Material Testing, Quality Control
and Geotechnical Engineering
R 09/19

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

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

CONTRACT FOR PROFESSIONAL SERVICE: Indefinite - Scope/Indefinite - Delivery (ISID)
Billing Rate – Not to Exceed

THIS CONTRACT, authorized this 6th of September in the year two-thousand and nineteen (2019), 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, hereinafter called the Department, and

Testing Engineers & Consultants, Inc.
1343 Rochester Rd.
Troy, MI 48083

the Testing Professional Service**s** Contractor, hereinafter called the Professional,

WHEREAS, the Department proposes securing professional services FOR THE FOLLOWING PROJECT:

Indefinite-Scope, Indefinite-Delivery Contract No. 00857
Department of Technology, Management and Budget
State Facilities Administration, Design and Construction Division
Professional Materials Testing, Quality Control, and Geotechnical Engineering Indefinite-Scope, Indefinite Delivery Contract (ISID) for Minor Projects - Various State Departments and Facilities
Various Site Locations, Michigan

Provide Services, technical staff, and support personnel for ISID minor projects on an as-needed basis at various State/Client Agencies within various locations as defined by the State of Michigan. These various ISID minor projects may include projects where the construction costs are between fifteen-thousand dollars ($15,000) and five-hundred-thousand dollars ($500,000) for this Contract.

This Contract is for professional material testing, quality control and geotechnical services (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's services shall be performed in strict accordance with this Contract and be in compliance with the Department's approved and attached Appendix 1 – Project/Program Statement.

This Contract does not warrant or imply to the Professional entitlement to perform any specific percentage (%) amount of compensation, work or projects 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 three (3) year 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 for this Professional Materials Testing, Quality Control, and Geotechnical Engineering Services Contract your permanent assigned ISID Contract No., as noted on page 1 of this contract, must be provided on all Project correspondence and documents.

The Professional is not to provide any services or incur expenses until individual ISID Projects are assigned to this Contract. (See Article 2 – Compensation and the Project/Program Statement text of this Contract.)

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

I. The Professional shall provide services for the assigned Project during the construction Phase/Task sequence as provided in this Professional Services Contract (Contract) and to the extent authorized by the Department of Technology, Management and Budget (DTMB), State Facilities Administration (SFA), Design and Construction Division (DCD) [Department] and be solely responsible for such service. The services shall be performed in strict accordance with this Contract and be in compliance with the attached Appendix 1 - Project/Program.

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

IN WITNESS, WHEREOF, each of the parties has caused this 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:

Testing Engineers & Consultants, Inc.

Firm Name

Federal Identification (I.D.) Number

Carey J. Suhan Carey J. Suhan Sep 12 2019 9:17 AM

Signature

September 12, 2019

Date

Vice President

Title

FOR THE STATE OF MICHIGAN:

Director, Department of Technology, Management and Budget

September 17, 2019

Date

ARTICLE I: PROFESSIONAL SERVICE

The Professional shall provide all required professional services, technical staff and support personnel necessary to achieve the Project scope of work as described in the attached Appendix – Project/Program Statement in the best interest of the State within the Professional's not-to-exceed fee herein authorized by the State. Project services shall comprise, without exception, every construction quality control and material testing service discipline and expertise necessary to meet all the requirements as described in the attached Appendix - Project/Program Statement and be in accordance with the industries accepted standards of professional practice.

Construction quality control and material testing services shall be provided in the sequence required by the project and shall be rendered in accordance with the Project schedule and direction as provided by the Prime Professional Services Contractor, the Project Construction Contractor, Project Director, the Field Representative, and/or the State/Client Agency. The services of each Phase shall be conducted in accordance with the descriptions in this article except as may be otherwise prescribed by any appended specifications and/or the testing specifications of the Construction Contract for this Project, which are adopted as a separately bound part of this Contract. Written reports on construction Phase quality control and material testing services shall be provided to the Project Director, the Field Representative, the State/Client Agency, the Project Construction Contractor, and the Prime Professional Services Contractor on a daily basis or as directed by the Project Director. The Professional acknowledges that the Department is the first interpreter of the Professional's performance under this Contract.

The Professional acknowledges by signing this Contract, having a clear understanding of the requested Project scope of work and of the Services required by the Department, and further agrees the terms and conditions of this Contract provide adequate professional compensation for the Professional to provide the requested services. No increase in fee to the Professional will be allowed unless there is a material change made to the Project scope of work as described in the attached Appendix - Project/Program Statement and the change in scope is accepted and approved in writing, by the Project Director and the 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 Contract and a DTMB Form 402 - Contract Order, authorizing the Professional to begin services. Compensation for Department directed changes to the Project or modifications to the Project scope of work will be provided to the Professional by a Contract Modification and/or Contract Change Order. The preparation of Bulletins and Contract Change Orders resulting from increases 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, on an hourly direct payroll/billing rate basis in accordance with this article.

The Professional shall immediately inform the Department whenever it is indicated that the Professional's authorized Project not-to-exceed Budget cost may be exceeded. The Professional shall make recommendations to the Department for revisions to the Project to bring the Project cost back to the Professional's original authorized Budget amount. Any revision to the Project scope of work must be accepted and approved by the Department in writing.

No substitution of any "Key Principal Personnel/Employee" who is essential for the successful completion of the Project and identified in the Professional's attached Appendix – Project Organizational Chart will be allowed by the Professional for this Contract without the prior written consent from the Project Director. Before any "Key Principal Personnel/Employee" substitution takes place, the Professional shall submit a written request to the Project Director for personnel substitution and this substitution request shall include the following information: (1) A request in writing for a No Cost Contract Modification for this "Key Principal Personnel/Employee" substitution; (2) Detailed written justification for this "Key Principal Personnel/Employee" substitution; (3) The Professional's qualifications of any proposed "Key Principal Personnel/Employee" replacement; and (4) A written statement from the Professional firm assuring the Department that the Project scope of work will not be adversely affected by this "Key Principal Personnel/Employee" substitution change. This request by the Professional to modify their Contract must be accepted and approved in writing by the Project Director and the Department's, Professional Services Contract Modification form (DTMB-410).

The Department will designate an individual to serve as the Project Director for the Project who shall be fully acquainted with the attached Appendix 1 – Project/Program Statement and have the authority to render Project decisions and furnish information promptly. Except in connection with issues under the Article 12 - Contract Claims and Disputes text, the Project Director 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 services of this Contract.

During the construction phase of this Project, the Professional shall be required to obtain from the Project Director, the on-site Inspection record standard document form titled "DTMB-452, The Professional's Inspection Record" for all on-site Inspection visits to the Project site. This standard document form is part of the "DTMB-460, Project Procedures" documents package.

The Professional's Inspection Record standard document form shall be completed and signed by the Professional and compiled monthly with the original document sent to the Project Director and a copy sent to the Prime Professional Services Contractor, and the involved Project Construction Contractor. The on-site Inspection record standard document form shall be completed and accompany the Professional's monthly submitted payment request.

The "DTMB-460, Project Procedures" documents package shall be used by the Professional in the administration of this Contract and contains the following Department standard document forms: (1) DTMB-413, General Release – Visitors; (2) DTMB-426, Builder's Risk Claim; (3) DTMB-434, Certification of Off-Site Material Storage; (4) DTMB-437, Guarantee and Indebtedness Statement; (5) DTMB-440, Payment Request; (6) DTMB-441, Meeting Attendance Record; (7) DTMB-445, Certificate of Substantial Completion; (8) DTMB-452, Professional's Inspection Record; (9) DTMB-485, Bulletin Authorization No.; (10) Instructions for Schedule of Value; (11) DTMB-487, Material Stored on Project/Job Site; and (12) DTMB-489, Instructions to Construction Contractors for Preparation of Bulletin Cost Quotations for Contract Change Orders.

The services required for each Phase of this Contract shall be performed by the Professional and their Consultants in accordance with Task service descriptions in this article. The following construction Phase/Task descriptions intend to outline the Department's standard of care describing the Professional's responsibilities for providing the Services for this Contract, but do not limit or exclude any regular or normal services necessary to accomplish the Project scope of work and be in accordance with the best industries accepted standards of professional practice for: (1) Construction quality control and material testing services/office/laboratory requisites and (2) The American Society for Testing and Materials, ASTM E329 testing procedures, inspection and testing standards.

PRELIMINARY PLANNING - FOUNDATION ANALYSIS

PHASE 600 - CONSTRUCTION ADMINISTRATION - OFFICE/LABORATORY SERVICES

Task 600 ADMINISTRATIVE OFFICE/LABORATORY SERVICES: Determine whether the construction materials being used for the Phase 600, Construction Phase are in compliance with the Prime Professional Services Contractor's Contract Documents. Provide all administrative office, laboratory, and engineering services to analyze, evaluate, and report the results of all field operations, sampling, and testing. Conduct, prepare, and submit all tests and test result reports, and any associated correspondence. Provide copies to the Project Director, the Field Representative, the State/Client Agency, the Project Construction Contractor, and the Prime Professional Services Contractor. Distribute as the Department may direct. Transmittals of any test result data shall specifically point out any test results not meeting applicable construction quality control and material testing standards or the Prime Professional Services Contractor's Contract Documents.

Task 601 SOIL CONSOLIDATION/COMPACTION: Provide laboratory testing and engineering analysis for bearing capacity and consolidation of natural soils, densification of proposed soils to be used for controlled fill and backfill areas, as well as control of site drainage. Indicate whether the material being tested meets the Prime Professional Services Contractor's Contract Documents requirements.

a. Affirm bearing capacity and calculations.
b. Determine the standard and modified field moisture-density relationships (ASTM 698, ASTM DI557, ASTM D4253 and ASTM D4254) and on soils to be used for fill or backfill on the Project.
c. Determine Atterberg Limits (ASTM D43I8) of cohesive soils and Grain Size Analysis of (ASTM D422) granular soils as required by ASTM D423 (liquid limit), ASTM D434 (plastic limit), and ASTM DII40 (wash loss).

Task 602 CONCRETE: Provide laboratory testing and analysis of concrete.

a. Review ASTM C94 and ACI 2II concrete mix designs.
b. Conduct compression tests on cylinders (ASTM C39) as per the Prime Professional Services Contractor's Contract Documents specifications.
c. Perform sieve analysis (ASTM CI36), organic colormetric (AASHTO T2I), and soft particle determination on aggregates as required by ASTM C33 (aggregate evaluation) and ASTM D422 (aggregate gradation).

Task 603 STRUCTURAL STEEL: Provide shop testing of structural steel.

a. Verify welder certification (AWS D1.1).

b. Test high strength tension bolts (AISC).
c. Perform metallurgical analysis of questionable materials.
d. Verify weld procedures (AWS D1.1).

Task 604 BITUMINOUS PAVING: Provide laboratory testing, and analysis of bituminous paving.

a. Review Marshall Mix design (if prepared by others).
b. Test aggregate base course for compliance with the Prime Professional Services Contractor's Contract Documents (ASTM CI36, ASTM DI557 (Modified Proctor), ASTM D692 (coarse aggregate), ASTM DI073 (fine aggregate), and AASHTO T88 (gradation).
c. Conduct extraction of bituminous paving mixtures as required by ASTM D2I72 and ASTM CI36, ASTM D692 (coarse aggregate), ASTM DI073 (fine aggregate), AASHTO T88 (gradation), and AASHTO TI64 (extraction).
d. Determine penetration of liquid asphalt as required by ASTM D5) (original penetration) and ASTM (recovered penetration).
e. Record and report test results and observations.

Task 605 MASONRY: Provide laboratory testing and analysis of masonry.

a. Review material requirements for compliance with the Prime Professional Services Contractor's Contract Documents specifications for:

    1. Reinforcing Materials - size and type.
    2. Units - size and type.
    3. Masonry Sand - type and storage.
    4. Mortar, Cement, and Lime - types and storage.

b. Review the compressive strength mix designs for compliance with the Prime Professional Services Contractor's Contract Documents for:

    1. Mortar and Grout.
    2. Masonry Units.
    3. Prisms.

c. Review material certifications for compliance with the Prime Professional Services Contractor's Contract Documents for:

    1. Block/Concrete Masonry Units.
    2. Brick.
    3. Pavers.
    4. Sound Barriers.

d. Test each different clay masonry unit per ASTM C67.

e. Test each different concrete masonry unit for strength, absorption, and moisture content per ASTM C140.

f. Perform prism tests per ASTM E447, Method B, Mortar (ASTM 270), and Grout (ASTM C1019).

g. Record and report test results and observations.

Task 606 ROOFING: Provide laboratory testing and analysis of roofing system.

a. Attend preliminary roofing conference.
b. Collect roofing material certifications and compare to the Prime Professional Services Contractor's Contract Documents.
c. Review roofing installer's certification.
d. Attend pre-application roofing conference.

e. Record and report test results and observations.

PHASE 700 -CONSTRUCTION ADMINISTRATION - FIELD INSPECTION/TESTING

Task 700 FIELD INSPECTION/TESTING: Determine whether the construction materials being used for the Phase 700, Construction Phase are in compliance with the Prime Professional Services Contractor's Contract Documents. Provide all on-site field Inspections, sampling, testing and Inspections as required by the Project construction testing program/requirements to the Project Director, the Field Representative, the State/Client Agency, the Project Construction Contractor, the Prime Professional Services Contractor, and the Department on a daily basis or as directed by the Project Director. Monitor and coordinate on-site field time to efficiently coordinate with the Construction Contractor's operations. On-site field time to provide testing for operations whose planned duration will require overtime shall be reviewed with and approved by the Department. Notice shall be given immediately to the Construction Contractor and to the Project Director and the Field Representative, of any on-site field Inspection or test which fails to meet applicable construction quality control and material testing standards or the Prime Professional Services Contractor's Contract Documents.

Task 701 SOIL CONSOLIDATION COMPACTION: Provide on-site field testing and engineering analysis for bearing capacity and consolidation of natural soils, densification of proposed soils to be used for controlled fill and backfill areas, as well as control of site drainage.

a. Verify the Prime Professional Services Contractor's Contract Documents design allowable soil bearing capacity at foundation/footing locations.
b. Perform field density testing as required by ASTM Dl556 (sand cone), ASTM D2l67 (balloon), and ASTM D292 (nuclear density meter).
c. Record and report test results and on-site field Inspections.

Task 702 CONCRETE: Provide on-site field quality control and sampling of concrete as required by ASTM Cl72 (sampling fresh concrete), ASTM Cl43 (volumetric air content), ASTM C23l (pressure air content), ASTM C3l (making test cylinders), and ASTM Cl38 (unit weight and yield).

a. Test plastic concrete for unit weight/yield, slump, air content, and temperature.
b. Collect and verify delivery ticket data from each redi-mix concrete truck. Document the batch time, placement time, and the age of the concrete. Determine the concrete mix design used, and the actual batch weights used for each day of concrete placement, this will include the actual aggregate moisture contents and batch water used.
c. Fabricate three (3) cylinders for compressive strength (ASTM C31) for each one hundred (100) cubic yards or fraction of placement. Indicate the number of cylinders frequency of sampling and curing times to compressive strength testing.
d. Record and report test results and on-site field Inspections.

Task 703 STRUCTURAL STEEL: Provide shop and on-site field testing of structural steel as required by AWS Dl.l, AISC, ASTM A6 (fabrication shop), AISC for bolted connections for ASTM A325/A490, ASTM F959 (bolted connections), AWS Dl.l (field welding/subsection 7.8.l: stud welding), ASTM E605, E736L (fireproofing), SSPC (paint), and ASNT (nondestructive testing (NDT) requirements).

a. Inspect structural steel fabricator's facility and equipment.
b. Check structural steel mill certificates to verify that materials are in accordance with the Prime Professional Services Contractor's Contract Documents.
c. Verify welder certifications.
d. Inspect completed structural steel fabrications for conformity to the Prime Professional Services Contractor's Contract Documents.
e. Examine critical welds by appropriate nondestructive testing (NDT) methods such as Ultrasonic or Magnetic Particle.
f. Test bolted connections for proper bolt tension.
g. Test shear studs (AWS D1.1).
h. Inspect metal deck for fastening and welding.
i. Record and report test results and on-site field Inspections.

Task 704 BITUMINOUS PAVING: Provide on-site field Inspection and testing of bituminous paving.

a. Inspect proof-rolling of subgrade.
b. Perform density tests (ASTM D2922 or ASTM D2l67) on subgrade and aggregate base course.
c. Verify thickness of aggregate base.
d. Inspect bituminous concrete paving placement as required by ASTM D2950 (nuclear density), and MDOT - Michigan Modified Marshall Test.
e. Sample bituminous mixture for laboratory tests (ASTM D979).
f. Determine density (ASTM D2950), asphalt content (ASTM 4l25), and degree of compaction of pavement as required by ASTM D2950 (nuclear density), and MDOT - Michigan Modified Marshal Test.
g. Determine thickness of bituminous paving (ASTM D3549).
h. Record and report test results and on-site field Inspections.

