CITY of NOVI CITY COUNCIL

Agenda Item B
June 16, 2014

SUBJECT: Approval to award Agreements for Geotechnical Engineering Services for Public Projects to Soil & Materials Engineers and Testing and Engineering Consultants for a period of three years with the option of two one-year extensions, as recommended by the Consultant Review Committee, with an effective date of June 16, 2014.

SUBMITTING DEPARTMENT: Department of Public Services, Engineering Division

CITY MANAGER APPROVAL:

BACKGROUND INFORMATION:

Since 2009, the City has contracted for civil engineering consulting services for public infrastructure projects using three pre-qualified engineering consultants. In a similar manner, staff is proposing the use of pre-qualified geotechnical consultants. The City current seeks proposals for geotechnical engineering each time it is required for a project, and entails field and laboratory testing of most materials typically used in civil construction. The geotechnical engineering consultants work closely with staff and the civil engineering consultant to provide technical expertise in both the planning phase and construction phase for public infrastructure projects. The use of pre-qualified consultants for engineering consulting has streamlined the engineering award process and provides a steady, consistent amount of work so that each firm can routinely provide qualified staff dedicated to Novi. The goals of the geotechnical pre-qualification would be the same.

The Engineering Division completed the process to recommend two pre-qualified geotechnical consultants to be utilized for the planning and construction phases of public infrastructure projects. The attached Request for Qualifications was advertised publicly on January 17, 2014 to solicit two pre-qualified geotechnical engineering consultants. A total of ten firms submitted qualification packages on February 12, 2014. The qualification packages were reviewed and scored the using Qualification Based Selection (see attached March 19, 2014 memo for additional information). The firms with the top two scores were Soil and Materials Engineers and Testing and Engineering Consultants.

Engineering presented the list of firms and qualification packages to the Consultant Review Committee on April 7, 2014. The committee provided a positive recommendation to contract with the two firms for a three-year term with the option for two one-year renewals (see meeting minutes, attached).

The consultants submitted fee proposals providing a list of fees (staff hourly rates, field tests, lab tests, etc.). Only the fee proposals for SME and TEC were opened, and are

included at the end of each proposal package. The fees provided by each consultant are generally comparable to each other. While some fees do vary between the consultants, they are still in line with the fees submitted for past projects. The geotechnical engineering contracts are relatively small, at approximately 2.5% of the construction cost of a project, and any variance in fees won't amount to any significant impact to a project. In the past, geotechnical consultant fees varied from one project to another, but the proposed system will provide consistent fees that are locked in for the contractual period.

The attached Agreement for Geotechnical Engineering Consultant Services for Public Projects has been provided to each consultant for execution as a general agreement. Each consultant will execute an authorization for services form for each project that contains a specific scope and fee as determined by a proposal based on the standard fee schedule.

RECOMMENDED ACTION: Approval to award Agreements for Geotechnical Engineering Services for Public Projects to Soil & Materials Engineers and Testing and Engineering Consultants for a period of three years with the option of two one-year extensions, as recommended by the Consultant Review Committee, with an effective date of June 16, 2014.

	1	2	Y	N
Mayor Gatt				
Mayor Pro Tem Staudt				
Council Member Casey				
Council Member Fischer				

	1	2	Y	N
Council Member Markham				
Council Member Mutch				
Council Member Wrobel				

CITY COUNCIL AGENDA

CITY OF NOVI
Consultant Review Committee Meeting
Monday, April 7, 2014 at 6:15 p.m.
Mayor's Conference Room | Novi Civic Center | 45175 Ten Mile Road

Meeting called to order at 6:20 p.m.

COUNCIL MEMBERS PRESENT: Council Members Staudt, Wrobel

COUNCIL MEMBERS ABSENT/EXCUSED: Council Member Mutch

OTHERS PRESENT: Victor Cardenas, Assistant City Manager
Rob Hayes, Director of Public Services/City Engineer
Melissa Place, Administrative Assistant

APPROVAL OF AGENDA

Moved by Staudt; supported by Wrobel; CARRIED UNANIMOUSLY: To approve the agenda as presented.

APPROVAL OF MINUTES

Moved by Staudt, supported by Wrobel; CARRIED UNANIMOUSLY: To approve the August 26, 2013 meeting minutes as presented.

PURPOSE OF THE MEETING

1. Discussion of proposed pre-qualification of Geotechnical Firms.

Mr. Rob Hayes explained the City has contracted for civil engineering consulting services for public infrastructure projects for several years which have streamlined the engineering award process. Engineering is proposing to have a similar process with pre-qualifying geotechnical firms primarily for soil and concrete evaluation. The City typically has over 20 projects each year that such a service is needed. Mayor Pro-Tem Dave Staudt asked how many bids were received? Mr. Hayes said 10. How many firms is the department requesting to retain, said Mayor Pro-Tem Staudt? Mr. Hayes responded two. Will the two firms have an equal amount of work, asked Mayor Pro-Tem Staudt? Mr. Hayes commented yes they will have equal volume of work.

Moved by Staudt, supported by Wrobel; CARRIED UNANIMOUSLY: To engage the firms of Soil and Materials Engineers, Inc. and Testing Engineers & Consultants, Inc. to provide geotechnical consulting services on a as needed basis.

AUDIENCE COMMENTS – None

Moved by Staudt, supported by Wrobel; CARRIED UNANIMOUSLY: To adjourn the meeting at 6:25 p.m.

MEMORANDUM

TO: BRIAN COBURN, P.E.; ENGINEERING MANAGER BTC

FROM: BEN CROY, P.E.; CIVIL ENGINEER BLC

SUBJECT: PROPOSED PRE-QUALIFICATION OF GEOTECHNICAL FIRMS

DATE: MARCH 19, 2014

The attached Request for Qualifications was advertised publicly in January to solicit two pre-qualified geotechnical engineering consultants (see attached December 10, 2013 memo for further information). Since 2009, the City has contracted for civil engineering consulting services for public infrastructure projects using three pre-qualified consultants. In a similar manner, we are proposing to utilize pre-qualified geotechnical consultants. The geotechnical engineering consultants would work closely with staff and the civil engineering consultants to provide technical expertise in both the planning phase and construction phase for our public infrastructure projects. The use of pre-qualified consultants has streamlined the engineering award process and provides a steady, consistent amount of work so that each firm can routinely provide qualified staff dedicated to Novi. The goals of the geotechnical pre-qualification would be the same.

A total of ten firms submitted qualification packages on February 12, 2014. A team of four staff members reviewed the qualification packages to select firms using Qualifications Based Selection criteria. The summary of the review scores is as follows:

Firm	Score	Rank
Soil and Materials Engineers	**3645**	**1**
Testing Engineers & Consultants	**3120**	**2**
NTH Consultants	2785	3
CTI and Associates	2475	4
Professional Service Industries	2435	5
Somat Engineering	2015	6
G2 Consultant Group	1950	7
Schleede Hampton Associates	1240	8
Cardno ATC	1215	9
Haengel & Associates	1120	10

The two highest scoring consultants were Soil and Materials Engineers (SME) and Testing Engineers & Consultants (TEC). Proposals submitted by SME and TEC are attached.

The consultants also submitted fee proposals providing a list of fees (staff hourly rates, field tests, lab tests, etc.). Only the fee proposals for SME and TEC were opened, and are included at the end of each proposal package. The fees provided by each consultant are generally comparable to each other. While some fees do vary between the consultants, they are still in line with the fees submitted for past projects. The geotechnical engineering contracts are relatively small, at approximately 2.5% of the construction cost of a project, and any variance in fees won't amount to any significant impact to a project. In the past,

geotechnical consultant fees varied from one project to another, but the proposed system will provide consistent fees that are locked in for the contractual period.

Staff recommends a contract period similar to that used for our engineering consultants: a two-year term with three one-year renewal options. We plan to send this information to the Consultant Review Committee at their next meeting, followed by consideration by City Council at a future meeting.

cc: Victor Cardenas, Acting City Manager
Sue Morianti, Purchasing Manager
DPS Engineering Division

MEMORANDUM

cityofnovi.org

TO: ROB HAYES, P.E.; DIRECTOR OF PUBLIC SERVICES/CITY ENGINEER

FROM: BEN CROY, P.E.; CIVIL ENGINEER

SUBJECT: PROPOSED PRE-QUALIFICATION OF GEOTECHNICAL FIRMS

DATE: DECEMBER 10, 2013

Since 2009, the City has contracted for civil engineering consulting services for public infrastructure projects using three pre-qualified consultants with a common fee schedule. The use of the pre-qualified consultants has streamlined the engineering award process and provides a steady, consistent amount of work so that each firm can routinely provide qualified staff dedicated to Novi. These consultants provide technical expertise in the area of design, contract administration, and inspection of the public infrastructure work for compliance with the plans and specifications.

Geotechnical consultants are also utilized by Engineering staff to provide additional technical support related to subsurface investigation and material testing. The geotechnical consultant plays a role in both the planning phase and construction phase of the project. Information obtained from soil borings and pavement core samples collected during the planning phase of a project is critical to the design because it reflects the existing soil and pavement conditions. Material testing in the construction phase provides valuable feedback to the inspector and the City to ensure that the contractor is meeting specifications for soil compaction and pavement and concrete strength.

Approximately $70,000 to $80,000 is spent each year on geotechnical consultants, which equates to approximately 1.5% of the annual capital construction budget. We currently award geotechnical services by requesting a proposal from three firms, and making a selection after staff reviews and evaluates the proposals. This process is completed twice for most projects, once for the design phase and once for the construction phase, resulting in the award of 32 geotechnical contracts over the past two years. Each of these geotechnical awards were less than $15,000 and were therefore awarded administratively.

In order to improve our efficiency, we are recommending a pre-qualification process for geotechnical consultants similar to the current process used for civil engineering consultants. Staff from the City of Troy recently established a pre-qualification process for geotechnical consultants, and we contacted them to understand their process and for additional feedback. We also solicited feedback from our civil engineering consultants and current geotechnical consultants to help develop this process. Feedback from these sources is incorporated into our proposed methodology.

Similar to the process that we currently use for civil engineering consultants on public projects and for private development inspection, we propose the following methodology to pre-qualify geotechnical consultants:

- Publicly advertise a Request for Qualifications (RFQ) for geotechnical services on the Michigan Intergovernmental Trade Network (MITN). The RFQ will include a Request for Fee Proposals in a separate sealed envelope requiring the firm to provide a fee schedule based on the various tasks that the consultant would be expected to perform.

- Develop a short list of two firms based on review and scoring of the qualifications, and open the fee proposals for those firms.

- Select two firms based on overall total score of the qualifications and fee proposal results.

- Staff will negotiate with the two firms in an effort to produce a common fee structure. The final outcome will be a standard fee schedule for both consultants for standard tasks.

- Randomly determine an award order prior to the first project award. Occasionally, a firm could be selected out of order if the firm has previous knowledge or experience relating to the project site that would benefit that project. We will maintain a list of award amounts to make sure that the volume of work is evenly distributed to the two firms based on dollar value.

We would anticipate that the selected firms would enter into a general contract (similar to public project engineering services) with the City at the beginning of the qualification period that would cover general terms and conditions, such as insurance requirements, indemnification, deliverables, etc. In addition, when a firm is selected for a project, the City would enter into a supplemental contract that is specific to the scope and cost for each project.

If you concur with this concept and proposed methodology, we would like to advertise the RFQ in January to have the pre-qualified geotechnical consultants in place for the 2014 construction season.

cc: Sue Morianti, Purchasing Manager
Brian Coburn, Engineering Manager
Aaron Staup, Construction Engineering Coordinator

STATE OF MICHIGAN

COUNTY OF OAKLAND

CITY OF NOVI

AGREEMENT FOR GEOTECHNICAL ENGINEERING CONSULTANT SERVICES FOR PUBLIC PROJECTS

BETWEEN

CITY OF NOVI

AND

TESTING ENGINEERS & CONSULTANTS, INC.

This Agreement is effective this __ day of _____, 2014, and is between the **City of Novi**, 45175 West Ten Mile Road, Novi, Michigan 48375 (hereafter "**City**") and Testing Engineers & Consultants, Inc., 1343 Rochester Road, Troy, Michigan 48099-0249 (hereafter "**Consultant**").

RECITALS:

The City desires to engage the professional services of the Consultant to perform geotechnical engineering services for public projects on behalf of the City.

The Consultant desires to provide such services, as set forth below and in the attached and incorporated Exhibits, under the terms and conditions hereof.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties agree as follows:

1. **General Scope of Services and Term of Agreement:**

   a. For and in consideration of payment by the City as provided in this Agreement, Consultant shall perform the services described herein, including the services described in Exhibit A—*Geotechnical Engineering Consultant Services For Public Projects,* and shall provide engineering reports, test results, boring logs, approval letters, rejection letters, inspection reports, etc., as applicable, ("Deliverables") if and when such services are assigned by the City to Consultant by execution of an Authorization for Services, in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under

similar circumstances, and in compliance with all terms and conditions of this Agreement.

b. For geotechnical engineering services for individual projects, if and when assigned to Consultant, including roadway construction and rehabilitation work, sidewalk and pathway construction, water main construction, sanitary sewer/storm sewer construction, underground utility rehabilitation, and traffic signal construction, consultant shall submit an individual work plan for each project assigned to Consultant by the City based upon the scope of the particular project as described in accordance with Exhibit B— *Geotechnical Engineering Fee Proposal* for that particular type of project. Services shall be assigned to Consultant by approval by the City of an Authorization for Services ("Authorization for Services"), which shall be prepared for each individual project assigned to Consultant setting forth the specific scope and cost of the particular project. Consultant shall comply with the work description, insurance requirements, and other terms applicable to each individual project as set forth in the Authorization for Services.

c. The term of this Agreement shall be two years from the date set forth above, and will be open for review and negotiation by mutual agreement of Consultant and the City of Novi for three additional 1-year terms. However, either party may terminate this Agreement for any reason upon ninety (90) days' written notice to the other party. This Agreement may be terminated by either party upon 7 days' prior written notice to the other party in the event of substantial failure by the other party to fulfill its obligations under this agreement through no fault of the terminating party.

d. This Agreement is based on the ordinances, policies, procedures, or requirements in effect on the date of the Agreement. Any additional office or field services required as a direct and apparent result of the change of such ordinances, policies, procedures, or requirements shall be negotiated to the mutual consent of the City and Consultant.

e. City agrees that the Deliverables or other contracted services are primarily for the use of City. All documents prepared by the Consultant, including tracings, drawings, estimates, specifications, field notes, investigations, studies, reports, computer files, field data, notes, etc., in connection with the performance of its duties under this agreement shall become the property of the City upon completion of the services and payment in full of all monies due to the Consultant with respect to the preparation of such document. Reuse of any such materials by City on any extension of any project or any other project without the written authorization of Consultant shall be at City's sole risk. Consultant shall have the right to retain copies of all such materials.

f. The parties to this Contract intend that the relationship between them created by this Contract is that of service provider and service purchaser. It is expressly agreed, understood and intended that no employee-employer relationship shall exist or be established and that Consultant is an independent contractor who has been retained to render services to the City to achieve specific results in exchange for

specified recompense. As an independent contractor, Consultant expressly agrees that: (a) In the performance of this Contract, the relationship of Consultant to the City shall be that of an independent contractor and not that of an employee or agent of the City, and neither Consultant, nor any agent, employee or permitted subcontractor of Consultant, shall be or may be deemed to be the employee or agent of, or a servant to, the City; (b) Consultant will be solely responsible for payment of salaries, wages, and other compensation for its employees and agents; (c) Neither the Consultant nor any officer, agent, employee or subcontractor of the Consultant shall be eligible for coverage under or eligible to receive the benefits of the City's Workers' compensation, unemployment or health insurance, pension plans or other benefit plans; (d) Consultant is and shall perform under this Contract as an independent contractor, and no liability or responsibility with respect to benefits of any kind, including without limitation, medical/health benefits, Worker's compensation, pension rights, or other rights or liabilities arising out of or related to a contract for hire or employer/employee relationship shall arise or accrue to either party as a result of the performance of this Contract; and (e) Consultant, as an independent contractor, is not authorized to enter into or sign any agreements on behalf of the City.

2. Payment for Services:

a. Consultant shall invoice City monthly on account of Consultant's services. City shall pay Consultant within thirty (30) calendar days of the time of receipt of invoice from Consultant on account. Subject to sub-paragraph 2(b) below, the City shall pay the undisputed portions of each progress invoice within thirty (30) days of the date of the invoice. If payment is not maintained on a thirty (30) day current basis, Consultant may suspend further performance until payments are current.

b. City agrees that the periodic billing from Consultant to City are presumed to be correct, conclusive with regard to the services provided, and binding on City unless City, within thirty (30) calendar days from the date of receipt of such billing, notifies Consultant in writing of alleged disagreements with regard to the billing. Errors or discrepancies in a billing recognized after 30 calendar days but not more than 180 calendar days after receipt of invoice from Consultant shall be resolved to the mutual satisfaction of both parties. After 180 calendar days after receipt of invoice from Consultant, the professional services provided by Consultant shall be viewed as acceptable and closed. Final billing under this agreement shall be submitted in a timely manner but not later than three (3) months after completion of the services. Billings for work submitted later than three (3) months after completion of services will not be paid. Final payment will be made upon completion of audit by the City.

c. All fees and/or costs associated with or due to any governmental or review agencies arising from the services are the sole responsibility of the City.

d. All expenses required to complete the scope of services described in the Authorization for Service, including but not limited to costs related to mileage, vehicles, reproduction, computer use, etc., shall be included in the basic fee as set

forth in the Authorization for Services and shall not be paid separately. However, as compensation for expenses that are not included in the scope of services, when incurred in direct connection with the project, and approved by the City, the City shall pay the Consultant its actual cost.

e. The City shall confirm the correctness of any progress estimates made for billing purposes, and may use City staff for such purposes. Monthly statements for services shall be accompanied by such properly completed reporting forms and such other evidence of progress as may be required by the City.

f. In the event of termination for a substantial failure by the Consultant to fulfill its obligations under this agreement through no fault of the City, Consultant shall be paid as compensation in full for services performed to that date an amount calculated in accordance with the Authorization for Services for that particular project. Such amount shall be paid by the City upon Consultant's delivering or otherwise making available to the City all Deliverables and supporting materials including, but not limited to, data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been prepared and/or accumulated by Consultant in performing the services up to the date of termination.

3. Indemnification and Liability:

a. The Consultant agrees to hold harmless and indemnify the City, its officers, agents, employees from and against all claims, demands, suits liability, losses, damages or costs (including reasonable attorney fees and costs) arising out, of or resulting from the Consultant's tortious or negligent acts, errors, or omissions in performing this Agreement and all Authorization for Services.

b. The City and Consultant acknowledge that the Consultant's Scope of Services does not include any services related to the presence of any hazardous or toxic materials. In the event the Consultant or any other party encounters any hazardous or toxic materials, or should it become known to the Consultant that such materials may be present on or about the jobsite or any adjacent areas that may affect the performance of the Consultant's services, the Consultant may, at its option and without liability for consequential damages, suspend performance of its services under this Agreement until such time as the City retains appropriate Consultants or contractors to identify and abate or remove the hazardous or toxic materials and warrants that the jobsite is in full compliance with all applicable laws and regulations.

c. Consultant shall not be liable for damages resulting from the actions or inactions of any governmental agencies, including, but not limited to, plan processing; provided, however, that this provision shall not relieve Consultant of its obligations under this Agreement, including all Exhibits hereto, with respect to its securing, or assisting the City in securing, various governmental permits and appraisals in a manner consistent with the standard of care set forth in Paragraph 1.a. above.

d. Except as specifically set forth in the applicable Authorization for Services, the City acknowledges that Consultant is not responsible for the performance or work by third parties, including, but not limited to, construction contractors or their subcontractors.

e. The Consultant agrees that it is its responsibility and not the responsibility of the City to safeguard the property and materials used in performing this Agreement. Further, this Consultant agrees to hold the City harmless for any loss of such property and materials used pursuant to the Consultant's performance under this Agreement.

4. Insurance:

a. During the term of this Agreement, Consultant shall obtain and maintain in full force, at its own expense, the following insurance coverage in not less than the following amounts:

i. Worker's Compensation insurance relative to all Personnel engaged in performing services pursuant to this Agreement, with coverage not less than that required by applicable law,

ii. Comprehensive General Liability Public Liability, for occurrences while engaged in performing services pursuant to this Agreement, with coverage not less than the amount of $1,000,000 per occurrence;

iii. Professional Liability (Including Errors and Omissions) Insurance in the amount of $1,000,000 per claim

iv. Automotive Insurance covering all owned, hired, and non-owned vehicles with insurance to comply with the Michigan No-Fault Insurance Law, including Regional Liability Insurance with minimum bodily injury limits of $1,000,000 each occurrence and minimum property damage of $1,000,000 per occurrence.

b. Consultant shall be responsible for all deductibles contained in any insurance required hereunder.

c If during the term of this Agreement changed conditions or other pertinent factors should in the reasonable judgment of the City render inadequate existing insurance limits, the Consultant will furnish on demand such additional coverage as may reasonably be required under the circumstances. All such reasonable additional insurance coverage cost shall be paid for by the City of Novi, under valid and enforceable policies, issued by the insurers of recognized responsibility which are well-rated by national rating organizations and are acceptable to the City. The cost of insurance for individual projects shall be factored into the established fee curves in Exhibit B—*Geotechnical Engineering Fee Schedule* for each particular type of project

f. All policies shall name the Consultant as the insured and shall be accompanied by a commitment from the insurer that such policies shall not be canceled or reduced without at least thirty (30) days prior notice to the City.

g. With the exception of Professional Liability, all insurance policies shall name the City of Novi, its officers, agents, and employees as additional insured. Certificates of Insurance evidencing such coverage shall be submitted to Sue Morianti, Purchasing Manager, City of Novi, 45175 West Ten Mile Road, Novi, MI 48375-3024 prior to the commencement of performance under this Agreement and at least fifteen (15) days prior to the expiration dates of expiring policies.

h. If any service is sublet in connection with this Agreement, the Consultant shall require each subcontractor to effect and maintain at least the same types and limits of insurance as fixed for the Consultant.

i. The provisions requiring the Consultant to carry said insurance shall not be construed in any manner as waiving or restricting the liability of the Consultant under this Agreement.

j. Coverage under the general and auto liability policies shall be considered to be the primary coverage rather than any policies and insurance or self-insurance retention owned or maintained by the City of Novi. This coverage shall be primary to the Additional Insureds, and not contributing with any other insurance or similar protection available to the Additional Insureds, whether other available coverage is primary, contributing or excess.

5. Entire Agreement

a. Except for the terms of each Authorization for Services, which shall be deemed additional terms to this Agreement, this Agreement contains the entire agreement between the City and Consultant relating to services to be provided by Consultant to the City. Any prior agreements, promises, negotiations, and representations not expressly set forth in this Agreement are of no force or effect. Subsequent modifications to this Agreement shall be in writing and signed by both City and Consultant.

b. With respect to any direct conflict between the terms of this Agreement and any Authorization for Services as defined in Section 1(b) above, the terms of the Authorization for Services shall control with respect to that individual project set forth in the particular Authorization for Services only. Notwithstanding this subsection, Section 3, Indemnification and Liability, shall be additional to those indemnity and hold harmless provisions set forth in any Authorization for Services, except that Section 3(c) of this Agreement shall not apply to individual design and/or construction management projects.

c. This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

6. **Assignment:**

Neither City nor Consultant shall assign this Agreement without the prior written consent of the other.

7. **Severability:**

Waiver of any term, condition, or covenant, or breach of any term, condition, or covenant, shall not constitute the waiver of any other term, condition, or covenant, or the breach of any other term, condition, or covenant. If any term, condition, or covenant of this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions of this Agreement shall be valid and binding on City and Consultant, unless the court's action or holding has the effect of frustrating the purpose of this Agreement.

8. **Delays:**

It is expected that the Consultant will perform the work in a timely fashion in accordance with the schedule that is agreed upon at the commencement of each project. The Consultant shall provide requested items within ten (10) working days of the request. Deliverables shall be submitted to appropriate City staff no later than ten (10) working days after the work is performed.

Consultant is not responsible for delay caused by activities or factors beyond the Consultant's reasonable control, including but not limited to, delays by reason of strikes, lockouts, service slowdowns or stoppages, accidents, acts of God, failure of Client to furnish timely information or approve or disapprove of Consultant's services or product promptly, faulty performance by the City or the City's other contractors or government agencies. When such delays beyond the Consultant's reasonable control occur, City agrees Consultant is not responsible for damages nor shall Consultant be deemed to be in default of this Agreement.

No charges or claims for damages shall be made by the Consultant for delays or hindrances from any cause whatsoever during the progress of any portions of the services specified in this Agreement, except as hereinafter provided.

In case of a substantial delay on the part of the City in providing to the Consultant either the necessary information or approval to proceed with the service resulting through no fault of the Consultant, in delays of such extent as to require the Consultant to perform its services under changed conditions not contemplated by the parties, the City will be responsible for supplemental compensation limited to increased costs incurred as a direct result of such delays. Any claim for supplemental compensation must be in writing and accompanied by substantiating data.

When delays are caused by circumstances or conditions beyond the control of the Consultant as determined by the City, the Consultant shall be granted an extension of time for such reasonable period as may be mutually agreed upon between the parties, it being

understood, however, that the permitting of the Consultant to proceed to complete the services, or any part of them, after the date to which the time of completion may have been extended, shall in no way operate as a waiver on the part of the City of any of its rights herein set forth.

9. Disclosure:

Consultant affirms that it has not made or agreed to make any valuable gift whether in the form of service, loan, thing, or promise to any person or any of the person's immediate family, having the duty to recommend, the right to vote upon, or any other direct influence on the selection of consultants to provide professional design services to the City within the two years preceding the execution of this Agreement. A campaign contribution, as defined by Michigan law shall not be considered as a valuable gift for the purposes of this Agreement.

10. Nondiscrimination:

The Consultant shall not discriminate against any employee, or applicant for employment because of race, color, sex, age or handicap, religion, ancestry, marital status, national origin, place of birth, or sexual preference. The Consultant further covenants that it will comply with the Civil Rights Act of 1973, as amended; and the Michigan Civil Rights Act of 1976 (78 Stat. 252 and 1976 PA 4563) and will require a similar covenant on the part of the consultant or subcontractor employed in the performance of this Agreement.

11. Approval; No Release:

Approval of the City shall not constitute nor be deemed release of the responsibility and liability of Consultant, its employees, associates, agents and consultants for the accuracy and competency of their Deliverables; nor shall that approval be deemed to be an assumption of that responsibility by the City for any defect in the designs, drawings and specifications or other documents prepared by Consultant, its employees, subcontractor, agents and consultants. After acceptance of Consultant's work, Consultant agrees, prior to and during the construction of this project, to perform those engineering services as may be required by City to correct errors or omissions on the Deliverables prepared by Consultant and to change corresponding design recommendations as required.

During the performance of the professional services by Consultant, City shall have the right to inspect the work and its progress to assure that it complies with this Agreement. If such inspections reveal a defect in the work performed or other default in this Agreement, City shall provide Consultant with written notice to correct the defect or default within a specified number of days of the notice. Upon receiving such a notice, Consultant shall correct the specified defects or defaults within the time specified. Upon a failure to do so, the City may terminate this Agreement by written notice and finish the work through whatever method it deems appropriate, with the cost in doing so being a valid claim and charge against Consultant; or, the City may preserve the claims of defects or defaults without termination by written notice to Consultant.

All questions which may arise as to the quality and acceptability of the work shall be decided by the City. All questions as to the satisfactory and acceptable fulfillment of the terms of this agreement shall be decided by the City.

12. Compliance With Laws:

This Contract and all of the Consultant's Professional Services and practices shall be subject to all applicable state, federal and local laws, rules or regulations, including without limitation, those which apply because the City is a public governmental agency or body. Consultant represents that it is in compliance with all such laws and eligible and qualified to enter into this Agreement.

13. Dispute Resolution.

The parties agree to try to resolve any disputes as to geotechnical engineering services or otherwise in good faith. In the event that the parties cannot resolve any reasonable dispute, the parties agree to seek alternative dispute resolution methods agreeable to both parties and which are legally permissive at the time of the dispute. The parties agree to use their best efforts to resolve any good faith dispute within 90 (ninety) days' notice to the other party. In the event the parties cannot resolve that dispute as set forth above, they may seek such remedies as may be permitted by law.

13. Notices:

Written notices under this Agreement shall be given to the parties at their addresses on page one by personal or registered mail delivery to the attention of the following persons:

City of Novi: **Rob Hayes, P.E., Director of Public Services and Maryanne Cornelius, Clerk, with a copy to Thomas R. Schultz, City Attorney**

Consultant: Testing Engineers & Consultants, Inc.
Carey J. Suhan, PE
Vice President & Principal, with a copy to
William J. West, PE
Manager, Construction Services

CITY OF NOVI

By

Robert J. Gatt, Mayor

By

Maryanne Cornelius, Clerk

TESTING ENGINEERS & CONSULTANTS, INC.

By

Carey J. Suhan, PE
Vice President & Principal

EXHIBIT A

GEOTECHNICAL ENGINEERING CONSULTANT SERVICES FOR PUBLIC PROJECTS

CITY OF NOVI, MICHIGAN
REQUEST FOR QUALIFICATIONS (RFQ) / REQUEST FOR FEE PROPOSALS (RFP)

JANUARY 2014

GEOTECHNICAL ENGINEERING CONSULTANT SERVICES FOR PUBLIC PROJECTS

Section 1: General Information

The City of Novi (population 59,395) is seeking to develop a list of two (2) qualified geotechnical engineering consultants to perform geotechnical investigation and material testing services for water, sanitary sewer, storm sewer, roadway, and pathway related projects as they are completed by the City. Once the list of qualified consultants is selected and approved by City Council, projects are awarded on a rotating basis to the selected firms.

Beginning at the date of Council approval, the qualification for geotechnical investigation and material testing services for public projects is valid for a period of two (2) years, with the potential for extension beyond the two-year qualification period. During the last two year period, approximately thirty (30) public projects, and an average of $78,800 in fees were awarded to geotechnical consultants each year.

The Request for Qualifications and Request for Fee Proposals shall be submitted simultaneously in separate envelopes. The qualifications submittal will be reviewed, and the firms with the highest rating following the review process will be selected for a short list. Finally, the selected firm's RFP's will be reviewed, and two (2) firms will be chosen.

Section 2: Qualifications

Firms interested in submitting qualifications shall meet the following minimum requirements:

A. Minimum Qualifications

a. The firm shall have an established local office with an AASHTO certified laboratory, prior to the date of this RFQ, within thirty-five (35) miles of the Novi Civic Center (45175 Ten Mile Road, Novi MI) that is staffed with personnel who will provide geotechnical engineering services to the City of Novi.

b. The firm shall demonstrate that an adequate number of professionals are employed in the various fields required to complete the amount of work and the type of work contemplated in this RFQ.

c. The firm shall employ a minimum of two (2) licensed professional engineers registered in the State of Michigan, and located in the local office, as outlined above.