Task 705 MASONRY: Provide on-site field Inspection, testing, and engineering analysis of masonry work.

a. Inspect masonry materials as delivered to the Project site.
b. Review mixing and proportioning techniques of mortar and grout.
c. Collect sand, mortar, and grout samples for property requirements test of ASTM C144.
d. Collect mortar samples for property requirements of ASTM C270.

e. Inspect and evaluate masonry walls for masonry quality assurance labor procedures and for placement of:
    1. Head and bedding joints.
    2. Vertical and horizontal reinforcing.
    3. Wall tie spacing.
    4. Headers, lintels and other trade embeds, including bearing areas.
    5. Flashing, weeps, and vents at all areas detailed in the Prime Professional Services Contractor's Contract Documents drawings.
    6. Grout placement including clean-outs and consolidation of lifts.
f. Evaluate quality assurance labor procedures and details that are specific to the Project scope of work.
g. Evaluate and report on overall housekeeping of the Project site.
h. Record and report test results and on-site field Inspections.

Task 706 ROOFING: Provide on-site field Inspection and material review of building elements to be used for the Project roofing system.

a. Visually Inspect roof areas for complete removal of unsatisfactory roofing materials.
b. Verify the roofing materials are in compliance with the Prime Professional Services Contractor's Contract Documents.
c. Inspect roofing system installation and applications.
d. Record and report result of on-site field Inspections.

ARTICLE II: COMPENSATION

In consideration of the performance of this Contract, the Department agrees to pay the Professional, as compensation for services, a fixed unit price per the attached Fee Schedule and/or 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 modification 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 a fixed unit price, per the attached Fee Schedule, and/or an hourly billing rate basis for services rendered by salaried and non-salaried professional, technical and non-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 prior to the issuance of a written and signed Professional Services Contract and a DTMB Form 402 - Contract Order by the Department to the Professional, authorizing the Professional to start the Project work.

The preparation of Bulletins and Contract Change Orders resulting from increases 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, 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.

The Professional shall provide, at no additional compensation, professional services necessary to respond to and resolve all Construction Contractor design related claims arising wholly or in part from the Professional's errors or omissions or other aspects of the Project's design or the Professional's performance which are inconsistent with the Professional or Construction Contract.

Reproduction costs for the Professional's interpretations, study/design clarifications, and Bulletins necessary to achieve the Contract scope of work final design requirements is not allowable for reimbursement and shall be accounted as part of the Professional's lump sum fee of this Contract.

2.1 PREMIUM TIME/OVERTIME: This Contract anticipates that no premium or overtime is required to achieve this 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.

2.2 EMPLOYEE HOURLY BILLING RATES: Hourly billing rates will include all direct and indirect 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. The Professional may not provide different hourly billing rates for the same individual for different Phases.

No lump-sum subcontracts for the professional services of any employee may be billed against this Contract. Any employee associated with this Project who performs the 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 during the life of this Contract 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, computer costs/operating costs and time, telephone, telephone-related services, and all reproduction services (except Contract Bidding Documents).

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 shall be accounted as part of the Professional's calculated hourly billing rate. 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 overhead employees. 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, or 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 Consultant's staff. Each Consultant firm must submit a separate hourly billing rate with proper documentation for the Consultant services they will provide as part of the Proposal. The hourly billing rate of the respective Consultant firm shall be used for that Consultant firm's personnel only. The Professional may propose a moderate mark-up to their Consultant firm's charges. The Professional's Consultant services shall be billed as an authorized reimbursable expense item at a direct cost times the Firm's mark-up percentage accepted by the Department.

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 times the firm's mark-up percentage amount approved by the Department. Reimbursement of authorized expense items at direct cost times the firm's mark-up percentage amount is intended only as a means to compensate the Professional for their direct costs. The Professional shall be responsible for the selection of the supplier of their professional services or materials, the coordination, adequacy and application of their professional services, whether provided by the Professional's staff or provided by their Consultant, and therefore responsible for any Project costs that exceed the Contract per Phase reimbursement Budget.

2.5 UNIT PRICE ITEMS: Unit price items shall be based on the attached Fee Schedule. No mark-up of unit pricing shall be allowed. Compensation for unit prices shall not exceed the amounts per Project Phase shown in the attached Contract Order unless authorized by a Department approved Contract Modification.

Project related mileage 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 amounts per Project Phase shown in the attached Contract Order unless authorized by a Department approved Contract Modification. It shall be the Professional's responsibility to carefully monitor their and their Consultant firms Project costs, activities, and progress and to give the Project Director timely notification of any justifiable need to increase the authorized fee. The Professional may not proceed with professional services that have not been authorized by the Project Director and shall immediately notify the Project Director if such services have been requested or have become necessary.

Identification of Professional and Consultant staff, hourly billable rates, and an itemized list per Project Phase of authorized direct cost reimbursement items are identified in the attached Professional's proposal.

ARTICLE III: PAYMENTS

Payment of the professional services fee 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 on a payment request form (DTMB-0440). Payment for each monthly 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 payment request applications shall include similar information. This includes, but is not limited to:

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

ARTICLE IV: ACCOUNTING

The Professional shall keep current and accurate records of Project costs and expenses, of hourly billing rates, authorized reimbursable expense items, and all other Project related accounting document 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 three (3) 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 this Section, "State" includes its departments, divisions, agencies, offices, commissions, officers, employees, and agents.

(a) The Professional 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 Professional's or a Subcontractor's performance, including any person directly or indirectly employed by the Professional or a Subcontractor, or any person for whose acts the Professional or a Subcontractor may be liable.

(b) The Professional waives all rights against the State for the recovery of damages that are covered by the insurance policies the Professional is required to maintain under this Section. The Professional'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 Professional's policy contains higher limits, the State is entitled to coverage to the extent of the higher limits.

(g) The Professional 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 Professional 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 Professional to any indemnified party or other persons.

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

(j) If the Professional 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 Professional 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 Professional or require the Professional 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.

(l) If single policy limits are used to fill more than one of these requirements evidence of separate aggregate limits must be noted on the certificate.

5.1 Workers' Compensation and Employer's Liability Insurance

The Professional must provide Workers' Compensation coverage according to applicable laws governing work activities in the state of the Professional's domicile. If the applicable coverage is provided by a self-insurer, the Professional must provide proof of an approved self-insured authority by the jurisdiction of domicile.

For employees working outside of the state of the Professional's domicile, the Professional must provide certificates of insurance proving mandated coverage levels for the jurisdictions where the employees' activities occur.

5.2 Motor Vehicle Insurance

If a motor vehicle is used in relation to the Professional's performance, the Professional must have vehicle liability insurance on the motor vehicle for bodily injury and property damage as required by law.

5.3 Commercial General Liability Insurance

For claims for damages because of bodily injury or death of any person, other than the Professional's employees, or damage to tangible property of others, including loss of use resulting therefrom, to the extent that such kinds of liability are not insured by other specific liability insurance and are ordinarily insurable under general liability insurance. The Professional must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the Commercial General Liability certificate. The Professional also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

5.4 Professional Liability Insurance (Errors and Omissions)

Contractual Liability Insurance for claims for damages that may arise from the Professional's assumption of liability on behalf of the State under Article 6 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 Project File No.; (2) The Project Title; (3) Description of the Project; and (4) The State of Michigan must be named as an "Additional Insured on the General Liability and Automobile Insurance Policies."**

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.

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.

Commercial General Liability Insurance	
Required Limits	**Additional Requirements**
Minimal 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 Deductible Maximum: $50,000 Each Occurrence	Contractor 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 2010 07 04 and CG 2037 07 0.
Automobile Liability Insurance	
Required Limits	**Additional Requirements**
Minimal Limits: $1,000,000 Per Occurrence	Contractor 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	
Required Limits	**Additional Requirements**
Minimal Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
Required Limits	**Additional Requirements**
Minimal Limits: $500,000 Each Accident $500,000 Each Employee by Disease $500,000 Aggregate Disease.	
Professional Liability (Errors & Omissions) Insurance	
Required Limits	**Additional Requirements**
Minimal Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate Deductible Maximum: $50,000 Per Loss	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. This insurance is required of all Professional firms who conduct professional environmental services including, but not limited to, any of the Phase 100 – Study services: *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.*

Environmental and Pollution (Errors & Omissions) Insurance	
Required Limits	**Additional Requirements**
Minimal Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate	Contractor 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 remedial system design, remediation management, feasibility development and implementation, hydrogeological evaluation, media testing and analysis, subsurface and geophysical investigation, and other related activities as determined by the Department; and (3) endorsed to add "the State of Michigan, its departments, division, agencies, offices, commissions, officers, employees, and agents" as additional insured.

Additional Insurance Requirements:

Contractor must maintain the insurances identified above and is responsible for all deductibles. All required insurance must: (a) protect the State from claims that may arise out of, are alleged to arise out of, or result from Contractor's or a subcontractor's performance; (b) be primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State; and (c) be provided by a company with an A.M. Best rating of "A" or better, and a financial size of VII or better.

If any of the required policies provide **claims-made** coverage, the Contractor must: (a) provide coverage with a retroactive date before the effective date of the contract or the beginning of Contract Activities; (b) maintain coverage and provide evidence of coverage for at least three (3) years after completion of the Contract Activities; and (c) if coverage is canceled or not renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective date, Contractor must purchase extended reporting coverage for a minimum of three (3) years after completion of work.

Contractor must: (a) provide insurance certificates to the Contract Administrator, containing (1) The Project File No.; (2) The Project Title; and (3) Description of the Project, at Contract formation and within 20 calendar days of the expiration date of the applicable policies; (b) require that subcontractors maintain the required insurances contained in this Section; (c) notify the Contract Administrator within 5 business days if any insurance is cancelled; and (d) waive all rights against the State for damages covered by insurance. Failure to maintain the required insurance does not limit this waiver.

This Section is not intended to and is not 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 Contractor to indemnify, defend and hold harmless the State).

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's services under this Contract, whether such service is performed by the Professional or performed by any of the Professional'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 day 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.

(l) If single policy limits are used to fill more than one of these requirements evidence of separate aggregate limits must be noted on the certificate.

5.1 Workers' Compensation Insurance

The Contractor must provide Workers' Compensation coverage according to applicable laws governing work activities in the state of the Contractor's domicile. If the applicable coverage is provided by a self-insurer, the Contractor must provide proof of an approved self-insured authority by the jurisdiction of domicile.
For employees working outside of the state of the Contractor's domicile, the Contractor must provide certificates of insurance proving mandated coverage levels for the jurisdictions where the employees' activities occur.

5.2 Employers Liability Insurance

Minimal Limits:

$500,000 Each Accident;
$500,000 Each Employee by Disease
$500,000 Aggregate Disease

5.3 Motor Vehicle Insurance

If a motor vehicle is used in relation to the Contractor's performance, the Contractor must have vehicle liability insurance on the motor vehicle for bodily injury and property damage as required by law.

5.4 Commercial General Liability Insurance

For claims for damages because of bodily injury or death of any person, other than the Professional's employees, or damage to tangible property of others, including loss of use resulting therefrom, to the extent that such kinds of liability are not insured by other specific liability insurance and are ordinarily insurable under general liability insurance. The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as additional insureds on the Commercial General Liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

Minimal 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

5.5 Professional Liability Insurance (Errors and Omissions)

For claims for damages arising out of an error, omission or negligent act in the performance of professional services.

Minimal Limits:

$1,000,000 Each Occurrence
$2,000,000 Annual Aggregate

The Professional'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,$2,000,000 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.

Contractual Liability Insurance for claims for damages that may arise from the Professional's assumption of liability on behalf of the State under Article 6 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 Project File No.; (2) The Project Title; (3) Description of the Project; and (4) The State of Michigan must be named as an "Additional Insured on the General Liability AND Automobile Insurance Policies."** 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.

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, but not limited to, Bidding Documents and Contract Documents, test/laboratory data, including all electronic data. If the Professional is in default or this Contract Agreement is terminated, the State shall not use the 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 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 documents and deliverables and the right to reuse component information contained in them in the normal course of the Professional's 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 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 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-9: 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 LAW

This Contract shall be construed in accordance with the laws of the State of Michigan.

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 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 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 Director within thirty (30) consecutive calendar days of the end of the disputed negotiations, and any decision of the Director 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 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 Articles 1 through 14 and attached appendices. The capitalized defined terms used in this 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 modifies or interprets the Project final design Contract 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 scope of work; and (5) Specify the date of Addenda issuance. As such, the Addenda are intended to become part of the Project final design Contract Bidding Documents when the Construction Contract is executed by the Prime Professional Services Contractor'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.

BID: A written offer by a competitive construction Bidder for the Department's Project construction work, as specified, which designates the competitive 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 Prime Professional Services Contractor's Project Contract Documents, drawings, and specifications as advertised, including but not limited to, special, general, and supplemental conditions, Departmental form modifications, and all Addenda issued before the competitive construction Bid opening, and after the competitive construction Bid opening, if the Project construction work is rebid without re-advertising.

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 scope of work for this Contract.

BULLETIN: A standard document form (DTMB-485, Bulletin Authorization No. and the DTMB-489, Instructions to Construction Contractors for Preparation of Bulletin Cost Quotations for Contract Change Orders) used by the Department to describe a sequence numbered change in the Project scope of work 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-460, 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.

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 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 Professional as may be provided elsewhere in this Contract.

CONTRACT CHANGE ORDER: A written order standard document form (DTMB-403) issued and signed by the State of Michigan and signed by the Professional which amends the attached Appendix 1 – Project/Program Statement scope of work or an adjustment in Contract price and/or Contract time, or both.

CONTRACT DOCUMENTS: The Prime Professional Services Contractor plans/drawings, specifications, proposal, agreement, all Addendums and attachments as may be necessary to comprise a Construction Contract for the Project scope of work for providing professional construction quality control and material testing/engineering services during the Project construction work.

CONTRACT MODIFICATION: A written amendment, standard document form (DTMB-410), to the Contract scope of work signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the attached Appendix 1 – 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 2, Compensation text of this Contract. Any Contract Modification of this 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 construction quality control and material testing/engineering design errors, omissions, or neglect on the part of the Professional.

CONTRACT ORDER: A written order standard document form (DTMB-402) issued and signed by the State of Michigan authorizing a professional firm to: (1) Begin to incur Project expenses and proceed with the Project; and (2) Provide the services stipulated in the fully executed Contract for the not-to-exceed dollar fee amount designated in the Phases of the Contract Order. Issuance of this standard document form by the State of Michigan to the Professional certifies that: (1) The State will enter into a Contract for the services described in the Phases of this Contract; and that (2) The proper two (2) sets of Certificate of Insurance documents have been received and accepted by the State along with the approval and signing of the Professional's Contract by the Director.

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

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

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

FIELD REPRESENTATIVE: An employee of the State under the direction of the Project Director who provides the Inspection of construction Projects for compliance with the design intent of the Prime Professional Services Contractor's Contract Documents, drawings, and specification and the building construction codes. The Field Representative is the liaison between the Construction Contractor, the Prime Professional Services Contractor, the Professional, and the Project Director. The Project Director, or their Field Representative, has the authority to require the Prime Professional Services Contractor and the Professional to respond to and resolve design related problems, construction field problems, and to attend Project meetings. Unless delegated by specific written notice from the Department, the 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 Consultants on-site and/or off-site examination of the Project construction work completed or in progress by the involved Project Construction Contractor to determine and verify to the Department's Project Director that the quantity and quality of all Project work is in accordance with the design intent of the Prime Professional Services Contractor's Contract Documents, drawings, and specifications.

KEY PRINCIPAL PERSONNEL/EMPLOYEE: A Chief Executive Officer of a professional firm who is essential for the successful completion of the Project.

PHASE: A discretely distinguishable construction Phase step necessary to provide the Project scope of work in the course of the Professional's providing services.

PRIME PROFESSIONAL SERVICES CONTRACTOR: 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, land surveying, or landscape architecture services in the State of Michigan.

The Prime Professional Services Contractor, under separate contract with the Department, is responsible for the Project Design, Contract Documents, development of the Project construction phase, and required to define and specify the types of on-site tests required and approximate quantities to be tested during the Project and the projected costs thereof.

The Prime Professional Services Contractor/Professional firm 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 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, architectural and/or engineering plan(s)/drawing(s) design code compliance and plan review approval fees and all other costs associated with the scope of work.

PROJECT TESTING PROFESSIONAL/PROFESSIONAL: The Professional firm who is under a separate Contract with the Department and is responsible for the Project construction Phase quality control and material testing services program. The construction Phase quality control and material testing services shall include, but not be limited to, office/laboratory and field testing services, determine and verify whether or not the construction materials being used for the Project construction Phase is in accordance with the design intent of the Prime Professional Services Contractor's Contract Documents, drawings, and specifications, and be in compliance with the requirements of this Contract and the attached Appendix 1 – Project/Program Statement. The Professional is required by the Department to define and specify the types of on-site tests required and approximate quantities to be tested during the Project construction Phase and the projected costs thereof. Notice shall be given immediately by the Professional, to the following Project personnel: (1) the Prime Professional Services Contractor; (2) the involved Construction Contractor; (3) the Project Director; and (4) the Field Representative of any on-site field Inspection or test which fails to meet the applicable Project construction quality control and material testing standards or the Prime Professional Services Contractor's Contract Documents, drawings, and specifications.

PROJECT DIRECTOR: The professionally licensed Architect/Engineer, State of Michigan employee, who is responsible for directing and supervising the Services during the life of this Contract. The Project Director is responsible for monitoring and coordinating the performance of the construction Phase services and also responsible for the overall administration and Inspection of Capital Outlay and miscellaneous operating projects (MOP's) construction activities to ensure quality control, final design Contract Documents compliance, and timely Project completion within the established Project construction Budget. The Project Director, or their Field Representative, has the authority to require the Professional and the Consultant firm to respond to and resolve design related problems, construction field problems, and to attend Project related meetings.

PROJECT/PROGRAM STATEMENT: The attached Appendix 1 – Project/Program Statement prepared by the State/Client Agency that defines the scope of the problem and describes why this Project is desirable and provides a preferred resolution of the problem. The Project/Program Statement also requires the Professional to coordinate their services with the involved Project Construction Contractor's construction schedule identifying critical milestone services that shall be required and achieved for the Project.

PROJECT TEAM: Consisting of the Professional, Project Director, Field Representative, Prime Professional Services Contractor, Construction Contractor, representative of the State/Client Agency, and others as considered appropriate by the Department.

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 services. The term State/Client Agency does not include an institution of higher education or a community college.
TASK: Shall mean the following: (1) A quantifiable component of construction related professional construction quality control and material testing engineering Task services required to achieve a construction Phase of the Project; (2) The most manageable sub-element within a construction Phase; (3) A unique item of work within a construction Phase for which primary responsibility can be assigned; and (4) Has a time related duration and a cost that can be estimated within a construction Phase.

DEFINITION OF CONSTRUCTION TESTING REFERENCES: Will be made in capitalized abbreviated alpha numeric form to specific construction Inspection and testing agencies and/or associations for soil consolidation compaction, concrete, structural steel, bituminous paving, masonry, and roofing materials as used in construction (specifications, testing methods, practices, classifications, and definitions). Such construction testing references will be identified by the capitalized alphabetic abbreviation which identifies the specific State agency or national association followed by the numeric construction Inspection and/or testing method and shall be the latest issued date construction Inspection and/or testing method standard(s) in effect at the award of this Contract. The Construction Inspection and/or testing abbreviations used for this Construction Contract are as follows:

Abbreviation	State Agency or National Association
AASHTO	American Association of State Highways and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ASNT	American Society for Nondestructive Testing, Inc.
ASTM	American Society for Testing and Materials
AWS	American Welding Society
MDOT	Michigan Department of Transportation
SSPC	Steel Structures Painting Council

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.

ARTICLE XIV COMPLETE AGREEMENT: MODIFICATION

This Contract constitutes the entire agreement, as to the Project, between the parties. Any Contract Modification of this Contract and the Project/Program Statement 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's errors, omissions or neglect on the part of the Professional.

APPENDIX I

PROJECT/PROGRAM STATEMENT

DTMB-0427 (R 4/19)

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	ACCOUNTING TEMPLATE	PROPOSAL DUE DATE
VARIOUS	VARIOUS	Thursday, August 15, 2019 at 2:00 p.m., local time

CLIENT AGENCY
Department of Technology, Management and Budget

PROJECT NAME AND LOCATION
VARIOUS

PROJECT ADDRESS (if applicable)
VARIOUS

CLIENT AGENCY CONTACT	TELEPHONE NUMBER

DTMB - DCD PROJECT DIRECTOR	TELEPHONE NUMBER
Tim Hall	517.881.4173

WALK-THROUGH INSPECTION DATE, TIME, AND LOCATION:

None

PROJECT DESCRIPTION/SERVICES REQUESTED

Provide professional materials testing, quality control and geotechnical Indefinite Scope Indefinite Delivery (ISID) services for a variety of stated funded construction projects. The professional is required to submit four (4) hard copy and two (2) electronic format copies of the technical and cost proposal. The professional must use the attached appropriate forms to indicate the billing rates.

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 also be uploaded to SIGMA VSS. Please enter the total cost for all phases as bid amount.
- Please remember that individual attachments can be no larger than 6mb.
- If you experience issues or have questions regarding your electronic submission, you must contact the SIGMA Help Desk for assistance. They can be reached by telephone at 888.734.9749 or by email at sigma-procurement-helpdesk@michigan.gov or sigma-vendor@michigan.gov
- Vendors are reminded to keep our office apprised of SIGMA VSS issues and to include your SIGMA ticket number when communicating with our office. Emailed submissions will need prior 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.

NIGP CODES
90783; 91216; and 91275

DESIRED SCHEDULE OF WORK
Dependent on the assigned project

ACCEPTING RFP QUESTIONS UNTIL: Thursday, August 1, 2019 at 12:00 p.m., local time

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 (DCH, DEQ, 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)
Attachment(s)

APPENDIX II

PROFESSIONAL'S PROPOSAL
(See Back Cover)

Part I -Technical Proposal

To Provide:

Materials Testing, Construction Quality Control, And Geotechnical Engineering Services

For

ISID 2019 Contract #DMB-430 ISID PSC-AE
Various Locations, Michigan

Submitted to:

State of Michigan
Department of Technology, Management and Budget
Facilities and Business Services Administration,
Design and Construction Division

Submitted by:

Testing Engineers & Consultants, Inc.

TEC Proposal #010-19-270
Submitted: August 15, 2019

"Engineering Client Success"

Testing Engineers & Consultants, Inc.
1343 Rochester Road • PO Box 249 • Troy, Michigan 48099-0249
(248) 588-6200 or (313) T-E-S-T-I-N-G • Fax (248) 588-6232
www.testingengineers.com

Engineering Client Success

August 15, 2019 TEC Proposal #010-19-270

Ms. Anne Watros
State of Michigan
Department of Technology, Management and Budget (DTMB)
State Facilities Administration
Design and Construction Division
General Office Building, 3B
3111 West St. Joseph Street
Lansing, Michigan 48917

Re: Part I - Technical Proposal for Materials Testing, Construction Quality Control, and Geotechnical Engineering Services for ISID 2019 Contract

Dear Ms. Watros:

Testing Engineers & Consultants, Inc. (TEC), a Women Business Enterprise (WBE), is pleased to present the following technical proposal to provide the above referenced services. TEC brings an experienced and comprehensive ensemble of professionals to DTMB as outlined in the enclosed documentation. TEC will effectively implement all necessary tasks associated with DTMB projects as outlined in the Request for Proposal (RFP). TEC agrees with the general conditions of the RFP and commits to providing the State with the services detailed in the RFP. *We are in receipt of Addenda #1 dated July 17th.*

TEC's key philosophies are:

- Bring benefit to the DTMB by performing professional services through effective and continual project communication, coordination, and cooperation.
- Maintain a common direction of service through a clear and consistent understanding of the department's policies, goals, and objectives.
- Work closely with DTMB personnel to maintain a balance between time and cost efficiencies while ensuring public safety and regulatory compliance.

The designated Project Director and Client Liaison is Mr. Carey J. Suhan, PE. Mr. Suhan is Vice President and Principal and has 34 years of professional experience. He will act as the primary contact and liaison with the State and will assume the overall program management responsibilities of the DTMB projects. Mr. Suhan will ensure strict adherence to approved budgets and schedules, and will make sure the appropriate and necessary personnel/resources from TEC are available as needed. He can be reached as follows:

Testing Engineers & Consultants, Inc.

Ms. Anne Watros
State of Michigan – DTMB
August 15, 2019

Carey J. Suhan, PE
Vice President & Principal
Testing Engineers & Consultants, Inc.
1343 Rochester Road
Troy, Michigan 48083

Tel: 248.588.6200
Fax: 248.585.9519
Cell: 248.361.0764
csuhan@tectest.com

Thank you for the opportunity to present our proposal for your review and consideration. We look forward to presenting our capabilities to you in person at your convenience. Should you have any questions or require further information, please do not hesitate to call us at (248) 588-6200.

Thank you for your consideration.

Respectfully submitted,
TESTING ENGINEERS & CONSULTANTS, INC.

Ruben E. Ramos, PE
Vice President & Principal
Engineering & Construction Services

Carey J. Suhan, PE
Vice President & Principal
Geotechnical and Environmental Services

Enclosure

PART 1 – TECHNICAL
TABLE OF CONTENTS

FEES ARE ENCLOSED UNDER SEPARATE COVER

SECTION I

UNDERSTANDING OF PROJECT AND TASKS

- Municipal Infrastructure Project List

SECTION 1
UNDERSTANDING OF PROJECT AND TASKS

Introduction

In response to your request, we at Testing Engineers & Consultants, Inc. (TEC), a WBENC Certified Woman-owned Firm (WBE), are pleased to submit our Qualifications to provide Professional Geotechnical Engineering & Material Testing / Engineering services on facilities, pavements and other DTMB projects throughout the State of Michigan. As a *Michigan Corporation*, we have a stake in maintaining safe publicly owned facilities in our Community.

Understanding of Services

TEC understands that the State of Michigan (State) is soliciting Qualifications to perform Professional Geotechnical & Material Testing / Engineering services on various State-owned minor projects over the next several years.

We have prepared the enclosed Qualifications with the understanding that multiple Consultants may be selected to perform the necessary services and after review of the submittals, the top rated firms may be asked to interview and present their credentials. Once selected, the Consultant will be assigned projects based on their specific expertise and availability and familiarity. A cost proposal based on the approved unit rates will be prepared at that time and if found reasonable, a contract will be issued by the State.

TEC will furnish all necessary staff and equipment to the satisfaction of the State to perform the necessary geotechnical and materials testing services. Work will be performed in accordance with applicable federal, state and local professional standards.

TEC will comply with applicable standard construction practices of the State; such as the project construction contract, proposal, and plans; the Standard Specifications for Construction, MDOT Uniform Field Soil Classification System Guide document and applicable publications referenced within; such as the Michigan Construction Manual, the Materials Source Guide; the Materials Quality Assurance Procedures Manual; AASHTO LRFD Bridge Design Specifications, applicable Special Provisions; FHWA procedures and other references guidelines, and procedures manuals needed to carry out the work described herein in an appropriate manner.

Inspection and testing of soils, concrete and bituminous, will be in conformance with the MDOT materials sampling guide, the Michigan Construction Manual, the specifications, plans and the individual project proposal. A TEC certified technician will determine the compliance of the work performed and immediately report any non-compliance or trend toward non-compliance to supervisory TEC staff and the State representative.

Credentials

TEC has been providing geotechnical and construction material testing services on all facets of road, building, and infrastructure projects throughout Michigan and the surrounding states for the past 53 years. As evidenced by the information included herein, TEC has extensive relevant experience providing these types of services to State Agencies, County II-Agencies such as

SECTION 1
UNDERSTANDING OF PROJECT AND TASKS

Washtenaw County, Macomb County and Road Commission for Oakland County, Oakland County Parks, Universities, Health Care Systems and Municipalities throughout the State of Michigan

Furthermore, TEC has provided Geotechnical and Construction Materials Testing services to MDOT and as part of the MDOT design teams for 20+ years. TEC's engineers and technicians have a thorough knowledge of appropriate County and MDOT standards and procedures as well as ASTM, AASHTO, FHWA and others.

TEC has provided pavement core sampling, subsurface exploration, sampling, laboratory analysis and engineering services for countless roads, bridges, utilities, embankments, retaining walls and other structures. We currently hold, and have had as-needed contracts with numerous governmental entities, providing us extensive experience with road and utility projects. Through this experience, we are extremely proficient at coordinating permits, traffic control, scheduling, and other related tasks. As an example, we have had as-needed contracts with the Cities of Troy and Sterling Heights for more than 30 years and consequently have provided Geotechnical and Materials Testing services on nearly every road project within these cities during that time. We also maintain as-needed blanket geotechnical engineering and construction materials testing contract with the Cities of Rochester Hills, Novi and Farmington Hills. TEC has also maintained blanket contracts with State of Michigan for Asbestos Investigation and Environmental Investigations and *currently holds this DTMB minor projects contract*. Our DTMB experience is both direct to the department and as a sub-consultant to a design consultant.

Equipment

To ensure quality sampling and field results and to minimize start times and coordination of outside resources, TEC will utilize *its own fleet of drill rigs* for this contract. *A more detailed description of the field and laboratory testing capabilities is included in the questionnaire portion of this submittal.*

Truck and ATV-mounted rigs are generally capable of drilling to depths of approximately 100 feet with up to 6 ¼" I.D. hollow-stem augers and deeper with smaller augers and 300+ feet with wash boring methods. Up to four-inch diameter, wells can be installed to these depths and six-inch wells can be installed to a depth of 30 feet. TEC also maintains in-house direct push capabilities typically used for environmental sampling.

Trailer-mounted and portable drill rigs are capable of drilling to depths of approximately 25 to 30 feet with solid-stem augers. All rigs are capable of SPT, Shelby Tube and Piston sampling.

As evidenced in the enclosed documentation, TEC owns a full complement of additional sampling and evaluation tools such as coring machines, hand augers, portable tripod and cat-head sampling system, dynamic cone and static cone Penetrometer, vane shear, ground penetrating radar, seismographs for vibration monitoring and slope inclinometer equipment. Our engineering and technical staff is experienced in many other evaluation techniques such as

pressure-meter testing, dilatometer testing, cross-hole testing and other non-destructive testing methods. Should an unexpected environmental condition be discovered during any construction project, TEC staff can call upon our own civil and environmental engineers, professional geologists and MDEQ certified underground storage tank professionals "as needed" to evaluate the conditions , make recommendations and that can be paramount in helping to keep your project on schedule.

Laboratory Testing

Geotechnical Laboratory

TEC's lab is accredited by AASHTO (through AMRL / CCRL) and has been deemed competent by the Army Corp of Engineers to conduct materials testing services. TEC's experienced engineering technicians and engineers will perform the required laboratory testing such as gradation analysis, permeability testing, unconfined compressive strength testing, consolidation testing, Atterberg Limits testing and other tests deemed appropriate by RCOC project staff. Furthermore, TEC has capabilities to perform nearly any other geotechnical laboratory test in accordance with all ASTM, MDOT, AASHTO, FAA, and Michigan DOT MTM guidelines. *All results will be reviewed for accuracy by Mr. Carey Suhan, PE – Principal Engineer.*

Construction Materials Laboratory

TEC will sample and test fresh concrete, perform air, slump, unit weight tests as well as record temperature of the concrete. Sets of cylinders will be molded at the site for curing on site and will be picked up by TEC for final curing in the TEC laboratory. Compressive strength tests will be performed at the specified intervals and reports will be issued promptly.

Bituminous testing is conducted on site and includes monitoring of laydown and compaction operations and determination of in-place density using a nuclear density gauge. Off-site testing at the production plant or TEC's laboratory could include but not be limited to gradations of raw aggregate, volumetric properties of the bituminous mixture and asphalt content on the mixture.

Engineered fill and aggregate base material is sampled and tested in TEC's AASHTO accredited laboratory. Sampling can be done at the site or off site at the production facility. Density verification on the soil or aggregate will be accomplished using a T-99 or Modified T-180 as detailed in MDOT's Density Control Handbook.

TEC is available to collect material certification tickets and make sure that acceptable test reports or material certifications have been received before materials are incorporated into the project *All results will be reviewed for accuracy by Mr. William J. West, PE – Construction Services & Laboratory Manager under the Supervision of Ruben E. Ramos, PE – Principal Engineer.*

Safety

TEC views safety to be of utmost importance and will take all practical steps to safeguard employees and the public from accidents and to maintain at all times a safe work environment for project staff and the public. To ensure that all field staff are working in accordance with

applicable safety procedures, TEC is enrolled in the MUST safety program, which provides safety training and provides substance abuse testing and we continually monitor the results.

TEC's geotechnical and construction services field staff attend regularly scheduled safety meetings and are trained in all of the MUST Program safety modules. To that end, TEC staff will wear the appropriate personal protective equipment (PPE) and comply with MIOSHA regulations and safety policies while working on any State of Michigan project.