B. Format Requirements for Qualifications Submittal

a. Background of firm - History, areas of expertise, locations, size and resource capabilities (especially of the local office) to perform the required services, and meet the minimum qualification requirements.

b. Statement of understanding of the general scope of services.

c. Staffing Section – Provide résumés of individuals who provide oversight during the investigation and testing. (During the contract period, if the firm chooses to assign different personnel, then the firm must submit their names and qualifications, including information listed above, to the City for advanced approval). The firm's field technicians shall maintain their Level 1 Concrete Field Testing Certification (MCA) and their MDOT Density Technology Certification.

d. Qualifications Section – This section shall describe the qualifications of the firm in regard to experience with each type of project (roads, pathways, city utilities) within the past two (2) years. Information presented in this section shall include the following for each type of project:

I. A general summary of the firm's demonstrated capabilities and experience.

II. Detailed descriptions of projects similar in nature to the services described in the RFQ.

III. Names of key staff who participated in referenced projects and their specific responsibilities with respect to the services described in the RFQ.

IV. A minimum of three (3) references from municipalities, or municipal engineering firms, that received similar services from the firm. The City of Novi reserves the right to contact any of the organizations or individuals listed. Information provided shall include: 1) client name, 2) project description, 3) project start and end dates, and 4) client contact name, telephone number and e-mail address.

Section 3: Qualification Submittal Evaluation

The City's geotechnical consultant evaluation and selection process is based on the Qualifications Based Selection (QBS) process for professional services. The City will use the following criteria in its evaluation and selection process:

A. Background of Firm. (15%)

B. Understanding of the Scope of Services, and commitment to exceeding minimum requirements. (35%)

C. Recent experience in conducting similar scopes of work for other public agencies (excluding City of Novi). (25%)

D. Staff's educational background, work experience and relevant consulting experience. (25%)

The City may contact and evaluate the firm's references; contact the firm to clarify any response; contact any of the firm's current clients; solicit any information from any available source concerning any aspect of a submittal; and seek and review any other information deemed pertinent to the evaluation process.

Section 4: Cost Proposal

A. Award of Contracts

The selected consultants will enter a general agreement with the City (see agreement draft in Exhibit A) for a period of two (2) years. Each project will be awarded to a consultant administratively under the terms of the general agreement. Projects will be awarded on a rotating basis. The order of award to consultants will initially be chosen at random and projects will generally be awarded in order with the intent to award comparable fee amounts to each consultant during the 2-year term of the general agreement. It is possible, based on varying contract amounts, that the award order could change from the initial order.

B. Fee Structure

The fees for standard projects will follow the tabulated fee structure provided in Attachment A. Other Considerations are as follows:

a. A completed Attachment A shall be submitted as the fee proposal for consideration of future contracts. Following receipt of all fee proposals, the City will work with the qualified consultants to develop a uniform fee structure.

b. The fees shall include all expenses required to complete the scope of services described herein, including but not limited to costs related to mileage, vehicles, reproduction, computer use, etc., unless otherwise indicated on proposal form.

c. If the City and the selected consultant are unable to agree upon a standard fee schedule, the City at its own discretion may choose to select the next highest scoring as a pre-qualified consultant for submittal of a proposal.

d. When submitting the proposal, include a fee sheet of all the testing, boring, equipment, and staff prices.

Section 5: Scope of Work

General Investigation and Material Testing Scope of Services for Public Projects:

The following project categories with geotechnical investigations or material testing are included as general projects under this contract; therefore, a standard fee and scope would be developed:

- Road Rehabilitation/Reconstruction
- Traffic Signal Replacement
- Sidewalk/Pathway Construction
- Water Main Construction
- Sanitary Sewer Rehabilitation

The scope of services for design and construction phase projects will generally include the following scope of services:

A. At the beginning of each project, discuss the project needs with the City and/or the City's engineering consultant to determine the location and number of soil borings or pavement cores needed for the project. Once awarded by the City, perform the field work agreed upon in the scope of services for each project and provide reports as necessary to the City and the City's engineering consultant to assist in the design phase of the project.

B. Prior to the construction phase of each project, discuss and/or meet with the City and/or the City's engineering consultant to determine the scope of services for material testing in the construction phase of the project.

C. Once awarded by the City, perform the field work agreed upon in the scope of services for each project and provide routine reports as necessary to the City and the City's engineering consultant within one week of each site visit. All reports or test results should be submitted electronically to the individuals identified by the City.

D. Any failing tests in the field shall be documented and immediately brought to the attention of the City and the City's engineering consultant.

E. Attendance at the pre-construction meeting shall be required.

F. Coordinate with Miss Dig before any investigation work is started.

G. Consultants must be available with twenty-four (24) hour notice for material testing.

Section 6: Instructions to Proposers

Questions

Questions regarding this Request for Qualifications may be directed to: Civil Engineer, Ben Croy, PE at bcroy@cityofnovi.org or (248) 735-5635, or Engineering Manager, Brian Coburn, PE at bcoburn@cityofnovi.org or (248) 735-5632.

Important Dates

RFQ Issue Date: **January 17, 2014**
Last Date for Questions: **February 4, 2014**

Proposal Submittals

To be considered, sealed RFQ (five paper copies (bound) and one CD or DVD containing the complete proposal in pdf format) and sealed RFP (one paper copy) must arrive at the City Clerk's Office, 45175 Ten Mile Road, Novi, Michigan 48375 on or before **3:00 P.M., Wednesday, February 12, 2014**, and clearly labeled "Geotechnical Engineering Consultant Services for Public Projects". There will be no exceptions to this requirement and the City of Novi shall not be held responsible for late, lost, or misdirected proposals. No other distribution of the proposals will be made by the Consultant. Proposals must be signed by an official authorized to bind the Consultant to its provisions.

FAILURE TO SUBMIT PRICING ON THE PROPOSAL FORM PROVIDED BY THE CITY OF NOVI MAY CAUSE THE BID TO BE CONSIDERED NON-RESPONSIVE AND INELIGIBLE FOR AWARD.

Proposals must be submitted in a sealed envelope. Outside of mailing envelope must be labeled with name of consultant and name of RFQ. Failure to do so may result in a premature opening or failure to open such proposal.

To be considered, sealed proposals must arrive at City Clerk's Office, on or before the specified time and date. There will be no exceptions to this requirement. Proposal is considered received when in the possession of the City Clerk. Consultants mailing proposals should allow ample time to ensure the timely delivery of their proposal. Proposals received after the closing date and time will not be accepted or considered. Faxed, emailed, or telephone bids are not acceptable. The City reserves the right to postpone an RFQ/RFP opening for its own convenience.

A proposal may be withdrawn by giving written notice to the Purchasing Manager before the stated due date/closing time. After the stated closing time, the bid may not be withdrawn or canceled for a period of One Hundred and Twenty (120) days from closing time.

Proposers are expected to examine all information and instructions. Failure to do so will be at the proposer's risk.

Failure to include in the proposal all information requested may be cause for rejection of the proposal.

Any samples, CDs, DVDs or any other items submitted with your bid will not be returned to the consultant.

No proposal will be accepted from, or contract awarded to any person, firm, or corporation that is in arrears or is in default to the City Novi upon any debt or contract, or that is in default as surety or otherwise, or failed to perform faithfully any previous contract with the City.

USE OF THE CITY LOGO IN YOUR PROPOSAL IS PROHIBITED.

Changes to the RFQ/Addenda

Should any prospective Proposer be in doubt as to the true meaning of any portion of the Request for Qualifications (RFQ) or Request for Fee Proposal (RFP), or should the Proposer find any patent ambiguity, inconsistency, or omission therein, the Proposer shall make a written request (via email) for official interpretation or correction. Such request shall be submitted to the specified person by the date listed above. The individual making the request shall be held responsible for its prompt delivery.

Such interpretation or correction, as well as any additional RFQ provisions that the City may decide to include, will be made as an addendum, which will be posted on the MITN website at www.mitn.info. Any addendum issued by the City shall become part of the RFQ and shall be taken into account by each proposer in preparing their proposal. Only written addenda are binding. It is the Proposer's responsibility to be sure they have obtained all addenda. Receipt of all addenda must be acknowledged on proposal form.

Responsive Proposals

All pages and the information requested herein shall be furnished completely in compliance with instructions. The manner and format of submission is essential to permit prompt evaluation of all proposals on a fair and uniform basis. The City reserves the right to declare as non-responsive, and reject an incomplete proposal if material information requested is not furnished, or where indirect or incomplete answers or information is not provided.

Contract Award

The contract that will be entered into will be that which is most advantageous to the City of Novi, prices and other factors considered. The City reserves the right to accept any or all alternative proposals and to award the contract to other than the lowest proposer, waive any irregularities or informalities or both, to reject any or all proposals, and in general, to make the award of the contract in any manner deemed by the City, in its sole discretion, to be in the best interests of the City of Novi.

After contract award, notification will be posted on the MITN website at www.mitn.info

Attachment A and Exhibit A Intentionally
Excluded from above RFQ/RFP

EXHIBIT B

GEOTECHNICAL ENGINEERING FEE PROPOSAL

CITY OF NOVI
GEOTECHNICAL ENGINEERING SERVICES

FEE PROPOSAL FORM

Description	Fee	Unit/Rate
Test		
Nuclear Density Gauge	$25.00	Per Day
Concrete Cylinder Compression Test (C-39)	$12.00	Per Test
Visual Classification (D-2488)	$20.00	Per Test
Moisture Density Relationship "Modified Proctor" (D-1557)	$130.00	Per Test
Particle Size Analysis (D-422)	$65.00	Per Test
Asphalt Extraction/Sieve Analysis (D-2172)	$150.00	Per Test
Maximum Specific Gravity (D-2041)	$75.00	Per Test
Marshall Stability and Flow (D-6927)	$30.00	Per Test
Atterberg Limits (D-4318)	$80.00	Per Test
Organic Content Soil (D-2974)	$50.00	Per Test
Unconfined Compressive Strength (D-2166)	$50.00	Per Test
Moisture Content (D-2216)	$10.00	Per Test
Bulk Density of Asphalt Cores	$ 30.00	Per Test
Investigation		
Truck Mounted Drill Rig	$400.00	Per Day
ATV Equipment	$300.00	Per Day
Boring Layout	$85.00	Hourly
Borings (Less than 50' deep)	$11.00	Linear Foot
Coring Machine	$100.00	Per Day
Pavement Core Samples	$ 50.00	Each
Staff		
Principal	$135.00	Hourly
Project Manager/Engineer	$98.00	Hourly
Staff Engineer	$85.00	Hourly
Engineering Technician (Concrete/HMA/Soils)	$47.00	Hourly
Structural Steel Technician	$60.00	Hourly
Administrative	$0	Hourly

Provide any additional explanation as appropriate to clarify the above fee structure (e.g. any additional tests or testing details, where staff time may be required in addition to testing unit rates, etc.):

Please see attached unit rates.

This proposal submitted by:

Company (Legal Registration) Testing Engineers & Consultants, Inc.

Address 1343 Rochester Road

City Troy State MI Zip 48083

Telephone 248-588-6200 Fax 248-588-6232

Representative's Name Carey J. Suhan, PE

Representative's Title Vice President, Geotechnical & Environmental Services

Authorized Signature

E-mail csuhan@tectest.com

Date 2-11-14

GEOTECHNICAL SERVICES
FEE SCHEDULE

A. DRILLING

1. Mobilization and moving of drilling equipment on and off site

   a. Per Mile ..... $ 3.75
   b. Per Day (Minimum) ..... $ 400.00

2. ATV Charge (Per Day) ..... $ 300.00

3. Boring Layout ..... Hour $ 85.00

4. Soil sampling using either split-barrel sampler (ASTM D1586) or liner sampler (ASTM D1587) at 2 1/2 foot intervals to 10 feet, and 5 foot thereafter

   a. 0' - 25' ..... Foot $ 10.00
   b. 26' - 50' ..... Foot $ 12.00
   c. 51' - 75' ..... Foot $ 15.00
   d. 76' - 100' ..... Foot $ 18.00
   e. 100+' ..... Quoted Upon Request

   An additional charge of $1.00 per foot will be made for soils with more than 50 blows per foot or 4.5 tsf qu or strata containing boulders, slag, building rubble or broken concrete.

5. Additional Split-Spoon Sampling
   a. 0' - 50' ..... Each $ 14.00
   b. 50' - 100' ..... Each $ 18.00

6. Rock Coring $150.00 set up per hole, plus ..... Foot $ 45.00

7. Auger-drilling with profile sampling ..... Foot $ 8.75

8. Cost of special equipment or permit for moving drilling equipment about the site ..... At Cost Plus 15%

9. Set up time per hole or time required to move between boring locations in excess of 1/2 hour or stand by time ..... Hour $ 175.00

10. Thin wall (Shelby) tubes ..... Each $ 40.00

11. Drilling through concrete or asphalt ..... Inch $ 12.00

GEOTECHNICAL SERVICES FEE SCHEDULE (cont'd)

B. LABORATORY TESTING

1.	Atterberg Limits Determination (LL and PL)	Each $	80.00
2.	Hydrometer & Sieve Analysis (Combined)	Each $	150.00
3.	Loss on Ignition (Organic Content)	Each $	50.00
4.	Sieve Analysis	Each $	55.00
5.	Specific Gravity Determination	Each $	50.00
6.	Standard Series (Moisture, Density, Rimac Unconfined)	Each $	10.00
7.	Unconfined Compression Test (Split-spoon or Liner Sample)	Each $	30.00
8.	Unconfined Compression Test (Undisturbed Tube Sample)	Each $	70.00
9.	Permeability Test (Falling Head)	Each $	250.00
10.	Permeability Test (Triaxial Method)	Each $	600.00
11.	Permeability Test (Sample Prep)	Hour $	55.00

C. ENGINEERING

Professional and technical services for field supervision, analysis of test data, and engineering recommendations and consultation.

1.	Staff Engineer	Hour $	85.00
2.	Senior Engineer	Hour $	98.00
3.	Project Consultant	Hour $	110.00
4.	Principal Consultant	Hour $	135.00

D. REMARKS

1. Rate for advanced laboratory testing will be quoted upon request.
2. Services and fees not listed above, such as the installation of groundwater monitoring wells, will be quoted upon request.

2013 SCHEDULE OF FEES
CONSTRUCTION TESTING AND INSPECTION SERVICES

1.0 PERSONNEL

1.1 Clerical		No Charge
1.2 Engineering Technician I	Hour	$ 37.00
1.3 Engineering Technician II	Hour	$ 42.00
1.4 Engineering Technician III	Hour	$ 47.00
1.5 Roofing/Waterproofing Inspector	Hour	$ 52.00
1.6 Masonry Inspector	Hour	$ 55.00
1.7 Structural Steel/Fireproofing Inspector	Hour	$ 60.00
1.8 NDT/CWI Technician	Hour	$ 60.00
1.9 Staff Engineer/Consultant	Hour	$ 85.00
1.10 Project Engineer/Manager	Hour	$ 98.00
1.11 Professional Engineer	Hour	$110.00
1.12 Principal Professional Engineer	Hour	$135.00

2.0 LABORATORY SERVICES

2.1 Soil/Aggregate		
a. Moisture Density Relationship, (Proctor)	Each	$130.00
b. Sieve Analysis Fine Aggregate	Each	$ 75.00
c. Sieve Analysis Coarse Aggregate	Each	$ 85.00
2.2 Bituminous		
a. Extraction (Percent Asphalt)	Each	$150.00
b. Sieve Analysis on Extracted Aggregates	Each	$ 75.00
c. Theoretical Maximum Specific Gravity	Each	$ 75.00
2.3 Concrete		
a. Compressive Strength, Cylinders	Each	$ 13.00
b. Compressive Strength, Cores	Each	$ 35.00
2.4 Masonry		
a. Grout Specimen, Compressive Strength	Each	$ 15.00
b. Mortar Cubes, Compressive Strength	Each	$ 15.00
c. Masonry Unit, Compressive Strength	Each	$ 50.00
2.5 Other		
a. Fireproofing Density	Each	$ 50.00

3.0 FIELD EQUIPMENT

3.1 Soils		
a. Nuclear Density Gauge	Day	$ 35.00
b. MDOT Field Density Equipment	Day	$ 20.00
3.2 Steel		
a. Ultrasonic Thickness Gauge	Day	$ 75.00
b. UT Flaw Detector	Day	$100.00

Authorization for Services

Project: Date: _____
Purchase Order #:

Description of Services

1. Geotechnical engineering services per attached proposal dated _____, and in accordance with the AGREEMENT FOR GEOTECHNICAL ENGINEERING CONSULTANT SERVICES FOR PUBLIC PROJECTS, and attached exhibits, entered into between the City and the Consultant on _____.

Amount authorized: $x,xxx

TESTING ENGINEERS & CONSULTANTS, INC.

Requested by: _____ Date: _____
Name and Title

CITY OF NOVI

Reviewed by: _____ Date: _____
Brian Coburn, Engineering Manager

Approved by: _____ Date: _____
Rob Hayes, Director of Public Services

Approved by: _____ Date: _____
Sue Morianti, Purchasing Manager

Qualifications to Provide:

As-Needed Geotechnical Engineering Consultant Services for Public Projects

Submitted to:

City of Novi

"Engineering Client Success"

TEC Proposal #060-14-0011
Submitted: February 12, 2014

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

February 12, 2014

TEC Proposal No. 060-14-0011

City of Novi
Attn: City Clerk's Office
45175 Ten Mile Road
Novi, Michigan 48375

"Impressed with turn around on report and a request for revision that came from client (City). Bill West was available to meet on site within days of asking and is always client focused."

Matthew Parks, PE
Client Rep for City of Farmington Hills

Re: Qualifications to Provide Geotechnical Engineering Field and Laboratory Testing and Consultant Engineering Services

Dear Selection Committee:

Testing Engineers & Consultants, Inc. (TEC), a certified Woman-owned Business Enterprise (WBE), is pleased to present our ***Qualifications*** for all aspects of geotechnical engineering and material testing services needed for fiscal years 2014-2015. We have carefully reviewed the formal Request for Qualifications and subsequent *Addendum #1* in preparation of the enclosed submittal.

Through our extensive project history with local Municipalities, the State of Michigan, regional organizations such as Washtenaw Country Road Commission and the Road Commission for Oakland County, and countless municipalities, we are very aware that our fellow residents expect the best infrastructure for the least cost and the fewest number of construction days. Our infrastructure team brings over four decades of work history in support of clients just like City of Novi.

A staff of professional engineers, full service laboratories and experienced support staff assist TEC's field personnel as necessary, to ensure a successful project outcome. As our Client, you benefit from the cost and time minimizing aspects of utilizing in house resources, such as TEC's fleet of drill rigs, all- terrain vehicles, and rig- mounted direct push equipment for environmental drilling. Our AASHTO accredited laboratory supports field personnel to provide test results in a prompt and cost-effective manner.

TEC is headquartered in Oakland County and our roots run deep. Our 48 years of professional experience aligns perfectly with the engineering and testing services required for this contract. We look forward to continuing our working relationship into the next two years and beyond.

Respectfully yours,
TESTING ENGINEERS & CONSULTANTS, INC.

Carey J. Suhan, PE
Vice President & Principal

William J. West, PE
Manager, Construction Services

Enclosures

TABLE OF CONTENTS

SECTION 1

FIRM BACKGROUND

FIRM BACKGROUND

Testing Engineers & Consultants, Inc. (TEC), a certified Woman Business Enterprise founded and Incorporated in the State of Michigan in 1966, is pleased to present our qualifications for all aspects of geotechnical engineering required for the City of Novi's 2013-2014 as-needed contract. As a firm with numerous municipal as-needed contracts, we are very aware of what residents expect including the best infrastructure for the least cost and the fewest number of construction days. This can only be accomplished with an experienced Project Team that has hands on working knowledge of the City's needs and expectations and has experience working with other City project firms to meet and manage the project and meet the deadlines.

> *"Always can count on TEC for testing services. You are one of our "preferred" testing consultants. We always recommend your services to our clients."*
>
> Ronald Syme, Jr., AIA, LEED AP
> Wakely Associates for Macomb County
> *May 2013*

A staff of professional engineers, MDOT approved QA/QC procedures, full service laboratories, and experienced support staff assist TEC's field personnel to ensure a successful project outcome. As our Client, you benefit from the cost and time minimizing aspects of utilizing in-house resources, such as TEC's fleet of drill rigs, all- terrain vehicles, and rig- mounted direct push equipment for environmental drilling. Our AASHTO accredited laboratory supports field personnel to provide test results in a prompt and cost-effective manner.

TEC is headquartered in Troy with Branch Offices in Ann Arbor and Detroit. Our 47 years of professional experience aligns perfectly with the engineering services required for this contract. For over three decades we have worked for the Washtenaw County Road Commission, Parks and Recreation Department and the Purchasing Division. Now we look forward to continuing our working relationship into the next decade.

The work will be performed with staff from our Ann Arbor Office located at: 3985 Varsity Drive, Ann Arbor, MI 48108 • 734-971-0030• 734-971-3721 (f) and our Troy office at: 1343 Rochester Road, Troy, MI 48083 • 248-588-6200• 248-588-6233 (f)

Prime Client Contact

Mr. Carey J. Suhan, PE, Vice President and Principal will be the Project Manager and Prime Contact for this contract and will be responsible for coordinating and managing all field and laboratory activities as well as engineering analysis and report preparation. Mr. Suhan can be reached via cell *248-361-0764* or email csuhan@tectest.com.

SECTION 2

STATEMENT OF UNDERSTANDING

- MDOT Prequalification Classifications
- AASHTO Laboratory Accreditation

STATEMENT OF UNDERSTANDING

Introduction

In response to your request, we at Testing Engineers & Consultants, Inc. (TEC), a woman-owned firm, are pleased to submit our Qualifications to provide Professional Geotechnical & Material Testing Engineering services on various federal, state and locally funded road and infrastructure projects throughout City of Novi. As an Oakland County Headquartered Firm, we have a stake in maintaining safe roads and bridges in our Community.

Understanding of Services

TEC understands that City of Novi is soliciting Qualifications for up to two firms to perform Professional Geotechnical and Materials Engineering services on various federal, state and locally funded road and infrastructure projects throughout City of Novi for fiscal years 2014 – 2015.

We have prepared the enclosed Qualifications with the understanding that up to two (2) Consultants will be selected to perform the necessary services after review of the submittals. Once selected, the Consultant will be placed on a pre-qualified list of consultants to provide the as-needed engineering services. A cost proposal, based on the unit rates contained in this submittal, will be prepared at that time and if found reasonable, a contract will be issued by City of Novi.

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

TEC will comply with all standard construction practices of City of Novi; 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, ASTM Standards and all other references guidelines, and procedures manuals needed to carry out the work described herein in an appropriate manner.

All 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 City of Novi representative.

Credentials

TEC has been providing geotechnical and construction material testing services on road, utility, traffic signal and pedestrian pathway projects throughout Michigan and the surrounding states for the past 47 years. TEC has extensive relevant experience providing these types of services to Municipalities, WCRC, RCOC, and other public owners/agencies in Michigan. Documentation of TEC's MDOT Prequalification and AASHTO Accreditation are included at the end of this section.

STATEMENT OF UNDERSTANDING Cont.

Furthermore, TEC has provided Geotechnical and Construction Materials Testing services to MDOT and as part of the MDOT design teams for at least 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.

In addition – TEC maintains two offices & laboratories within the specified 35 mile radius from the Novi Civic Center. The Troy, MI and the Ann Arbor, MI locations are within the specified radius and are available to assist in serving the City of Novi.

TEC has provided coring, drilling, sampling, laboratory analysis and engineering services for countless roads, bridges, utilities, pedestrian paths, boardwalks, 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 at least the last 30 years and consequently have provided Geotechnical and Materials Testing services on nearly every road project within these cities in the last 30 years or more. We also maintain an as-needed blanket geotechnical engineering and construction materials testing contracts with the Cities of Farmington Hills and Rochester Hills. In addition, TEC maintains a blanket Geotechnical and Materials Engineering contract with Washtenaw County Road Commission (WCRC) and Road Commission for Oakland County (RCOC).

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.

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 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.

STATEMENT OF UNDERSTANDING Cont.

Laboratory Testing

Geotechnical Laboratory

TEC's lab is accredited by AASHTO, is routinely inspected by the AASHTO Materials Reference Laboratory and the Cement and Concrete Reference Laboratory, 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 City of Novi 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 – Senior Technical Advisor*.

Safety

TEC views safety to be of utmost importance and will take all practical steps to safeguard employees from accidents and to maintain at all times a safe work environment for project staff and the traveling public. To ensure that all field staff are working in accordance with applicable safety procedures, TEC entered a "Safe-2-Work" training program in January 2003, (which has transitioned to the "MUST" program) and we continually monitor its results for effectiveness.

TEC's field staff attend regularly scheduled safety meetings and are trained in the MUST Program safety modules. To that end, TEC staff will wear the appropriate personal protective equipment (PPE) as stated in MDOT's Guidance Document #10118 and comply with MIOSHA regulations and safety policies while working on any City project.

Safety during traffic control requires a comprehensive approach to protect the general public and project personnel during construction activities. TEC will perform traffic control or coordinate with a sub-consultant traffic control firm, as required, and City of Novi personnel to ensure "best safety practices" are used at all times in accordance with MMUTCD, OSHA and MIOSHA standards. Where appropriate, TEC will prepare a site-specific Safety Plan prior to commencing with the 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 over 20 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 City of Novi with efficient, cost-effective and quality services.

STATEMENT OF UNDERSTANDING Cont.

Communication

"Mr. Carey Suhan is very responsive and expeditious on projects with time constraints."

Noel Santos, PE
City of Sterling Heights

In order for the Team to efficiently operate on and off-site, a Communications Plan will be established with input from the Commission, 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 City of Novi policies. The project manager will communicate with City of Novi to resolve any issues and determine a course of action to minimize delay and additional cost.

A detailed organization chart, Team Introductions and Professional Resumes are enclosed in *Section 3 – Key Staff Credentials* of this submittal.

TEC fully understands the nature of an "As-Needed" Contract with respect to responsiveness, efficiency and outcome. TEC has a long list of As-Needed Contracts that we have had or are currently servicing. We pride ourselves in our ability to respond to the needs of our Clients.

- ***OAKLAND COUNTY*** Facilities As-Needed Blanket Contract
  Contact: Jim Emerick
  Phone: 248-858-1515
- ***MDOT*** As-Needed Asbestos Investigations
  Contact: James Woodruff
  Phone: 517-322-1205
- ***MDOT*** As-Needed Pre-cast and Steel Fabrication Bridge Inspections
  Contact: Al Hagen
  Phone: 517-355-6450
- **Sterling Heights** As-Needed Geotechnical, Environmental, and Materials Testing Contract
  Contact: Brent Bashaw, PE
  Phone: 586-446-2583
- **City of Troy** As-Needed Blanket Contract
  Contact: Bill Houtari, PE
  Phone: 248-524-3300
- **City of Rochester Hills** As-Needed Blanket Contract
  Contact: Paul Shumejko, PE, PTOE
  Phone: 248-841-2489
- **City of Farmington Hills** As-Needed Blanket Contract
  Contact: James Cubera, PE
  Phone: 248-871-2560
- **Washtenaw County Road Commission** As-Needed Blanket Contract
  Contact: Sheryl Siddall, PE
  Phone: 734-327-6687
- **City of Port Huron**
  Contact: Dave Smith, PE
  Phone: 810-984-9730

Testing Engineers & Consultants, Inc.

PREQUALIFIED SERVICE VENDOR

Testing Engineers & Consultants, Inc.

As of January 29, 2014

Service Prequalification Classification	Vendor	State	Phone	Status	DBE Certified
Aggregate Testing	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Bituminous Pavement Inspection	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Density Inspection & Testing	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Geotechnical Engineering Services	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Hot Mix Asphalt HMA Technician Testing Assistance	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Portland Cement Concrete Inspection & Testing	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Site Investigation	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Specialty Walls/Slopes	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No

Testing Engineers & Consultants, Inc.

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Testing Engineers & Consultants, Inc.

Troy, Michigan

Show This Entry Only

William West
1333 Rochester Road
Troy, Michigan 48083

Phone: (248) 588-6200
Fax:
MMcGuckin@tectest.com
http://www.tectest.com

Quality Systems - accredited since 1/30/2012
R18, C1077 (Concrete), D3666 (Aggregate), D3666 (Hot Mix Asphalt)

Hot Mix Asphalt - accredited since 1/30/2012
T30, T164, T166, T209, T269, D2041, D2172, D2726, D3203, D5444

Soil - accredited since 1/30/2012
T99, T180, T310, D698, D1557, D6938

Aggregate - accredited since 1/30/2012
T11, T19, T21, T27, T84, T85, T96, T104, T248, T255, T304, C29, C40, C88, C117, C127, C128, C131, C136, C566, C702, C1252, D5821

Concrete - accredited since 1/30/2012
R60, T22, T23 (Cylinders), T119, T121, T152, T196, T309, C31 (Cylinders), C39, C138, C143, C172, C173, C231, C511, C1064, C1231 (7000 psi and below)

Please note that our accreditations do not include an expiration date. An accreditation only expires when the laboratory fails to comply with our accreditation requirements.

* This information is only valid as of 1/29/2014. Please visit http://www.amrl.net for current accreditation status.

AMRL AASHTO Materials Reference Laboratory

DEKRA ISO 9001:2008 Certified

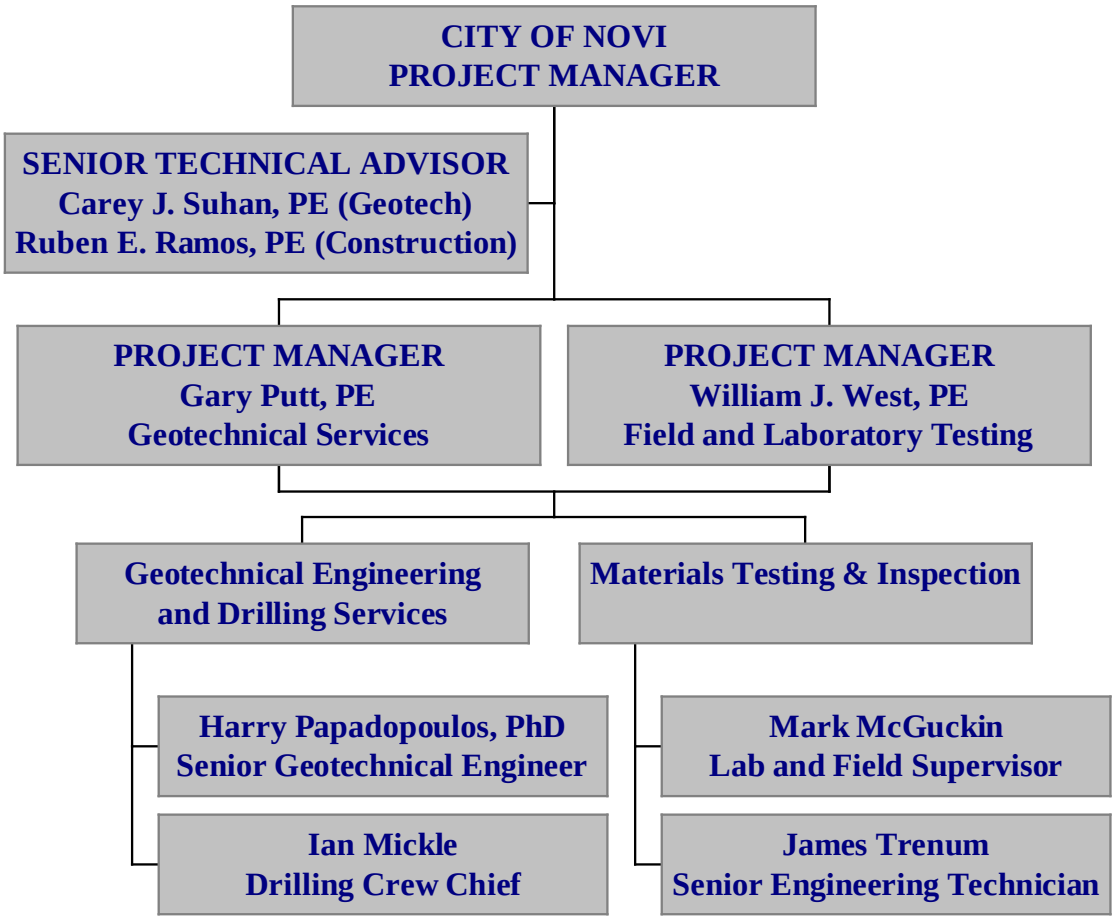
SECTION 3

KEY STAFF EXPERIENCE & CREDENTIALS

- Team Organization
- Resumes
- Professional Engineer Licenses

TEAM ORGANIZATION

We have assembled a team of professionals with the required experience and credentials to address the needs of the City of Novi. Professional resumes outlining the Team's specific road experience and credentials are enclosed in this section.