Safety during work zone traffic control requires a comprehensive approach to protect the general public and project personnel during construction activities. TEC will ensure that MMUTCD guidelines are followed during any work zone traffic control required under this contract. A traffic control plan outlining the use of Advance Warning Signs, Channelizing Devices and Traffic Regulators as required will be prepared prior to the execution of each project. TEC's designated Safety Officer is Mr. William J. West, PE and he can be reached at 248-588-6200, ext. 128, cell #248-825-7442, and/or wjwest@tectest.com.

TEC has had a quality improvement process (QIP) in place for 25+ years and our QA/QC Plan has been approved by MDOT. Our firm is committed to quality and we are confident and committed to providing the DTMB with efficient, cost-effective and quality services.

Communication

In order for the Team to efficiently operate on and off-site, a Communications Plan will be established with input from the State, to respond to any issues that may arise during a project. The Team is equipped with cellular telephones and will communicate directly with TEC's Project Manager or Project Engineer, should any conditions arise that need immediate attention and direction as part of TEC's QA/QC procedures and the Commission's policies. The project manager will communicate with RCOC to resolve any issues and determine a course of action to minimize delay and additional cost.

A detailed organization chart and Professional Resumes are enclosed in *Section 2 – Personnel* of this submittal.

QA/QC

A quality system manual (QSM) has been developed for the geotechnical and materials laboratory that covers employee training, equipment calibration and recalibration, and report review. This QSM has been prepared to meet the requirements of AASHTO R18 and is maintained in accordance with the AASHTO/AMRL/CCRL accreditation requirements. All field and laboratory test results on construction materials testing projects are reviewed by William J. West, PE under the direction of Ruben E. Ramos, PE prior to publication. All geotechnical engineering calculations and interpretations are reviewed by Carey J. Suhan, PE prior to incorporation into any geotechnical engineering study report. *Our State of Michigan Department of Transportation approved QA/QC Plan is enclosed in Section 3.*

SECTION 1
UNDERSTANDING OF PROJECT AND TASKS

DTMB and As-Needed Contract Experience

TEC has provided engineering services directly and as a sub-consultant on numerous projects administered by DTMB. Such projects include state parks, state recreation areas, state hospitals and state parking facilities. Further, TEC has held the ISID Material Testing / Quality Control Services contract since 2005 and the ISID Environmental Services contract from 2011 – 2015. TEC fully understands the nature of an "As-Needed" Contract with respect to responsiveness, efficiency and outcome. We pride ourselves in our ability to respond to the needs of our Clients.

The following is a list of some of our As-Needed Contracts that we have or are currently servicing. In addition, a list of Municipal Infrastructure Project Experience is enclosed on the following pages.

- City of Novi As-Needed Geotechnical and Materials Testing Blanket Contract
  Contact: G. Melistas
  Phone: 248-735-5632
- Sterling Heights As-Needed Geotechnical, Environmental, and Materials Testing Contract
  Contact: Brent Bashaw, PE
  Phone: 586-446-2440
- City of Troy As-Needed Blanket Contract
  Contact: Bill Houtari, PE
  Phone: 248-524-3300
- City of Farmington Hills As-Needed Services
  Contact: James Cubera, PE
  Phone: 248-871-2560
- City of Rochester Hills As-Needed Blanket Contract
  Contact: Paul Shumejko, PE, PTOE
  Phone: 248-841-2489
- MDOT As-Needed Asbestos Investigations (Parcels)
  Contact: James Woodruff
  Phone: 517-322-1205
- MDOT As-Needed Asbestos Surveys (Bridges)
  Contact: James Woodruff
  Phone: 517-322-1205
- MDOT As-Needed Pre-cast and Steel Fabrication Bridge Inspections
  Contact: Al Hagen
  Phone: 517-355-6450
- MDOT As-Needed Geotechnical Engineering Services for the Metro Region
  Contact: Nishantha Bandara
  Phone: 248-483-5100

RELEVANT PROJECT DESCRIPTIONS

Road Rehabilitation / Reconstruction Experience

TEC Project #57601
Geotechnical Investigation
2017-18 Road Rehabilitation Program

Village of Franklin c/o Hubbell, Roth & Clark
555 Hulet Drive, PO Box 824
Bloomfield Hills, MI 48303
Completed in 2018
$50,141.00

The project consisted of various types of proposed repairs to the existing roadways within the limits of the Village of Franklin. The repairs were split into two phases. Phase I was for approximately 11.8 miles of existing roads located west of Franklin Road, with the inclusion of one additional subdivision located east of Franklin Road. Phase II considered the remaining roads east of Franklin Road that equaled approximately 15 miles of roadway.

One hundred ninety-nine (199) pavement cores and test borings were drilled at the locations shown on the Test Boring Location Plan over the course of several weeks from early February to early March, 2017 with truck-mounted auger equipment to depths ranging from 5 to 7.5 feet below top of pavement. Drilling methods and standard penetration tests were performed in general accordance with the current ASTM D1452 and D1586 procedures, respectively.

All data was recorded, interpreted, and considerations and recommendations for soils, ground water and pavement were prepared and presented in a final report to the client.

Traffic Signal Replacement

TEC Project #56062
Geotechnical Investigation
Mast Arms; Dodge Park Intersection: 16 To 17 Mile Rds.

City of Sterling Heights c/o Hubbell, Roth & Clark
555 Hulet Drive, PO Box 824
Bloomfield Hills, MI 48303
Completed in 2015
$5,866.50

TEC was retained to provide a geotechnical investigation for the proposed construction of mast arm poles at four intersections along Dodge Park Road located in Sterling Heights, Michigan. The intersections were located at 16 ½ Mile Road (2 poles), Plumbrook Road (4 poles), 17 Mile Road (4 poles), and Anna Lisa Drive (1 pole).

Seven test borings were drilled on the sites at the locations shown on the Test Boring Location Plans. The locations are accurate to within a short distance of the locations

Traffic Signal Replacement Cont'd

shown on the plans. The test borings were drilled with truck-mounted auger equipment to a depth of 25 feet. Drilling methods and standard penetration tests were performed in accordance with the current ASTM D-1452 and D-1586 procedures, respectively.

Following laboratory testing, all data was recorded, interpreted, and considerations and recommendations for soils, ground water and pavement were prepared and presented in a final report to the client.

Sidewalk / Pathway Construction

TEC Project #57670
Geotechnical Investigation
Clintonville Road Safety Path Independence Township

Nowak & Fraus Engineers
46777 Woodward Avenue
Pontiac, MI 48342
Completed in 2017
$7,409.00

TEC performed a geotechnical investigation for the proposed Clintonville Road Safety Path, located along Clintonville Road, between Spring Meadow Drive and Waldon Road, in Independence Township. The purpose of the investigation was to obtain information necessary to determine basic engineering properties of soils at the site through a series of test borings and laboratory tests performed on the soil samples obtained during the field investigation.

The proposed development consisted of construction of an 8-foot wide safety path adjacent to, but within the existing and proposed right-of-way of Clintonville Road. The total length of the path was approximately 4,500 feet. About 1,800 feet of this was to be a 10-foot wide boardwalk.

Ten test borings were drilled at the approximate locations shown on the Test Boring Location Plan. The boring locations were selected by TEC and staked in the field by TEC. Three borings were drilled in the shoulder of Clintonville Road due to the large number of trees and heavy brush. The remaining borings were drilled east of the ditch along the proposed route of the pathway. The borings were drilled with all-terrain vehicle-mounted (ATV) drilling equipment using a combination of solid-stem augers and hollow stem augers. These borings were drilled to depths ranging from 5 to 23 ½ feet. Two additional borings were added to the scope of work to better define the depth of suitable soils where deep foundations were warranted.

Drilling methods and standard penetration tests were performed in general accordance with the current ASTM D1452 and D1586 procedures, respectively.

Following laboratory testing, all data was recorded, interpreted, and considerations and recommendations for soils, ground water and pavement were prepared and presented in a final report to the client.

Water Main Construction

TEC Project #59226
Geotechnical Investigation
12 Mile Rd Water Main Replacement from Dequindre to Ryan Rds.

City of Warren
One City Square, Suite 300
Warren, MI 48093
Completed in 2018
$3,475.00

TEC performed a geotechnical investigation for construction of the 12 Mile Road Water Main Replacement. Four (4) test borings, designated as Boring Nos. 9 through 12 were drilled on the site at the locations shown on the Test Boring Location Plan. Borings Nos. 1 through 8 were drilled for the 14 Mile Road water main project. The test borings were drilled on with truck- mounted auger equipment, each to a depth of 15 feet below the existing grade.

Drilling methods and standard penetration tests were performed in general accordance with the current ASTM D1452 and D1586 procedures, respectively. Following laboratory testing, all data was recorded, interpreted, and considerations and recommendations for soils, ground water and pavement were prepared and presented in a final report to the client.

During the construction phase, TEC provided construction materials quality assurance testing on behalf of the City of Warren. Services included QA testing on utility trench backfill, pavement structure elements, and PC concrete testing.

Sanitary Sewer Rehabilitation

TEC Project #58114
Geotechnical Investigation
Proposed Water & Sanitary Main - Powell Rd between 32 & 33 Mile

Armada Twp. c/o Spalding DeDecker
905 South Boulevard East
Rochester Hills, MI 48307
Completed in 2017
$8,473.00

TEC performed a geotechnical investigation for the proposed water and sanitary sewer main alignment to be located along the east side of Powell Road, between 32 Mile Road and 33 Mile Road in Armada Township, Michigan.

Eleven (11) test borings were drilled on the site at the locations shown on the Test Boring Location Plan. The locations are accurate to within a short distance of the locations shown on the location plan included in the appendix. The test borings were drilled with truck-mounted auger equipment to depths ranging from 20 to 25 feet

Sanitary Sewer Rehabilitation Cont'd

below the existing ground surface. Drilling methods and standard penetration tests were performed in general accordance with the current ASTM D1452 and D1586 procedures, respectively.

Following laboratory testing, all data was recorded, interpreted, and considerations and recommendations for soils, ground water and pavement were prepared and presented in a final report to the client.

Road Rehabilitation / Reconstruction, Pathway, Water Main Experience

TEC Projects #53316, 54576
Geotechnical Engineering / Construction Materials Testing
Featherstone Road Rehabilitation – N. Opdyke Rd. to N. Squirrel Rd.

City of Auburn Hills c/o OHM Advisors
34000 Plymouth Road
Livonia, MI 48150
Completed in 2014
$86,671.76

TEC was retained to perform a geotechnical investigation, develop rehabilitation design recommendations, and perform construction materials QA testing. This project included 1.4 miles (over 7 lane-miles) of concrete pavement repairs and overlay, hot mix asphalt shared-use path, drainage improvements, commercial drive approaches, sidewalk and ramps, guardrail, and water main on Featherstone Road from Opdyke Road east to North Squirrel Road in the City of Auburn Hills.

During the design phase, TEC performed a geotechnical investigation including recommendations for unbonded PC concrete overlay. TEC was also retained to provide construction materials QA testing on behalf of City of Auburn Hills. Construction plans were later redesigned to include full PC Concrete reconstruction. TEC performed QA testing on soils, aggregates, HMA and PC Concrete. The project extended from the 2014 to the 2015 construction seasons.

Traffic Signal Replacement, Road and Sidewalk Construction

TEC Projects #58955, 59059
Geotechnical Engineering / Construction Materials Testing
Hamlin Road Reconstruction – East of S. Adams Rd. to N. Squirrel Rd.
Cities of Rochester Hills and Auburn Hills

City of Rochester Hills
1000 Rochester Hills Drive
Rochester Hills, MI 48309

City of Auburn Hills
c/o OHM Advisors
34000 Plymouth Road
Livonia, MI 48150

Completed in 2018
$41,475.85

Traffic Signal Replacement, Road and Sidewalk Construction Cont'd

TEC was retained to perform a geotechnical investigation including 30 soil test borings and pavement core samples, develop pavement reconstruction recommendations, and perform construction materials QA testing. This project included 1.1 miles (over 4 lane-miles) of concrete pavement reconstruction, traffic signal/intersection improvements, drainage improvements, subdivision and commercial drive approaches, sidewalk and ramps along Hamlin Road from east of Adams Road to North Squirrel Road in the Cities of Rochester Hills and Auburn Hills.

During the construction phase, TEC provided construction materials QA testing on behalf of both Rochester Hills and Auburn Hills. Duties included QA testing on PC concrete mainline pavement, approaches and ramps, curb & gutter, and traffic signals at the Adams Rd. intersection and materials testing on soils and aggregate.

Sidewalk / Pathway Construction

TEC Projects #57107, 58867, 59195, 59438
Geotechnical Engineering / Construction Materials Testing
2018 Pathway Program – Technology Drive, Innovation Hills and Butler Road

City of Rochester Hills
1000 Rochester Hills Drive
Rochester Hills, MI 48309
Completed in 2018
$55,798.89

TEC performed multiple geotechnical investigations for the design and construction of pathways throughout the 62 acre Innovation Hills Park, including both at-grade and boardwalk segments. The purpose of the investigation was to obtain information necessary to determine basic engineering properties of soils at the site through a series of test borings and laboratory tests performed on the soil samples obtained during the field investigation.

The Innovation Hills portion of the project is ongoing. TEC has provided construction phase services including recommendations for embankment construction and subgrade improvement, including geosynthetically reinforced embankment recommendations, where the pathway traverses formerly wooded areas, and materials testing during pathway construction.

Other phases of the project included new pathway construction along Technology Dr. between W. Auburn Rd. and S. Adams Rd. and along Butler Road between N. Squirrel Rd. and S. Adams Rd. TEC provided recommendations for subgrade improvement where the pathway crossed unsuitable soils and commercial drive approaches, and construction materials testing on pavement structure elements, PC concrete and HMA.

Water Main Construction, Roadway Rehabilitation

TEC Project #57678
Construction Materials Testing
Wattles Road Water Main Replacement and Resurfacing

City of Troy
500 West Big Beaver Road
Troy, MI 48084
Completed in 2017
$18,775.22

TEC was retained by the City of Troy to perform construction materials testing during a two- year program that improved City water service along Wattles Road. After utility construction, pavement rehabilitation, resurfacing and localized widening was performed along the Wattles Rd. route.

TEC provided recommendations for subgrade improvement where the widened roadway encountered unsuitable soils, at localized full depth repair locations, and construction materials testing on pavement structure elements, PC concrete and HMA.

Sanitary Sewer Rehabilitation, Water Main, Traffic Signal and Pavement Improvements
TEC Projects #53337, 55696
Geotechnical Investigation / Construction Materials Testing
Road Rehabilitation, Sanitary Sewer and Water Main Improvements – Hamlin Road - Hamlin Court to Dequindre Road

City of Rochester Hills
1000 Rochester Hills Drive
Rochester Hills, MI 48309
Completed in 2015
$71,727.47

TEC was retained by the City of Rochester Hills to perform a geotechnical investigation, develop roadway rehabilitation design recommendations, and develop design and construction recommendations for traffic signal upgrades, sanitary sewer rehabilitation and water main improvements. This project includes nearly three (3) miles of HMA crushing and shaping, resurfacing, PC concrete paving, commercial drive approaches, water main installation, storm sewer and sanitary sewer installation and traffic signal installation extending from Hamlin Court east to Dequindre Road.