Geotechnical Engineering Staff

Carey J. Suhan, PE, Senior Technical Advisor, will be responsible for senior review (QA/QC) of all field, laboratory and final reports. Mr. Suhan is Vice President – Geotechnical Services and has over 29 years experience in providing geotechnical engineering services. He is a licensed Professional Engineer in the State of Michigan and holds a Masters in Civil Engineering with Geotechnical Concentration from Wayne State University and Bachelor of Science in Civil Engineering from U of M. Mr. Suhan has performed geotechnical engineering throughout his career for countless road and bridge projects involving drilling, sampling, pavement coring, in-situ testing, laboratory analyses and engineering recommendations for pavements and structures. Many of these projects have been either directly for MDOT or various Road Commissions or as a sub consultant to the design team.

Gary E. Putt, PE, Project Manager, will also be the Prime Contact for City of Novi for geotechnical investigations and will be responsible for coordinating and managing all field and laboratory activities as well as adherence to budget and schedule. He has over 39 years experience in geotechnical analysis, pavement consulting, sub grade stabilization, construction materials testing and inspection, construction management, structural foundation design, earth retention structure design and coordination of contractor activities. Mr. Putt has been involved in numerous RCOC and MDOT road projects and is experienced in road projects involving drilling, sampling, pavement coring, in-situ testing, laboratory analyses and engineering recommendations. He is a Licensed Professional Engineer in the State of Michigan, and holds a Bachelor of Science in Construction Engineering from Lawrence Technological University.

TEAM ORGANIZATION Cont.

Harry Papadopoulos, PhD, **Senior Geotechnical Engineer**, will work closely with Mr. Putt to provide geotechnical engineering support. With over 35 years' experience both nationally and internationally, Mr. Papadopoulos hs provided engineering recommendationas on thousands of municipal, commercial, industrial, and residential projects . His expertise includes 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, as well as pavement consulting and underground design. He has been responsible for technical consultation and overview on major engineering projects and has been involved in contract negotiation and supervision of construction operations.

Ian Mickle, Senior Driller, will be responsible for all drilling activities and will assist with coordination of traffic control and utility clearance activities as needed. Mr. Mickle has over 33 years experience in operating drilling equipment and supervising drilling crews for geotechnical projects. He has extensive experience in pavement coring and subbase sampling, SPT, Shelby tube and piston sampling, hollow stem augering, rotary wash drilling, rock coring and vibra coring, monitoring well installation and down hole in-situ testing. Mr. Mickle holds an Associate Degree in Geological Engineering from the Sault College of Applied Arts and Technology.

Materials Testing and Laboratory Services Staff

William J. West, PE, Project Manager, will be the prime contact for materials testing and inspection projects. Mr. West brings over 21 years of experience in the management of construction materials testing, laboratory, and field services. This background is a key piece of his importance on the Team. He oversees all quality control and safety issues. Responsibilities include assurance that all TEC personnel are certified and qualified to perform their task, familiar with the plans and specifications as well as the work in progress and that each technician understands his task on the site, the chain of command and the response to non-conformance items. Mr. West also serves as the Company Safety Officer.

Mark McGuckin, Field and Laboratory Supervisor, brings 15 years of experience in field inspection and testing of construction materials, including density verification of fills and; quality control inspection of structural fills and pavement structure elements; proof roll observations and recommendations, pavement core sampling, quality control inspection and testing of Portland Cement Concrete (PCC) and Bituminous Concrete; and proper construction and placement of reinforcing steel. Mr. McGuckin will schedule his staff so that all work is covered and he is able to meet every client's immediate needs. Mark has supervised the field and lab services for ten years and has been involved in every project that TEC has handled during that period.

James Trenum, Senior Engineering Technician (Field and Laboratory), has 8 years of relevant MDOT experience and holds the following certifications: Troxler Certification for Nuclear Density Gauge, MDOT Density Technology Certification, MDOT Certified Aggregate Technician, MDOT Certified QA/QC Bituminous Technician, MDOT Certified Bituminous Paving Operations, Certified Michigan Concrete Technician Level I (ACI/MDOT). Mr. Trenum is certified in all testing and inspection service categories, and has worked with numerous municipalities as well as engineering firms on road, water and sewer projects.

TEC has a host of additional experienced technicians that possess Level I Concrete and Density Technology Certifications that can assist on City of Novi projects. Their resumes are also enclosed in this section.

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

PROFESSIONAL DEVELOPMENT:

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

LICENSES/REGISTRATION: Licensed Professional Engineer, State of Michigan, 1990

EXPERIENCE:

Twenty-six (26) years experience in geotechnical engineering, pavement evaluation, 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 pavement, foundation and construction recommendations. Supervises drilling crews performing geotechnical and environmental sampling, piezometer, and ground water monitoring well installation. Extensive experience with Michigan municipalities and civil design firms on pavement reconstruction, resurfacing, widening and re-routing of roads and parking lots.

PROJECT EXPERIENCE

- City of Sterling Heights as needed services contract: TEC has had this contract for at least 25 years. Consequently, Mr. Suhan has served as project manager or principal for every road, sewer or water main geotechnical and pavement investigation since 1990, on over 65 projects.
- City of Troy as needed services contract: TEC has had this contract for at least 30 years. Mr. Suhan has been the project manager or principal for every road, sewer or water geotechnical investigation since 1990. This contract has included over 74 geotechnical projects.
- TEC has provided services to MDOT under an as needed services geotechnical services contract for metro region. Projects have included interchange improvements, detention ponds, pedestrian paths and culvert replacement.
- TEC has and has had as needed services contracts with the City of Rochester Hills, City of Port Huron and City of Royal Oak. TEC has extensive pavement and utility investigation, and engineering experience associated with these contracts.
- West Bloomfield Township Civic Center – TEC has performed three geotechnical investigations for the paving at the complex. Most recently in 2011 an investigation was performed to reconstruct the entire complex pavement. TEC worked closely with Nowak & Fraus to develop recommendations and plans to improve drainage, while minimizing export and import of materials by using the pulverized asphalt for shaping and as pavement base material. Cost savings of this approach allowed the township to reconstruct the entire complex pavement within their budget.
- Accessible path, fishing pier/overlook at Cass Lake along Dodge Park #4 – State of Michigan DTMB
- Pedestrian and bike path adjacent to Huron River in Hudson Mills Metropark for Huron Clinton Metropolitan Authority
- Pedestrian path along the Clinton River from Van Dyke Avenue to Riverland Drive – City of Sterling Hgts
- Pedestrian bridge on the West side of Conklin Road – Orion Twp c/o Orchard, Hiltz & McCliment

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Ruben E. Ramos, PE	**TITLE:** Vice President - Engineering and Construction Services
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Principal Engineer	**YEARS OF EXPERIENCE:** 19 with company 8 with other firms
EDUCATION: (degrees, year, specialization, school w/location) BS/1979/Civil Engineering/Wayne State University/Detroit, MI	
LICENSES/REGISTRATION: (type, year, state, number) *Registered Professional Engineer/1984/Michigan/6201030630*	
GENERAL EXPERIENCE AND QUALIFICATIONS (relevant to classification group): Twenty-seven 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. *Familiar with the following codes, specifications and testing methods: AASHTO, ACI, ASTM, and MDOT.*	
SPECIFIC EXPERIENCE	
SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 WCRC Pavement Preservation Program **MDOT Project # 81475-118877** Client: WCRC Contact: Matt MacDonell Phone: (734) 327-6688 Fees: $75,000	**Role: Project Principal** Provided construction materials QA testing on behalf of WCRC. Project included 19.64 miles of hot mix asphalt cold milling and resurfacing, concrete pavement repairs, concrete curb and gutter, guardrail repairs, shoulder and pavement marking improvements at 13 locations throughout Washtenaw County. Paving included multiple simultaneous paving crews; QA testing requirements included and rapid turn-around on HMA acceptance test samples. **Construction:** 1. Route: 13 Routes throughout Washtenaw County 2. Limits of Construction: N/A 3. Construction Budget: $3.3 million 4. General description of type of construction: HMA resurfacing and rehabilitation, concrete repairs, drainage and shoulder improvements.
2012 Water St. Reconstruction Port Huron, MI MDOT Project #77475-104686 Client: City of Port Huron Contact: Angela Mckinstry Phone: (810) 984-9730 Fees: $40,000	**Role: Senior Engineering Technician** Project included 0.86 mi of concrete pavement reconstruction, hot mix asphalt cold milling and resurfacing, concrete curb, gutter, sidewalk, and ADA ramps, storm sewer, sanitary sewer, and water main on Water Street from the western city limits of Port Huron to 13th Street. Provided overall project supervision and technical support to TEC staff. **Construction:** 1. Route: Water St. 2. Limits of Construction: 13th St. to western City Limits 3. Construction Budget: $2 Million 4. General description of type of construction: Pavement Reconstruction

SPECIFIC EXPERIENCE	RUBEN E. RAMOS, PE Page 2
SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 Fourth St. and Francis St. Reconstructions **MDOT Projects** **38409-120364** **38409-110464** Client: City of Jackson Contact: Troy White Phone: (517) 788-4160 Fees: $25,000	**Role: Project Principal** Provided construction materials QA testing on behalf of City of Jackson. Projects include 0.5 miles of hot mix asphalt roadway reconstruction, sanitary sewer installation, water main installation on two routes within the City of Jackson. Performed QA materials acceptance testing in accordance with MDOT LAP requirements on trench backfill, aggregates PC concrete and HMA pavement materials. **Construction:** 1. Routes: Francis St. and Fourth St. 2. Limits of Construction: Mason St. to Washington Ave., Audubon Ave. to Griswold St. 3. Construction Budget: $1.4 Million 4. General description of type of construction: Pavement Reconstruction, Sanitary Sewer and Water Main Installation
2012 City of Sterling Heights 19 Mile Road Resurfacing Sterling Heights, MI. **MDOT ID # 63459-115483A** Client: Sterling Heights Contact: Mark Dyer Phone: (810) 499-1151 Fees: $10,000.00	**Role: Project Principal** Project included 0.77 mi of cold milling concrete pavement, hot mix asphalt resurfacing, concrete pavement repairs, pavement joint and crack repairs, concrete curb and gutter, sidewalk and ramps, and earthwork on 19 Mile Road from Merrill Road east to Van Dyke Avenue in the city of Sterling Heights. QA materials acceptance testing in accordance with MDOT LAP requirements on trench backfill, aggregates PC concrete and HMA pavement materials.. Construction: 1. Route: 19 Mile Rd. 2. Limits of Construction: Merrill Road to Van Dyke Ave. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation QA
2011 12 Mile Road Resurfacing Royal Oak, MI. **MDOT CONTRACT ID: 63459-112855A** Client: City of Royal Oak Contact: Roger Krause Phone: (248) 246-3260 Fees: $5,656.50	**Role: Project Principal** Directly responsible for the quality, accuracy and timeliness of all field and laboratory services provided out of the construction services division of TEC. Met weekly with TEC Project Manager to review quality, project progress and budget issues. **Construction:** 1. Route: 12 Mile Road 2. Limits of Construction: Woodward Ave. to Main Street 3. Construction Budget: N/A 4. General description of type of construction: HMA Pavement Rehabilitation QC

GARY E. PUTT, PE

TITLE: Senior Project Engineer

EDUCATION:

BS, Construction Engineering, Lawrence Technological University, 1972

PROFESSIONAL DEVELOPMENT:

Fundamentals of Shallow Foundation Design, University of Missouri Rolla, 1981
Concrete Technology, Michigan State University, 1992
Design of Roadway Drainage Systems, Geotechnical Systems, LLC, 2003
Thickness Design for Municipal Pavements, American Concrete Pavement Association, 2008
Welding Inspection Technology, American Welding Society, 1986
Storm Water Management, DEQ 1996
Lime-Treated Soil, Carmeuse North America, 2005
LRFD For Highway Bridge Substructures and Earth Retaining Structures

LICENSES/REGISTRATION: Licensed Professional Engineer, State of Michigan, 1992
Licensed Professional Engineer, State of Missouri, 1989

EXPERIENCE:

Over thirty-five (35) years experience in geotechnical analysis, construction materials testing and inspection, construction management, structural foundation design both shallow and deep, earth retention structure design and coordination of contractor activities. Performs all types of routine and advanced soil tests in lab and fields. Performs all types of concrete and asphalt tests and inspections. Extensive pavement consulting experience with government entities, civil engineering firms and contractors. 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 report review.

PROJECT EXPERIENCE

- City of Sterling Heights and Troy as needed services contracts: TEC has had both of these contracts for at least 30 years. Consequently, Mr. Putt has served as project engineer for road, sewer or water main geotechnical and pavement investigation since 2000, on over 35 projects in Sterling Heights and 40 projects in Troy.
- TEC has provided services to MDOT under an as needed services geotechnical services contract for metro region. Projects have included interchange improvements, detention ponds, pedestrian paths and culvert replacement. Mr. Putt is the project manager for this contract.
- TEC has and has had as needed services contracts with the City of Rochester Hills, City of Port Huron, City of Farmington Hills and City of Royal Oak. TEC has extensive pavement and utility investigation, and engineering experience associated with these contracts.
- West Bloomfield Township Civic Center – TEC has performed three geotechnical investigations for the paving at the complex. Most recently in 2011 an investigation was performed to reconstruct the entire complex pavement. TEC worked closely with Nowak & Fraus to develop recommendations and plans to improve drainage, while minimizing export and import of materials by using the pulverized asphalt for shaping and as pavement base material. Cost savings of this approach allowed the township to reconstruct the entire complex pavement within their budget.
- General Motors Parking Lot – TEC was retained by Nowak & Fraus to perform a pavement and geotechnical investigation at a 23 acre site comprised primarily of existing pavement. Two buildings were to be demolished and then paved. TEC performed fifteen (15) borings and twenty-five (25) pavement cores with associated laboratory analysis. To minimize costs over the very large parking area, drainage was improved by re-shaping the lot with pulverized asphalt, raising catch basins and paving with 4 inches of new asphalt.

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 35 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:

Automotive Projects

Chrysler SHAP; Paint Shop - Sterling Heights, MI
Chrysler WTAP - Warren, MI
Chrysler JNAP - Detroit, MI
Chrysler Trenton Engine Plant - Trenton, MI
Chrysler, WAP - Windsor, Ontario, Canada
Ford Proving Grounds - Dearborn, MI
GM - Pontiac, MI
GM - St. Catherine, Ontario, Canada
American Axle Addition - Detroit, MI
New Daimler Chrysler Plant - China

HARRY I. PAPADOPOULOS, PhD

SAMPLING OF PROJECTS: Cont.

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

Healthcare Facilities

American Heart Institute - Nicosia, Cyprus
Royal Air Force; New Base Hospital - Akrotiri, Cyprus

Overseas Projects

Several Bridges for Dammam – Khobar, Saudi Arabia
Al Gosaibi Hotel - Dammam, Saudi Arabia
Several Oil Tank Foundations for Tank Farms at Yambu, Saudi Arabia & Refinery, Cyprus
Several Resort Hotels at Paphos Yambu & Limassol, Cyprus; and Sharm-El-Seikh, Egypt
Antenna Foundations, Cyprus, Okinawa, Japan, Lanstuhl, Germany & Togo, Africa

TECHNICAL SOCIETY AFFILIATIONS:

American Society of Civil Engineers (Southeastern Branch), Member
Association of Architects and Civil Engineers – Cyprus, Member
Institution of Civil Engineers – England, Associate Member
Chi Epsilon, Member

IAN MICKLE

TITLE: Senior Driller

EDUCATION:

AS, Geological Engineering Technician, Applied Arts and Technology, 1979

PROFESSIONAL DEVELOPMENT:

40-Hour Hazardous Waste Training Certification (OSHA)
8-Hour Hazardous Waste Training Refresher, Annually

LICENSES/REGISTRATION: 40 Hour Hazardous Waste Training Certification (OSHA) and annual refreshers.

EXPERIENCE:

Twenty-nine (29) years experience in operating drilling equipment and supervising drilling crews for geotechnical and environmental projects, often at environmentally hazardous sites. Projects include roads, bridges, underground utilities, embankments, parking lots, high-rise buildings, low rise commercial/industrial buildings, residential, sewer and water main. Mr. Mickle has extensive experience with traffic control and right of way permitting. Drilling operations experience includes the use of pavement coring equipment, dynamic cone penetrometer (DCP), solid and hollow stem augers; wash borings; vibra corer; Borros Polydrill; rock and concrete coring; shallow and deep hole drilling; mineral exploration; and monitoring and recovery well installation.

PROJECT EXPERIENCE

- City of Sterling Heights as needed services contract: TEC has had this contract for at least 25 years. Consequently, Mr. Mickle has served as crew chief for road, sewer or water main geotechnical and pavement investigation since 1994, on at least 30 of these projects.
- City of Troy as needed services contract: TEC has had this contract for at least 30 years. Mr. Mickle has been the crew chief for at least 34 road, sewer or water geotechnical investigations since 1994.
- TEC has provided geotechnical investigations on numerous road projects in the City of Farmington Hills. These projects have been for individual roads as well as for entire annual programs including he 2007/2008, 2006/2007, 2005/2006, major road design and resurfacing projects. Mr. Mickle provided drilling and pavement coring services on all of these projects.
- TEC has provided services to MDOT under an as needed services geotechnical services contract for metro region. Projects have included interchange improvements, detention ponds, pedestrian paths and culvert replacement. Mr. Mickle has been the lead driller on all of these projects.
- Provided drilling and pavement coring projects for numerous municipalities and civil engineering firms on both local and major streets, for reconstruction, overlays, widening and utility design and construction.

Staff Education and Experience Report

EMPLOYEE NAME	TITLE	TITLE ROLE ON THIS SERVICE
William J. West, PE	Department Manager	Construction Materials Testing and Engineering

COMPANY NAME	YEARS OF EXPERIENCE
Testing Engineers and Consultants, Inc.	3__ with company _18_ with other vendors

EDUCATION: degree, year, school (inc. city and state of school)

BSE, Civil and Environmental Engineering, 1992, University of Michigan – Ann Arbor, MI
MSE, Civil and Environmental Engineering, 1996, Wayne State University – Detroit, MI
MS, Administration, 1999, Central Michigan University – Mt. Pleasant, MI

LICENSES AND REGISTRATIONS

Professional Engineer: Michigan 62010-42702, Illinois 062052628,
Indiana PE19900002, Wisconsin 33132-006, Kentucky 27199, Pennsylvania (pending)

GENERAL EXPERIENCE AND QUALIFICATIONS

William West's positions held range from field representative to Department manager. Responsibilities have included coordinating, scheduling and supervision of a staff of up to 20 engineers and technicians. Extensive experience developing and implementing large QC / QA testing projects for transportation, civil and environmental engineering projects. Specific project experience in environmental engineering, pavement design and construction, earthwork and embankments, construction materials laboratory testing, and geotechnical engineering.

Specific Service Experience

MONTHS/YEARS	SERVICE I.D.	ROLE & SERVICE DESCRIPTION
6/13 – 12/13	QC/QA Inspection and Testing	Description: WCRC Pavement Preservation Program Individual Role: QA Project Manager Service Budget: $75,000 Completion: December 2013 Client: Washtenaw County Road Commission Role: QA Testing Contact: Matt MacDonell, PE (734) 327-6688
Project Information: MDOT CS 81475, JNs 118877, 118901, 120064, 120065 & 120066A 19.64 miles of hot mix asphalt cold milling and resurfacing, concrete cold milling, pavement repairs, concrete curb and gutter, guardrail repairs, shoulder and pavement marking improvements at 13 locations in Washtenaw County. Paving included multiple simultaneous paving crews; QA testing requirements included and rapid turn-around on HMA acceptance test samples. Construction Cost = $3.3 Million.		
9/11 – 11/12	QC/QA Inspection and Testing	Description: I-96 Bridges Individual Role: QC Project Manager Service Budget: $50,000 Completion: November 2012 Client: Dan's Excavating Role: QC Testing Contact: Joe Goodall (586) 254-2040
Project Information: MDOT Control Section 63022, JN 78980A. Rehabilitation of 4 bridges and removal of 2 bridges replaced with one bridge, installation of freeway lighting along I-96 and construction of a filtration on I-96 from Huron Valley Trail westerly to Huron River. Construction Cost = $10 Million.		

MONTHS/YEARS	SERVICE I.D.	ROLE & SERVICE DESCRIPTION
7/12 – 11/12	QC Inspection and Testing	Description: 14 Mile Road, Campbell to I-75 Individual Role: QC Project Manager Service Budget: $20,000 Completion: November 2012 Client: Florence Cement Role: QC Testing, P1 Modified Aggregate Testing Contact: Tony Cardillo, (586) 997-2666
Project Information: MDOT CS 63459, JN 116114A 0.36 Mile of roadway rehabilitation featuring unbounded PC concrete overlay utilizing MDOT High Performance Concrete Mixture P1 Modified. Project also included new sidewalk, ramps and signal upgrades from Campbell Rd. to I-75. TEC performed QC materials testing and also performed daily P1 Modified aggregate testing, mix evaluation, and provided recommendations regarding adjustments to PC concrete aggregate blends. Construction Cost = $1.5 Million		
5/12 – 11/12	QC/QA Testing	Description: I-94 / M-39 Intersection Improvements Individual Role: QC Project Manager Service Budget: $75,000 Completion: November 2012 Client: Dan's Excavating Role: QC Testing Contact: Joe Goodall (586) 254-2040
Project Information: MDOT CS 83022, JN 110588A Bridge deck repairs and replacements, beam replacements, pile cap and other structural replacements, ramp and freeway pavement reconstruction and full depth patching work on 12 bridges on the I-94 / M-39 (Southfield Freeway) interchange in the Cities of Allen Park and Taylor, MI. TEC duties included QC concrete testing for bridge elements, structural repairs, and roadway reconstruction aspects of the project. Construction Cost = $14 Million		
06/13 – 11/13	QC/QA Inspection and Testing	Description: Fourth Street Reconstruction Individual Role: QA Project Manager Service Budget:$20,000 Completion: November 2013 Client: City of Royal Oak Role: QA Testing Contact: Troy White, PE (517) 788-4160
Project Information: MDOT CS 38409, JN 110464A 0.35 miles of full depth street reconstruction with concrete curb and gutter, HMA paving and water main replacement from Audubon Avenue northerly to Griswold Street in the City of Jackson, Jackson County, Michigan. All acceptance testing work performed in accordance with MDOT LAP acceptance testing criteria. Construction Cost = $1 Million		
5/13 – 10/13	QC/QA Inspection and Testing	Description: John R. Road Resurfacing Individual Role: QA Project Manager Service Budget: $30,000 Completion: 2013 Client: NFE, Cities of Madison Heights & Royal Oak Role: Quality Assurance Testing Contact: Brad Brickel, PE (248) 332-7931
Project Information: MDOT CS 63459, JN 117512A. 1.26 mi of cold milling concrete pavement repairs, curb and gutter, flatwork, HMA resurfacing, on John R Rd from 11 Mile Rd to 12 Mile Road in the cities of Madison Heights and Royal Oak. Construction Cost = 1.6 Million		

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Mark McGuckin	**TITLE:** Field and Laboratory Supervisor
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field & Laboratory Supervisor	**YEARS OF EXPERIENCE:** 13 with company 0 with other firms
EDUCATION: (degrees, year, specialization, school w/location) 1995/Clawson High School/Clawson, MI	
LICENSES/REGISTRATION: (type, year, state, number) ***MDOT Certified Aggregate Technician*** *Certified Michigan Level II Advanced Concrete Technician (ACI, MCA)* *Certified Michigan Concrete Technician Level I (ACI, MCA)* *Michigan QC/QA Bituminous Technician (MDOT)* *Troxler Certification for Nuclear Density Gauge*	
GENERAL EXPERIENCE AND QUALIFICATIONS: (relevant to classification group) Mr. McGuckin's positions have ranged from field representative to his current position of field and laboratory supervisor for TEC's Troy, Michigan laboratory. He has thirteen (13) years experience in field inspection and testing of construction materials, including shallow foundations; compaction verification of fills and backfills by nuclear density method; quality control inspection of sub-base, base and bituminous pavements; subgrade evaluation, pavement core sampling, quality control inspection and testing of Portland Cement Concrete (PCC); and proper construction and placement of reinforcing steel. Mr. McGuckin's current responsibilities include maintaining all of the equipment calibration, certification and maintenance records and the processing of AMRL, CCRL and MDOT round-robin proficiency samples in TEC's AASHTO accredited laboratory.	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2012 City of Sterling Heights 19 Mile Road Resurfacing Sterling Heights, MI. **MDOT ID # 63459-115483A** Client: Sterling Heights Contact: Mark Dyer Phone: (810) 499-1151 Fees: $10,000	**Role: Field and Laboratory Supervisor** *Coordinated all field and laboratory testing, performed laboratory Aggregate and HMA QA Testing and supervised technicians performing field testing. Assured that all equipment was in acceptable condition and had current calibration documentation and that MDOT procedures were followed by TEC QA Staff.* Construction: 1. Route: 19 Mile Rd. 2. Limits of Construction: Merrill Road to Van Dyke Ave. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation QA

SPECIFIC EXPERIENCE	**MARK McGUCKIN** **Page 2**
YEAR(S) and PROJECT I.D.	**ROLE & SERVICE DESCRIPTION**
2012 14 Mile Road Improvements Campbell to I-75 Oakland County, MI **MDOT CONTRACT ID: 63459-116114A** Client: Florence Cement Contact: Tony Cardillo Phone: (586) 997-2666 Fees: $15,000	**Role: Laboratory Technician & Supervisor** *Coordinated all field and laboratory testing, and performed selected aggregate testing to verify conformance with MDOT Specifications, approved QC Plan and P1-Modified aggregate blends for unbonded concrete overlay project. Scheduled and assigned appropriate certified technicians, performed selected field sampling and testing and ensured that the testing was performed in accordance with the appropriate MTMs.* Construction: 1. Route: 14 Mile Road 2. Limits of Construction: Campbell to I-75 3. Construction Budget: N/A 4. General description of type of construction: Unbonded PCC Overlay and intersection improvements
2012 12 Mile Road Resurfacing Main St. to Campbell Royal Oak, MI MDOT CONTRACT ID: 63459-115483A Client: City of Royal Oak Contact: Matt Callahan Phone: (248) 2465-3260 Fees: $20,000	**Role: Laboratory Technician & Supervisor** *Coordinated all field and laboratory QA testing, and performed selected aggregate testing to verify conformance with MDOT LAP Acceptance Testing requirements for unbonded concrete overlay project. Scheduled and assigned appropriate certified technicians, performed selected field sampling and testing and ensured that the testing was performed in accordance with the appropriate MTMs.* Construction: 1. Route: 12 Mile Road 2. Limits of Construction: Campbell to Main St. 3. Construction Budget: $1,200,000 4. General description of type of construction: HMA Resurfacing, PCC Improvements
2012 Meijer Store No. 259 Swartz Creek, MI MDOT CONTRACT ID: N/A Client: Rockford Construction Contact: Jeff Sawyer Phone: (616) 285-6933 Fees: $100,000	**Role: Field and Laboratory Supervisor** *Store built on approximately 10 Ft. of granular embankment over soft soils. Site work included rigorous QA testing requirements for site earthwork, HMA paving and cast in place concrete. Coordinated all field and laboratory testing, performed selected testing and ensured that field and laboratory sampling and testing equipment was in acceptable condition.* **Construction:** 1. Route name: N/A 2. Limits of Construction: Store Property, Site Roads, Pavements and Embankments 3. The construction budget: N/A 4. General description of type of construction: Commercial Building, Embankment Fill, Site Drive & Parking Areas

SPECIFIC EXPERIENCE	MARK McGUCKIN Page 3
YEAR(S) and PROJECT I.D.	**ROLE & SERVICE DESCRIPTION**
2012 City of Auburn Hills HMA Reconstruction / Maintenance Program MDOT CONTRACT ID: N/A Client: Orchard, Hiltz & McCliment, Inc. Contact: Jerry Ashburn Phone: (734) 891-2450 Fees: $30,000	**Role: Field and Laboratory Supervisor** *Multi-phased pavement reconstruction, rehabilitation and preventive maintenance program in the City of Auburn Hills. TEC performed full QA testing services on each phase of this project. QA testing included field and laboratory sampling and testing of soils & aggregates, HMA and PC concrete. Of particular interest was the field and laboratory testing, observation and geotechnical recommendations during construction of a geosynthetically reinforced retaining wall along Shimmons Rd. Coordinated all field and laboratory testing, performed selected testing and ensured that field and laboratory sampling and testing equipment was in acceptable condition.* Construction: 1. Route name: Multiple 2. Limits of Construction: Site Pavements and embankments within ROW 3. The construction budget: $1,500,000 4. General description of type of construction: Pavement Rehabilitation, Reconstruction and Preventive Maintenance
2012 City of Rochester Hills Asphalt Road Rehabilitation Project MDOT CONTRACT ID: N/A Client: City of Rochester Hills Contact: Paul Shumejko, PE PTOE Phone: (248) 841-2489 Fees: $25,000	**Role: Field and Laboratory Supervisor** *Multi-phased pavement reconstruction, rehabilitation and preventive maintenance program in the City of Rochester Hills. TEC performed full QA testing services on each phase of this project. QA testing included field and laboratory sampling and testing of soils & aggregates, HMA and PC concrete. Highest profile portion of the project was the reconstruction of Rochester Hills Drive at City Hall via pulverization of the existing HMA roadway and the existing cement stabilized subgrade soils. Coordinated all field and laboratory testing, performed selected testing and ensured that field and laboratory sampling and testing equipment was in acceptable condition.* **Construction:** 1. Route name: Multiple 2. Limits of Construction: Site Pavements and embankments within ROW 3. The construction budget: $1,000,000 4. General description of type of construction: Pavement Rehabilitation, Reconstruction and Preventive Maintenance

STAFF EDUCATION and EXPERIENCE REPORT

NAME: James Trenum	**TITLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field and Laboratory Engineering Technician	**YEARS OF EXPERIENCE:** 7 with company 0 with other firms
EDUCATION (degrees, year, specialization, school w/location) 2002/Hazel Park High School/Hazel Park, MI	
LICENSES/REGISTRATION (type, year, state, number) *Certified Concrete Field Technician Level I (ACI) (MDOT)* *ACI Certified Concrete Strength Technician (Pending March 2014)* *MDOT Density Technology Certification* *Troxler Certification for Nuclear Density Gauge* *Michigan QC/QA Bituminous Technician* *MDOT Bituminous Paving Operations* *MDOT Certified Aggregate Technician (Scheduled February 2014)*	
GENERAL EXPERIENCE AND QUALIFICATIONS (relevant to classification group): Mr. Trenum has seven (8) years experience in field inspection and testing of construction materials, including shallow and deep foundations, such as caissons and piles; compaction verification of embankments, structural fills, utility trenches and aggregates; quality control inspection of bituminous pavement structure elements; quality control inspection and testing of Masonry and PC Concrete; and proper construction and placement of reinforcing steel. *Mr. Trenum is experienced and MDOT certified to test all types of construction materials, both in the laboratory or on site during construction / installation.*	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 Cities of Madison Heights / Royal Oak John R. Road Rehabilitation 11 Mile Rd. to 12 Mile Rd. MI. **MDOT CONTRACT ID: 63459-117512A** Client: Nowak & Fraus Engineers and Cities of Madison Heights & Royal Oak Contact: Steve Sutton, PE Phone: (248) 332-7931 Fees: $25,000	**Role: Field & Laboratory Technician** Project included 1.26 mi of cold milling concrete pavement, pavement repairs, pavement, curb and gutter, sidewalk, ramps, HMA resurfacing, and other upgrades on John R Road from Eleven Mile Road. Mr. Trenum performed QA testing during concrete placement and HMA paving, as well as perform production QA acceptance testing on HMA materials in accordance with MDOT LAP requirements **Construction**: 1. Route: John R. Road 2. Limits of Construction: 11 Mile to 12 Mile 3. Construction Budget: $1.6 Million 4. General description of type of construction: RRR Pavement Rehabilitation

SPECIFIC EXPERIENCE	JAMES TRENUM Page 2
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 WCRC Pavement Preservation Program **MDOT Project #** **81475-118877** Client: WCRC Contact: Matt MacDonell Phone: (734) 327-6688 Fees: $75,000	**Role: Senior Engineering Technician** Provided construction materials QA testing on behalf of WCRC. Project included 19.64 miles of hot mix asphalt cold milling and resurfacing, concrete pavement repairs, concrete curb and gutter, guardrail repairs, shoulder and pavement marking improvements at 13 locations throughout Washtenaw County. Paving included multiple simultaneous paving crews; QA testing requirements included and rapid turn-around on HMA acceptance test samples. **Construction:** 1. Route: 13 Routes throughout Washtenaw County 2. Limits of Construction: N/A 3. Construction Budget: $3.3 million 4. General description of type of construction: HMA resurfacing and rehabilitation, concrete repairs, drainage and shoulder improvements.
2012 City of Port Huron Water Street Reconstruction Port Huron, MI. **MDOT CONTRACT ID: STU 77475-104686A** Client: City of Port Huron Contact: Angela Mckinstry Phone: (810) 984-9730 Fees: $40,000	**Role: QA Materials Field/Lab Technician** 0.86 mi of concrete pavement reconstruction, hot mix asphalt cold milling and resurfacing, concrete curb, gutter, sidewalk, and ADA ramps, storm sewer, sanitary sewer, and water main on Water Street from the western city limits of Port Huron to 13th Street. Provided QA field concrete testing and production testing on HMA materials during construction. **Construction:** 1. Route: Water Street 2. Limits of Construction: 13th Street to City Limits 3. Construction Budget: $2 Million 4. General description of type of construction: Pavement Reconstruction / Rehabilitation and Utility Installation
2011 MDOT #7 Little Mack Overlay St. Clair Shores, MI. **MDOT CONTRACT ID: 50458-110327** Client: Florence Cement Co. Contact: Tony Cardillo Phone: (586) 997-2666 Fees: $12,400.00	**Role: QA/QC Technician** The project consisted of 2.02 miles of cold milling concrete pavement, concrete overlay, concrete pavement repairs, trenching, concrete sidewalk, ADA ramps, and irrigation system on Little Mack Avenue from 10 Mile Road to 12 Mile Road in the city of St. Clair Shores, Macomb County. **Construction:** 1. Route name: Little Mack Avenue 2. Limits of Construction: 10 Mile Road to 12 Mile Road 3. The construction budget: N/A 4. General description of type of construction: PCC Concrete Rehabilitation / Overlay QC

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Robert Ene	**ROLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field and Lab Testing bituminous/concrete/aggregate/density/plant inspection	**YEARS OF EXPERIENCE:** 19 with company 4 with other firms
EDUCATION: (degrees, year, specialization, school w/location) MS/1989/Construction Technology/Eastern Michigan University/Ypsilanti, MI BS/1987/Construction Technology/Eastern Michigan University/Ypsilanti, MI AD/1982/Industrial Management/Wayne County Community College/Detroit, MI	
LICENSES/REGISTRATION: (type, year, state, number) *Qualified Concrete Technician Michigan Level I (ACI/MCA)* *Certified Aggregate Technician (MDOT)* *Certified for Usage of Troxler Nuclear Gauge* *Certified Soils Density Technology (MDOT)*	
GENERAL EXPERIENCE AND QUALIFICATIONS: (relevant to classification group) Twenty-three (23) years experience in field inspection and testing of construction materials, including shallow and deep foundations, such as caissons and piles; inspection and verification of structural fills, QC / QA inspection and testing of PC Concrete and HMA pavement elements; and proper construction and placement of reinforcing steel. *Familiar with the following codes and specifications: MDOT, AASHTO, ACI, and ASTM.*	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2007-2011 CS Mott Children's & Women's Hospital Ann Arbor, MI **MDOT Project # N/A** Client: University of Michigan Contact: Kevin Novak Phone: (734) 615-8994 Fees: $1,600,000.00	**Role: Lead Engineering Technician/Inspector** *Performed field coordination of TEC services which included significant site improvements with new utilities, concrete and asphalt paving that required TEC's testing in accordance with MDOT standards. Specific tests included sampling of materials for laboratory analysis,* aggregate testing, *cast-in-place concrete testing, resteel inspection, soils and aggregate testing,* asphalt pavement testing. *Additional responsibilities included ERS inspection, foundation auger cast pile inspection, grout and mortar testing, masonry inspection, waterproofing and firestopping inspection.* **Construction:** 1. Route: N/A 2. Limits of Construction: N/A 3. Construction Budget: $600 million 4. General description of type of construction: Included a multitude of site improvements, underground utilities, tunnels and concrete & bituminous pavements

SPECIFIC EXPERIENCE	ROBERT ENE Page 2
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2012 Waters Road Improvements, Washtenaw County, MI **MDOT Project #81069-1108861** Client: WCRC Contact: Matt MacDonell Phone: (734) 827-9527 Fees: $10,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of WCRC. This included field soil and aggregate testing, concrete testing and molding of compressive strength test specimens. Specimens were molded and were cured / tested by TEC. Duties also included density testing and laydown inspection during HMA paving.* **Construction:** 1. Route: Waters Rd. Washtenaw County, MI 2. Limits of Construction: Wagoner Rd. to Gallinger Dr. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation
2013 WCRC Pavement Preservation Program **MDOT Project # 81475-118877** Client: WCRC Contact: Matt MacDonell Phone: (734) 327-6688 Fees: $75,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of WCRC. Project included 19.64 miles of hot mix asphalt cold milling and resurfacing, concrete pavement repairs, concrete curb and gutter, guardrail repairs, shoulder and pavement marking improvements at 13 locations throughout Washtenaw County. Paving included multiple simultaneous paving crews; QA testing requirements included and rapid turn-around on HMA acceptance test samples.* **Construction:** 1. Route: 13 Routes throughout Washtenaw County 2. Limits of Construction: N/A 3. Construction Budget: $3.3 million 4. General description of type of construction: HMA resurfacing and rehabilitation, concrete repairs, drainage and shoulder improvements.
2013 Fourth St. Reconstructions **MDOT Projects 38409-110464** Client: City of Jackson Contact: Troy White Phone: (517) 788-4160 Fees: $15,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of City of Jackson. Project includes 0.35 miles of hot mix asphalt roadway reconstruction, sanitary sewer installation, water main installation on two routes within the City of Jackson. Performed QA materials acceptance testing in accordance with MDOT LAP requirements on trench backfill, aggregates PC concrete and HMA pavement materials.* **Construction:** 1. Routes Fourth St. 2. Limits of Construction: Audubon Ave. to Griswold St. 3. Construction Budget: $0.6 Million 4. General description of type of construction: Pavement Reconstruction, Sanitary Sewer and Water Main Installation

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Rufus Pipkins	**ROLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field Testing & Laboratory Bituminous Laydown, Plant Inspection, Concrete, Density, Aggregate Sampling and Testing. Can perform all Corresponding Laboratory Tests.	**YEARS OF EXPERIENCE:** 23 with company 0 with other firms
EDUCATION: (degrees, year, specialization, school w/location) BS/1989/Construction Technology/Eastern Michigan University/Ypsilanti, MI	
LICENSES/REGISTRATION: (type, year, state, number) *Qualified Concrete Technician Michigan Level I (ACI/MCA)* *Asbestos Awareness Training (OSHA)* *Bituminous Lay Down Inspector (MDOT)* *Certified Masonry Technologist (MIM)* *Certified for Usage of Troxler Nuclear Gauge* *Certified Soils Density Technology (MDOT)*	
GENERAL EXPERIENCE AND QUALIFICATIONS: (relevant to classification group) Twenty-three (23) years experience in field inspection and testing of construction materials, including shallow and deep foundations such as caissons and piles; compaction verification of structural fills and backfills, quality control inspection of sub-base, aggregate base courses and HMA pavements; plant inspection concrete and bituminous, quality control inspection and testing PC concrete in both structural and paving applications; and proper construction and placement of reinforcing steel. Familiar with the following codes, specifications and test methods: AASHTO, ACI, ASTM, MDOT and MTM.	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2007-2010 University of Michigan Football Stadium Expansion, Ann Arbor, MI **MDOT Project # N/A** Client: University of Michigan Contact: John Hetrick Phone: (734) 647-5507 Fees: $1,000,000	**Role: Lead Engineering Technician** Performed Field coordination of TEC services and the following testing and inspection included significant site improvements with new utilities, concrete and asphalt paving that required TEC's testing in accordance with MDOT standards and ERS inspection, caisson foundation inspection, grout and mortar testing, cast-in-place concrete testing, resteel inspection, masonry inspection, waterproofing inspection. **Construction:** 1. Route: N/A 2. Limits of Construction: N/A 3. Construction Budget: $250 million 4. General description of type of construction: Multitude of site improvements, underground utilities, concrete and bituminous pavements.

SPECIFIC EXPERIENCE	RUFUS PIPKINS Page 2
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 WCRC Pavement Preservation Program **MDOT Project # 81475-118877** Client: WCRC Contact: Matt MacDonell Phone: (734) 327-6688 Fees: $75,000	**Role: Senior Engineering Technician** Provided construction materials QA testing on behalf of WCRC. Project included 19.64 miles of hot mix asphalt cold milling and resurfacing, concrete pavement repairs, concrete curb and gutter, guardrail repairs, shoulder and pavement marking improvements at 13 locations throughout Washtenaw County. Paving included multiple simultaneous paving crews; QA testing requirements included and rapid turn-around on HMA acceptance test samples. **Construction:** 1. Route: 13 Routes throughout Washtenaw County 2. Limits of Construction: N/A 3. Construction Budget: $3.3 million 4. General description of type of construction: HMA resurfacing and rehabilitation, concrete repairs, drainage and shoulder improvements.
2013 Fourth St. Reconstruction **MDOT Project 38409-110464** Client: City of Jackson Contact: Troy White Phone: (517) 788-4160 Fees: $20,000	**Role: Senior Engineering Technician** Provided construction materials QA testing on behalf of City of Jackson in accordance with MDOT LAP requirements. Project includes 0.35 miles of full depth street reconstruction with concrete curb and gutter, HMA paving and water main replacement from Audubon Avenue northerly to Griswold Street in the City of Jackson, Jackson County, Michigan **Construction:** 1. Routes: Fourth St. 2. Limits of Construction: Audubon Ave. to Griswold St. 3. Construction Budget: $1 Million 4. General description of type of construction: Pavement Reconstruction, Curb & Gutter Installation, Flatwork Installation and Water Main Installation
2012 Golfside Road Improvements, Washtenaw County, MI **MDOT Project #81475-113025** Client: WCRC Contact: Matt MacDonell Phone: (734) 827-9527 Fees: $25,000	**Role: Senior Engineering Technician** Provided construction materials QA testing on behalf of WCRC. This included field soil and aggregate testing, concrete testing and molding of compressive strength test specimens. Specimens were molded and were cured / tested by TEC. Duties also included density testing and laydown inspection during HMA paving. **Construction:** 1. Route: Golfside Rd. Washtenaw County, MI 2. Limits of Construction: Packard Rd. to Clark Rd. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Chirag Patel	**TITLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field and Laboratory Engineering Technician	**YEARS OF EXPERIENCE:** 8 with company 0 with other firms
EDUCATION (degrees, year, specialization, school w/location) Nelson High School, India	
LICENSES/REGISTRATION (type, year, state, number) Certified Concrete Field Technician Level I (ACI) (MDOT) MDOT Density Technology Certification Troxler Certification for Nuclear Density Gauge	
GENERAL EXPERIENCE AND QUALIFICATIONS (relevant to classification group): Mr. Patel has eight (8) years experience in field inspection and testing of construction materials, including shallow and deep foundations, such as caissons and piles; compaction verification of embankments, structural fills, utility trenches and aggregates; QC/QA field and laboratory testing and inspection of bituminous pavement structure elements; quality control inspection and testing of Masonry and PC Concrete; and proper construction and placement of reinforcing steel.	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2012 - 2013 New Patient Tower and Pedestrian Bridge Construction St. Joseph Mercy Hospital- Oakland **MDOT CONTRACT ID: NA** Client: St. Joseph Mercy Contact: Jim Saleh Phone: (248) 858-2590 Fees: $200,000	**Role: Field QA Testing and Inspection** *TEC provided full QA testing services during construction of a new patient tower and new pedestrian bridge over M-1 (Woodward Ave.). QA testing and inspection was provided for deep foundations, shallow foundations, site utility installation, structural fill installation, structural concrete, HMA pavements and PC concrete pavements, reinforced masonry, structural steel and building envelope elements.* Construction: 1. Route name: St. Joseph Mercy - Oakland 2. Limits of Construction: Pontiac, MI 3. The construction budget: $130 million 4. General description of type of construction: New building, bridge, utilities, pavements
2013 Drake Road Resurfacing Freedom Rd. to Grand River Ave. **MDOT CONTRACT ID: 63459-1180915** Client: City of Farmington Contact: Matt Parks Phone: (734) 522-6711 Fees: $12,000	**Role: Field QA Testing and Inspection** *Performed field and laboratory QA Testing including localized pavement reconstruction, PC concrete curb & gutter and flatwork, HMA production testing, laydown inspection and testing during paving operations. Field and laboratory testing were performed within the MDOT LAP Acceptance Testing guidelines and the associated MTM requirements.* **Construction:** 1. Route name: Drake Road. 2. Limits of Construction: Woodward Ave. to Main St. 3. The construction budget: $0.6 Million0 4. General description of type of construction: HMA rehabilitation, PCC improvements

SPECIFIC EXPERIENCE	**CHIRAG PATEL** **Page 2**
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 Fenton Road Rehabilitation Woodward Ave. to Main St. **MDOT CONTRACT ID: 25555-104463** Client: Genesee County Road Commission Contact: John Plamondon Phone: (810) 767-4920 Fees: $40,000	**Role: Field and Laboratory Technician** *1.30 mi of hot mix asphalt cold milling and resurfacing, storm and sanitary sewer, concrete curb, gutter, sidewalks and ramps, and pavement marking on North Fenton Road from the north Fenton city limits northerly to Butcher Road, Genesee County. Field and laboratory testing were performed within the MDOT LAP Acceptance Testing guidelines and the associated MTM requirements.* Construction: 1. Route name: Fenton Road. 2. Limits of Construction: Butcher Rd. to City Limits 3. The construction budget: $3 Million 4. General description of type of construction: HMA reconstruction, utility installation, PCC Improvements
2013 M-5 Intersection Improvements Multiple Locations Detroit, MI **MDOT CONTRACT ID: 82121-104463A** Client: Cipparrone Contracting Contact: Robert Hallerman, PE Phone: (859) 534-4619 Fees: $20,000	**Role: QC Field Testing / Inspection** *Performed field and laboratory QC Testing and inspection of structural concrete for traffic signal modernization and interconnection at 19 locations on M-5 within the City of Detroit. Field and laboratory testing were performed within the MDOT LAP Acceptance Testing guidelines and the associated MTM requirements.* Construction: 1. Route: M-5 2. Limits of Construction: 19 locations 3. Construction Budget: $2 Million 4. General description of type of construction: HMA Resurfacing, PCC Improvements
2012 12 Mile Road Resurfacing Main St. to Campbell Royal Oak, MI **MDOT CONTRACT ID: 63459-115483A** Client: City of Royal Oak Contact: Matt Callahan Phone: (248) 246-3260 Fees: $20,000	**Role: Field and Laboratory Testing / Inspection** *Performed field and laboratory QA Testing including production QA acceptance testing, field density testing and laydown inspection during paving operations. Field and laboratory testing were performed within the MDOT LAP Acceptance Testing guidelines and the associated MTM requirements.* Construction: 1. Route: 12 Mile Road 2. Limits of Construction: Campbell to Main St. 3. Construction Budget: $1,200,000 4. General description of type of construction: HMA Resurfacing, PCC Improvements

STAFF EDUCATION and EXPERIENCE REPORT

NAME: James McDaniel	**TITLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field and Laboratory Engineering Technician	**YEARS OF EXPERIENCE:** 5 with company 0 with other firms
EDUCATION (degrees, year, specialization, school w/location) Denby High School, Detroit, Michigan	
LICENSES/REGISTRATION (type, year, state, number) Certified Concrete Field Technician Level I (ACI) (MDOT) MDOT Density Technology Certification Troxler Certification for Nuclear Density Gauge	
GENERAL EXPERIENCE AND QUALIFICATIONS (relevant to classification group): Mr. McDaniel has eight (5) years experience in field inspection and testing of construction materials, including shallow and deep foundations, such as caissons and piles; compaction verification of embankments, structural fills, utility trenches and aggregates; QC/QA field testing and inspection of bituminous pavement structure elements; quality control inspection and testing of Masonry and PC Concrete; and proper construction and placement of reinforcing steel.	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 Washington Ave. Rehabilitation Royal Oak, MI **MDOT CONTRACT ID: 63459-118091** Client: City of Royal Oak Contact: Matt Callahan Phone: (248) 246-3260 Fees: $15,000	**Role: Field QA Testing and Inspection** *TEC provided full QA testing services during construction of a 0.77 mile of Hot mix asphalt cold milling and resurfacing, drainage improvements and concrete driveway curb, gutter, sidewalk and ramps on North Washington Avenue from Eleven Mile Road to Crooks Road in the City of Royal Oak.* Construction: 1. Route name: Washington Ave. Resurfacing 2. Limits of Construction: 11 Mile Rd. to Crooks Rd. 3. The construction budget: $1 million 4. General description of type of construction: Pavement rehabilitation and drainage improvements
2013 Drake Road Resurfacing Freedom Rd. to Grand River Ave. **MDOT CONTRACT ID: 63459-1180915** Client: City of Farmington Contact: Matt Parks Phone: (734) 522-6711 Fees: $12,000	**Role: Field QA Testing and Inspection** *Performed field and laboratory QA Testing including localized pavement reconstruction, PC concrete curb & gutter and flatwork, HMA production testing, laydown inspection and testing during paving operations. Field and laboratory testing were performed within the MDOT LAP Acceptance Testing guidelines and the associated MTM requirements.* **Construction:** 1. Route name: Drake Road. 2. Limits of Construction: Woodward Ave. to Main St. 3. The construction budget: $0.6 Million0 4. General description of type of construction: HMA rehabilitation, PCC improvements

SPECIFIC EXPERIENCE	**JAMES McDANIEL** **Page 2**
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2012 I-94 / M-39 Interchange Reconstruction **MDOT CONTRACT ID: 82022-110558** Client: Dan's Excavating, Inc. Contact: Joe Goodall Phone: (586) 254-2040 Fees: $50,000	**Role: Field and Laboratory Technician** *Dan's Excavating, Inc. retained TEC to provide QC field and laboratory testing for cast-in-place concrete pavement and bridge reconstruction on the I-94 / M-39 Interchange Rehabilitation. The project included 4.2 miles of freeway reconstruction, interchange reconstruction, pavement construction / shoulders, and 6 bridge replacements. QC work included sampling of fresh concrete, air content, yield, slump and mix temperature casting and testing flexural and compressive strength test specimens.* Construction: 1. Route name: I-94 and M-39. 2. Limits of Construction: Interchange 3. The construction budget: $14 Million 4. General description of type of construction: PC Concrete Pavement Reconstruction, Bridge Reconstruction
2011 - 2012 I-96 Bridge Reconstruction Oakland County, MI **MDOT CONTRACT ID: 63022-78980A** Client: Dan's Excavating, Inc. Contact: Joe Goodall Phone: (586) 254-2040 Fees: $50,000	**Role: QC Field Testing / Inspection** *Dan's Excavating, Inc. retained TEC to provide QC field and laboratory testing for cast-in-place concrete pavement and bridge reconstruction on the I-96 Bridges from Huron Valley Trail to the Huron River near Milford, MI. Project included rehabilitation of 4 bridges, removal of 2 bridges and replacement with a single bridge. QC work included sampling of fresh concrete, air content, yield, slump and mix temperature casting and testing flexural and compressive strength test specimens.* Construction: 1. Route: I-96 2. Limits of Construction: Huron Valley Trail - Huron River 3. Construction Budget: $15 Million 4. General description of type of construction: PC Concrete Pavement Reconstruction, Bridge Reconstruction
2011 MDOT #7 Little Mack Overlay St. Clair Shores, MI. **MDOT CONTRACT ID: 50458-110327** Client: Florence Cement Co. Contact: Tony Cardillo Phone: (586) 997-2666 Fees: $12,400	**Role: QA/QC Technician** *The project consisted of 2.02 miles of cold milling concrete pavement, concrete overlay, concrete pavement repairs, trenching, concrete sidewalk, ADA ramps, and irrigation system on Little Mack Avenue from 10 Mile Road to 12 Mile Road in the city of St. Clair Shores, Macomb County.* Construction: 1. Route name: Little Mack Avenue 2. Limits of Construction: 10 Mile Road to 12 Mile Road 3. The construction budget: N/A 4. General description of type of construction: PCC Concrete Rehabilitation / Overlay QC

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Tony Pizzotti	**TITLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Senior Field Technician	**YEARS OF EXPERIENCE:** 17 with company 0 with other firms
EDUCATION: (degrees, year, specialization, school w/location) High School Diploma	
LICENSES/REGISTRATION: (type, year, state, number) *Certified ACI Concrete Technician Level I (MCA)* *MDOT Density Technology* *Troxler Certification for Nuclear Density Gauge*	
GENERAL EXPERIENCE AND QUALIFICATIONS: (relevant to classification group) Mr. Pizzotti has seventeen (17) years experience in field inspection and testing of construction materials, including shallow and deep foundations, such as caissons and piles; compaction verification of embankments, building pad and utility structural fills and backfills; quality control inspection of bituminous pavement elements; quality control inspection and testing of PC Concrete and proper construction and placement of reinforcing steel. *Significant experience on projects featuring infrastructure installation, pavement construction and rehabilitation and physical testing on soils.*	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 City of Royal Oak Washington Ave. Rehabilitation Royal Oak, MI. **MDOT CONTRACT ID: 63459-118912** Client: City of Royal Oak Contact: Matt Callahan Phone: (248) 246-3260 Fees: $15,000	**Role: Engineering/Lab Technician** Project featured 0.77 mile of hot mix asphalt cold milling and resurfacing, drainage improvements and concrete driveway curb, gutter, sidewalk and ramps on North Washington Avenue from Eleven Mile Road to Crooks Road in the City of Royal Oak. Provided full QA field and laboratory testing on project elements including structural fill soils, PC concrete, HMA paving, and verification of lane ties and other load transfer elements. **Construction:** 1. Route: Washington Ave. 2. Limits of Construction: 11 Mile Rd. to Crooks Rd. 3. Construction Budget: $750,000 4. General description of type of construction: Pavement Rehabilitation, Utility Installation, HMA Resurfacing.

SPECIFIC EXPERIENCE	TONY PIZZOTTI Page 2
YEAR(S) and SERVICE I.D	**ROLE & SERVICE DESCRIPTION**
2013 City of Farmington Drake Road Rehabilitation Farmington, MI. **MDOT CONTRACT ID: 63459-118091A** Client: OHM & City of Farmington Contact: Matt Parks, PE Phone: (734) 522-6711 Fees: $15,000	**Role: QA/QC Technician** 0.75 mi of roadway widening, hot mix asphalt cold milling and resurfacing, full-depth pavement repair, concrete curb, gutter, sidewalk and ramp, and underground utility improvements on Drake Road in the City of Farmington. Provided field and laboratory QA testing on PC concrete, HMA materials, trench backfill and pavement structure elements in accordance with MDOT LAP requirements. **Construction:** 1. Route: Drake Road 2. Limits of Construction: Freedom Rd. to Grand River 3. Construction Budget: $700,000 4. General description of type of construction: Pavement Rehabilitation, Utility Installation, HMA Resurfacing
2012 I-94 / M-39 Interchange Improvements Allen Park, MI. **MDOT CONTRACT ID: 82022-110558** Client: Dan's Excavating, Inc. Contact: Joe Goodall Phone: (586) 254-2040 Fees: $75,000	**Role: QA/QC Technician** The project included 4.20 mi of freeway reconstruction and realignment, interchange reconstruction, concrete mainline and shoulder paving, and bridge replacements on I-94, Pelham Road to Beech Daly Road, over US-24 and Pelham Road, under Ecorse Road and Norfolk Southern RR, and on US-24. Provided QC testing on PCC bridge and pavement elements including molding and field testing flexural strength test elements. **Construction:** 1. Route name: I-94 / M-39 Interchange 2. Limits of Construction: Throughout Interchange 3. The construction budget: $14 Million 4. General description of type of construction: PC concrete reconstruction, bridge rehabilitation / reconstruction
2012 19 Mile Road Rehabilitation Macomb County, MI. **MDOT CONTRACT ID: 50458-115282** Client: City of Sterling Heights Contact: Brent Bashaw Phone: (586) 446-2720 Fees: $15,000	**Role: QA/QC Technician** **Project included0.77 mi of cold milling concrete pavement, hot mix asphalt resurfacing, concrete pavement repairs, pavement joint and crack repairs, concrete curb, gutter, sidewalk and ramps, and earthwork on 19 Mile Road from Merrill Road east to Van Dyke Avenue in the city of Sterling Heights, Macomb County. Provided QA testing of HMA and PC concrete in accordance with HMA LAP requirements.** **Construction:** 1. Route name: 19 Mile Road 2. Limits of Construction: Merrill Rd. to Van Dyke Ave. 3. The construction budget: $700,000 4. General description of type of construction: RRR Pavement Rehabilitation with PCC and HMA.