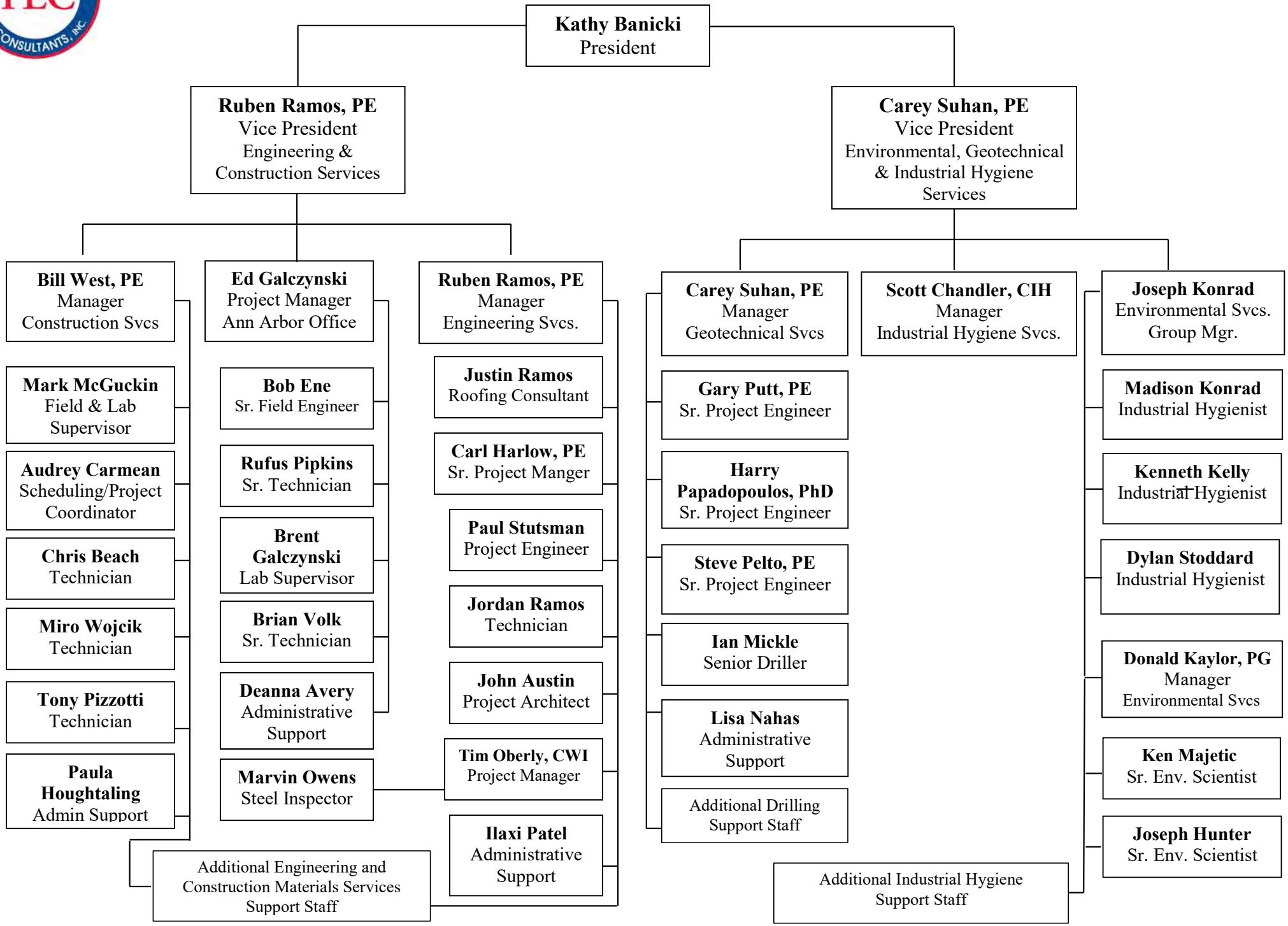
During the construction phase, TEC was retained to perform QA testing and consultation. Duties included recommendations for subgrade improvement, QA testing on pulverized HMA and aggregate base courses, mainline HMA pavement, sanitary sewer and water main trench backfill, PC concrete approaches and ramps, curb & gutter, and traffic signal improvements at major intersections along the route.

SECTION 2

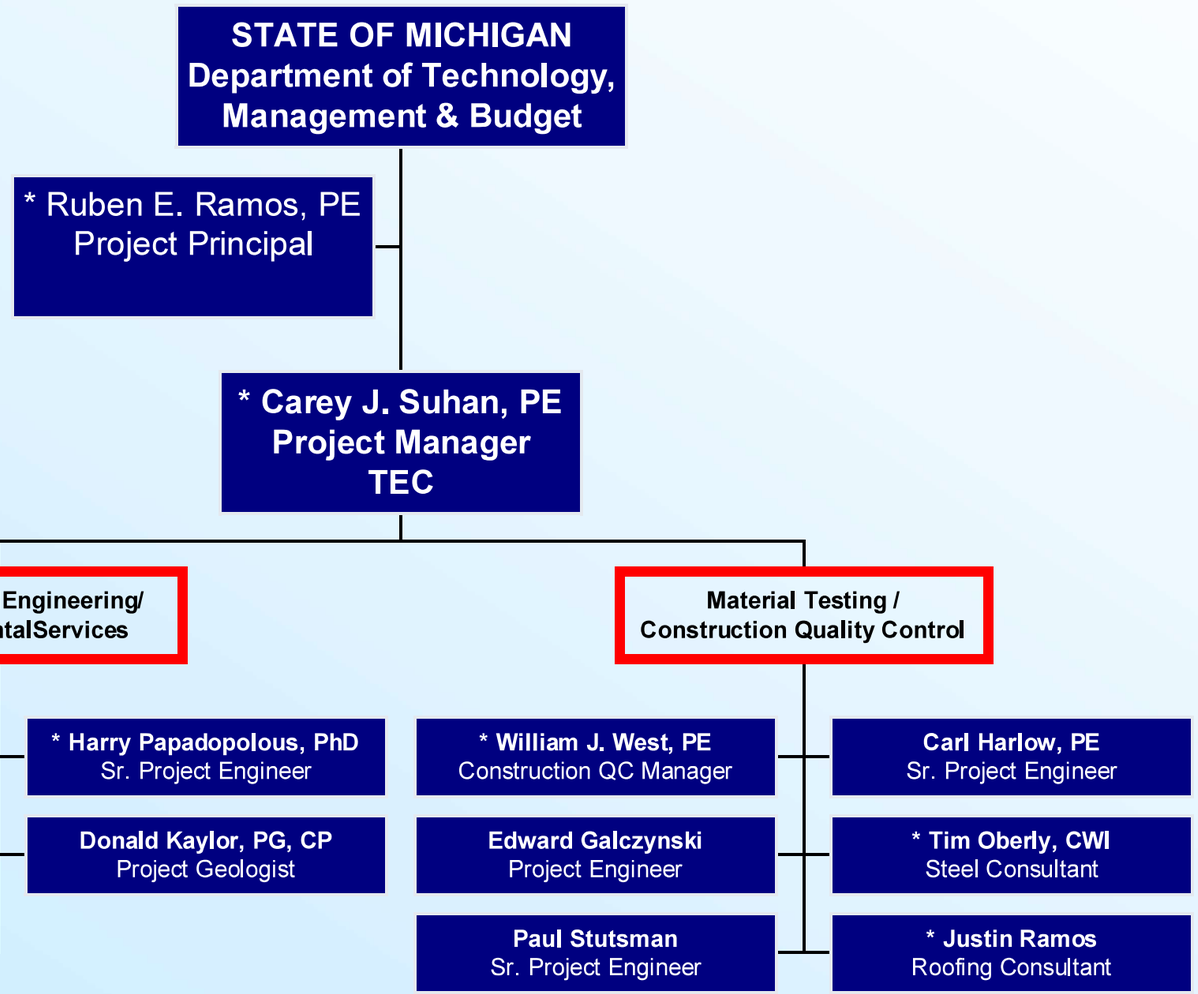
PERSONNEL

- Corporate Organization Chart
- Key Staff Organizational Chart
- Example Project Team Organization Chart(s)
- Key Personnel Resumes
    - Personnel by Classification

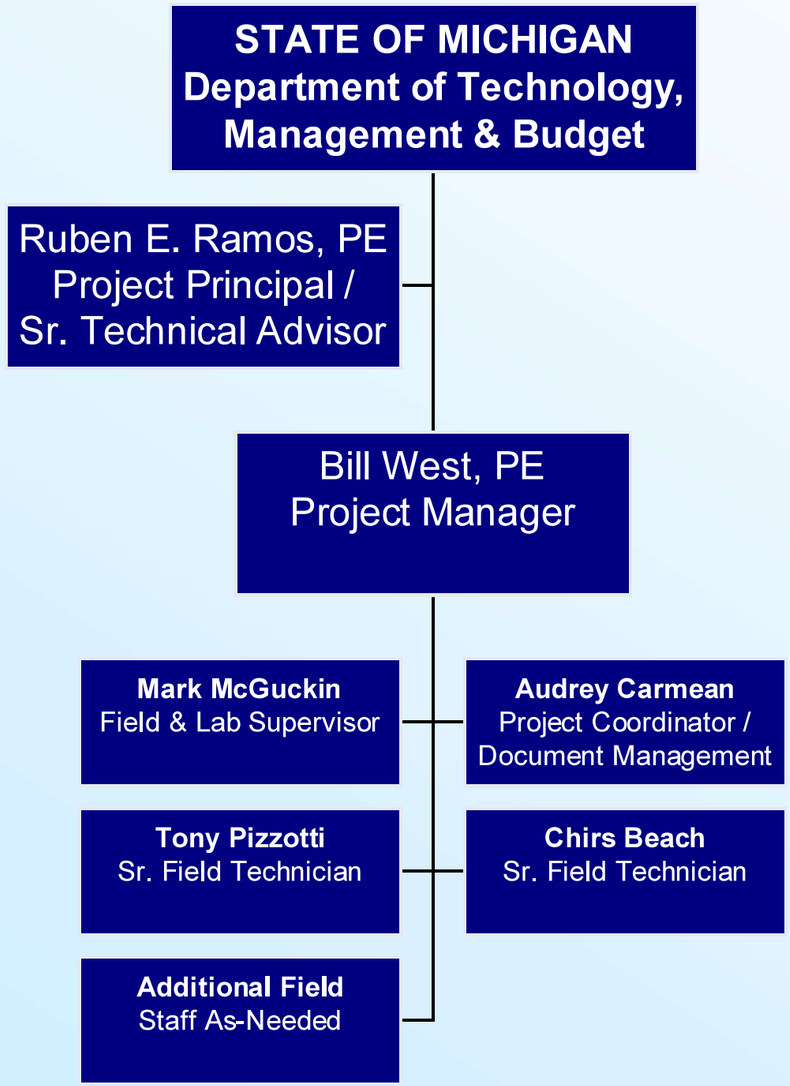
Corporate Organization Chart



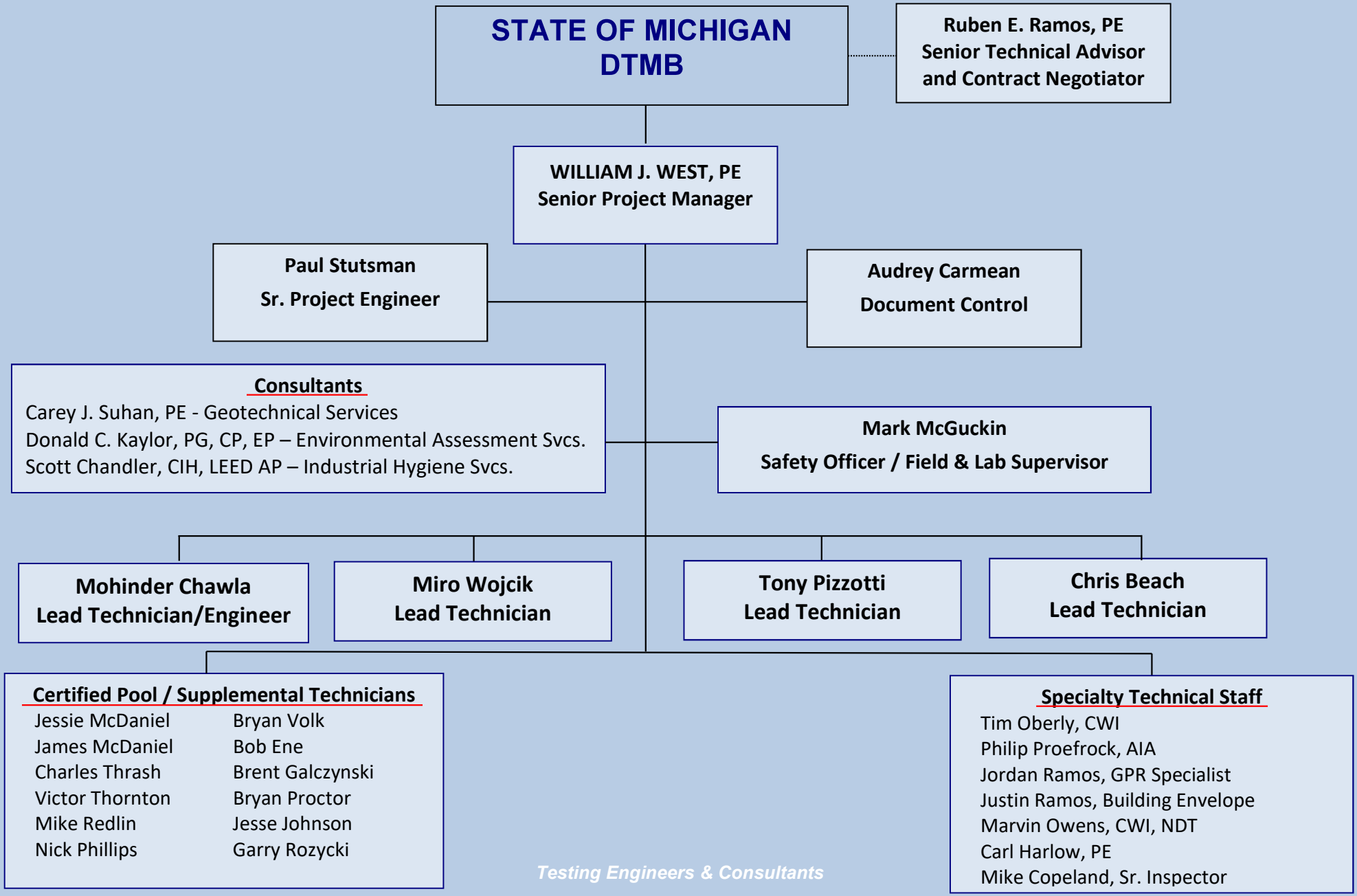
Key Staff Organization for State of Michigan – DTMB 2019 ISID Materials Testing, Construction Quality Control, and Geotechnical Engineering Services



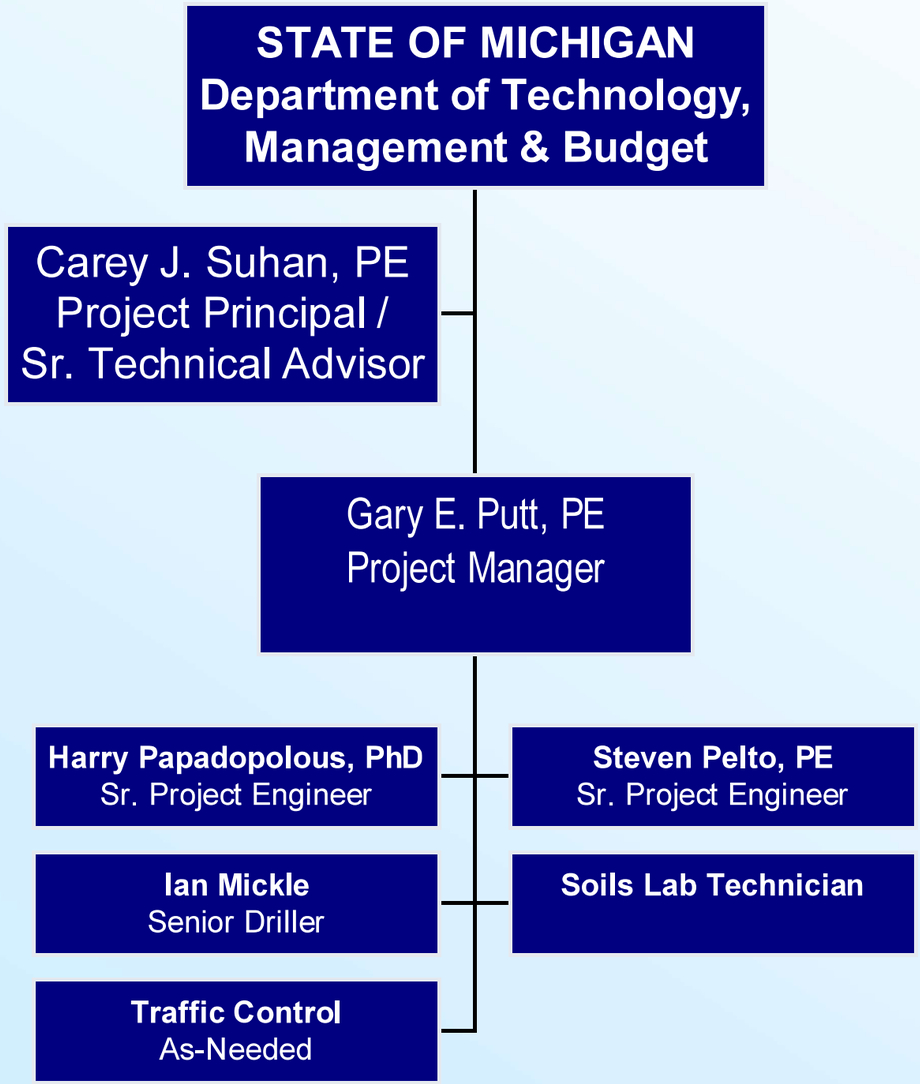
Project Team Organization
for Example Materials Testing Project



Example Project Team Organization for Comprehensive Materials Testing & Quality Control Project



Project Team Organization
for Example Geotechnical Engineering Project



RUBEN E. RAMOS, PE

TITLE:

Project Principal

EDUCATION:

B.S., Civil Engineering
Wayne State University, 1979

LICENSES/REGISTRATION:

Registered Professional Engineer, State of Michigan, 1984

EXPERIENCE:

Thirty-eight (38) years' experience in construction QA/QC consulting, project engineering and management for commercial, industrial and governmental projects; project engineering management experience in construction quality control, precast/prestressed structures, structural steel, pavement management systems, forensic engineering, restoration engineering, structure and soils instrumentation, building skin and roofing systems.