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Bryan Volk	**ROLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field and Lab Testing bituminous/concrete/aggregate/density/plant inspection	**YEARS OF EXPERIENCE:** 14 with company 11 with other firms
EDUCATION: (degrees, year, specialization, school w/location) AAS/Pending/ Washtenaw Community College /Ypsilanti, MI	
LICENSES/REGISTRATION: (type, year, state, number) *Certified Concrete Technician Michigan Level I (ACI/MCA)* *Certified Aggregate Technician (MDOT)* *Certified for Usage of Troxler Nuclear Gauge* *Certified Soils Density Technology (MDOT)*	
GENERAL EXPERIENCE AND QUALIFICATIONS: (relevant to classification group) Twenty-five (25) years experience in field inspection and testing of construction materials, including shallow and deep foundations, such as caissons and piles; inspection and verification of structural fills, QC / QA inspection and testing of PC Concrete and HMA pavement elements; and proper construction and placement of reinforcing steel.	
SPECIFIC EXPERIENCE	
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2012 Waters Road Improvements, Washtenaw County, MI **MDOT Project #81069-1108861** Client: WCRC Contact: Matt MacDonell Phone: (734) 827-9527 Fees: $10,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of WCRC. This included field soil and aggregate testing, concrete testing and molding of compressive strength test specimens. Specimens were molded and were cured / tested by TEC. Duties also included density testing and laydown inspection during HMA paving.* **Construction:** 1. Route: Waters Rd. Washtenaw County, MI 2. Limits of Construction: Wagoner Rd. to Gallinger Dr. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation
2013 Fourth St. Reconstructions **MDOT Projects 38409-110464** Client: City of Jackson Contact: Troy White Phone: (517) 788-4160 Fees: $15,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of City of Jackson. Project includes 0.35 miles of hot mix asphalt roadway reconstruction, sanitary sewer installation, water main installation on two routes within the City of Jackson. Performed QA materials acceptance testing in accordance with MDOT LAP requirements on trench backfill, aggregates PC concrete and HMA pavement materials.* **Construction:** 1. Routes Fourth St. 2. Limits of Construction: Audubon Ave. to Griswold St. 3. Construction Budget: $0.6 Million 4. General description of type of construction: Pavement Reconstruction, Sanitary Sewer and Water Main Installation

SPECIFIC EXPERIENCE	BRYAN VOLK Page 2
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2012 Golfside Road Improvements, Washtenaw County, MI **MDOT Project #81475-113025** Client: WCRC Contact: Matt MacDonell Phone: (734) 827-9527 Fees: $25,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of WCRC. This included field soil and aggregate testing, concrete testing and molding of compressive strength test specimens. Specimens were molded and were cured / tested by TEC. Duties also included density testing and laydown inspection during HMA paving.* **Construction:** 1. Route: Golfside Rd. Washtenaw County, MI 2. Limits of Construction: Packard Rd. to Clark Rd. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation
2012 Ford Boulevard Improvements, Washtenaw County, MI **MDOT Project #81075-113026** Client: WCRC Contact: Matt MacDonell Phone: (734) 827-9527 Fees: $8,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of WCRC. This included QA concrete testing, HMA laydown inspection and density testing during resurfacing operations. Project also included drainage improvements, curb and gutter repairs, new pedestrian ramps and signals.* **Construction:** 1. Route: Ford Blvd., Washtenaw County, MI 2. Limits of Construction: Ecorse Rd. to Michigan Ave. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation
2011 Ypsilanti Community Utilities Authority 2011 WWTP Paving Ypsilanti, MI **MDOT Project # N/A** Client: Ypsilanti Community Utilities Authority (YCUA) Contact: Scott Westover Phone: (734) 484-4600 Fees: $8,000	**Role: Senior Engineering Technician** *TEC performed field QC density testing of pulverized HMA aggregate base course, inspection during HMA laydown operations, density testing and laboratory production in accordance with MDOT standards.* **Construction:** 1. Route: Ypsilanti, MI 2. Limits of Construction: Charter Township of Ypsilanti 3. Construction Budget: N/A 4. General description of type of construction: Laboratory Testing

STAFF EDUCATION and EXPERIENCE REPORT

NAME: Brent Galczynski	**ROLE:** Senior Engineering Technician
COMPANY NAME: Testing Engineers & Consultants, Inc.	
PROJECT/CONTRACT RESPONSIBILITIES: Field and Laboratory Construction Materials Testing	**YEARS OF EXPERIENCE:** 7 with company 0 with other firms
EDUCATION: (degrees, year, specialization, school w/location) General Studies/Computer Networking – ITT Technical Institute	
LICENSES/REGISTRATION: (type, year, state, number) *Certified Construction Technician Level I (ACI/MCA)* *Certified MDOT Density Technology* *Certified for Usage of Troxler Nuclear Gauge*	
GENERAL EXPERIENCE AND QUALIFICATIONS: (relevant to classification group) Responsibilities include seven (7) years experience in laboratory testing of: PC concrete, soils, manufactured aggregates, hot mix asphalt; field inspection and testing of construction materials, including shallow and deep foundations, such as caissons and piles; compaction verification of fills and backfills, QC/QA inspection of structural fill, PC concrete construction, HMA pavement elements; and proper construction and placement of reinforcing steel. *Familiar with the following code, specifications and test methods: AASHTO, ACI, ASTM, and MDOT.*	

SPECIFIC EXPERIENCE

YEAR(S) and SERVICE I.D.	ROLE & SERVICE DESCRIPTION
2013 South West Avenue Resurfacing, Jackson, MI **MDOT Project: 38409-110469** Client: City of Jackson Contact: Troy White Phone: (517) 589-5788 Fees: $20,000	**Role: Field and Laboratory Technician** *1.0 miles of HMA cold milling resurfacing with PC concrete ADA sidewalk ramp improvements on South West Avenue from High Street northerly to West Michigan Avenue in the City of Jackson, Jackson County, Michigan. Performed QA acceptance testing in accordance with MDOT LAP requirements on aggregates, HMA and PC concrete.* **Construction:** 1. Route name: South West Avenue, Jackson, MI 2. Limits of Construction: High St. to West Michigan Avenue 3. The construction budget: $450,000 4. General description of type of construction: HMA resurfacing, concrete flatwork improvements.
2013 WCRC Pavement Preservation Program **MDOT Project # 81475-118877** Client: WCRC Contact: Matt MacDonell Phone: (734) 327-6688 Fees: $75,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of WCRC. Project included 19.64 miles of hot mix asphalt cold milling and resurfacing, concrete pavement repairs, concrete curb and gutter, guardrail repairs, shoulder and pavement marking improvements at 13 locations throughout Washtenaw County. Paving included multiple simultaneous paving crews; QA testing requirements included and rapid turn-around on HMA acceptance test samples.* **Construction:** 1. Route: 13 Routes throughout Washtenaw County 2. Limits of Construction: N/A 3. Construction Budget: $3.3 million 4. General description of type of construction: HMA resurfacing and rehabilitation, concrete repairs, drainage and shoulder improvements.

SPECIFIC EXPERIENCE	BRENT GALCZYNSKI Page 2
YEAR(S) and SERVICE I.D.	**ROLE & SERVICE DESCRIPTION**
2013 Mt. Hope Bridge Over Sycamore Creek. Lansing, MI **MDOT Project: 33006-112395** Client: DLZ Michigan, Inc. Contact: Kyle Kopper, PE Phone: 517-3932-6800 Fees: $ 15,000	**Role: Field and Laboratory Technician** *Project Includes removal and replacement of the existing bridge deck, repairs of the existing structural steel, reconstruction of the approach pavement and localized structural elements on Mount Hope Avenue over Sycamore Creek, between Lindbergh Drive and Aurelius Road in the City of Lansing, Michigan. Performed QA acceptance testing on soils, aggregates, HMA and PC Concrete.* **Construction:** 1. Route name: Mt. Hope Avenue 2. Limits of Construction: Lindbergh Dr. and Aurelius Rd. 3. The construction budget: $900,000 4. General description of type of construction: Bridge Rehabilitation
2012 Golfside Road Improvements, Washtenaw County, MI **MDOT Project #81475-113025** Client: WCRC Contact: Matt MacDonell Phone: (734) 827-9527 Fees: $25,000	**Role: Senior Engineering Technician** *Provided construction materials QA testing on behalf of WCRC. This included field soil and aggregate testing, concrete testing and molding of compressive strength test specimens. Specimens were molded and were cured / tested by TEC. Duties also included laboratory testing of manufactured aggregates, field density testing and laydown inspection during HMA paving.* **Construction:** 1. Route: Golfside Rd. Washtenaw County, MI 2. Limits of Construction: Packard Rd. to Clark Rd. 3. Construction Budget: N/A 4. General description of type of construction: HMA Rehabilitation
2011 Hickory Woods Park Phase I Paving & Path Improvements Ypsilanti, MI Client: Pittsfield Twp. Parks & Recreation c/o Beckett and Raeder Contact: Alan Israel Phone: (734) 822-3120 Fees: $7,500	**Role: Senior Engineering Technician** *Provided construction materials QA acceptance testing for Pittsfield Township c/o Beckett and Raeder. Duties field and laboratory testing during included earthwork, PC concrete pathway and sidewalk construction, Crane Road improvements, HMA roadway and parking area improvements.* **Construction:** 1. Route: Hickory Woods Park, Pittsfield Twp., MI 2. Limits of Construction: Crane Road 3. Construction Budget: N/A 4. General description of type of construction: Paving & Path Improvements
2008 Miller/Maple Watermain Ann Arbor, MI MDOT Project: N/A Client: City of Ann Arbor Contact: Igor Kotlyer Phone: 734-794-6410 Fees: $40,000	**Role: Field and Laboratory Technician** *Sampled and performed QA testing on imported fill soils. Performed field density verification testing on imported utility and pavement structure elements. Duties also included field concrete testing, and curing, handling and testing of compressive strength test specimens.* **Construction:** 1. Route name: Miller/Maple Road, Ann Arbor, MI 2. Limits of Construction: Miller/Maple Road 3. The construction budget: N/A 4. General description of type of construction: Water Main installation.

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN

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RUBEN ELLIAS RAMOS
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SECTION 4

FIRM QUALIFICATIONS

- Ability to Respond
- Summary of Relevant Municipal Experience
- Additional Road Experience Matrix
- Similar Project Profiles
- Municipal Client References

ABILITY TO RESPOND

Proximity

Testing Engineers & Consultants is headquartered in Troy with an additional office / laboratory in Ann Arbor. Each of these offices is located within the required 35 mile radius from Novi City Hall, and can rapidly respond to the needs of City of Novi.

Availability of Staff

TEC has a staff of 68 full-time staff that can be called upon should the need arise. Should the need for additional staff arise, we can assign technicians from our Ann Arbor office, and/or perform testing and analysis at our Ann Arbor Branch Laboratory. TEC's Project Managers will be responsible for ensuring the availability of the key staff identified for this contract in *Section 3*. Outlined below is a breakdown of our staff by discipline:

Administrative	10
Civil Engineers	6
Construction Inspectors	8
Cad Operators	1
Drillers	2
Engineering Technicians	17
Environmental Scientists	2
Certified Hazardous Materials Manager	1
Environmental Engineers	1
Facilities Consultants	2
Certified Geologists	1
Certified Industrial Hygienist	1
Industrial Hygienists	4
Pavement Consultants	3
Roof Consultants	2
Geotechnical Engineers	3
Specification Writers	2
Structural Engineers	2
Total Personnel:	**68**

Familiarity with Officials, Area and Contractors

As evidenced in the enclosed project matrix, similar experience lists, profiles and resumes, TEC is quite familiar with the area, and local, state and federal guidelines, as well as consultants and contractors utilized by City of Novi. TEC maintains sub-consultant agreements with many other civil engineering firms or has been retained directly by municipalities to perform geotechnical and construction materials testing in and around Michigan.

We have been providing geotechnical services throughout Michigan and the surrounding states for the past 47 years, and have provided these services to City of Novi on ten individual projects during that entire period. To demonstrate our ability to respond on an as-needed basis, we currently hold, and have had as-needed contracts with numerous MDOT and governmental

ABILITY TO RESPOND, Cont.

Entities, the Cities of Troy and Sterling Heights for at least the last 30 years and consequently have provided Geotechnical services on nearly every road and utility project within these cities in the last 30 years or more. In addition, we maintain blanket contracts for similar services with the Road Commission for Oakland County, Washtenaw County Road Commission, and Cities of Royal Oak, Jackson, Rochester Hills and Farmington Hills. TEC also had the MDOT Metro Region contract for As-Needed Geotechnical Services from 2008 – 2010.

We have the ability, credentials and resources to successfully complete City of Novi projects and are eager to assist you.

SUMMARY OF RELEVANT MUNICIPAL EXPERIENCE

TEC fully understands the nature of a municipal contract with respect to responsiveness, efficiency and outcome. TEC has a long list of As-Needed Contracts that we have had or are currently servicing. We pride ourselves in our ability to respond to the needs of our Clients.

City of Port Huron
2011 – 2013 Geotechnical and Testing Consultant Contract
Mr. Dave Smith, PE, 810-984-9730

TEC provided geotechnical and testing and inspection services on a blanket basis to the City of Port Huron. The scope of work includes geotechnical engineering and investigations, construction materials testing and inspection and construction inspection. Projects include roadway rehabilitation, and reconstruction, utility and other infrastructure improvements, and owner-provided testing for private developments.

City of Jackson
2013 – Current Geotechnical and Testing Consultant Contract
Mr. Troy White, 517-788-4020

TEC is providing geotechnical and testing and inspection services on a blanket basis to the City of Jackson. The scope of work includes geotechnical engineering and investigations, construction materials testing and inspection, structural steel inspection and testing, and construction inspection. Projects include roadway rehabilitation, and reconstruction, utility and other infrastructure improvements, and owner-provided testing for private developments.

City of Rochester Hills
2010-Present Geotechnical and Testing Consultant Contract
Mr. Paul Shumejko, PE, PTOE 248-841-2489

TEC is providing geotechnical and testing and inspection services on a blanket basis to the City of Rochester Hills. The scope of work includes geotechnical engineering and investigations, construction materials testing and inspection, structural steel inspection and testing, and construction inspection. Projects include roadway rehabilitation, and reconstruction, utility and other infrastructure improvements, and owner-provided testing for private developments.

Washtenaw County Road Commission
Geotechnical and Testing Consultant Contract
2012 – Current

TEC is providing geotechnical and testing and inspection services on a blanket basis to the Washtenaw County Road Commission. The scope of work includes geotechnical engineering and investigations, construction materials testing and inspection on both locally and state funded projects. Projects include roadway rehabilitation, and reconstruction, utility and other infrastructure improvements.

City of Troy
Testing & Inspection Consultant 1979-Present
Mr. Joe Lietaert 248-524-3383

As the City's Testing Firm since 1979, TEC has provided storm water consulting, soil borings and geotechnical engineering, construction materials testing and inspection for roadways, as well as testing for municipal buildings such as the new Troy Community Center and new Fire Stations. Work has included testing for road and bridge reconstruction, pavement evaluation, concrete and HMA plant inspection, pre-cast inspection, subdivision work including water main and utility backfill and street paving as well as the Troy airport. TEC has also provided air quality and environmental assessment services.

SUMMARY OF RELEVANT MUNICIPAL EXPERIENCE, Cont.

City of Sterling Heights
Testing & Inspection Consultant 1985-Present
Mr. Mark Dyer 810-499-1151

TEC has provided testing and inspection services to the City for 30 years. The scope of work has included construction materials testing and evaluation, geotechnical engineering and investigations, pavement consulting, precast concrete inspection, structural steel, masonry testing and inspection, water sampling, sediment sampling. Projects have included utility improvements, bridges, roads, locally and state funded infrastructure improvements, owner-provided testing for private developments.

City of Trenton
Testing/Inspection and Geotechnical 1984-2008
Mr. William Hogan 734-675-8251

TEC provided the inspection and testing of the granular materials, aggregate base, concrete and bituminous paving along with engineering oversight and corresponding laboratory testing for roadways, streetscapes and the Jefferson Pump Station as well as geotechnical investigation for sewer work, pump stations and roads. Provided environmental consulting services for pump station decommissioning/demolition and underground storage tank (UST) management.

City of Farmington Hills
Testing/Inspection and Geotechnical 1978-2008, 2013-Current
Mr. James Cubera PE 248-871-2560

TEC maintains a blanket contract with the City of Farmington Hills to provide geotechnical engineering and materials testing services on behalf of the City. Historically, TEC provided the inspection and testing of the granular materials, aggregate base, concrete and bituminous paving along with engineering oversight and corresponding laboratory testing for roadways, sewers and water mains in the City as well as pavement design and QA testing. (1978-2008). TEC also provided the materials testing for the expansion of the Farmington Hills Municipal Center.

City of Royal Oak
Testing/Inspection and Geotechnical Consultant Contract 2001, 2002, 2004-2006, 2010-Current
Mr. Matt Callahan, PE 248-246-3260

During the reconstruction and rehabilitation of city roadways, and water and sewer projects TEC has provided ongoing soil and bituminous density, concrete inspection and testing, aggregate base sampling and testing, moisture-density relationship, concrete curing and compressive strength and bituminous mix design and verification testing. TEC has provided testing and inspection services to the City for many years. The scope of work has included soils, concrete, bituminous, structural steel, masonry, water sampling, and geotechnical engineering. Projects have included MDOT road resurfacing and reconstruction, utility work, streetscapes, fire station #1 and #2 as well as lead sampling and soil borings.

City of Oak Park
Testing & Inspection 1997-2003 & 2009-2010
Mr. Robert Barrett, M Dave DeCoster 248-691-7580

TEC has provided soil borings and construction materials testing for road programs and utility work in the City of Oak Park. Field soils, aggregate and concrete testing have been performed on numerous projects.

ADDITIONAL ROAD EXPERIENCE MATRIX

Geotechnical Engineering & Construction Materials Testing Project Name & Location	Bituminous Construction Testing & Inspection	Density Testing/ Inspection Services	Concrete Testing & Inspection	Construction Materials Laboratory Services	Geotechnical Engineering	Construction Monitoring and Structural Eval.	Soil Borings	Design Verification	Foundation and design recommendations	Instrumentation of Structures and Soils	Pavement Investigation and Design	Physical Testing of Soils	Slope Stability and Analysis	Earth Retention Systems	Sewer & Water Main
I-96 Reconstruction (MDOT) Lansing, MI		X	X	X											
Maple Rd Widening; Eton to Coolidge – Troy, MI		X	X	X	X		X				X	X			X
Coolidge Rd Repair & Maple Rd Improv. MDOT #53628A Troy, MI	X	X	X	X											
I-94 Over Dequindre RR Yard (MDOT) – Detroit, MI			X												
I-496 Bridge/ Pavement Reconstruction Lansing, MI		X	X	X											
Square Lake Road Reconstruction – Troy, MI	X		X		X		X				X	X			
Bridge Street Bridge over the Rouge River – Southfield, MI					X								X	X	
Traffic Signal Replacements M-1 and M-5 (MDOT) Detroit, MI					X		X	X	X			X			
Overpass, Exit and Entrance Ramps at I-94 and M-59 – Chesterfield Twp, MI	X	X	X												
Gainsley Drive Sanitary Sewer Repairs & Pavement Reconstruction, Sterling Heights	X	X		X	X		X	X			X	X			X
Local Road Reconstruction, Sterling Heights		X	X	X			X	X			X				
Reconstruction of M-59 from Van Dyke to Gratiot – Mt. Clemens, MI	X	X	X												

ADDITIONAL ROAD EXPERIENCE MATRIX

Geotechnical Engineering & Construction Materials Testing Project Name & Location	Bituminous Construction Testing & Inspection	Density Testing/ Inspection Services	Concrete Testing & Inspection	Construction Materials Laboratory Services	Geotechnical Engineering	Construction Monitoring and Structural Eval.	Soil Borings	Design Verification	Foundation and design recommendations	Instrumentation of Structures and Soils	Pavement Investigation and Design	Physical Testing of Soils	Slope Stability and Analysis	Earth Retention Systems	Sewer & Water Main
Second Blue Water Bridge Construction (MDOT) Port Huron, MI	X	X			X		X		X	X		X			
Adams Road Bridge Over the CN Railroad Birmingham, MI	X	X	X	X											
Nineteen Mile Road Widening Sterling Heights, MI	X	X	X	X											
Stephenson Highway Northbound Madison Heights, MI				X											
Stephenson Highway Southbound Madison Heights, MI				X											
University Drive Pontiac, MI		X	X	X											
Big Beaver between Rochester Rd and Dequindre Troy, MI		X	X	X											
2008 Street Paving Oak Park, MI		X	X	X											
Fourteen Mile Road Reconstruction Farmington Hills, MI		X	X	X											
Kensington & Orchard Ridge Roads Reconstruction, Bloomfield Hills, MI					X		X		X		X				X
Rain Tree Drive Rehabilitation, Rochester Hills, MI	X	X		X	X		X	X			X				

ADDITIONAL ROAD EXPERIENCE MATRIX

Geotechnical Engineering & Construction Materials Testing Project Name & Location	Bituminous Construction Testing & Inspection	Density Testing/ Inspection Services	Concrete Testing & Inspection	Construction Materials Laboratory Services	Geotechnical Engineering	Construction Monitoring and Structural Eval.	Soil Borings	Design Verification	Foundation and design recommendations	Instrumentation of Structures and Soils	Pavement Investigation and Design	Physical Testing of Soils	Slope Stability and Analysis	Earth Retention Systems	Sewer & Water Main
2011 Concrete Slab Replacement			X	X			X								
South Blvd & Bagley Pavement Investigation, Pontiac, MI	X			X	X		X				X	X			
Rochester Road, Troy, MI	X	X		X								X			
Tri-party Concrete Patching, Troy, MI		X	X	X											
12 Mile Road Resurfacing, Royal Oak, MI	X	X	X	X				X				X			
Normandy Ave Reconstruction, Royal Oak, MI	X	X	X	X				X				X			
Concrete Pavement Replacement, Various Locations, Royal Oak, MI			X	X				X							
Dobry Road Patching, Sterling Heights, MI	X	X		X	X		X	X			X	X			

12 Mile Road Resurfacing
West 12 Mile Road from Woodward Avenue to Main Street
Royal Oak, MI

MDOT Project # STU63459-115483A
TEC Project # 52451

Project Summary:

The City of Royal Oak retained Testing Engineers & Consultants (TEC) to provide construction materials Quality Assurance field and laboratory testing for hot mix asphalt resurfacing, cast-in-place concrete including repair and replacement of pavement, curb, sidewalks and ramps. Field-testing included, sampling of fresh concrete, air content, yield, slump and mix temperature and casting of compressive strength specimens. Specimens were cured in the field and then collected by TEC for further curing prior to the compressive strength tests in the TEC laboratory. TEC also performed compaction testing on pavement and sidewalk aggregate base courses. HMA field and laboratory testing included laydown inspection and acceptance testing in accordance with MDOT Special Provision 12SP501(J).

Client: City of Royal Oak
Contact: Matt Callahan
Phone: 248-246-3260

Year Started: May 2012
Year Completed: September 2012

Project Cost (if available):
TEC's Fees: $20,000

Firms Responsibility: QC Concrete, Aggregate and HMA Testing

Key Staff and Role on Project:
William West, PE – Project Manager
Mark McGuckin – Field Supervisor
Tony Pizzotti – Senior Technician
Keith Louchart – Senior Technician
James Trenum – Senior Technician

19 Mile Road Resurfacing
Merrill Road to Van Dyke
Sterling Heights, MI

MDOT Project # 50458-115282A
TEC Project # 52886

Project Summary:

The City of Sterling Heights retained Testing Engineers & Consultants (TEC) through our blanket contract to provide a pavement investigation and to provide construction materials Quality Assurance field and laboratory testing for 0.8 mile hot mix asphalt resurfacing, cast-in-place concrete including repair and replacement of pavement, curb, sidewalks and ramps. TEC performed pavement cores and base sampling. Field investigation included traffic control including flag control lane closure. Field-testing included sampling of fresh concrete, air content, yield, slump and mix temperature and casting of compressive strength specimens. Specimens were cured in the field and then collected by TEC for further curing prior to the compressive strength tests in the TEC laboratory. TEC also performed compaction testing on aggregate base courses. HMA field and laboratory testing included laydown inspection and acceptance testing in accordance with MDOT Special Provision 12SP501(J).

Client:	City of Sterling Heights
Contact:	Adam LaClair
Phone:	586-446-2486
Year Started:	May 2012
Year Completed:	September 2012
Project Cost (if available):	$600,000
TEC's Fees:	$10,000
Firms Responsibility:	QA Concrete, Aggregate and HMA Testing
Key Staff and Role on Project:	Carey Suhan, PE – Project Principal Gary Putt, PE – Senior Project Engineer Ian Mickle – Senior Driller William West, PE – Project Manager Mark McGuckin – Field Supervisor Tony Pizzotti – Senior Technician Keith Louchart – Senior Technician James Trenum – Senior Technician

2012 Asphalt Reconstruction / Maintenance Program
Multiple Routes
Auburn Hills, MI

MDOT Project # N/A
TEC Project # 52555

Project Summary:

City of Auburn Hills and OHM Advisors retained Testing Engineers & Consultants (TEC) to provide Quality Assurance field and laboratory testing for a multi-phased pavement reconstruction, rehabilitation, retaining wall construction, sidewalk and ramp improvements along multiple routes in the City of Auburn Hills. TEC provided geotechnical recommendations and provided field and laboratory testing on granular materials and dense graded aggregates used in retaining wall construction along Shimmons Rd. Field testing included density testing of aggregates and granular materials, sampling fresh concrete, air content, yield, slump and mix temperature and casting of compressive strength test specimens. Field inspection also included laydown inspection during paving and field density testing on HMA base, leveling and top courses. PC Concrete specimens were cured in the field and then collected by TEC for final curing. Laboratory testing included QA HMA acceptance testing, compressive strength testing in the TEC laboratory.

Client: OHM & City of Rochester Hills
Contact: Jerry Ashburn
Phone: 734-891-2450

Year Started: June 2012
Year Completed: November 2012

Project Cost (if available): $1,500,000
TEC's Fees: $30,000

Firms Responsibility: Concrete, HMA & Aggregate QA Testing

Key Staff and Role on Project:
Ruben Ramos, PE – Principal Engineer
William West, PE – Project Manager
Mark McGuckin – Field Supervisor
Keith Louchart – Senior Technician
James Trenum – Senior Technician
Tony Pizzotti – Senior Technician

2013 Falcon Drive & Firewood Drive Reconstructions
Rochester Hills, MI

MDOT Project # N/A
TEC Project # 53xxx

Project Summary:

City of Rochester Hills retained Testing Engineers & Consultants (TEC) to conduct a geotechnical investigation and provide recommendations for pathway construction, drainage improvements, pavement section and materials selection in addition to Quality Assurance field and laboratory testing for a multi-phased pavement reconstruction, armored drainage swale construction, roundabout, sidewalk and ramp improvements along multiple routes in the City of Rochester Hills. In the design phase, TEC provided geotechnical recommendations to the design team. During construction, TEC assisted the construction team by recommending alternate subgrade improvement methods and geosynthetic materials that allowed for completion of the project within time & budget while performing significantly more subgrade improvement undercut than was originally anticipated. Field testing included density testing of aggregates and granular materials, sampling fresh concrete, air content, yield, slump and mix temperature and casting of compressive strength test specimens. Field inspection also included laydown inspection during paving and field density testing on HMA base, leveling and top courses. PC Concrete specimens were cured in the field and then collected by TEC for final curing. Laboratory testing included QA HMA acceptance testing of Superpave HMA mixes and PC concrete compressive strength testing in the TEC laboratory.

Client: City of Rochester Hills
Contact: Paul Shumejko
Phone: 248-841-2489

Year Started: June 2013
Year Completed: November 2013

Project Cost (if available): $1,500,000
TEC's Fees: $30,000

Firms Responsibility: Geotechnical Eng., Concrete, HMA & Aggregate QA Testing

Key Staff and Role on Project:
Carey Suhan, PE – Geotechnical Principal
Gary Putt, PE – Senior Project Engineer
Ian Mickle – Senior Driller
Ruben Ramos, PE – QA/QC Principal
William West, PE – Project Manager
Mark McGuckin – Field Supervisor, QA Lab Testing
Chirag Patel – Senior Technician
James Trenum – Senior Technician
Tony Pizzotti – Senior Technician

Boardwalk Bridge Estates At Legacy Village
Shelby Township, MI

TEC Project # 54155

Project Summary:

Testing Engineers & Consultants (TEC) was retained by Nowak & Fraus Engineers to perform a geotechnical investigation and foundation design for a pathway bridge over the Lawson Drive. The investigation included two borings on either side of the drain. The drilling was in the Macomb County Department of Roads right of way (ROW) and required a ROW permit. TEC performed laboratory analysis of soil samples and developed foundation recommendations for driven timber piles. TEC designed the foundation support system and the bridge beams to span the 24 foot center span and 16 foot end spans.

Client: Nowak and Fraus Engineers
Contact: Jeffrey J. Huhta, PE, PS
Phone: 248-332-7931

Year Started: January 2014
Year Completed: February 2014 (TEC Design)

Project Cost (if available): N/A
TEC's Fees: $4,500

Firms Responsibility: Geotechnical Engineering, Foundation Design, Structural Design

Key Staff and Role on Project:
Carey Suhan, PE –Principal Engineer
Gary Putt, PE – Senior Project Engineer
Donald Malinowski, PE. Senior Project Engineer
Ian Mickle – Senior Driller

Featherstone Road Improvements
Squirrel Road To Opdyke Road
Auburn Hills, MI

TEC Project # 53316

Project Summary:

Testing Engineers & Consultants (TEC) was retained by City of Auburn Hills to provide geotechnical engineering for improvements to Featherstone Road. The project consists of rehabilitation of approximately 1.5 miles of pavement. The route is a 4 lane boulevard with concrete pavement. Curb and gutter and storm sewer exist throughout the route. A new water main was to be installed along the south side of Featherstone Road.

Fourteen soil borings were drilled along the proposed water main alignment and 30 soil borings were drilled in alternating lanes along the eastbound and westbound Featherstone Road pavements. Recommended earthwork operations were provided for both open cut and directional or other horizontal methods along the proposed water main alignment. Also subgrade improvement recommendations were provided. The project plans included pavement rehabilitation consisting of an unbonded jointed PC concrete overlay utilizing a hot mix asphalt (HMA) separation layer. TEC provided a design pavement thickness evaluation using methods outlined in the AASHTO Guide for the Design of Pavement Structures incorporated in the StreetPave Software developed by the American Concrete Pavement Association.

Client: City of Auburn Hills c/o OHM Advisors
Contact: Tim Juidici, P.E.
Phone: 734-522-6711

Year Started: March 2013 (TEC Services)
Year Completed: May 2013 (TEC Services)

Project Cost (if available): N/A
TEC's Fees: $9,825.00

Firms Responsibility: Geotechnical Engineering, Pavement Design and Water Main Installation Recommendations

Key Staff and Role on Project:
Carey Suhan, PE –Principal Engineer
William J. West, PE – Project Manager
Gary Putt, PE – Senior Project Engineer
Ian Mickle – Senior Driller

Geddes and Ridge Road Roundabout
Superior Township, Washtenaw County, MI

TEC Project # 52706 & 53436

Project Summary:

Testing Engineers & Consultants (TEC) was retained by OHM Advisors to provide geotechnical investigation and engineering for a realignment and roundabout construction at the intersection of Geddes and Ridge Road. The project also included replacement of a culvert bridge on Ridge Road. TEC performed eleven soils borings and provided subgrade preparation, pavement thickness design and bridge foundation recommendations. TEC was then retained by Washtenaw County Road Commission to provide construction materials testing and observation during construction. Construction phase work included full QA acceptance testing on PC concrete and pavement structure elements including fresh concrete testing, flexural and compressive strength.

Client: OHM-Advisors/Washtenaw County Road Commission
Contact: Mark Loch/Matt MacDonell
Phone: 734-522-6711/734-761-1500

Year Started: July 2012
Year Completed: August 2013

Project Cost (if available): N/A
TEC's Fees: $40,000

Firms Responsibility: Geotechnical Engineering, HMA Concrete and Aggregate, QA testing

Key Staff and Role on Project:
Carey Suhan, PE – Geotechnical Principal
Gary Putt, PE – Senior Project Engineer
Ian Mickle – Senior Driller
William West, PE – Project Manager
Mark McGuckin – Field Supervisor, QA Lab Testing

Highland Recreation Area Pathway
White Lake Township, MI

TEC Project # 51333

Project Summary:

Testing Engineers & Consultants (TEC) was retained by Nowak and Fraus Engineers to provide geotechnical engineering and foundation design for a multi-use pathway through Highland Recreation Area. The proposed project consists of the construction of 2.7 miles of new trail. The pathway is to be 10 feet wide and will have a gravel surface with the possibility of pavement in the future. The pathway is to contain shoulders and an equestrian trail. Approximately 500 feet of the pathway, which was to cross a wetland area, had to be relocated due to a protected species concern. This resulted in a second visit to the site to perform an additional geotechnical investigation. A boardwalk crossing system, approximately 48 feet in length, was to be constructed over an open stream crossing.

Access to the wetland area was very difficult requiring hand auger borings. A truck mounted drill rig was used in the relocated section of the pathway. A dynamic cone penetrometer (DCP) was used in conjunction with the hand auger borings to determine soil strengths. Extensive recommendations were provided by TEC to accommodate the underlying peat conditions. Recommendations for geo-grid reinforced aggregate fill were provided. Recommendations for boardwalk foundations included treated wood piles and screw-in helical piers. Recommendations for future pavement along the pathway were also provided.

Client: Nowak and Fraus Engineers
Contact: Jeffrey J. Huhta, P.E.
Phone: 248-332-7931

Year Started: March 2011 (TEC Services)
Year Completed: November 2011 (TEC Services)

Project Cost (if available): N/A
TEC's Fees: $4,800.00

Firms Responsibility: Geotechnical Engineering, Subgrade Preparation Recommendations & Foundation Design Recommendations

Key Staff and Role on Project: Carey Suhan, PE –Principal Engineer
Gary Putt, PE –Project Manager/Engineer
Ian Mickle – Senior Driller

Pedestrian and Bike Path
Hudson Mills Metropark
Washtenaw County, MI

TEC Project # 52035

Project Summary:

Testing Engineers & Consultants (TEC) was retained in December 2011 by Huron-Clinton Metropolitan Authority to provide geotechnical engineering and foundation design for new Phase II pedestrian and bike path adjacent to the Huron River at the Hudson Mills Metro Park.

The proposed project consists of approximately three miles of trail, two pedestrian bridges and two boardwalks spanning wetland areas. The bridges are to span 40 feet with an estimated 85-psf live load and 50-psf dead load. The bridges will be about 14 feet wide. The boardwalks will span wetlands at select locations.

TEC coordinated access with park personnel to the path area. Access to the wet, wooded area was very difficult requiring use of a drill rig mounted on an all-terrain vehicle.

Extensive recommendations were provided by TEC to accommodate the high ground water conditions and significant grade changes. Recommendations for the bridge foundations included shallow foundations where shallow suitable soils were found and deep foundations such as driven timber piles and screw-in helical piers. TEC also provided recommendations for shallow foundations and driven timber piles for the boardwalks.

Recommendations were also provided by TEC for subgrade preparation and asphalt pavement for the pedestrian/bike path. Provisions for a construction traffic haul road that could then be incorporated into the permanent pathway construction was also recommended.

Client: Huron-Clinton Metropolitan Authority
Contact: Mike Brahm-Henkel
Phone: 810-494-6057

Year Started: November 2011
Year Completed: February 2012 (TEC Services)

Project Cost (if available): N/A
TEC's Fees: $5,000

Firms Responsibility: Geotechnical Investigation & Engineering

Key Staff and Role on Project: Carey Suhan, PE –Principal Engineer
Gary Putt, PE – Senior Project Engineer
Ian Mickle – Senior Driller

Bloomfield Hills 2012-2013 Road Program
Kensington Road and Orchard Ridge Road
Bloomfield Hills, Michigan
TEC Project #51806

These projects consist of the rehabilitation and widening of Kensington Road between Long Lake Road and the south city limits of Bloomfield Hills and the rehabilitation/repair of Orchard Ridge Road between Long Lake Road and Vaughn Road in Bloomfield Hills, Michigan. In addition to the road improvements, installation of a new sanitary sewer and a culvert replacement was planned for Kensington Road as well as a culvert replacement at Orchard Ridge Road. The length of the proposed sanitary sewer is approximately 1000 lineal feet and is approximately 8 to 10 feet below existing pavement surface.

Sixteen borings were drilled along Kensington Road and eleven borings were drilled along Orchard Ridge Road. Pavement cores were also taken at fourteen boring locations along Kensington Road and at nine boring locations along Orchard Ridge Road.

TEC was retained to perform a geotechnical investigation to evaluate existing pavement and underlying soil conditions and provide sub-grade preparation recommendations. The field work required full time traffic control with flagging personnel while work progressed in the two lane roads. Deep fill consisting of very loose to medium compact clayey sand and medium compact sand was encountered at several borings along Kensington Road. About 2 ½ feet of peat was encountered at one boring location. The underlying native soil was very loose to compact sand and clayey sand. At four boring locations at Kensington Road the sand and clayey sand were underlain by plastic to firm clay. Along Orchard Ridge Road fill consisting of loose to medium compact sand and clayey sand extended to depths ranging from 6 inches to 5 feet. The underlying native soil was generally loose to medium compact sand and clayey sands.

TEC provided existing pavement and aggregate base cross sections at the boring/core locations. TEC also provided two pavement improvement recommendations; 1) pulverizing the existing asphalt over the existing aggregate and overlaying with four inches of new pavement and 2) total reconstruction with new aggregate base and new asphalt pavement. The DARWin ™ Pavement Design Program was used to design the pavement cross sections for the reconstruction option. A 15 year life span was given for the pulverization and resurfacing option and a 20 year life span was given to the total reconstruction option.

TEC also provided box culvert foundation recommendations and sanitary sewer construction considerations and recommendations including subgrade preparation, ground water control and excavation slope recommendations.

Client:	Hubbell, Roth & Clark, Inc.
Contact:	Bradley Shepler, PE, CDT, LEED AP
Phone:	248-454-6300
Completion:	In progress (TEC's work Oct. 2011)
Project Cost:	Unknown
Fees:	$9,800.00
Firm's Responsibility:	Sub-consultant
Key Staff:	Carey Suhan, PE – Project Principal William West, PE – Project Manager Gary Putt, PE – Project Engineer Ian Mickle – Senior Driller

Traffic Signal Replacements Pierson Road
Flint, Michigan

TEC Project # 51759 & 52621

Project Summary:

TEC was retained by Rowe Professional Services Company to perform geotechnical engineering services for the replacement of traffic signals along Pierson Road in the City of Flint. The road is a primary roadway through the City of Flint. The project was performed in two phases and included replacement of 31 traffic signal structures. TEC performed soil borings at each new signal foundation location. The fieldwork required extensive coordination with utility staking personnel and the client to properly locate the borings. TEC performed laboratory analyses of soil samples at each foundation location and analyzed the lateral and vertical foundation capacity utilizing AllPile Software. The engineering report presented construction recommendations and design parameters for each sign foundation.

Client:	Rowe Professional Services Company
Contact:	Nate Whiting
Phone:	(810) 341-7500
Start Completion:	August 2011 July 2012
Project Cost:	N/A
Fees:	$14,766
Firms Responsibility:	Geotechnical Investigation and Analysis of Laterally Loaded Drilled Piers
Key Staff:	Carey J. Suhan, PE – Project Manager Gary Putt, PE – Senior Project Engineer Ian Mickle – Senior Driller

MUNICIPAL CLIENT REFERENCES

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Washtenaw County Road Commission
555 North Zeeb Road
Ann Arbor, Michigan 48103
macdonellm@wcroads.org
(734) 761-1500

"TEC staff has always been fair and objective on our projects…"

Mike Donnellon, Jr.
Oakland County Parks & Recreation
248-858-4621

STATE OF MICHIGAN

COUNTY OF OAKLAND

CITY OF NOVI

AGREEMENT FOR GEOTECHNICAL ENGINEERING CONSULTANT SERVICES FOR PUBLIC PROJECTS

BETWEEN

CITY OF NOVI

AND

SOIL AND MATERIALS ENGINEERS, INC.

This Agreement is effective this __ day of _____, 2014, and is between the **City of Novi**, 45175 West Ten Mile Road, Novi, Michigan 48375 (hereafter "**City**") and Soil and Materials Engineers, Inc., 43980 Plymouth Oaks Blvd., Plymouth, Michigan 48170-2584 (hereafter "**Consultant**").

RECITALS:

The City desires to engage the professional services of the Consultant to perform geotechnical engineering services for public projects on behalf of the City.

The Consultant desires to provide such services, as set forth below and in the attached and incorporated Exhibits, under the terms and conditions hereof.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties agree as follows:

1. **General Scope of Services and Term of Agreement:**

   a. For and in consideration of payment by the City as provided in this Agreement, Consultant shall perform the services described herein, including the services described in Exhibit A—*Geotechnical Engineering Consultant Services For Public Projects,* and shall provide engineering reports, test results, boring logs, approval letters, rejection letters, inspection reports, etc., as applicable, ("Deliverables") if and when such services are assigned by the City to Consultant by execution of an Authorization for Services, in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under

similar circumstances, and in compliance with all terms and conditions of this Agreement.

b. For geotechnical engineering services for individual projects, if and when assigned to Consultant, including roadway construction and rehabilitation work, sidewalk and pathway construction, water main construction, sanitary sewer/storm sewer construction, underground utility rehabilitation, and traffic signal construction, consultant shall submit an individual work plan for each project assigned to Consultant by the City based upon the scope of the particular project as described in accordance with Exhibit B— *Geotechnical Engineering Fee Proposal* for that particular type of project. Services shall be assigned to Consultant by approval by the City of an Authorization for Services ("Authorization for Services"), which shall be prepared for each individual project assigned to Consultant setting forth the specific scope and cost of the particular project. Consultant shall comply with the work description, insurance requirements, and other terms applicable to each individual project as set forth in the Authorization for Services.

c. The term of this Agreement shall be two years from the date set forth above, and will be open for review and negotiation by mutual agreement of Consultant and the City of Novi for three additional 1-year terms. However, either party may terminate this Agreement for any reason upon ninety (90) days' written notice to the other party. This Agreement may be terminated by either party upon 7 days' prior written notice to the other party in the event of substantial failure by the other party to fulfill its obligations under this agreement through no fault of the terminating party.

d. This Agreement is based on the ordinances, policies, procedures, or requirements in effect on the date of the Agreement. Any additional office or field services required as a direct and apparent result of the change of such ordinances, policies, procedures, or requirements shall be negotiated to the mutual consent of the City and Consultant.

e. City agrees that the Deliverables or other contracted services are primarily for the use of City. All documents prepared by the Consultant, including tracings, drawings, estimates, specifications, field notes, investigations, studies, reports, computer files, field data, notes, etc., in connection with the performance of its duties under this agreement shall become the property of the City upon completion of the services and payment in full of all monies due to the Consultant with respect to the preparation of such document. Reuse of any such materials by City on any extension of any project or any other project without the written authorization of Consultant shall be at City's sole risk without liability to the consultant. Consultant shall have the right to retain copies of all such materials.

f. The parties to this Contract intend that the relationship between them created by this Contract is that of service provider and service purchaser. It is expressly agreed, understood and intended that no employee-employer relationship shall exist or be established and that Consultant is an independent contractor who has been retained to render services to the City to achieve specific results in exchange for

specified recompense. As an independent contractor, Consultant expressly agrees that: (a) In the performance of this Contract, the relationship of Consultant to the City shall be that of an independent contractor and not that of an employee or agent of the City, and neither Consultant, nor any agent, employee or permitted subcontractor of Consultant, shall be or may be deemed to be the employee or agent of, or a servant to, the City; (b) Consultant will be solely responsible for payment of salaries, wages, and other compensation for its employees and agents; (c) Neither the Consultant nor any officer, agent, employee or subcontractor of the Consultant shall be eligible for coverage under or eligible to receive the benefits of the City's Workers' compensation, unemployment or health insurance, pension plans or other benefit plans; (d) Consultant is and shall perform under this Contract as an independent contractor, and no liability or responsibility with respect to benefits of any kind, including without limitation, medical/health benefits, Worker's compensation, pension rights, or other rights or liabilities arising out of or related to a contract for hire or employer/employee relationship shall arise or accrue to either party as a result of the performance of this Contract; and (e) Consultant, as an independent contractor, is not authorized to enter into or sign any agreements on behalf of the City.

2. Payment for Services:

a. Consultant shall invoice City monthly on account of Consultant's services. City shall pay Consultant within thirty (30) calendar days of the time of receipt of invoice from Consultant on account. Subject to sub-paragraph 2(b) below, the City shall pay the undisputed portions of each progress invoice within thirty (30) days of the date of the invoice. If payment is not maintained on a thirty (30) day current basis, Consultant may suspend further performance until payments are current.

b. City agrees that the periodic billing from Consultant to City are presumed to be correct, conclusive with regard to the services provided, and binding on City unless City, within thirty (30) calendar days from the date of receipt of such billing, notifies Consultant in writing of alleged disagreements with regard to the billing. Errors or discrepancies in a billing recognized after 30 calendar days but not more than 180 calendar days after receipt of invoice from Consultant shall be resolved to the mutual satisfaction of both parties. After 180 calendar days after receipt of invoice from Consultant, the professional services provided by Consultant shall be viewed as acceptable and closed. Final billing under this agreement shall be submitted in a timely manner but not later than three (3) months after completion of the services. Billings for work submitted later than three (3) months after completion of services will not be paid. Final payment will be made upon completion of audit by the City.

c. All fees and/or costs associated with or due to any governmental or review agencies arising from the services are the sole responsibility of the City.

d. All expenses required to complete the scope of services described in the Authorization for Service, including but not limited to costs related to mileage,

vehicles, reproduction, computer use, etc., shall be included in the basic fee as set forth in the Authorization for Services and shall not be paid separately. However, as compensation for expenses that are not included in the scope of services, when incurred in direct connection with the project, and approved by the City, the City shall pay the Consultant its actual cost.

e. The City shall confirm the correctness of any progress estimates made for billing purposes, and may use City staff for such purposes. Monthly statements for services shall be accompanied by such properly completed reporting forms and such other evidence of progress as may be required by the City.

f. In the event of termination for a substantial failure by the Consultant to fulfill its obligations under this agreement through no fault of the City, Consultant shall be paid as compensation in full for services performed to that date an amount calculated in accordance with the Authorization for Services for that particular project. Such amount shall be paid by the City upon Consultant's delivering or otherwise making available to the City all Deliverables, and supporting materials including, but not limited todata, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been prepared and/or accumulated by Consultant in performing the services up to the date of termination.

3. Indemnification and Liability:

a. The Consultant agrees to hold harmless and indemnify the City, its officers, agents, employees from and against all claims, demands, suits liability, losses, damages or costs (including reimbursement of reasonable attorney fees and costs to the proportionate extent of Consultant's indemnity obligation) to the extent caused by the Consultant's tortious or negligent acts, errors, or omissions in performing this Agreement and all Authorization for Services.

b. The City and Consultant acknowledge that the Consultant's Scope of Services does not include any services related to the presence of any hazardous or toxic materials. In the event the Consultant or any other party encounters any hazardous or toxic materials, or should it become known to the Consultant that such materials may be present on or about the jobsite or any adjacent areas that may affect the performance of the Consultant's services, the Consultant may, at its option and without liability for consequential damages, suspend performance of its services under this Agreement until such time as the City retains appropriate Consultants or contractors to identify and abate or remove the hazardous or toxic materials and warrants that the jobsite is in full compliance with all applicable laws and regulations.

c. Consultant shall not be liable for damages resulting from the actions or inactions of any governmental agencies, including, but not limited to, plan processing; provided, however, that this provision shall not relieve Consultant of its obligations under this Agreement, including all Exhibits hereto, with respect to its securing, or

assisting the City in securing, various governmental permits and appraisals in a manner consistent with the standard of care set forth in Paragraph 1.a. above.

d. Except as specifically set forth in the applicable Authorization for Services, the City acknowledges that Consultant is not responsible for the performance or work by third parties, including, but not limited to, construction contractors or their subcontractors.

e. The Consultant agrees that it is its responsibility and not the responsibility of the City to safeguard the property and materials used in performing this Agreement. Further, this Consultant agrees to hold the City harmless for any loss of such property and materials used pursuant to the Consultant's performance under this Agreement.

4. Insurance:

a. During the term of this Agreement, Consultant shall obtain and maintain in full force, at its own expense, the following insurance coverage in not less than the following amounts:

i. Worker's Compensation insurance relative to all Personnel engaged in performing services pursuant to this Agreement, with coverage not less than that required by applicable law,

ii. Comprehensive General Liability Public Liability, for occurrences while engaged in performing services pursuant to this Agreement, with coverage not less than the amount of $1,000,000 per occurrence;

iii. Professional Liability (Including Errors and Omissions) Insurance in the amount of $1,000,000 per claim

iv. Automotive Insurance covering all owned, hired, and non-owned vehicles with insurance to comply with the Michigan No-Fault Insurance Law, including Regional Liability Insurance with minimum bodily injury limits of $1,000,000 each occurrence and minimum property damage of $1,000,000 per occurrence.

b. Consultant shall be responsible for all deductibles contained in any insurance required hereunder.

c If during the term of this Agreement changed conditions or other pertinent factors should in the reasonable judgment of the City render inadequate existing insurance limits, the Consultant will furnish on demand such additional coverage as may reasonably be required under the circumstances. All such reasonable additional insurance coverage cost shall be paid for by the City of Novi, under valid and enforceable policies, issued by the insurers of recognized responsibility which are well-rated by national rating organizations and are acceptable to the City. The cost

of insurance for individual projects shall be factored into the established fee curves in Exhibit B—*Geotechnical Engineering Fee Schedule* for each particular type of project

f. All policies shall name the Consultant as the insured and shall be accompanied by a commitment from the insurer that such policies shall not be canceled or reduced without at least thirty (30) days prior notice to the City.

g. With the exception of Professional Liability, all insurance policies shall name the City of Novi, its officers, agents, and employees as additional insured. Certificates of Insurance evidencing such coverage shall be submitted to Sue Morianti, Purchasing Manager, City of Novi, 45175 West Ten Mile Road, Novi, MI 48375-3024 prior to the commencement of performance under this Agreement and at least fifteen (15) days prior to the expiration dates of expiring policies.

h. If any service is sublet in connection with this Agreement, the Consultant shall require each subcontractor to effect and maintain at least the same types and limits of insurance as fixed for the Consultant.

i. The provisions requiring the Consultant to carry said insurance shall not be construed in any manner as waiving or restricting the liability of the Consultant under this Agreement.

j. Coverage under the general and auto liability policies shall be considered to be the primary coverage rather than any policies and insurance or self-insurance retention owned or maintained by the City of Novi. This coverage shall be primary to the Additional Insureds, and not contributing with any other insurance or similar protection available to the Additional Insureds, whether other available coverage is primary, contributing or excess.

5. Entire Agreement

a. Except for the terms of each Authorization for Services, which shall be deemed additional terms to this Agreement, this Agreement contains the entire agreement between the City and Consultant relating to services to be provided by Consultant to the City. Any prior agreements, promises, negotiations, and representations not expressly set forth in this Agreement are of no force or effect. Subsequent modifications to this Agreement shall be in writing and signed by both City and Consultant.

b. With respect to any direct conflict between the terms of this Agreement and any Authorization for Services as defined in Section 1(b) above, the terms of the Authorization for Services shall control with respect to that individual project set forth in the particular Authorization for Services only. Notwithstanding this subsection, Section 3, Indemnification and Liability, shall be additional to those indemnity and hold harmless provisions set forth in any Authorization for Services, except that Section 3(c) of this Agreement shall not apply to individual design and/or construction management projects.

c. This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

6. Assignment:

Neither City nor Consultant shall assign this Agreement without the prior written consent of the other.

7. Severability:

Waiver of any term, condition, or covenant, or breach of any term, condition, or covenant, shall not constitute the waiver of any other term, condition, or covenant, or the breach of any other term, condition, or covenant. If any term, condition, or covenant of this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions of this Agreement shall be valid and binding on City and Consultant, unless the court's action or holding has the effect of frustrating the purpose of this Agreement.

8. Delays:

It is expected that the Consultant will perform the work in a timely fashion in accordance with the schedule that is agreed upon at the commencement of each project. The Consultant shall provide requested items within ten (10) working days of the request. Deliverables shall be submitted to appropriate City staff no later than ten (10) working days after the work is performed.

Consultant is not responsible for delay caused by activities or factors beyond the Consultant's reasonable control, including but not limited to, delays by reason of strikes, lockouts, service slowdowns or stoppages, accidents, acts of God, failure of Client to furnish timely information or approve or disapprove of Consultant's services or product promptly, faulty performance by the City or the City's other contractors or government agencies. When such delays beyond the Consultant's reasonable control occur, City agrees Consultant is not responsible for damages nor shall Consultant be deemed to be in default of this Agreement.

No charges or claims for damages shall be made by the Consultant for delays or hindrances from any cause whatsoever during the progress of any portions of the services specified in this Agreement, except as hereinafter provided.

In case of a substantial delay on the part of the City in providing to the Consultant either the necessary information or approval to proceed with the service resulting through no fault of the Consultant, in delays of such extent as to require the Consultant to perform its services under changed conditions not contemplated by the parties, the City will be responsible for supplemental compensation limited to increased costs incurred as a direct result of such delays. Any claim for supplemental compensation must be in writing and accompanied by substantiating data.

When delays are caused by circumstances or conditions beyond the control of the Consultant as determined by the City, the Consultant shall be granted an extension of time for such reasonable period as may be mutually agreed upon between the parties, it being understood, however, that the permitting of the Consultant to proceed to complete the services, or any part of them, after the date to which the time of completion may have been extended, shall in no way operate as a waiver on the part of the City of any of its rights herein set forth.

9. Disclosure:

Consultant affirms that it has not made or agreed to make any valuable gift whether in the form of service, loan, thing, or promise to any person or any of the person's immediate family, having the duty to recommend, the right to vote upon, or any other direct influence on the selection of consultants to provide professional design services to the City within the two years preceding the execution of this Agreement. A campaign contribution, as defined by Michigan law shall not be considered as a valuable gift for the purposes of this Agreement.

10. Nondiscrimination:

The Consultant shall not discriminate against any employee, or applicant for employment because of race, color, sex, age or handicap, religion, ancestry, marital status, national origin, place of birth, or sexual preference. The Consultant further covenants that it will comply with the Civil Rights Act of 1973, as amended; and the Michigan Civil Rights Act of 1976 (78 Stat. 252 and 1976 PA 4563) and will require a similar covenant on the part of the consultant or subcontractor employed in the performance of this Agreement.

11. Approval; No Release:

Approval of the City shall not constitute nor be deemed release of the responsibility and liability of Consultant, its employees, associates, agents and consultants for the accuracy and competency of their designs, drawings, and specifications, or other documents and services; nor shall that approval be deemed to be an assumption of that responsibility by the City for any defect in the designs, drawings and specifications or other documents prepared by Consultant, its employees, subcontractor, agents and consultants. After acceptance of Consultant's work, Consultant agrees, prior to and during the construction of this project, to perform those engineering services as may be required by City to correct errors or omissions on the Deliverables prepared by Consultant and to change corresponding design recommendations as required.

During the performance of the professional services by Consultant, City shall have the right to inspect the work and its progress to assure that it complies with this Agreement. If such inspections reveal a defect in the work performed or other default in this Agreement, City shall provide Consultant with written notice to correct the defect or default within a specified number of days of the notice. Upon receiving such a notice, Consultant shall correct the specified defects or defaults within the time specified. Upon a failure to do so, the City may terminate this Agreement by written notice and finish the work through

whatever method it deems appropriate, with the cost in doing so being a valid claim and charge against Consultant; or, the City may preserve the claims of defects or defaults without termination by written notice to Consultant.

All questions which may arise as to the quality and acceptability of the work shall be decided by the City. All questions as to the satisfactory and acceptable fulfillment of the terms of this agreement shall be decided by the City.

12. Compliance With Laws:

This Contract and all of the Consultant's Professional Services and practices shall be subject to all applicable state, federal and local laws, rules or regulations, including without limitation, those which apply because the City is a public governmental agency or body. Consultant represents that it is in compliance with all such laws and eligible and qualified to enter into this Agreement.

13. Dispute Resolution.

The parties agree to try to resolve any disputes as to geotechnical engineering services or otherwise in good faith. In the event that the parties cannot resolve any reasonable dispute, the parties agree to seek alternative dispute resolution methods agreeable to both parties and which are legally permissive at the time of the dispute. The parties agree to use their best efforts to resolve any good faith dispute within 90 (ninety) days notice to the other party. In the event the parties cannot resolve that dispute as set forth above, they may seek such remedies as may be permitted by law.

13. Notices:

Written notices under this Agreement shall be given to the parties at their addresses on page one by personal or registered mail delivery to the attention of the following persons:

City of Novi:	**Rob Hayes, P.E., Director of Public Services and Maryanne Cornelius, Clerk, with a copy to Thomas R. Schultz, City Attorney**
Consultant:	**Soil and Materials Engineers, Inc.** **Gary Madej, PE** **Principal/Vice President**

CITY OF NOVI

By

Robert J. Gatt, Mayor

By

Maryanne Cornelius, Clerk

CONSULTANT

By

Mark K. Kramer, PE – President
May 27, 2014

Exhibit A

Geotechnical Engineering Consultant Services For Public Projects

CITY OF NOVI, MICHIGAN
REQUEST FOR QUALIFICATIONS (RFQ) / REQUEST FOR FEE PROPOSALS (RFP)

JANUARY 2014

GEOTECHNICAL ENGINEERING CONSULTANT SERVICES FOR PUBLIC PROJECTS

Section 1: General Information

The City of Novi (population 59,395) is seeking to develop a list of two (2) qualified geotechnical engineering consultants to perform geotechnical investigation and material testing services for water, sanitary sewer, storm sewer, roadway, and pathway related projects as they are completed by the City. Once the list of qualified consultants is selected and approved by City Council, projects are awarded on a rotating basis to the selected firms.

Beginning at the date of Council approval, the qualification for geotechnical investigation and material testing services for public projects is valid for a period of two (2) years, with the potential for extension beyond the two-year qualification period. During the last two year period, approximately thirty (30) public projects, and an average of $78,800 in fees were awarded to geotechnical consultants each year.

The Request for Qualifications and Request for Fee Proposals shall be submitted simultaneously in separate envelopes. The qualifications submittal will be reviewed, and the firms with the highest rating following the review process will be selected for a short list. Finally, the selected firm's RFP's will be reviewed, and two (2) firms will be chosen.

Section 2: Qualifications

Firms interested in submitting qualifications shall meet the following minimum requirements:

A. Minimum Qualifications

a. The firm shall have an established local office with an AASHTO certified laboratory, prior to the date of this RFQ, within thirty-five (35) miles of the Novi Civic Center (45175 Ten Mile Road, Novi MI) that is staffed with personnel who will provide geotechnical engineering services to the City of Novi.

b. The firm shall demonstrate that an adequate number of professionals are employed in the various fields required to complete the amount of work and the type of work contemplated in this RFQ.

c. The firm shall employ a minimum of two (2) licensed professional engineers registered in the State of Michigan, and located in the local office, as outlined above.

B. Format Requirements for Qualifications Submittal

a. Background of firm - History, areas of expertise, locations, size and resource capabilities (especially of the local office) to perform the required services, and meet the minimum qualification requirements.

b. Statement of understanding of the general scope of services.

c. Staffing Section – Provide résumés of individuals who provide oversight during the investigation and testing. (During the contract period, if the firm chooses to assign different personnel, then the firm must submit their names and qualifications, including information listed above, to the City for advanced approval). The firm's field technicians shall maintain their Level 1 Concrete Field Testing Certification (MCA) and their MDOT Density Technology Certification.

d. Qualifications Section – This section shall describe the qualifications of the firm in regard to experience with each type of project (roads, pathways, city utilities) within the past two (2) years. Information presented in this section shall include the following for each type of project:

I. A general summary of the firm's demonstrated capabilities and experience.

II. Detailed descriptions of projects similar in nature to the services described in the RFQ.

III. Names of key staff who participated in referenced projects and their specific responsibilities with respect to the services described in the RFQ.

IV. A minimum of three (3) references from municipalities, or municipal engineering firms, that received similar services from the firm. The City of Novi reserves the right to contact any of the organizations or individuals listed. Information provided shall include: 1) client name, 2) project description, 3) project start and end dates, and 4) client contact name, telephone number and e-mail address.

Section 3: Qualification Submittal Evaluation

The City's geotechnical consultant evaluation and selection process is based on the Qualifications Based Selection (QBS) process for professional services. The City will use the following criteria in its evaluation and selection process:

A. Background of Firm. (15%)

B. Understanding of the Scope of Services, and commitment to exceeding minimum requirements. (35%)

C. Recent experience in conducting similar scopes of work for other public agencies (excluding City of Novi). (25%)

D. Staff's educational background, work experience and relevant consulting experience. (25%)

The City may contact and evaluate the firm's references; contact the firm to clarify any response; contact any of the firm's current clients; solicit any information from any available source concerning any aspect of a submittal; and seek and review any other information deemed pertinent to the evaluation process.

Section 4: Cost Proposal

A. Award of Contracts

The selected consultants will enter a general agreement with the City (see agreement draft in Exhibit A) for a period of two (2) years. Each project will be awarded to a consultant administratively under the terms of the general agreement. Projects will be awarded on a rotating basis. The order of award to consultants will initially be chosen at random and projects will generally be awarded in order with the intent to award comparable fee amounts to each consultant during the 2-year term of the general agreement. It is possible, based on varying contract amounts, that the award order could change from the initial order.

B. Fee Structure

The fees for standard projects will follow the tabulated fee structure provided in Attachment A. Other Considerations are as follows:

a. A completed Attachment A shall be submitted as the fee proposal for consideration of future contracts. Following receipt of all fee proposals, the City will work with the qualified consultants to develop a uniform fee structure.

b. The fees shall include all expenses required to complete the scope of services described herein, including but not limited to costs related to mileage, vehicles, reproduction, computer use, etc., unless otherwise indicated on proposal form.

c. If the City and the selected consultant are unable to agree upon a standard fee schedule, the City at its own discretion may choose to select the next highest scoring as a pre-qualified consultant for submittal of a proposal.

d. When submitting the proposal, include a fee sheet of all the testing, boring, equipment, and staff prices.

Section 5: Scope of Work

General Investigation and Material Testing Scope of Services for Public Projects:

The following project categories with geotechnical investigations or material testing are included as general projects under this contract; therefore, a standard fee and scope would be developed:

- Road Rehabilitation/Reconstruction
- Traffic Signal Replacement
- Sidewalk/Pathway Construction
- Water Main Construction
- Sanitary Sewer Rehabilitation

The scope of services for design and construction phase projects will generally include the following scope of services:

A. At the beginning of each project, discuss the project needs with the City and/or the City's engineering consultant to determine the location and number of soil borings or pavement cores needed for the project. Once awarded by the City, perform the field work agreed upon in the scope of services for each project and provide reports as necessary to the City and the City's engineering consultant to assist in the design phase of the project.

B. Prior to the construction phase of each project, discuss and/or meet with the City and/or the City's engineering consultant to determine the scope of services for material testing in the construction phase of the project.

C. Once awarded by the City, perform the field work agreed upon in the scope of services for each project and provide routine reports as necessary to the City and the City's engineering consultant within one week of each site visit. All reports or test results should be submitted electronically to the individuals identified by the City.

D. Any failing tests in the field shall be documented and immediately brought to the attention of the City and the City's engineering consultant.

E. Attendance at the pre-construction meeting shall be required.

F. Coordinate with Miss Dig before any investigation work is started.

G. Consultants must be available with twenty-four (24) hour notice for material testing.

Section 6: Instructions to Proposers

Questions

Questions regarding this Request for Qualifications may be directed to: Civil Engineer, Ben Croy, PE at bcroy@cityofnovi.org or (248) 735-5635, or Engineering Manager, Brian Coburn, PE at bcoburn@cityofnovi.org or (248) 735-5632.

Important Dates

RFQ Issue Date: **January 17, 2014**
Last Date for Questions: **February 4, 2014**

Proposal Submittals

To be considered, sealed RFQ (five paper copies (bound) and one CD or DVD containing the complete proposal in pdf format) and sealed RFP (one paper copy) must arrive at the City Clerk's Office, 45175 Ten Mile Road, Novi, Michigan 48375 on or before **3:00 P.M., Wednesday, February 12, 2014**, and clearly labeled "Geotechnical Engineering Consultant Services for Public Projects". There will be no exceptions to this requirement and the City of Novi shall not be held responsible for late, lost, or misdirected proposals. No other distribution of the proposals will be made by the Consultant. Proposals must be signed by an official authorized to bind the Consultant to its provisions.

FAILURE TO SUBMIT PRICING ON THE PROPOSAL FORM PROVIDED BY THE CITY OF NOVI MAY CAUSE THE BID TO BE CONSIDERED NON-RESPONSIVE AND INELIGIBLE FOR AWARD.