SAMPLING OF PROJECTS:

State of Michigan Department of Management & Budget Projects:

- Women's Huron Valley Correctional Facility, Huron Valley, MI
- Belle Isle Sidewalk/Driveway Repairs
- Maybury State Park Trail Concession Building
- Walter P. Reuther Psychiatric Hospital – Activity Building, Westland, MI
- Jackson State Office Building – 6 Parking Lot Improvements, Jackson, MI
- Correctional Facility – Laundry Facility Replacement, Jackson, MI
- Forensic Center, Ypsilanti, MI
- Schoolcraft College Additions, Novi, MI

Municipal Projects:

Fire Station #1 – Charter Township of Shelby, MI
Macomb County Juvenile Justice Center Phase II – Mt. Clemens, MI
42nd District Court – Romeo, MI
Fire Station #1 – Washington Township, MI
Macomb County Jail Main Entrance – Mt. Clemens, MI
Non-Motorized Path, Ann Arbor, MI
Plymouth / Green Paving, Ann Arbor, MI
Georgetown Water Main, Ann Arbor
Dexter Water Main Replacement, Dexter, MI
Novi Road Water Main, Northville, MI
Ypsilanti Streetscape Improvements, Ypsilanti, MI
City of Wayne Streets, Wayne, MI
Garden City Sewer Upgrades (3 year project), Garden, City, MI

MDOT Projects:

Tecumseh – Clinton Road Reconstruction, Village of Clinton, MI
I – 496 Improvements, Lansing, MI

RUBEN E. RAMOS, PE

SAMPLING OF PROJECTS: Cont.

MDOT Projects: Cont.

QA / QC Concrete Testing – Oakwood Avenue, Ypsilanti, MI
QA / QC Concrete Testing – M17, Cross Street, Ypsilanti, MI
QA / QC Concrete Testing – I-96, Kensington to Kent lake Rd., Brighton, MI
Huron River Drive Reconstruction, Ann Arbor, MI
Bridge Road over Huron River - Washtenaw County, MI
Ecorse Road Bridge over US-12 Van Buren Twp, MI
Bridge over Black Creek – Lenawee County, MI
I-94 US-23 Rawsonville Road - Belleville and Ypsilanti, MI

Construction Projects: Soils, Concrete, Masonry, Roofing and Structural Steel

C.S. Mott Children's and Women's Hospital, University of Michigan - Ann Arbor
New Visteon Headquarters – Van Buren Township, MI
Toyota Technical Center - Ann Arbor, MI Domino Farms World Headquarters Phase I
Shimizu America Corporation, Lenawee Stamping Plant - Tecumseh, MI
Isuzu Technical Center - Plymouth Township, MI
Orchestra Hall Expansion – Detroit, MI
Wayne State University Welcome Center/Parking Garage/Retail Center
Wayne State University Residence Hall
Wayne State University South Residence Hall
New Cass Technical High School-Detroit, MI
Compuware Headquarters - Detroit, MI
Compuware Parking Structure - Detroit, MI
DaimlerChrysler Headquarters – Auburn Hills, MI
New Comerica Parking Structure – Detroit, MI
Detroit Symphony Orchestra Building – Detroit, MI
Millender Center Omni Hotel Complex - Detroit, MI
Cobo Hall Convention Center - Detroit, MI
University of Michigan Palmer Drive Development – Ann Arbor, MI
Ford Motor Company Electro-Galvanizing Plant - Dearborn, MI
Romulus Engine Plant, General Motors Corporation - Romulus, MI
St. Joseph Hospital - Mt. Clemens, MI
Veterans Administration Medical Complex - Detroit, MI
Internal Revenue Services Building - Detroit, MI

Pavement Projects:

Northbound and Southbound Stephenson Highway – Madison Heights, MI
I-696-Mound Road Interchange Centerline and Warren, MI
I-94 Guardrail Bellville,, MI
MDOT I-96 Reconstruction - Lansing - MI
MDOT I 496 Reconstruction - Lansing, MI
MDOT I-94/I-75 over the Dequindre Yard - Detroit, MI
Brush Park Infrastructure – Detroit, MI
Pontiac Silverdome Major Parking Lot Reconstruction - Pontiac, MI
United Parcel Services Taylor Repaving - Taylor, MI
Blue Cross/Blue Shield Parking Lot Improvements - Detroit, MI
Bethany Villa Apartments Pavement Study - Troy, MI
United Parcel Services Detroit Repaving - Detroit, MI
Major Roads Improvements - Farmington Hills, MI

RUBEN E. RAMOS, PE

SAMPLING OF PROJECTS: Cont.

Forensic Engineering Projects:

Concrete Airport Runway Failure Investigation - Brighton, MI
Residence Basement Floor Distress - Ypsilanti, MI
Gasoline Service Line Failure - Flat Rock, MI
Pipe Rupture Investigation - Flint, MI
Asphalt Pavement Investigation - Monroe, MI
Playground Accident Investigation - Monroe, MI

Restoration Engineering Projects:

Cobo Convention Center; Wayne Hall Slab Restoration - Detroit, MI
Wayne County Northeast Sewer System - Grosse Pointe Farms, MI
Detroit Edison Substations, Various Locations - Detroit, MI
NBD Main Office Building, Sealant Reconstruction - Detroit, MI
Old Wayne County Jail, Exterior Restoration Consultation - Detroit, MI
Wayne County Metropolitan Airport Parking Structure, Condition Survey - Romulus, MI
Ambassador Bridge Rehabilitation - Detroit, MI and Windsor, Ontario
Amoco Oil Storage Tank, Condition Survey - River Rouge, MI
Blue Cross/Blue Shield Exterior Restoration - Detroit, MI
The Budd Building, City of Detroit 15-88 Inspection - Detroit, MI
Engineering Technology Building Window Replacement Wayne State University - Detroit, MI
Herman Keifer Health Complex Exterior Masonry – BEI Associates Detroit, MI

Instrumentation Projects:

Compuware Headquarters – Detroit, MI
DWSD Pump Station 2A, Geotechnical Instrumentation - Detroit, MI
Thompson-McCully Blending & Manufacturing Facility, Geotechnical Instrumentation – Monroe, MI
State of Michigan Capitol Building, Structure Instrumentation - Lansing, MI
Chrysler Jefferson, Geotechnical Instrumentation - Detroit, MI
Ohio Statehouse, Structure Instrumentation - Columbus, OH
Ludlow Viaduct - Columbus, OH
Fifteen Mile Road Bridge Reconstruction - Sterling Heights, MI

TECHNICAL SOCIETY AFFILIATIONS:

American Concrete Institute Greater Michigan Chapter (ACI-GMC), Past President
American Counsel of Engineering Companies (ACEC), Board Member
Building Owners and Managers Association (BOMA)
Concrete Improvement Board, Past Board Member
Engineering Society of Detroit (ESD)
Michigan Society of Professional Engineers (MSPE)
National Society of Professional Engineers (NSPE)
Precast/Prestressed Concrete Institute (PCI)
Roofing Consultants Institute (RCI)
Michigan Asphalt Paving Association (MAPA)

WILLIAM J. WEST, PE

TITLE:

Project Manager, Construction Services

EDUCATION:

B.S.E., Civil and Environmental Engineering, University of Michigan, 1992
M.S., Civil and Environmental Engineering, Wayne State University, 1996
M.S., Administration, Central Michigan University, 1999

LICENSES/REGISTRATION:

Registered Professional Engineer, States of Michigan, Indiana, Illinois, Wisconsin and Kentucky
Certified Traffic Control Supervisor, ATSSA
Certified Flagger Instructor, ATSSA
40 Hr. Site Worker Training, HAZWOPER (29 CFR 1910.120)
Manager and Supervisor Training (29 CFR 1910.120)
Certified Construction Site Storm Water Operator, MDEQ

PROFESSIONAL DEVELOPMENT:

MACP, LACP, and PACP Certificate, 2012

EXPERIENCE:

Twenty-six (26) years' experience in construction QA/QC on earthwork, infrastructure, paving, and remediation projects throughout the Midwest; soils and construction materials field and laboratory testing, slurry trench construction, in-situ and ex-situ soil stabilization, construction inspection, geotechnical engineering and pavement consulting. Extensive experience developing and implementing QC/QA testing programs for civil and environmental engineering projects.

PROJECT EXPERIENCE:

State of Michigan Department of Management & Budget Projects:

- Belle Isle Sidewalk and Drive Repairs – Detroit, MI
- Maybury State Park; Trail Concession Building – Plymouth, MI
- Women's Huron Valley Correctional Facility, Huron Valley, MI
- Walter Reuther Psychiatric Hospital – Activity Building, Westland, MI
- Jackson State Office Building – 6 Parking Lot Improvements, Jackson, MI

Significant State and Municipal Infrastructure Projects

Oakland University Engineering Center Building – Rochester, MI
St. Joseph Mercy Oakland Hospital South Patient Tower – Pontiac, MI
Hamlin Road Reconstruction and Roundabout, Rochester Hills, MI
Downtown Development Project, Auburn Hills, MI
I-96 / Kent Lake Road Bridge Reconstruction

WILLIAM J. WEST, PE Cont.

PROJECT EXPERIENCE: Cont.

Significant State and Municipal Infrastructure Projects Cont.

M-39 / I-94 Interchange Improvements
Franklin Road Reconstruction, Southfield, MI
Normandy Road and 12 Mile Road Rehabilitation, Royal Oak, Michigan
North Old Woodward Reconstruction with Bridge Replacement, Birmingham, MI
Hildebrandt Rd. and Harrison Rd. Reconstruction, Romulus, MI
9 Mile Road Rehabilitation, Farmington Hills, MI
Thirteen Mile Road Rehabilitation, Southfield, Michigan
Coolidge Road and Nine Mile Road Intersection Reconstruction, Oak Park, MI
Seaver Farms Infrastructure, Embankment and Roadway Construction, Ypsilanti, MI
Creekside Villages of Rochester, a 440-Unit Residential Development, Rochester, MI

CARL D. HARLOW, PE

TITLE:

Senior Project Engineer

EDUCATION:

B.S. Wayne State University, 1973
M.S. Civil Engineering Wayne State University 1974
Post Graduate, Chemical Engineering, Wayne State University 1975

LICENSES/REGISTRATION:

Michigan: Professional Engineer, 1978 No. 25661
Pennsylvania: Professional Engineer, 2012 #PE079882

EXPERIENCE:

Over 35 years of experience as a Licensed Professional Engineer. Extensive project experience in the field of Geotechnical Engineering relative to the structural support of buildings, soil mechanics and the transmission of energy through ground surfaces. Experience includes numerous projects as the Project Engineer responsible for the monitoring of vibration transmission through soils and structures. These projects have included controlling energy dissipation from construction activities and controlling energy sources related to seismic studies for gas and oil exploration.

Experience has included significant field experience related to seismic monitoring, monitoring of structures, contactor operations oversight and communication with the property owners to ensure adequate controls are in place to reduce the potential for property damage.

SAMPLING OF PROJECTS:

State of Michigan Department of Management & Budget Projects:

Women's Huron Valley Correctional Facility, Huron Valley, MI
Walter Reuther Psychiatric Hospital – Activity Building, Westland, MI
Jackson State Office Building – 6 Parking Lot Improvements, Jackson, MI

Vibration Monitoring

Monitoring of Sheet Piling Operations - Troy, MI
Monitoring of Parking Garage Demolition – Detroit, MI
Monitoring of Caisson Operations –Bloomfield, MI
Monitoring of Gas Exploration Operations – MI, MD, PA and NY
Stamping Plant Vibration Evaluation– San Luis Potosi, Mexico
Stamping Plant Vibration Evaluation – Detroit, MI
Frame Carrier Strain Analysis – St. Louis, MO
Dutton/Brown Road Extension over a former landfill – Auburn Hills, MI
Settlement Analysis for Marina development - Harsens Island/Clay Township, MI
Installation of caissons for new manufacturing facility – Auburn Hills, MI
Monitoring of bridge movement on I-96 during road construction – Grand Rapids, MI
Monitoring of bridge movement on I-96 during road construction –Brighton, MI
Monitoring of bridge movement on I-75 during road construction – Monroe, MI
Monitoring of structures during sheet piling operations WWTP – Milford, MI

CARL D. HARLOW, PE Cont.

SAMPLING OF PROJECTS Cont.

MDOT Structure Monitoring and Vibration Monitoring Projects

MDOT US-127 Sound Wall Construction, East Lansing, MI (Future Fence)
MDOT Old US-127, Charlotte, MI (Rieth-Riley Construction)
MDOT M-36 Legion Drive to Dexter Trail, Mason, MI (Aggregate Industries)
MDOT M-19 Burt to Lapeer Road, Emmett, MI (John Carlo Inc.)
MDOT 73061/84162, Saginaw, MI (Champagne & Marx Excavating)
MDOT 30011-79838, Reading, MI (Bailey Excavating Co.)
MDOT 09042-75294, Bay City, MI (Six-S Inc.)
MDOT 82022-88420, Taylor, MI (Midwest Bridge Company)
MDOT 77032-104088, Marysville, MI (Iafrate Construction)
MDOT 50051-60444, Mt. Clemens, MI (Pamar Enterprises)
MDOT 87024A,106466A,110808A, Port Huron, MI (Dan's Excavating)
MDOT 33001-10931, Ingham County, MI (J.E. Kloot Contracting, Inc.)
MDOT 78042-103154, St. Joseph County, MI (Balkema Excavating, Inc.)
MDOT 47064-112877, Livingston County, MI (Toebe Construction)
MDOT 58152-110616, Monroe County, MI (Dan's Excavating)
MDOT 58152-110616, Monroe County, MI (CA Hull)
MDOT 41025-112943, Kent County, MI (Milbocker & Sons)
MDOT 44012-115252 Lapeer County, MI (L.A. Construction)

Seismic Exploration Projects

Cumberland, MD (Chief Oil & Gas)
Gladwin, MI (Dawson Geophysical/Devon Energy)
Rogers City, MI (Dawson Geophysical)
Binghamton, NY (Dawson Geophysical)
Elmira, NY (Cabot Oil & Gas)
Cambria County, PA (Dawson Geophysical)
Clearfield County, PA (Chief Oil & Gas)
Lycoming County, PA (Chief Oil & Gas)
Somerset County, PA (Chief Oil & Gas)
Susquehanna County, PA (Cabot Oil & Gas)
Wayne County, PA (Chief Oil & Gas)
Washington County, PA (Dawson Geophysical)
Wyoming County, PA (Chief Oil & Gas)
Wheeling, WV (Dawson Geophysical)

TECHNICAL SOCIETY AFFILIATIONS:

Association of General Contractors
Engineering Society of Detroit

JUSTIN A. RAMOS

TITLE:

Sr. Project Manager / Roofing Consultant
Engineering Services

EDUCATION:

Associates Degree in Business Management
Northwood University - Midland, MI 2006

PROFESSIONAL DEVELOPMENT:

Certified Cetco Waterproofing Inspector
OSHA 10 Hour Safety Course
Certified Masonry Inspector (MIM)

EXPERIENCE:

Thirteen (13) years' experience in building envelope testing, inspection and consulting, project engineering and management for commercial, industrial, residential and governmental projects. Experience in construction quality control, air and vapor barrier systems, EIFS, waterproofing, masonry, wood framing, structural steel, painting and coating applications, restoration engineering, building skin and roofing systems.

SAMPLING OF PROJECTS:

Roofing Inspection/Evaluation/Consulting Projects

Consumers Energy Blanket Contract; Various locations throughout MI
Detroit Public Schools 2009 Roofing Program – Detroit, MI
C.S. Mott Women's & Children's Hospital - Ann Arbor, MI
Beaumont Hospital - Troy, MI
Fox Run Assisted Living Complex (Erickson Group) - Novi, MI
Huron Valley Schools – Multiple District Locations

Masonry Inspection/Evaluation/Consulting Projects

Bell Building Detroit, MI
8330 on the River – Detroit, MI
Hampton Inn Hotel – Auburn Hills, MI
Tognum America Headquarters – Novi, MI
Takata American Headquarters - Auburn Hills, MI
Thompson Street Parking Structure – Ann Arbor, MI
Bloomfield Park Development - Bloomfield, MI
Ann Arbor Municipal Center – Ann Arbor, MI
C.S. Mott Women's & Children's Hospital - Ann Arbor, MI
University of Michigan Stadium - Ann Arbor, MI
Fox Run - Novi, MI
Anchor Bay Public Schools, Various Schools - Anchor Bay, MI
General Motors Warren Tech Center VPC - Warren, MI
L'Anse Creuse Public Schools -Harrison, MI
Motor City Casino - Detroit, MI
MGM Casino - Detroit, MI
Book Cadillac - Detroit, MI
St. Josephs Mercy Hospital - Ypsilanti, MI

JUSTIN A. RAMOS

SAMPLING OF PROJECTS: Cont.