Proposals must be submitted in a sealed envelope. Outside of mailing envelope must be labeled with name of consultant and name of RFQ. Failure to do so may result in a premature opening or failure to open such proposal.

To be considered, sealed proposals must arrive at City Clerk's Office, on or before the specified time and date. There will be no exceptions to this requirement. Proposal is considered received when in the possession of the City Clerk. Consultants mailing proposals should allow ample time to ensure the timely delivery of their proposal. Proposals received after the closing date and time will not be accepted or considered. Faxed, emailed, or telephone bids are not acceptable. The City reserves the right to postpone an RFQ/RFP opening for its own convenience.

A proposal may be withdrawn by giving written notice to the Purchasing Manager before the stated due date/closing time. After the stated closing time, the bid may not be withdrawn or canceled for a period of One Hundred and Twenty (120) days from closing time.

Proposers are expected to examine all information and instructions. Failure to do so will be at the proposer's risk.

Failure to include in the proposal all information requested may be cause for rejection of the proposal.

Any samples, CDs, DVDs or any other items submitted with your bid will not be returned to the consultant.

No proposal will be accepted from, or contract awarded to any person, firm, or corporation that is in arrears or is in default to the City Novi upon any debt or contract, or that is in default as surety or otherwise, or failed to perform faithfully any previous contract with the City.

USE OF THE CITY LOGO IN YOUR PROPOSAL IS PROHIBITED.

Changes to the RFQ/Addenda

Should any prospective Proposer be in doubt as to the true meaning of any portion of the Request for Qualifications (RFQ) or Request for Fee Proposal (RFP), or should the Proposer find any patent ambiguity, inconsistency, or omission therein, the Proposer shall make a written request (via email) for official interpretation or correction. Such request shall be submitted to the specified person by the date listed above. The individual making the request shall be held responsible for its prompt delivery.

Such interpretation or correction, as well as any additional RFQ provisions that the City may decide to include, will be made as an addendum, which will be posted on the MITN website at www.mitn.info. Any addendum issued by the City shall become part of the RFQ and shall be taken into account by each proposer in preparing their proposal. Only written addenda are binding. It is the Proposer's responsibility to be sure they have obtained all addenda. Receipt of all addenda must be acknowledged on proposal form.

Responsive Proposals

All pages and the information requested herein shall be furnished completely in compliance with instructions. The manner and format of submission is essential to permit prompt evaluation of all proposals on a fair and uniform basis. The City reserves the right to declare as non-responsive, and reject an incomplete proposal if material information requested is not furnished, or where indirect or incomplete answers or information is not provided.

Contract Award

The contract that will be entered into will be that which is most advantageous to the City of Novi, prices and other factors considered. The City reserves the right to accept any or all alternative proposals and to award the contract to other than the lowest proposer, waive any irregularities or informalities or both, to reject any or all proposals, and in general, to make the award of the contract in any manner deemed by the City, in its sole discretion, to be in the best interests of the City of Novi.

After contract award, notification will be posted on the MITN website at www.mitn.info

Attachment A and Exhibit A Intentionally
Excluded from above RFQ/RFP

Exhibit B

Geotechnical Engineering Fee Proposal

ATTACHMENT A

CITY OF NOVI
GEOTECHNICAL ENGINEERING SERVICES

FEE PROPOSAL FORM

Description	Fee	Unit/Rate
Test		
Nuclear Density Gauge	$ 50	Per Day
Concrete Cylinder Compression Test (C-39)	$ 14	Per Test
Visual Classification (D-2488)	$ 6	Per Test
Moisture Density Relationship "Modified Proctor" (D-1557)	$ 140	Per Test
Particle Size Analysis (D-422)	$ 120	Per Test
Asphalt Extraction/Sieve Analysis (D-2172)	$ 175	Per Test
Maximum Specific Gravity (D-2041)	$ 70	Per Test
Marshall Stability and Flow (D-6927)	$ 90	Per Test
Atterberg Limits (D-4318)	$ 110	Per Test
Organic Content Soil (D-2974)	$ 30	Per Test
Unconfined Compressive Strength (D-2166)	$ 40	Per Test
Moisture Content (D-2216)	$ 6	Per Test
Bulk Density of Asphalt Cores	$ 45	Per Test
Investigation		
Truck Mounted Drill Rig	$ 0	Per Day
ATV Equipment	$ 350	Per Day
Boring Layout	$ 75	Hourly
Borings (Less than 50' deep)	$ 13	Linear Foot
Coring Machine	$ 0	Per Day
Pavement Core Samples	$ 80	Each
Staff		
Principal	$ 185	Hourly
Project Manager/Engineer	$ 110	Hourly
Staff Engineer	$ 80	Hourly
Engineering Technician (Concrete/HMA/Soils)	$ 50	Hourly
Structural Steel Technician	$ 65	Hourly
Administrative	$ 45	Hourly

ATTACHMENT A

Provide any additional explanation as appropriate to clarify the above fee structure (e.g. any additional tests or testing details, where staff time may be required in addition to testing unit rates, etc.):

A drill rig mobilization fee of $400 will be invoiced per project requiring soil borings.

The pavement core sample fee of $80 is based on a minimum of four cores per site visit.

Soil probe rig mobilization is $300 per project. Half day soil probe rate is $750. Full day soil probe rate is $1,300.

This proposal submitted by:

Company (Legal Registration) Soil and Materials Engineers, Inc.

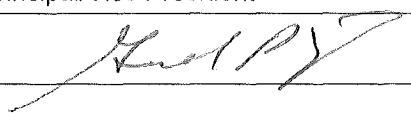
Address 43980 Plymouth Oaks Boulevard

City Plymouth State MI Zip 48170

Telephone (734) 454-9900 Fax (734) 454-0629

Representative's Name Gerard P. Madej, PE

Representative's Title Principal/Vice President

Authorized Signature 

E-mail madej@sme-usa.com

Date February 12, 2014

above ground storage tank
air quality
asbestos/lead-based paint
baseline environmental assessment
brownfield redevelopment
building/infrastructure restoration
caisson/piles
coatings
concrete
construction materials services
corrosion
dewatering
drilling
due care analysis
earth retention system
environmental compliance
environmental site assessment
facility asset management
failure analyses
forensic engineering
foundation engineering
geodynamic/vibration
geophysical survey
geosynthetic
greyfield redevelopment
ground modification
hydrogeologic evaluation
industrial hygiene
indoor air quality/mold
instrumentation
masonry/stone
metals
nondestructive testing
pavement evaluation/design
property condition assessment
regulatory compliance
remediation
risk assessment
roof system management
sealants/waterproofing
settlement analysis
slope stability
storm water management
structural steel/welding
underground storage tank

GEOTECHNICAL ENGINEERING CONSULTANT SERVICES FOR PUBLIC PROJECTS

QUALIFICATIONS SUBMITTAL

CITY OF NOVI
45175 TEN MILE ROAD
NOVI, MICHIGAN 48375

SME Proposal No. P00269.14
February 12, 2014

Soil and Materials Engineers, Inc.

Soil and Materials Engineers Inc.
The Kramer Building
43980 Plymouth Oaks Blvd.
Plymouth, MI 48170-2584

tel (734) 454-9900
fax (734) 454-0629

www.sme-usa.com

February 12, 2014

Mr. Brian Coburn, PE
Engineering Manager
City of Novi
45175 Ten Mile Road
Novi, Michigan 48375

RE: Geotechnical Engineering Consulting Services for Public Projects
Geotechnical Qualifications Submittal
City of Novi
SME Proposal No. P00269.14

Dear Mr. Coburn:

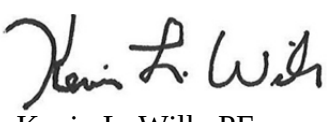
In response to the City of Novi's Request for Qualifications – Geotechnical Engineering Consultant Services for Public Projects, Soil and Materials Engineers, Inc. (SME) is pleased to submit this proposal to provide testing and geotechnical services to the City of Novi for a term of two years with the potential for extension beyond the two year qualification period.

SME has the technical expertise and practical experience to be an important member of the project team during the design and construction of these projects. It is likely we can provide insights to these projects, based on our experience and practical approach to problems, which can aid in the successful completion of the projects and to identification and early resolution of problems. We are committed to complete our services within the schedules that will be provided. We believe our professional services are distinctive, expert and cost effective.

We appreciate the opportunity to work with the City of Novi on this contract. We are confident we will deliver the timely, quality, cost-effective, valued services required.

Sincerely yours,

SOIL AND MATERIALS ENGINEERS, INC.



Kevin L. Wilk, PE
Senior Project Engineer

Gerard P. Madej, PE
Principal/Vice President

P00269.14.DOCX

TABLE OF CONTENTS

1. FIRM QUALIFICATIONS

1.1 Description of Firm

SME is a professional engineering firm providing consulting services in geosciences, pavements, materials, and the environment. Our company Fact Sheet is included in Appendix A. SME operates as a corporation and is incorporated in the State of Michigan. Since our founding in 1964, SME has provided professional engineering services at over 73,000 project sites. SME supports clients at every stage of development and ownership, from site acquisition and design through construction and maintenance, restoration and redevelopment. We help clients throughout the Great Lakes region and across the world by providing cost-saving, practical solutions to the most challenging site and building related problems. The Engineering News Record (ENR) ranks our organization among the top 500 design firms within the United States. **We were also named the American Council of Engineering Companies (ACEC) of Michigan 2012 Firm of the Year**.

SME has grown to a 230-plus staff in 11 offices in Michigan, Indiana, and Ohio. We have 41 engineers licensed in the state of Michigan. We intend to staff this project with a team of experienced technical professionals from SME's Plymouth, Michigan office, address:

Soil and Materials Engineers, Inc.
The Kramer Building
43980 Plymouth Oaks Blvd.
Plymouth, MI 48170

Our Plymouth office is the headquarters for SME and this location includes a full service laboratory to provide the testing services that will be required for the types of municipal projects that will be awarded. By having these resources at our disposal, we have the ability to respond quickly to client requests, manage large projects requiring highly qualified staff members with diverse talents and capabilities, and the technical qualifications and experience to handle the most challenging projects. Furthermore, our qualified and experienced drillers do not require supervision in the field, which is the practice of others who must subcontract drilling services.

We intend to utilize the expertise of Mr. Gerard P. Madej, PE as contact and Project Manager for this project. Mr. Madej is a Principal and Vice President with SME. He can be contacted by phone at (734) 454-9900 or via e-mail at madej@sme-usa.com. If this proposal is acceptable it will be executed by SME's President. The individuals authorized to negotiate the terms and conditions proposal are: Mr. Mark K. Kramer, PE, President or Mr. Gerard P. Madej, PE, Vice President and Group Manager of CMS services.

1.2 Scope of Services

We understand this contract will involve providing testing and geotechnical services for calendar years 2014 and 2015 construction projects that include:

- asphalt street paving including rehabilitation and reconstruction;
- concrete street paving including rehabilitation and reconstruction;
- storm sewer, sanitary sewer and water main construction;
- sidewalk and pathway construction;
- traffic signal replacement; and
- soil borings.

We will staff these projects from our corporate headquarters in Plymouth located approximately 15 minutes from Novi. Report findings will be submitted electronically to the City.

More detail about our potential scope of services for the projects is described in the following sections.

1.2.1 Pavement Engineering

Pavements are a key infrastructure component, and represent considerable capital investment. Proper design and maintenance are necessary to maximize your investment in pavement systems. SME provides the following pavement consulting services to help you with:

- new pavement design;
- evaluate existing pavements;
- nondestructive pavement testing;
- pavement laboratory testing;
- pavement management programs;
- construction services; and
- pavement plans and specifications.

SME pavement consulting services are tailored to meet your requirements and needs. The level of assistance depends on your budget constraints and project details. Services may range from training of your staff for in-house evaluation and implementation, to providing complete turn-key services.

Depending on the project scope and requirements, SME can use conventional coring, soil boring and geoprobe methods to obtain the subsurface information needed to provide design recommendations for road construction and rehabilitation projects. In addition, SME has the equipment and technical know-how to use state-of-the-art, high technology computer programs

and nondestructive testing equipment, as needed, to provide you with high-quality, cost-effective professional services. For example, we use the falling weight deflectometer (FWD) to measure pavement response to loading conditions. This equipment is part of the new and emerging technology for evaluating existing pavements.

Pavement consulting services are available for streets, airports, parking areas, temporary access roads, drive areas, and special use roadways.

SME pavement consulting services provide you with the information and tools to make a proper investment in new pavements, and to assist you with maintenance and rehabilitation activities for optimum life of the pavement.

The attached information in Appendix B includes detailed descriptions of SME's pavement engineering services.

1.2.2 Geotechnical Engineering

Our Geotechnical Engineers evaluate soil and groundwater conditions to determine their impact on proposed or existing facilities. Geotechnical engineering typically includes site investigation, laboratory testing, engineering analysis, and construction verification. SME's geotechnical engineering staff includes 43 registered professional engineers, with an average of 23 years of experience. Most of these engineers have masters degrees in geotechnical and pavement engineering, and many have published papers in professional journals.

Our engineers and project managers develop recommendations for:

- subgrade preparation and earthwork;
- engineered fill requirements;
- grade slabs;
- shallow and deep foundation systems including estimated settlement;
- below-grade walls and drainage;
- earth retention systems;
- special foundation designs (e.g., light/signal pole foundations);
- excavation and sheeting requirements for utilities;
- temporary dewatering for utilities;
- subgrade preparation and bedding requirements for utilities; and
- ground improvement solutions that help our clients at challenging sites.

We provide routine classification and physical property testing and use state-of-the-art techniques to evaluate the physical characteristics of the soil. We also use in-situ techniques including pressuremeter, dutch cone, vane shear, and dilatometer. In addition, our engineers have significant field experience, which allows us to provide practical solutions to challenges encountered during construction. We have proven capabilities of providing clients with construction cost savings that are many times our fees.

A typical geotechnical/pavement engineering project could include the following:

- meet with City of Novi representatives or the City's engineering consultant to discuss the project and determine the number, depths, and locations of borings and/or pavement cores that may be required for the project;
- provide a letter of confirmation for our services including a detailed scope of services and professional services fee;
- obtain a right-of-way permit from the appropriate government agency, if required;
- contact the Miss Dig system to locate underground utilities at the site;
- mark boring/pavement core locations in the field;
- mobilize appropriate drill rig/geoprobe equipment to the site for borings/soil probes;
- provide traffic control measures that may be required including warning signs, traffic cones, lighted arrow board, and/or traffic regulators;
- core pavement locations with a wet-core drill and obtain bag samples of any aggregate base encountered;
- drill and sample the subgrade and obtain groundwater level readings;
- backfill the bore holes and patch the pavement;
- return samples to the SME laboratory for further observation and analysis; and
- prepare engineering report with recommendations for design.

The attached information in Appendix C includes detailed descriptions of SME's geotechnical engineering services.

1.2.3 Construction Materials Services

Construction materials testing services typically provided by SME for road paving projects include performing subgrade review (proofrolls), field density testing of engineered fills and backfills, aggregate base, and asphalt concrete pavements, as well as on-site testing of plastic concrete and molding test cylinders for compressive strength testing. For building construction projects, our services can include verification of bearing soils for deep and shallow foundations, monitoring of earth retention system installations (including tie-back and tie-down testing), and pile load testing. In addition, our structural materials team provides comprehensive services in support of masonry and structural steel construction, roofing, water infiltration, air barriers, fire stopping, curtain walls and coatings. Supportive laboratory test services for our construction materials testing services include providing standard and modified Proctor determinations, gradation analysis, compressive testing of concrete cylinders and grout/masonry cubes and prisms, as well as extraction and gradation of asphalt concrete samples.

Prior to construction, SME representatives will discuss and/or meet with the City or the City's engineering consultant to determine the material testing requirements for each project. Based on the scope of services required and project schedule, we will provide a proposal with estimated fee for our professional services. We will also attend applicable pre-construction meetings with the project team.

Typed field reports will be provided electronically to the City. Failing tests will be documented and immediately brought to the attention of the City and/or the City's engineering consultant.

SME's field staff is available within a 24-hour notice or less.

The attached information in Appendix D includes detailed descriptions of SME's construction materials services.

1.2.4 Laboratory Qualifications

SME's modern soil and material laboratory facilities allow us to directly provide competent and objective testing of samples. Testing of construction materials is required to verify that the specific properties of construction materials meet the criteria of a project. Testing of soils is necessary to determine the specific engineering properties necessary to provide practical and economical engineering solutions for the analysis and design of various structures and facilities. All testing is supervised by a project engineer in compliance with our laboratory procedures and quality control manuals.

SME is accredited by the American Association of State Highway and Transportation Officials (AASHTO) for soil, aggregate, Portland Cement Concrete, Hot Mix Asphalt, and metals testing. SME participates in Round Robin certification testing sponsored by the Association of Materials Reference Laboratory (AMRL). Test equipment is calibrated to NIST standards, and procedures utilized are in compliance with ASTM and associated governing agencies. We also participate in a Round Robin testing program for the Michigan Department of Transportation in concrete and bituminous materials. Our lab is also certified by the Corps of Engineers.

The attached information in Appendix E includes detailed descriptions of SME's laboratory services.

1.2.5 Summary

SME is not a "testing firm." SME is a consulting engineering firm that performs tests as part of our engineering consulting and evaluation services. This is an important consideration that should be made when selecting a consultant to assist you during the design and construction of your project. During construction, SME uses the test results obtained at construction sites to evaluate site conditions as they relate to the proposed construction to verify the construction is occurring according to the design parameters and is consistent with the project plans and specifications. In addition, we evaluate those test results (in conjunction with our technical training and experience) to identify potential problems and to formulate cost-effective solutions to those problems. We have found that our problem identification and solving skills help to reduce the potential for delays and allow the construction to continue in a cost efficient manner. This "working with" attitude that SME brings to each project assists the construction team in completing the project in a timely, cost effective manner.

Our team of skilled, trained technicians, staff engineers, technical consultants and project managers has a proven track record of working with the construction team to bring value to the project that can **save money**.

As your project moves into construction, the question you need to ask when considering the "best" firm to provide the requested services is **not who has the lowest estimated fee** but rather **who can bring the best value** to the project in a cost-effective manner. We believe SME brings value to each project at a reasonable fee. Our CMS group takes pride in working with the project team to assist in providing our services on a timely, as-required basis in accordance with the contractors' proposed schedule of construction. Although we request (and prefer) to receive 24-hour notifications of the need for services, we have been extremely successful in providing quick response to rush telephone calls. Many times during the construction, a change in the subcontractor's plans requires CMS services without prior warning. We understand construction of these projects in today's business world is a dynamic, ever changing process. We do all we can to provide the requested services, even with minimal notification. A quick response to construction needs is vital to the successful completion of the project. Our project management team understands and embraces this philosophy. As one of the largest firms in Southern Michigan and our close proximity to the City of Novi, we can meet your requirements, even on short notice.

1.3 Key Personnel Qualifications and Experience

SME has professionals in the area of soils, pavements and construction materials and testing whom will provide services as required. We will provide a team of experienced materials testing specialists for the duration of the project. Our representatives bring multiple years of knowledge and experience to meet the challenges set forth during the upcoming construction.

As previously stated, SME's knowledgeable and experienced staff is very familiar with providing engineering and construction testing services in accordance with local agencies, county road commissions, and MDOT requirements. SME's geotechnical engineering staff includes 43 registered professional engineers, with an average of 23 years of experience. SME team members selected to perform material testing are certified in the relevant areas. A list of engineering technician certifications is included in Appendix F.

Our proposed organizational charts for construction materials services, pavement engineering services, and geotechnical engineering services are included in Appendix G.

Resumes for key personnel included on the organization charts are included in Appendix H.

If during the duration of the contract SME wishes to assign personnel to the projects that are not listed in the appendices, SME will provide the names and qualifications of such individuals to the City of Novi for approval. Additionally, SME team members shown will maintain their Level 1 Concrete Field Testing Certification (MCA) and their MDOT Density Technology Certification during the contract period.

1.4 Similar Project Examples

SME is experienced in providing testing and geotechnical services for municipal roadways, parking lots, storm and sanitary sewers, and water mains. We have provided similar services to several municipalities throughout the Metro Detroit area including the City of Dearborn, City of Livonia, City of Plymouth, City of Northville, City of Westland, City of Saline, City of Ann Arbor, Washtenaw and Livingston County Road Commissions and numerous other communities.

Representative projects completed by SME within the last two years are included in Appendix I. References for each project are provided on each project description.

2. EXCEPTIONS

No exceptions taken.

APPENDIX A:

SME FACT SHEET

Soil and Materials Engineers, Inc.

offices

1964 49 2013 Years of Service

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website

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officers/principals

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Timothy H. Bedenis, PE
Gerald M. Belian, PE
Daniel R. Cassidy, CPG
John E. Dingeldein, PE
Andrew J. Emmert, CPA
Alan J. Esser, PE, D.GE
Sheryl K. Fountain, SPHR
Chuck A. Gemayel, PE
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Anthony L. Jarem, PE
Cheryl A. Kehres-Dietrich, CGWP
Gerard P. Madej, PE
Michael S. Meddock, PE
Timothy J. Mitchell, PE
Joseph W. Petraus, PE
Robert C. Rabeler, PE
Daniel O. Roeser, PG
Larry W. Shook, PE

team members

240

projects completed

82,000

professional staff

Brownfield Consultants
Geotechnical Engineers
Materials Consultants
Pavement Engineers
Environmental Scientists/Engineers
Architects
Facility Engineers
Forensic Engineers
Geologists/Hydrogeologists
Chemists
Structural Engineers
Metals Consultants
Roofing Consultants
LEED Accredited Professionals

technical staff

Asbestos Specialists
Certified Masonry Inspectors
Certified Welding Inspectors
Coating Specialists
Certified Engineering Technicians
Restoration Specialists
Roofing and Pavement Specialists

services

geosciences

Engineering evaluation and design for soil, rock and groundwater conditions

Corrosion: Perform and evaluate field and laboratory tests for corrosivity of buried metallic structures, and design of corrosion prevention systems.

Dewatering: Observe and model groundwater flow and field pump tests, and design temporary and permanent dewatering systems.

Drilling: Conduct soil borings, specialized sampling, in-situ testing (pressuremeter, Dutch Cone, dilatometer, vane shear), observation wells, and Geoprobes.

Earth Retention Systems: Design of temporary and permanent earth retention systems including reinforced earth/geogrid walls, tiebacks, shoring and bracing.

Foundation Engineering: Design of deep and shallow foundations, including spread footings, mats, piles, caissons, micropiles, helical anchors and cast-in-place augercast piles. Develop underpinning designs. Construction services include wave equation analysis, load and integrity tests, and construction observation.

Geodynamics/Vibrations: Measure ambient and construction vibrations; conduct seismic crosshole, downhole, attenuation and refraction surveys; perform Pile Driving Analysis (PDA); and evaluate existing foundations and design new foundations.

Geophysical Surveys: Conduct surveys including electrical resistivity, seismic, borehole logging, EM, gravity, and ground penetrating radar.

Geosynthetics: Design of geosynthetic-based systems, such as reinforced earth walls and slopes; and erosion protection for landfills, pavements, and special applications.

Ground Improvement: Design of special techniques to improve soil including wick drains, surcharging, vibroflotation, deep dynamic compaction, grouting, chemical stabilization and surface compaction.

Instrumentation: Installation and monitoring (manual and remote) for in-situ determination of soil and rock properties and performance during construction.

Slope Stability: Design for stabilization of existing and proposed slopes, and design repair of failed slopes.

materials

Engineering evaluation of material properties, failure analyses, and design using life-cycle costs

Coatings: Evaluation, selection, construction monitoring, and failure analysis for steel, concrete and wood construction.

Concrete: Construction monitoring, strength evaluation using destructive and nondestructive testing, floor flatness measurements, corrosion, and durability evaluations.

Construction Materials Services: Monitor construction procedures and material properties for conformance to specifications, and quality control/quality assurance plans.

Energy Efficiency: Evaluate building envelopes and mechanical/electrical systems using infrared technology for thermal anomalies. Develop predictive and preventative maintenance strategies.

Facility Asset Management: Evaluation of building components/systems and design of maintenance management programs.

Forensic Engineering: Expert witnesses who develop alternative dispute resolution strategies by researching facts, explaining complex technical issues, and conveying expert opinions involving issues in the built environment.

Masonry/Stone: Construction monitoring, material evaluation, and full scale testing.

Metals: Failure analysis, material characterization, and welding and jointing design.

Pavements: Evaluation of existing pavements and subgrade conditions, including use of Falling Weight Deflectometer (FWD) and other specialized equipment. Pavement design, including Full Depth Reclamation (FDR), plans and specifications, construction monitoring, and maintenance management programs for concrete, asphalt and porous pavements.

Restoration: Condition assessment and development of building and infrastructure improvements, including historic materials and structures and historic preservation.

Roofs: Evaluation of existing roofs including use of infrared technology, design of rehabilitation systems, green roof design, construction monitoring, and roof maintenance management programs.

Sealants/Waterproofing: Design and evaluation of moisture management systems for new construction and building restoration.

Structural Steel: Shop and site monitoring including bolted and welded connections, coatings, shear studs, use of ultrasonic, radiographic, magnetic particle, and other nondestructive testing.

environment

Environmental assessment, contamination evaluation, remediation, regulatory compliance and brownfield redevelopment

Acquisition Due Diligence: Phase I/II ESAs, environmental impact assessments, state-specific environmental evaluations and management, compliance evaluations, regulatory and financial risk assessment, and safe use evaluation and planning.

Air Quality: Emission inventories, source sampling, screening models and permits. Evaluation of geology to assess cost-effective geothermal systems.

Hazardous Materials: Assessment of asbestos, lead, PCBs, mercury and other hazardous materials; preparation of abatement specifications; and project monitoring.

Brownfield Redevelopment: Acquisition of brownfield incentives (grants, loans, TIF, tax credits), management of brownfield redevelopment programs and grants, environmental due diligence, assessment and planning for safe use, development-coordinated cleanups, and engineering and institutional controls. Work with design team to minimize site unknowns and reduce earthwork costs.

Contaminate Site Assessment and Remediation: Remedial/facility investigations, cleanup criteria and feasibility, groundwater modeling, vapor intrusion assessment, remedial action planning, remediation design and implementation, state voluntary cleanup programs, RCRA Corrective Action, UST assessments and closures, and remediation monitoring.

Hydrogeologic Studies: Evaluation of geologic conditions, aquifer flow characterization, groundwater quality, geothermal evaluation, and well field studies.

Industrial Hygiene/Indoor Air Quality: Exposure assessments, air quality testing, forensic studies, and health and safety programs.

Landfills: Site evaluation, monitoring programs, leachate containment, stabilization of excavations and construction slopes, and remediation systems.

Regulatory Compliance: Compliance reviews, compliance programs, pollution/spill prevention and contingency plans, TRI reporting, and environmental and natural resources permitting.

Storm Water Management: Conceptual plans, sampling programs, sustainable management planning and engineering, permitting, and certified operator monitoring at construction and industrial sites.

USTs: Manage removal of USTs, closure of UST systems, NAPL consulting, release assessments and implementation of Risk-Based Corrective Action (RBCA).

APPENDIX B:

PAVEMENT ENGINEERING
PAVEMENT EVALUATION

Pavement Engineering

Pavements are a key infrastructure component, and represent considerable capital investment. Proper design and maintenance are necessary to maximize your investment in pavement systems. SME provides pavement consulting services to help with:

- New Pavement Design
- Evaluate Existing Pavements
- Nondestructive Pavement Testing
- Pavement Laboratory Testing
- Pavement Management Programs
- Construction Services
- Pavement Plans and Specifications

SME's pavement consulting services are tailored to meet your requirements and needs. The level of assistance depends on budget constraints and project details. Services may range from training of your staff for in-house evaluation and implementation, to providing complete turn-key services.

SME uses state-of-the-art, high technology computer programs and nondestructive testing equipment, as needed, to provide clients with high-quality, cost-effective professional services. For example, we use the falling weight deflectometer (FWD) to measure pavement response to loading conditions.

Pavement consulting services are available for streets, airports, parking areas, temporary access roads, drive areas, and special use roadways.

SME's pavement consulting services provide clients with the information and tools to make a proper investment in new pavements, and to assist with maintenance and rehabilitation activities for optimum life of the pavement.

Pavement Evaluation

To protect your pavement investment, an engineering evaluation may include:

- **Visual Conditions Survey**
  SME representatives observe cracking, drainage, pot holes, frost heave, scaling, etc.

- **Physical Sampling and Testing**
  To evaluate site conditions, pavement cores/soil borings may be performed to obtain samples for laboratory testing. Laboratory testing includes visual examination and a series of tests to evaluate the soil properties.

- **Nondestructive Testing**
  SME owns and operates its own falling weight deflectometer (FWD), which simulates moving vehicle loads on the pavement.

- **Repair and Rehabilitation Strategies**
  The field and laboratory test data is reviewed and analyzed to develop the strategies for repair and rehabilitation of your pavements. These analyses include economic evaluation, schedule requirements, and an assessment of a phased approach.

- **Recommendations**
  A recommended rehabilitation and repair program is developed, based on the observed and measured site conditions and your requirements. If desired, a pavement management program can be initiated.

APPENDIX C:

GEOTECHNICAL ENGINEERING EXPERTISE
GEOTECHNICAL ENGINEERING

Geotechnical Engineering Expertise

The selection of SME to provide geotechnical engineering services can reduce the overall construction cost and reduce construction risk, because of the following factors:

- With a database of over 200,000 soil borings performed since 1964, we have extensive knowledge of subsurface soil and groundwater conditions which can reduce the number of soil borings required for a project, and help us anticipate subsurface conditions and how the soil will respond to the proposed structural loading.
- Experienced geotechnical engineers who anticipate construction problems related to soil and ground water conditions and provide solutions to these problems.

Geotechnical Engineer	Years of Experience	MSCE Degree	Geotechnical Engineer	Years of Experience	MSCE Degree
Paul E. Anderson, PE	10	x	Mark K. Kramer, PE	24	
Melinda L. Bacon, PE	18	x	Jeffery M. Krusinga, PE, GE	26	x
Phillip J. Barton, PE	9	x	Gerard P. Madej, PE	43	x
Timothy H. Bedenis, PE	32	x	Timothy J. Mitchell, PE	34	x
Gerald M. Belian, PE	46		Brian D. Moynihan, PE	11	
Brian C. Berger, PE	17		Christopher G. Naida, PE	10	x
David W. Bird, PE	34	x	Louis J. Northouse, PE	17	
Andrew T. Bolton, PE	8	x	Joseph L. Noykos, PE	19	
Christopher R. Byrum, PhD, PE	24	x	Richard W. Ostrowski, PE	45	x
Jonathan J. Camburn, PE	11		Rohan W. Perera, PhD, PE	33	x
Matthew C. Desjardins, PE	18	x	Joseph W. Petraus, PE	45	x
John E. Dingeldein, PE	36	x	Johnny B. Phanthala, PE	9	
Alan J. Esser, PE, D.GE	47	x	Robert C. Rabeler, PE	37	x
Chuck A. Gemayel, PE	27	x	Joel W. Rinkel, PE	22	x
Kevin J. Glupker, PE	10		Paul J. Schmeisl, PE	12	
Jayson W. Graves, PE	9		Jason A. Schwartzenberger, PE	17	
Jeremy S. Hugo, PE	12		Larry W. Shook, PE	32	x
Dave J. Hurlburt, PE	30		Teon C. Sujak, PE	18	
Megan S. Jacobs, PE	12		Michael J. Thelen, PE	22	x
Anthony L. Jarem, PE	30	x	Anthony B. Thomas, PE	21	x
Larry P. Jedele, PE, D.GE	41	x	Kevin L. Wilk, PE	18	x
Laurel M. Johnson, PE	21	x			

Average 23 years of experience

In addition, our geotechnical team includes experienced drillers, laboratory technicians and staff engineers.