Vibration Monitoring And Video Documentation

- Vibration Monitoring and Video Documentation, MDOT, M-231 in Grand Haven, MI (Client: C.A. Hull Company, Inc. & Milbocker & Sons, Inc.)
- Vibration Monitoring and Video Documentation, MDOT, M-10 in Detroit, MI (Client: C.A. Hull Company, Inc.)
- Vibration Monitoring and Video Documentation, MDOT, M-53 in Bad Axe, MI (Client: Pamar Enterprises, Inc.)
- Vibration Monitoring and Video Documentation, MDOT, M-85 in Lincoln Park, MI (Client: Pamar Enterprises, Inc.)
- Vibration Monitoring and Video Documentation, MDOT, Aarwood Road, Kalkaska, MI (Client: Anlaan Corporation)
- Vibration Monitoring and Video Documentation, MDOT, I94/I69 in Port Huron, MI (Client: Dan's Excavating)

Other Engineering Instrumentation Projects

- Crackmeter Installation/Monitoring of Mechanical Tunnels, University of Michigan, Mott Women's & Children's Hospital - Ann Arbor, MI (Client: University of Michigan)
- Tiltmeter Installation/Monitoring, MDOT Grand River Bridge over Kent Lake, Oakland County, MI (Client: Toebe Construction)
- Inclinometer Installation/Monitoring, University of Michigan, Mott Women's & Childrens Hospital, Ann Arbor, MI (Client: University of Michigan)
- Crackmeter Installation/Monitoring of Existing Stadium, University of Michigan Stadium Expansion, Ann Arbor, MI (Client: University of Michigan)
- Floor Flatness Testing, over 40 commercial and industrial projects in southeast Michigan

EIFS Inspection/Evaluation/Consulting Projects

Detroit Public Safety Building (Old MGM) - Detroit, MI
Laurel Park Office Buildings (Friedman) - Livonia, MI
Hampton Inn Hotel - Auburn Hills, MI
Cadillac of Novi – Novi, MI

Waterproofing Inspection/Evaluation/Consulting Projects

U of M Player Development Center – Ann Arbor, MI
C.S. Mott Women's & Children's Hospital - Ann Arbor, MI
University of Michigan Eye Center - Ann Arbor, MI

TIMOTHY OBERLY, CWI

TITLE:

Project Manager- Steel Services Department
Certified Welding Inspector

EDUCATION:

Henry Ford 2 High School - Sterling Heights, Michigan
Macomb Community College - Macomb, Michigan

PROFESSIONAL DEVELOPMENT:

Certification from AWS for CWI in AWS D1.1-10 Structural Welding Code Steel
MDOT Training for Paint Testing and Inspection
MDOT Training for Bolt testing and Inspection

LICENSES/REGISTRATIONS:

AWS Certified Welding Inspector (No.12060581)

EXPERIENCE:

Over twenty-four (24) years of experience in inspection, evaluation and testing of structural steel, welding, cold formed structural steel, bolted connections, metal deck, shear connectors, steel joists, painting application, metal NDT wall thickness testing, etc. Shop operations manager and vice president for structural and miscellaneous steel fabricator. Responsible for structural steel fabricator audit inspections, fabrication quality control / welding processes and procedures inspection and documentation.

SAMPLING OF PROJECTS:

Cold Formed Structural Steel Projects

Wayne State University Housing (Eisen Panel), Anthony Wayne Drive, Phase 1 & 2, Detroit, MI
Brighton U Store IT, Brighton, MI
Troy Fire Station #4, Troy, MI
Ford Garage, Dearborn, MI
Livonia Storage Units, Livonia, MI
Shelby National Storage, Shelby Township, MI
Monastery of the Blessed Sacrament, Farmington Hills, MI
National Storage, Warren, MI
Provision Living, West Bloomfield, MI
Fire Station Improvements, Rochester Hills, MI
Sky Zone Franchise Group, Shelby Township, MI
Fire Station #3, West Bloomfield, MI

Precast and Structural Steel Projects

Northern Concrete Pipe (MDOT C07OF 31031-20399) – Bay City, MI
29 Mile Road over Healy Brook Drain – Macomb County, MI
29 Mile Road over Camp Brook Drain – Macomb County, MI
University of Michigan East Engineering Renovation - Ann Arbor, MI
University of Michigan North Campus Bell Tower – Ann Arbor, MI
University of Michigan Hospital Emergency Room Addition – Ann Arbor, MI

TIMOTHY OBERLY, CWI

SAMPLING OF PROJECTS: Cont.

Precast and Structural Steel Projects Cont.

St. Joseph Hospital Emergency Room Addition – Clinton Township, MI
Arvin Meritor New Office Building – Detroit, MI
Daimler Chrysler Oakland County International Airport New 737 Hanger – Oakland County, MI
Detroit Zoo Ford Center for Education – Royal Oak, Michigan
Macomb Intermediate School District New Administration Building – Clinton Township, MI
Dearborn New Police Station/Jail – Dearborn, MI
Motor City Casino Renovation – Detroit, MI
Providence Hospital Expansion – Southfield, MI
GM Manufacturing Facility Renovation – Moraine, OH
Toyota New Manufacturing Facility – Princeton, IN
Getrag New Manufacturing Facility – Tipton, IN
Toyota New Manufacturing Facility – Woodstock, Ontario, CA
Alabama Railcar New Manufacturing Facility – Barton, AL
Thyssen Krupp New Mill Facility – Culvert, AL
Toyota New Manufacturing Facility – Blue Springs, MS
GM WRT 2020 AEC Structural Development Lab – Warren, MI
Wayne State University Student Housing - Detroit, MI
Detroit Zoo New Amphibian Exhibit – Royal Oak, MI
BASF New Facility – Wyandotte, MI
Severstal Steel New Mill Facility – Detroit, MI
Marathon Oil Refinery Renovation – Detroit, MI
Michigan National Guard New Combined SPT Facility – Lansing, MI

EDWARD GALCZYNSKI

TITLE:

Senior Project Engineer

EDUCATION:

BS, Civil Engineering
Wayne State University, 1979

LICENSES/REGISTRATION:

Troxler Certification for Nuclear Density Gauge

EXPERIENCE:

Thirty-four (34) years as Manager and Lab Director for Construction Field Services and Laboratory Operations in the Ann Arbor Office. Experienced in field and laboratory inspection and testing of construction materials, including shallow and deep foundations (such as caissons and piles); compaction verification of fills and backfills (by nuclear density method); quality control inspection of subbase, base and bituminous pavements; quality control inspection and testing of Portland Cement Concrete (PCC); and proper construction and placement of reinforcing steel. Other experience includes structural steel shop fabrication, field erection and visual weld testing and inspection; composite floor deck and stud inspection; mechanical properties evaluation, including hardness, tensile, bend and other destructive tests. Nondestructive testing experience includes ultrasonic, magnetic particle and dye penetrant inspection. Familiar with the following codes and specifications: AASHTO, ACI, AISC, ASTM, ASME, AWS, CRD and MDOT.

SAMPLING OF PROJECTS:

State of Michigan Department of Management & Budget Projects:

Women's Huron Valley Correctional Facility - Huron Valley, MI
Walter Reuther Psychiatric Hospital – Activity Building, Westland, MI
Jackson State Office Building – 6 Parking Lot Improvements - Jackson, MI
Correctional Facility – Laundry Facility Replacement - Jackson, MI
Forensic Center - Ypsilanti, MI
Schoolcraft College Additions - Novi, MI

Municipal Projects:

Non-Motorized Path - Ann Arbor, MI
Plymouth / Green Paving - Ann Arbor, MI
Georgetown Water Main - Ann Arbor
Dexter Water Main Replacement - Dexter, MI
Novi Road Water Main, Northville, MI
Ypsilanti Streetscape Improvements - Ypsilanti, MI
City of Wayne Streets - Wayne, MI
Garden City Sewer Upgrades (3 year project) - Garden, City, MI

EDWARD GALCZYNSKI Cont.

SAMPLING OF PROJECTS: Cont.

MDOT Projects:

Tecumseh – Clinton Road Reconstruction, Village of Clinton, MI
I – 496 Improvements - Lansing, MI
QA / QC Concrete Testing – Oakwood Avenue - Ypsilanti, MI
QA / QC Concrete Testing – M17, Cross Street - Ypsilanti, MI
QA / QC Concrete Testing – I-96, Kensington to Kent Lake Rd. - Brighton, MI
Huron River Drive Reconstruction - Ann Arbor, MI
Bridge Road over Huron River - Washtenaw County, MI
Ecorse Road Bridge over US-12 - Van Buren Twp., MI
Bridge over Black Creek – Lenawee County, MI
I-94 US-23 Rawsonville Road - Belleville and Ypsilanti, MI

Other Projects:

Oakland University Engineering Center Building – Rochester, MI
St. Joseph Mercy Oakland Hospital South Patient Tower – Pontiac, MI
Meijer Store #123 - Southgate, MI
Meijer Store #72 - Van Buren Township, MI
Meijer Store #54 - Northville, MI
Meijer Store - Ann Arbor, MI
University of Michigan Newberry Hall Museum Addition & Renovation – Ann Arbor
University of Michigan Museum of Art Addition & Renovation – Ann Arbor
University of Michigan College of Engineering SSEL Expansion & Renovations – Ann Arbor
University of Michigan Cancer Medical Center - Ann Arbor
University of Michigan Replacement Hospital Complex, Adult General Hospital - Ann Arbor
University of Michigan Replacement Hospital Complex, Ambulatory Care Facility - Ann Arbor
Ann Arbor Public Schools – Ann Arbor, MI
Bloomfield Hills Schools – Bloomfield Hills, MI
C.S. Mott Children's Hospital Renewal, University of Michigan - Ann Arbor
Dexter Pubic Schools – Dexter, MI
New Visteon Headquarters – Van Buren Township, MI
Anchor Bay Schools – New Baltimore, MI
Toyota Technical Center - Ann Arbor, MI
Domino Farms World Headquarters Phase I – Ann Arbor, MI
Chippewa Valley Schools – Macomb Township and Clinton Township, MI
Shimizu America Corporation, Lenawee Stamping Plant - Tecumseh, MI
Isuzu Technical Center - Plymouth Township, MI
Wayne County Detention Center - Detroit, MI
Detroit Public Schools – Detroit, MI
Honeywell Office Building - Southfield, MI
L'Anse Creuse Public Schools – Clinton Township, MI
Gary M. Owens College of Business Building and Parking Structure, Eastern Michigan University - Ypsilanti, MI
Detroit Metropolitan Wayne County Airport Control Tower - Romulus, MI
Detroit Metropolitan Wayne County Airport Parking Structure - Romulus, MI
Pontiac Motors Plant #51 - Pontiac, MI

EDWARD GALCZYNSKI

SAMPLING OF PROJECTS: Cont.

Other Projects: Cont.

South Lyon Schools – South Lyon, MI
Troy Public Schools – Troy, MI
U.S. Army TACOM - Warren, MI
Randolph Vocational Center - Detroit, MI
GM Central Foundry - Pontiac, MI
Ford Motor Company, Rouge Steel Division, Ore Bridge Failure Investigation - Dearborn, MI
Martin Luther King High School - Detroit, MI
Assumption Greek Orthodox Church - St. Clair Shores, MI
France and Japan Pavilions, EPCOT Center, Disneyworld - Lake Buena Vista, FL
South Macomb Hospital - Warren, MI
Travelers Tower I and II - Southfield, MI
Robert Bosch Corp. Farmington Research Center - Farmington Hills, MI
Toys 'R Us Warehouse & Distribution Center - Canton Township, MI
Lowry Technology Park Building "A" - Brighton, MI
Middle Rouge Equalization Basin/Pump Station - Canton, MI
Lower Rouge Equalization Basin/Pump Station - Canton, MI
State of Michigan Corrections Mental Health Facility - Ypsilanti, MI
Utica Community Schools – Utica, MI
Eastern Michigan Site Improvements 1992 - Ypsilanti, MI
Veterans Administration Nursing Home Care Unit - Saginaw, MI
Wal-Mart Shopping Center - Ypsilanti, MI
Woodhaven-Brownstown School District – Brownstown, MI
Eastern Michigan University Pease Auditorium Addition/Renovation - Ypsilanti, MI
Roberto Clemente Student Development Center - Ypsilanti, MI

TECHNICAL SOCIETY AFFILIATIONS:

American Society of Civil Engineers
American Welding Society
Engineering Society of Detroit (ESD)
Michigan Society of Professional Engineers
National Society of Professional Engineers

PAUL E. STUTSMAN

TITLE:

Senior Project Engineer

EDUCATION:

B.S., Civil/Construction Engineering 1996
Lawrence Technological University – Southfield, MI

LICENSES/REGISTRATION:

Structural Masonry Special Inspector, International Code Council – Certification #4141061432
Masonry Certification, Masonry Institute of Michigan - Certificate #0424252003
Housing Quality Standards - HQS Certification #10-398

EXPERIENCE:

Thirty-six (36) years of experience in construction materials testing/evaluation, building envelope, structural and civil consulting, masonry inspections, concrete batch plant inspections, and ADA compliance. Performed over 80 property condition assessments on industrial, commercial and institutional properties. Has prepared and written specifications for repair and restoration of numerous building facades, pavement systems, parking structures and roofing systems. Experience includes building and pavement related material investigations, envelope systems testing, post tensioning inspection, plant certification inspections, roof condition investigations along with, concrete, masonry and pavement condition assessments. Familiar with CRD, ACI, ASTM, RCI, AASHTO, MDOT specifications and International Building Code requirements.

SAMPLING OF PROJECTS:

State of Michigan Department of Management & Budget Projects:

Women's Huron Valley Correctional Facility, Huron Valley, MI
Walter Reuther Psychiatric Hospital – Activity Building, Westland, MI
Jackson State Office Building – 6 Parking Lot Improvements, Jackson, MI

Municipal Projects:

Fire Station #1 – Charter Township of Shelby, MI
Macomb County Juvenile Justice Center Phase II – Mt. Clemens, MI
42nd District Court – Romeo, MI
Fire Station #1 – Washington Township, MI
Macomb County Jail Main Entrance – Mt. Clemens, MI

Property Condition Assessment and Façade Inspection/Investigation Projects:

Jewish Federation of Metropolitan Detroit; 21 properties in Southeastern Michigan
Sistemas Industrial Facility - San Luis Potosi, Mexico
Clausen Office Building - Southfield, MI
Commercial office building at 40000 Grand River - Novi, MI
Sixty-unit apartment building - Detroit, MI

PAUL E. STUTSMAN

SAMPLING OF PROJECTS: Cont.

Property Condition Assessment and Façade Inspection/Investigation Projects: Cont.

Forty-unit apartment building - Detroit, MI
Archdiocese of Detroit; numerous properties in Southwest, Downtown and Core City Vicariates – Detroit, MI
Star Theatre, Southfield, MI
University of Detroit Jesuit High School, Detroit, MI
St. Martin de Porres Parish, Warren, MI
Comerica Building – Detroit, MI
Belle Maison East – 8330 E. Jefferson, Detroit, MI
Palace of Auburn Hills – Auburn Hills, MI

Building/Structural Restoration Projects:

Macomb County Parking Structure - Mt. Clemens, MI
Providence Hospital Parking Structure - Southfield, MI
Macomb County Court Building - Mt. Clemens, MI
Budd Company Smoke Stack - Detroit, MI
Blue Cross/Blue Shield – Detroit, MI
Blue Cross/Blue Shield Parking Structure - Detroit, MI
Detroit Water and Sewerage Department- Wastewater Treatment Plant
Wayne State University; Science Library, Computer Services, Engineering and Scott Hall Buildings - Detroit, MI
Northwest Corporate Center - Southfield, MI
Vinton Building – Detroit
DMP Building – Detroit
Clark Lofts Building – Detroit
Globe Building - Detroit
Free Press Building - Detroit

Pavement Investigation/Consulting Projects (in addition to Property Condition Assessment Projects):

Brookstone Subdivision, Clinton Township, MI
Kirkway Village Condominiums, Trenton, MI
South Hills of Bloomfield, Bloomfield Hills, MI
Villa Bella Retirement Community, Clinton Township, MI
City of Port Huron, Roadway Soil Evaluations, Port Huron, MI
Numerous Additional Commercial Concrete Pavement Investigation/Testing Projects
Numerous Residential Concrete Pavement Investigation/Testing Projects

Additional Sampling of Construction Projects:

University of Michigan Replacement Hospital - Ann Arbor, MI
Veterans Administration Medical Complex - Detroit, MI
Veterans Administration Medical Complex – Battle Creek, MI
Chrysler Assembly Plant - Sterling Heights, MI
Chrysler Viper Plant Conner - Detroit, MI
General Motors Truck & Bus Plant - Pontiac, MI
Oakland Town Square (Allied Center) - Southfield, MI
Palace of Auburn Hills - Auburn Hills, MI

CAREY J. SUHAN, PE

TITLE:

Vice President
Geotechnical and Environmental Services

EDUCATION:

BS, Civil Engineering
University of Michigan, 1985

MS, Civil Engineering
(Geotechnical/Environmental Concentration)
Wayne State University, 1995

LICENSES/REGISTRATION:

Licensed Professional Engineer, State of Michigan, #2601036161, 1990
Licensed Professional Engineer, State of Ohio, #78837, 2014

PROFESSIONAL DEVELOPMENT:

Niton XRF Analyzer Operator's Training Certificate, 2010
FRA Contractors On Track Safety Training, 2009
MDEQ RBCA Training Course, 1995
40-Hour Hazardous Waste Training Certification (OSHA)
8-Hour Hazardous Waste Training Refresher, Annually
Hazardous Waste Refresher Course, 2002
8-Hour Hazardous Waste Supervisor Certification Training (OSHA)
Deep Foundations Institute Annual Conference, 1991
Environmental Site Assessment Seminar, PSI, 1987
Fundamentals of Deep Foundation Design, University of Missouri Rolla, 1989

EXPERIENCE:

Thirty-two (32) years' experience in geotechnical engineering, construction materials testing and environmental site assessment investigations and supervision of engineering and technical staff. Responsibilities include development of geotechnical exploration programs; field and advanced laboratory testing of soils and construction materials, preparation of foundation and construction recommendations including pile, caisson, and auger cast pile recommendations, and slope stability analysis. Also experienced in pavement consulting and underground design. Background in commercial, municipal, industrial, and residential projects. Supervises drilling crews performing geotechnical and environmental sampling, piezometer, and ground water monitoring well installation. Experienced in all phases of environmental site assessments. Environmental responsibilities include design and planning of environmental investigations, technical reviews, client consultation and report writing.

CAREY J. SUHAN, PE

SAMPLING OF PROJECTS: Cont.

DTMB Experience

- Pine Street Parking Rehabilitation, Lansing, MI
- Boating Access Site Improvements (4 sites), Marine City, North Channel Deckers Landing and Fairhaven, St. Clair County, MI
- Dodge Park #4 State Park Pavement Improvements, Waterford Township, MI
- Waterloo State Recreation Area, Crooked Lake Floating Dock, Sylvan Township, MI
- Dodge Park #4 ADA Pedestrian Path & Pier, Waterford Township, MI
- Clinton Valley Center – GS and EA services – Pontiac, MI
- Lake Superior State College; Multiple Services – Sault Ste. Marie, MI
- Huron Valley Center - Topsoil Investigation
- State Of Michigan; Level V Regional Correctional Facility – St Louis, MI
- Proud Lake Recreation Area New Bath House, Commerce Township, MI
- Pointe Mouillee Dike Improvement, South Rockwood, MI
- Highland Recreation Area Pedestrian Path & Boardwalk, White Lake Township, MI

WWTP, Sewers, Drains, Water mains & Pump Stations

DWSD WWTP – Detroit, MI
Oakland County Drain Commission; Meter and Pressure Reducing Vault Rehabilitation Project – Oakland County, MI
City of Trenton; Pump Station and Retention Basin – Trenton, MI
White Lake Twp; Meijer Off-site Sanitary Sewer – White Lake Twp, MI
Pontiac WWTP Improvements – Pontiac, MI
City of Trenton; River North Pump Station – Trenton, MI
Ann Arbor WWTP; Recycle Compliance Project – Tecumseh, MI
Thornton Farms WWTP – Lima Twp, MI
Frenchtown Resort Authority (42 miles of sewer and roadways) - Frenchtown Township, MI
Novi/Commerce Sanitary Sewer - Novi, MI
Goddard Road (72 inch water main) - Southgate, MI
Amy Relief Drain - Bloomfield Township, MI
Kerby Road Pump Station Sinking Caisson - Grosse Pointe Farms, MI
Eureka Road Water Main Improvements - Taylor, MI
Martin Drain Pump Station - St. Clair Shores, MI

Roads & Bridges

RCOC; Kurtz Road Culvert Replacement – Holly Twp., MI
Macomb County Dept. of Roads; Wireless Communications Towers (Nine Locations)
Macomb County Dept. of Roads; 27 Mile Road Culvert over Price Brook Drain – Ray Twp., MI
Macomb County Dept. of Roads; 29 Mile Rd Bridge over Camp Brook – Ray Twp., MI
Macomb County Dept. of Roads; 29 Mile Rd Bridge over North Branch of Clinton River – Ray Twp., MI
Hamlin Road East of Adams; Road Reconstruction – Rochester Hills, MI
Red Oak Lane Drainage Improvement - Rochester Hills, MI
M-53 & 26 Mile Road Intersection - Shelby/Washington Twps., MI
Auburn Rd Improvements from Culbertson Ave – Dequindre Rd – Rochester Hills, MI

CAREY J. SUHAN, PE

SAMPLING OF PROJECTS: Cont.

Roads & Bridges Cont.

Intersection Improvements and Traffic Signal Recommendations; Livernois at Wattles Road - Troy, MI
M-24 Profile Drilling Between Newark & Pratt Roads – Lapeer, Michigan
13 Mile Road Reconstruction from Farmington Road to Orchard Lake Road-Farmington Hills, MI
Freedom Road from Orchard Lake Road to Grand River Avenue, MI
Parkdale Road over Stoney Creek - Rochester Hills, MI
Rochester Road Reconstruction - Project - Troy, MI
15 Mile Road Widening - Sterling Heights, MI
Taylor Road Paving - Auburn Hills, MI
Wixom Road Paving - Novi, MI
Second Bluewater Bridge - Port Huron, MI
M-59 Bridge over I-94 - Chesterfield Township, MI
Clinton River Road Relocation - Sterling Heights, MI
Utica Road Reconstruction - Sterling Heights, MI
Grand River Bridge Replacement over the Huron River – Lyon Twp, MI in Oakland County
Tienken Road Bridge over Stoney Creek – Rochester, MI in Oakland County
Franklin Road Bridge over I696- Southfield, MI
Ecorse Road Bridge over US-12 - Ypsilanti, MI
Whittaker Road Bridge over Paint Creek - Ypsilanti Twp., MI
Adams Road Bridge Replacement over CN Railroad
Bridge Street Bridge over Rouge River - Southfield, MI
Detroit Metropolitan Wayne County Airport South Access Road Tunnel - Romulus, MI
Little Mack Repaving & Widening - St. Clair Shores, MI

Buildings

Detroit Edison St. Clair Power Plant Crusher House and Coal Handling System Improvements
Enrico Fermi 2 Power Plant - Frenchtown Twp., MI
Monroe Power Plant - Monroe, MI
New Ethanol Plant - Marysville, MI
Compuware Headquarters and Parking Structure – Detroit, MI
MGM Grand Casino – Detroit, MI
Motor City Casino – Detroit, MI
Somerset Mall Collection North - Troy, MI
Comprehensive Health Services Medical Office Building - Detroit, MI
American Axle Dynamometer - Rochester Hills, MI
BASF TPU Facility - Wyandotte, MI
Chrysler Mack Avenue Engine Plant - Detroit, MI
Hudson's; Birchwood Mall - Port Huron, MI
Macomb County Dept. of Roads; Proposed Salt Storage Dome – Shelby Twp., MI
BFI Transfer Station - Woodhaven, MI
Evergreen Farmington Pollution Control Facility - Farmington Hills, MI
General Motors Pontiac Metal Fabrication; numerous press installations - Pontiac, MI
Guardian Industries Headquarters - Auburn Hills, MI
Meadowbrook Technology Center - Auburn Hills, MI

CAREY J. SUHAN, PE

SAMPLING OF PROJECTS: Cont.

Slope Stability, Seawall Evaluations

Erma Henderson Park Seawall Rehabilitation - Detroit, MI
Rouge Steel Seawall Evaluation – Detroit, MI
Legion Insurance; Seawall Evaluation – St. Clair, MI
Harbor Reconfiguration and Seawall Evaluation – St. Clair, MI
Trumbull Asphalt Waterfront Retaining Wall & Slope Stability Study - Dearborn, MI

TECHNICAL SOCIETY AFFILIATIONS/AWARDS:

Wayne State University Alumni Industry Achievement Award, 2008
American Society of Civil Engineers (Michigan Section)
President through Treasurer 2011 - 2015
American Society of Civil Engineers (Southeastern Branch)
Franklin D. Meyers Outstanding Civil Engineer of the Year Award 2010
Past President through Treasurer, Annual Meeting Chair and Director 1996 - 2005
Michigan Society of Professional Engineers
Outstanding Engineer of the Year 2002 (Detroit Metro Chapter and State of Michigan)
State By-laws Committee Chair 2003-2004
Detroit Chapter, President 2000-2001, President Elect 1999
Society of American Military Engineers - Director Detroit Post 1998-2001
Engineering Society of Detroit - Member

GARY E. PUTT, PE

TITLE:

Senior Project Engineer
Geotechnical Services

EDUCATION:

BS, Construction Engineering
Lawrence Technological University, 1972

PROFESSIONAL DEVELOPMENT:

Fundamentals of Shallow Foundation Design, University of Missouri Rolla, 1981
Welding Inspection Technology, American Welding Society, 1986
Concrete Technology, Michigan State University, 1992
Storm Water Management, DEQ, 1996

LICENSES/REGISTRATION:

Licensed Professional Engineer, State of Michigan, 1992
Licensed Professional Engineer, State of Missouri, 1989
Storm Water Management Operator, State of Michigan, 2002

EXPERIENCE:

Forty-three (43) years' experience in geotechnical analysis, construction materials testing and inspection, construction management, structural design, and coordination of contractor activities. Performs all types of routine and advanced soil tests in lab and field. Performs all types of routine concrete and asphalt tests and inspections. Evaluates bearing capacity and settlement potential from geotechnical data. Determines scope of work and arranges geotechnical investigations. Supervises drilling crews on geotechnical and environmental projects. Managed field and laboratory technicians in construction services department and evaluated and resolved construction issues. Experienced with magnetometers and ground penetrating radar to determine the location of buried objects (utilities, drums and underground storage tanks), and to differentiate between fill material and natural soils.

SAMPLING OF PROJECTS:

DTMB / Experience

- Pine Street Parking Rehabilitation, Lansing, MI
- Pointe Mouillee Dike Improvement, South Rockwood, MI
- Boating Access Site Improvements (4 sites), Marine City, North Channel Deckers Landing and Fairhaven, St. Clair County, MI
- Dodge Park #4 State Park Pavement Improvements, Waterford Township, MI
- Dodge Park #4 ADA Pedestrian Path & Pier, Waterford Township, MI

GARY E. PUTT, PE

SAMPLING OF PROJECTS: Cont.

WWTP, Sewers, Drains, Water Mains & Pump Stations

DWSD WWTP – Detroit, MI
Pontiac WWTP Improvements – Pontiac, MI
Ann Arbor WWTP; Recycle Compliance Project – Tecumseh, MI
Thornton Farms WWTP – Lima Twp, MI
Oakland County Drain Commission; Meter and Pressure Reducing Vault Rehabilitation Project – Oakland County, MI
White Lake Twp; Meijer Off-site Sanitary Sewer – White Lake Twp, MI
Meijer Off-Site Pump Station and Sanitary Sewer Extension; White Lake Twp., MI
Jefferson Ave Water Main and Sanitary Sewer Extension and Pump Station; Trenton, MI
Minnesota Street Storm Sewer; Troy, MI
Proposed Retention Basin Controls – Section 4; Troy, MI
Sanitary Force Main Upgrade to Lakewood Lift Station; Jackson Road – Ann Arbor, MI

Roads & Bridges

M-53 & 26 Mile Road Intersection - Shelby/Washington Twps., MI
East Riverfront Roads and Infrastructure Reconstruction – Detroit, MI
Jeffords Street Improvements - Dexter, MI
17 Mile Road Reconstruction - Sterling Heights, MI
13 Mile Road Reconstruction - Royal Oak, MI
Repaving of Northwood Blvd. – Royal Oak, MI
Coolidge Road Realignment; Wattles Road to 1400 Feet North – Troy, MI
Proposed Road Paving; North Holly Road at Belford Road – Holly Township, MI
Willis Road Improvement Project between Hitchingham & Whittaker Roads - Augusta Twp., MI
Franklin Road Bridge over I-696 - Southfield, MI
Clinton River Pedestrian Bridge over US-24 - Pontiac, Michigan
Coolidge Road Realignment Wattles Road to 1400 Feet North - Troy, MI
Whittaker Road Bridge over Paint Creek - Ypsilanti Twp., MI
Seymour Lake Road Bridge Over Paint Creek - Oxford, MI
Bridge Street Bridge over Rouge River - Southfield, MI

Buildings & Structures

Lindout Associates; Proposed Warehouse – Brighton, MI
Danielle Enterprises; Proposed Industrial Warehouse – Detroit, MI
Crown Enterprises Warehouse – Detroit, MI
Novi Expo Center – Novi, MI
Proposed Light Industrial Building- Port Huron, MI
Proposed Warehouse; A.S. Plus - Clinton Twp., MI
Serra Cheese; Light Industrial Plant – Clinton Twp., MI
Powder Cote II; Industrial Building Addition – Mt. Clemens, MI
General Motors Milford Proving Grounds - Milford, MI
General Motors Truck Validation Center - Pontiac, MI
Ford Motor Company Assembly Plant - Wixom, MI
Meijers Distribution Center - Newport, MI
ACI World Headquarters - Farmington Hills, MI
Valley Baptist Medical Center - Harrlingen, TX
Proposed Salt Dome – Sterling Hgts, MI
Salt Barn; Sterling Hgts DPW – Sterling Hgts, MI
Salt Storage Building; RCMC Clinton Service Center – Clinton Twp, MI

GARY E. PUTT, PE

SAMPLING OF PROJECTS: Cont.

Slope Stability / Seawall Evaluations

Harbor Reconfiguration; Seawall Evaluation – Harrison Twp., MI

Storm Water Consultation

South Pointe Apartments Complex; Southgate, MI
Hampton Inn and Suites – Sterling Heights, MI
Palmer Woods Estates – Sterling Heights, MI

GPR Surveys

Two Former Gas Stations – Detroit, MI
Gas Station – Owosso, MI
Various Service Stations – SE Michigan
Wayne State University – Detroit, MI

TECHNICAL SOCIETY AFFILIATIONS:

American Society of Civil Engineers
American Welding Society
Engineering Society of Detroit (ESD)

HARRY I. PAPADOPOULOS, PhD

TITLE:

Senior Geotechnical Engineer

EDUCATION:

Bachelor of Science/Physics
The Victoria University; University of Manchester, 1968

Master of Science/Civil Engineering
Wayne State University; Detroit, MI, 1971

Ph.D./Soil Mechanics
Wayne State University; Detroit, MI, 1974

Post-Doctoral Studies/Civil Engineering
National Science Foundation Fellow
University of Michigan, Ann Arbor, MI, 1974

EXPERIENCE:

Dr. Papadopoulos specializes in the fields of Geotechnical Engineering, Materials Testing, Quality Control/Assurance, and Environmental Engineering. Dr. Papadopoulos has over 40 years' experience in the United States, Europe and the Middle East in geotechnical engineering, construction materials testing and environmental site assessment investigations and supervision of engineering and technical staff. Responsibilities include development of geotechnical exploration programs; field and advanced laboratory testing of soils and construction materials, preparation of foundation and construction recommendations including pile, caisson, and auger cast pile recommendations, and slope stability analysis. Also experienced in pavement consulting and underground design. Background in commercial, municipal, industrial, and residential projects. Supervises drilling crews performing geotechnical and environmental sampling, piezometer, and ground water monitoring well installation.

SAMPLING OF PROJECTS:

Major Structures

Motor City Casino Hotel - Detroit, MI
Kennedy Square Parking Structure Renovations and Additions - Detroit, MI
Farmington Hills High School - Farmington Hills, MI
Pozios Plaza – Chesterfield Twp., MI
Our Lady of Fatima Church – Oak Park, MI

Municipal Projects

Macomb County; 31 Mile Road Bridge over Stony Creek
Village of Clarkston; DPW Building Addition
Ray Township; 27 Mile Road Culvert
City of Ann Arbor; sewer rehabilitation/reconstruction
City of Ecorse; Soils investigation and QC during construction of sewerage system and road paving