- Proven capability of using our geotechnical engineering expertise to save foundation constructions costs.
- Provide practical engineering solutions.
- In-house environmental expertise to address such environmental issues as evaluation of excavated soils or imported soils for possible contamination, erosion control, and storm water discharge.
- Pavement engineers to assist with pavement evaluation and design.

Geotechnical Engineering

Geotechnical engineers evaluate soil and groundwater conditions to determine their impact on proposed or existing facilities. Geotechnical engineering typically includes site evaluation, laboratory testing, engineering analysis, and construction verification.

- **Site Evaluation**
  - Soil borings including split-spoon and/or Shelby tube sampling.
  - In-situ testing such as pressuremeter, dilatometer, and/or Dutch cone integrated into site evaluation program, if needed.
  - Geophysical techniques such as seismic refraction, electrical resistivity, electromagnetic surveys incorporated into the site investigation when desirable.
  - Soil dynamic properties evaluated with seismic cross-hole/down-hole tests and spectral analysis of surface waves tests when vibrations need to be evaluated.
  - Groundwater level observations including monitoring\observation wells.
- **Laboratory Testing**
  - Strength and compressibility tests
  - Triaxial tests to simulate site loading conditions
  - Permeability testing using triaxial cell
  - Geodynamic properties using resonant column
  - Soil Corrosivity
- **Engineering Analysis and Recommendations**
  - Allowable soil bearing pressure, estimated settlement, and bearing elevation for shallow spread footings
  - Deep foundation recommendations including bearing elevation, allowable capacity, and estimated settlement
  - Pile foundation design including wave equation analysis for driving criteria
  - Pavements including subgrade preparation, pavement section, drainage, and material requirements
  - Floor slab support
  - Dewatering including temporary and permanent systems
  - Lateral earth pressure and retaining wall design
  - Soil dynamic analysis and vibration recommendations
  - Underground corrosion evaluation

APPENDIX D:

CONSTRUCTION MATERIALS SERVICES
COMPACTION TESTING
PAVEMENT CONSTRUCTION
CAST-IN-PLACE CONCRETE
BITUMINOUS CONSTRUCTION

Construction Materials Services

Construction materials testing services provide a mechanism for improving the quality of construction materials and reducing the risk of material failure on construction projects. Services may be provided directly for the owner, or indirectly through the design professional or construction manager/ contractor.

A wide variety of materials are used in construction, many of which are custom fabricated to meet specific project needs. The level of quality control/material testing effort required for a project is dependent upon the project complexity, types of materials used, and the quality interest of the owner, design professionals, and construction manager/ contractor. Ideally, the scope of work and corresponding budget for these services is negotiated between all of the interested parties.

SME blends a unique mixture of professionals and technical staff. This allows for cost-efficient services when special expertise is not needed, and yet allows for the readily-available specialized materials consulting and engineering expertise when needed. Services may include:

- Foundation Subgrade Verification
- Soil Compaction Testing
- Cast-in-Place Concrete
- Precast Concrete
- Aggregate Evaluation
- Asphalt
- Masonry
- Structural Steel Site Observation
- Fireproofing
- Roofing
- Pavement
- Building Facade/Walls
- Environmental Characterization/Evaluation

Compaction Testing

SME verifies adequate compaction during backfill operations.

- **Maximum Density**

  First, the maximum density must be determined. The method normally used to establish this value is the modified Proctor test. The Proctor tests should be performed as soon as the material is available, so the standards can be established prior to performing the field density testing. In this way, the technician performing the tests can indicate whether the material tested meets the project requirements. Even when Proctor tests are performed prior to performing the field density tests, variations in the soil used for fill may occur, corresponding to different Proctor values. Additional Proctor tests may be needed during the project, or one-point Proctor tests may be performed to determine the correct Proctor value.

- **Materials**

  It is much easier to compact granular soils than fine-grained soils such as silt and clay. Relatively clean granular soils can normally be compacted over a fairly wide range of moisture content and weather conditions. Silty and clayey soils are very sensitive to the moisture content at which they are placed. When the materials are too wet, they "pump", and cannot be properly compacted. When they are too dry, a large amount of compaction effort is required, and proper compaction may not be achieved. Alteration of the moisture content may be required to adequately place these soils.

- **Percent Compaction**

  To evaluate in-place density (and therefore percent compaction), there are three common methods which we use:

  - Nuclear Density Meter
  - Sand Cone
  - Balloon

  When speed of testing is important, we use a nuclear density meter. We also use both sand cone and balloon equipment.

- **Test Results**

  Compaction test results will be available on the site daily from our representative. Failing areas will be brought to the attention of the proper person(s) on the site for correction. Our test reports are reviewed by a Registered Professional Engineer prior to final transmittal to you.

Pavement Construction

During construction, quality assurance/quality control and project administration services are needed. The following services are available:

- Review of pavement design for constructability.
- Attend preconstruction meeting to communicate specific pavement requirements.
- Perform mix designs for either bituminous concrete or Portland cement concrete pavements, or review existing mix designs.
- Observe batch plant procedures and materials (bituminous concrete or Portland cement concrete plant).
- Site testing may include testing of subgrade, subbase base course, bituminous concrete, and concrete.
- Laboratory testing may include verification of proper gradation and materials, and strength or stability testing.
- Project administration services are offered including payment requests, material submittal, change orders, interpretation of project documents, and project meetings.
- Quality assurance services are also provided, including establishing and monitoring quality control programs.

Photo courtesy of Livingston County Road Commission

Cast-In-Place Concrete

SME provides construction material services of mixing, transporting, and placing concrete including:

- **Redi-mix Plant**
  - Review or prepare mix designs
  - Document admixtures are approved in project specifications
  - Document proper cement type
  - Verify cement stored in dry, ventilated silos
  - Verify scales for admixture, water, and aggregate recently certified
  - Document aggregate stockpile same source as mix design
  - Examine aggregate stockpile for proper handling procedures
  - Document actual batch weights
  - Compare batch weights with mix design
  - Observe each trip ticket
  - Note number of redi-mix truck revolutions at plant

- **Site Testing**
  - Observe reinforcing steel for general compliance with project documents
  - Perform slump tests to measure concrete consistency
  - Perform air content tests to verify proper entrained air for durability
  - Observe air and concrete temperature to determine if hot or cold weather procedures are required
  - Determine unit weight to evaluate concrete yield
  - Cast, cure, and test concrete cylinders for compressive strength at appropriate age
  - Observe post-tensioning loading procedures
  - Observe damp-proofing and/or waterproofing for compliance with the project documents
  - Observe joint procedures including proper materials and spacing

Bituminous Construction

- **Field Inspection and Testing**
  - Observe and document proofrolling of pavement subgrades.
  - Prior to placing the appropriate surfacing, it is critical the subgrade be properly prepared. The subgrade soils will be compacted and proofrolled in the presence of one of our representatives.
  - Perform field density testing of subgrade and
  - Verify thickness of aggregate base.
  - Perform field density tests of bituminous concrete during placement with appropriate verification of temperature and thickness.
  - Report test results and observations.

- **Laboratory Testing**
  - Proctor
  - Sieve Analysis
  - Wash Loss
  - Extraction/Gradation
  - Perform Proctor gradation and crush content test of the aggregate base course for compliance with project specifications. The following test methods are used:
    - ASTM D 1557: Modified Proctor
    - ASTM D 692: Course Aggregate
    - ASTM D 1073: Fine Aggregate
    - ASTM T 88: Gradation

- **Report Test Results and Observations**

  Copies of the raw field data are available daily at the site. The field and lab data is reviewed by the Project Consultant, typed, and distributed as requested. If the test data indicates problems, you will be notified immediately. SME office staff will review reports and provide SME quality assurance of services being provided.

APPENDIX E:

LABORATORY TESTING
LABORATORY QUALIFICATIONS

Laboratory Testing

SME's modern soil and material laboratory facilities allow us to directly provide competent and objective testing of samples. This allows SME to determine the specific properties necessary to predict the behavior of materials relative to the criteria of a project. All testing is supervised by a project engineer in compliance with our laboratory procedures and quality control manuals. SME is accredited by the American Association of State Highway and Transportation Officials (AASHTO) for soil, aggregate, and Portland Cement Concrete testing. SME participates in Round Robin certification testing sponsored by the Association of Materials Reference Laboratory (AMRL). Test equipment is calibrated to NIST standards, and procedures utilized are in compliance with ASTM and associated governing agencies. We also participate in a Round Robin testing program for the Michigan Department of Transportation in bituminous materials. Our lab is also certified by the Corps of Engineers. SME is one of only two Michigan-based firms to hold this certification.

❖ Soil/Aggregates

- Atterberg Limits
- Calibrated Penetrometer
- California Bearing Ratio (CBR)
- Chloride Content
- Conductivity
- Consolidation Test
- Constant Head Permeability
- Falling Head Permeability
- Deleterious Materials
- Dry Rodded Unit Weight
- Harvard Miniature Compaction
- Hydrometer
- Los Angeles Abrasion
- Magnesium Sulfate Soundness
- Modified and Standard Proctor
- Moisture Content
- Organic Content
- Percent Crushed
- pH
- Relative Density
- Resonant Column
- Shrinkage Limit
- Sieve Analysis
- Sodium Sulfate Soundness
- Soil Box Resistivity
- Specific Gravity
- Sulfate Content
- Swell Test
- Torvane
- Triaxial Compression w/Pore Pressure Measurements
- Unconfined Compression
- Unit Weight
- Visual Engineering Classification
- Wash Loss

❖ Asphalt

- Absolute Viscosity
- Abson Recovered Penetration
- Asphalt Ductility
- Extraction
- Flow
- Gradation
- Mix Design
- Penetration
- Specific Gravity
- Stability

❖ Soil/Cement

- Freeze Thaw
- Mix Design
- Moisture-Density Relations
- Wetting and Drying

❖ Masonry

- Absorption
- Compressive Strength
- Flexural Strength
- Mortar Cube Tests
- Mortar Flow
- Prism Tests

❖ Concrete

- Compressive Strength of Cylinders and Cores
- Flexural Strength
- Mix Design
- Petrographic Analysis
- Setting Time
- Statistical Analysis of Strength
- Trial Batch

❖ Metals

- Abrasion
- Bend Strength
- Charpy Impact
- Drop-Weight Impact
- Hardness
- Izod Impact
- Knoop Microhardness
- Macro Photography
- Metallurgical Analysis
- Micro Photography
- Nil-Ductility Impact
- Tensile Strength
- Vickers Microhardness
- Weldability Evaluation
- Welder Certification

❖ Coatings

- Abrasion Resistance
- Humidity Evaluation
- Salt Spray Evaluation
- Thermal Evaluation
- Thickness
- Ultraviolet Light
- Viscosity

❖ Fireproofing

- Abrasion Resistance
- Air Erosion
- Chemical Analysis
- Unit Weight

❖ Roofing

- Aggregate Gradation
- Aggregate Thickness
- Asphalt Content

Laboratory Qualifications

SME's modern soil and material laboratory facilities allow us to directly provide competent and objective testing of samples. Testing of construction materials is required to verify that the specific properties of construction materials meet the criteria of a project. Testing of soils is necessary to determine the specific engineering properties necessary to provide practical and economical engineering solutions for the analysis and design of various structures and facilities. All testing is supervised by a project engineer in compliance with our laboratory procedures and quality control manuals.

SME is accredited by the American Association of State Highway and Transportation Officials (AASHTO) for soil, aggregate, Portland Cement Concrete, Hot Mix Asphalt, and metals testing. SME participates in Round Robin certification testing sponsored by the Association of Materials Reference Laboratory (AMRL). Test equipment is calibrated to NIST standards, and procedures utilized are in compliance with ASTM and associated governing agencies. We also participate in a Round Robin testing program for the Michigan Department of Transportation in bituminous materials. Our lab is also certified by the Corps of Engineers.

APPENDIX F:

ENGINEERING TECHNICIAN CERTIFICATIONS

SME CERTIFIED ENGINEERING TECHNICIANS
CONSTRUCTION MATERIALS SERVICES

MDOT Certified Density Technicians

J. Brown
T. Bruski
C. Buyle
K. Cardinal
C. Coffin
T. Flanders
D. Groves
W. Harris
D. Hoag
C. Holmes
A. Hosbein
D. Kern
D. Liddell
N. Nohel
C. Pakkala
C. Sheldon
A. Smigelski
K. Smith
W. VanBuren
E. White
B. Zell

MDOT Certified Bituminous Plant Technicians

K. Cardinal
T. Flanders
W. Harris
A. Hosbein
T. Neumann
N. Nohel
C. Pakkala
E. White

MDOT Bituminous QC/QA Technicians

J. Brown
T. Bruski
T. Burger
K. Cardinal
T. Flanders
E. Gilbert
W. Harris
D. Kern
J. Michener
C. Sheldon
E. White

MDOT Certified Aggregate Technicians

C. Buyle
K. Cardinal
C. Coffin
T. Flanders
E. Gilbert
D. Groves
W. Harris
A. Hosbein
D. Kern
D. Liddell
J. Michener
T. Neumann
N. Nohel
C. Pakkala
K. Smith
E. White
B. Zell

MCA/ACI Level I Concrete Technicians

B. Bernard
R. Bogdani
B. Bresky
J. Brown
T. Bruski
C. Buyle
K. Cardinal
T. Flanders
J. Graves
D. Groves
D. Hoag
C. Holmes
A. Hosbein
D. Kern
W. Nading
C. Pakkala
C. Sheldon
A. Smigelski
K. Smith
A. Stuber
W. VanBuren
E. White
B. Zell
S. Zielinski

ACI Aggregate Testing Technician Level I

S. Brown

MCA Level II Concrete Technicians

T. Bruski
C. Coffin
W. Harris
D. Liddell
T. Neumann
T. Shaheen

Precast Concrete Fabrication Technician Level II

B. Bresky
K. Cardinal
C. Holmes

ACI Concrete Strength Testing Technicians

N. Atkins
J. Brown
S. Brown
T. Bruski
C. Buyle
C. Coffin
E. Gilbert
D. Liddell
J. Michener
T. Neumann

ACI Concrete Laboratory Testing Technician Level 1

S. Brown

ASNT Non-Destructive Testing Technicians

M. Baker
J. Carlson
R. Kot
M. Rabish
J. Zarzecki

ICC Structural Masonry Special Inspectors

H. Al-Hilal
B. Bernard
C. Buyle
J. Graves
A. Katt-Cassidy
B. Moynihan
J. Phanthala
T. Shaheen
A. Stuber
J. Zarzecki
S. Zielinski

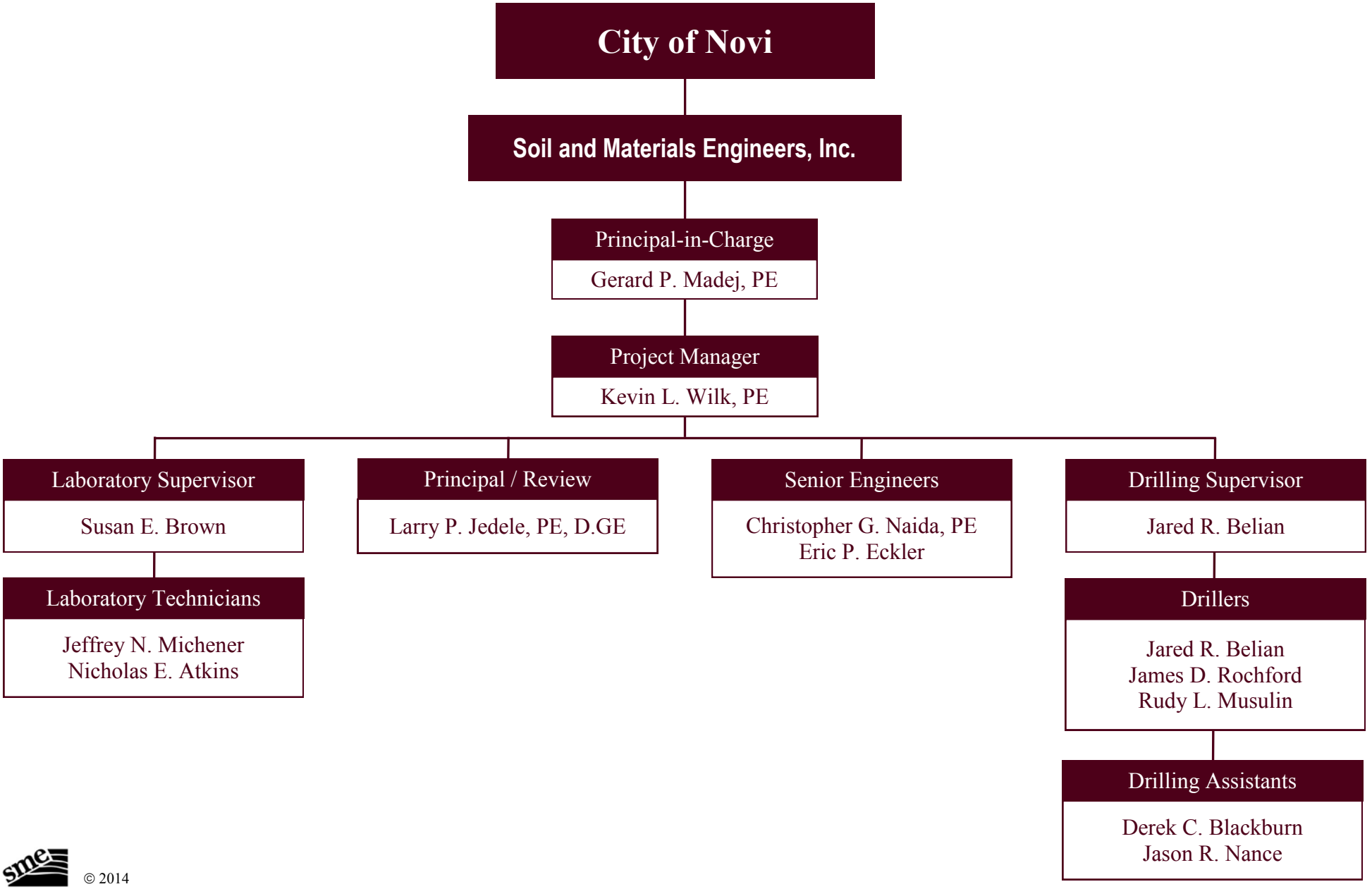
AWS QCI Certified Welding Inspectors (CWI)

M. Baker
J. Carlson
D. Dressler
B. Gann
S. Johnson
R. Kot
K. Marcum
M. Rabish
J. Zarzecki

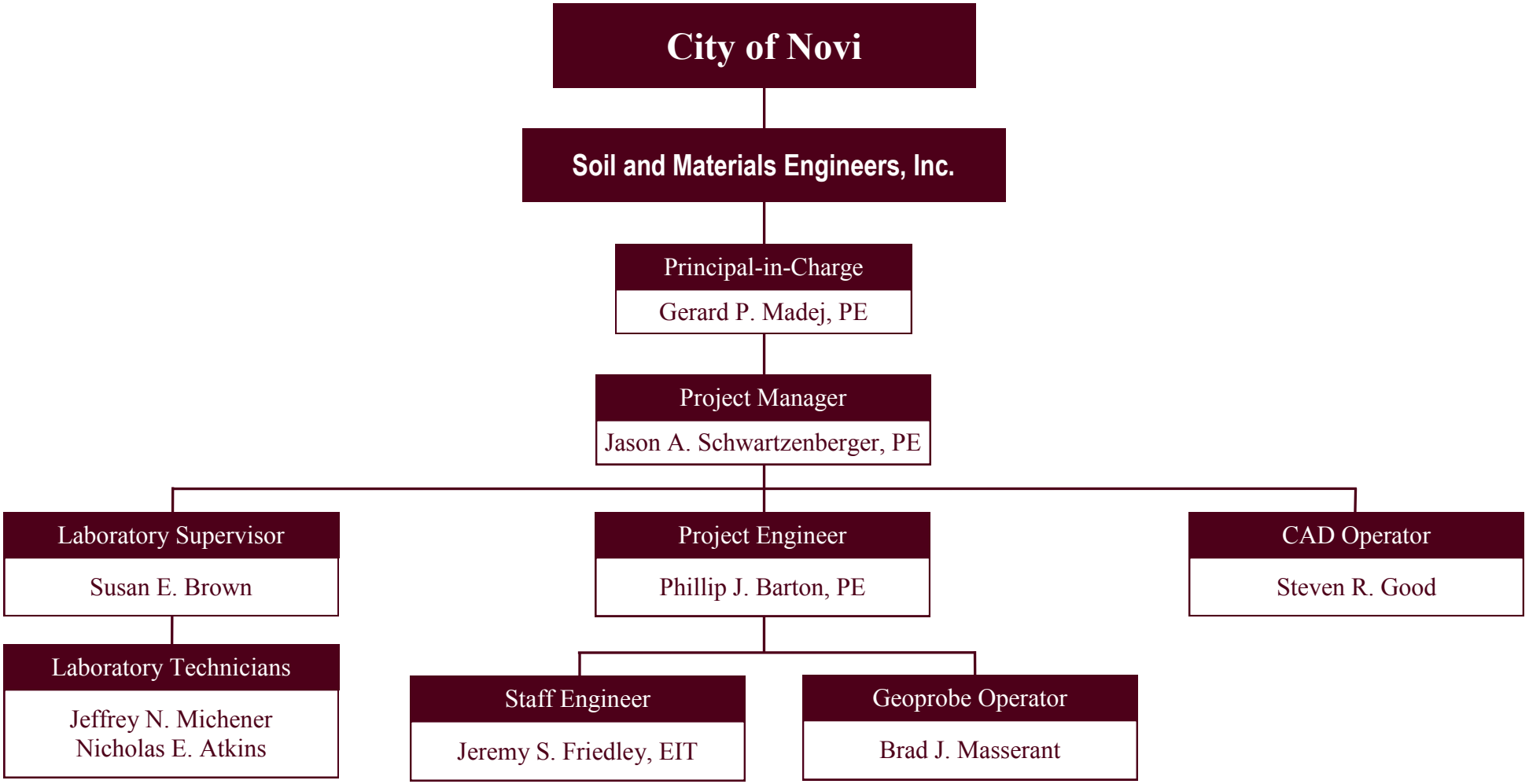
APPENDIX G:

ORGANIZATIONAL CHARTS

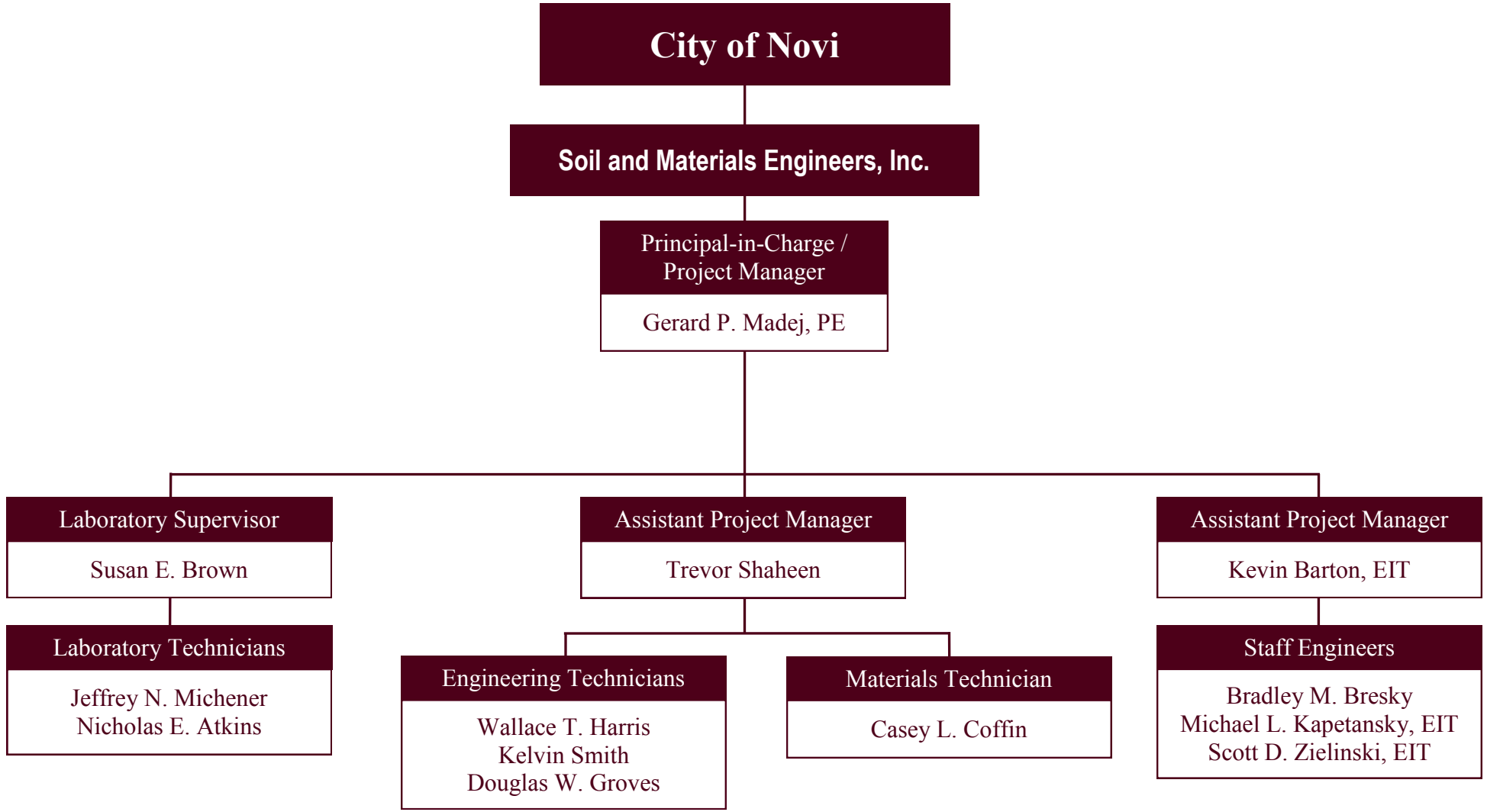
SME Geotechnical Project Team Organizational Chart



SME Pavement Project Team Organizational Chart



SME Construction Materials Project Team Organizational Chart



APPENDIX H:

KEY PERSONNEL RESUMES

GERARD P. MADEJ, PE

Vice President/Principal, **SOIL AND MATERIALS ENGINEERS, INC.**

Years Experience:
SME since 1973; other firms from 1971

Registration:
Professional Engineer – Michigan

Education:
B.S. and M.S., Civil Engineering, Wayne State University

Affiliations:
ASCE
International Society for Soil Mechanics and Foundation Engineering

Expertise:
42 years experience in civil engineering.

Skilled at field construction materials observation and testing for foundation construction, earthwork operations, pavements and various materials.

Experienced in construction materials services providing field verification of soil conditions for caisson, pile and shallow foundation systems and evaluation of pile load tests.

Experienced project manager acting as liaison to owner and construction personnel.

Experienced in conducting geotechnical investigations and providing instrumentation and monitoring of earth retention systems.

Gary is responsible for managing construction material (CMS) services. This includes monitoring on-site activities, reviewing reports for content and compliance with specifications, and preparing/controlling budgets for services detailed in the scope of work. He also provides consultation and engineering evaluations to resolve problems encountered during construction.

Related Project Experience:

- Project Manager for construction materials services provided for numerous projects in Detroit including the Greektown Casino at Trappers Alley, Motor City Casino, Federal Reserve Bank, American Axle Headquarters, Renaissance Center Parking Structure and Roadway Improvements, Blue Cross/Blue Shield Service Center and Parking Structure, St. John Hospital Additions, Grace-Sinai Hospital Additions, Henry Ford Hospital Underground Parking Structure, DaimlerChrysler Mack Avenue Engine Plant, and UAW/GM Center for Human Resources.

- Project Manager/Engineer for concrete QA/QC testing services in accordance with MDOT requirements for the I-75/375 reconstruction in Detroit; I-94/I-96 interchange reconstruction in St. Clair Shores; M-59 construction project in Utica, the I-75 reconstruction in Monroe; Newburg Road Bridge in Westland; M-10 Lodge bridges in Detroit; I-75 bridges in Madison Heights; M-5 Connector in Novi; and Telegraph Road reconstruction in Taylor.

- Project Manager for construction materials services provided for numerous water main projects including: Water Main Improvements in Allen Park; the Roscommon Water Main and Woodside Water Main Replacement in Harper Woods; Cranbrook Educational Community Water Main in Bloomfield Hills; Vernier Circle Water Main Replacement in Grosse Pointe Woods; Milford Water Main and Reconstruction of Commerce/Highland Road in Milford; Eastern Michigan University Water Main Extension and Wiard Water Main Replacement in Ypsilanti; Ava Maria Law School Water Main in Ann Arbor; Hix Road Water Main Replacement in Westland; University of Michigan Dearborn Water Main Extension, and Water Main Replacement and Asphalt Street Resurfacing in Dearborn; Riverside School Water Main in Dearborn Heights; and Mercedes Avenue Water Main in Redford Township.

- Project Manager for bridge replacement projects in Ann Arbor, Michigan. The project included CMS related to engineered fill, foundation installation, pavements and vibration monitoring, as well as laboratory testing of sewer pipe, goegrid, re-steel splices, and other materials.

- Project Manager for CMS for the reconstruction of Carpenter Road from Ellsworth Road to Textile Road in Pittsfield Township, Michigan.

- Project Manager for CMS related to concrete, engineered fill, and pavements for the reconstruction of Grove Road from Harris Road to Bridge Road in Ypsilanti Township, Michigan.

- Project Manager for CMS during construction of the new Dixboro Road Bridge in Ann Arbor, Michigan.

- Project Manager for construction materials services provided for Beaumont Hospital facilities in Royal Oak; the University of Michigan Medical Science Research Building III in Ann Arbor; Federal Mogul Plant in Lititz, PA; Ford Advanced Engineering Center in Dearborn; Crossroads of America in Rossford, Ohio; Fountain Walk in Novi; and 1-million square foot GM-NATP project in Pontiac, Michigan.

KEVIN L. WILK, PE

Senior Project Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1996

Registration:
Professional Engineer - Michigan, Indiana, Ohio

Education:
B.S., Geological Engineering, Michigan Technological University
M.S., Civil Engineering, Wayne State University

Affiliations:
American Society of Civil Engineers
Deep Foundations Institute

Expertise:
Extensive experience in developing geotechnical exploration scope and geotechnical evaluations for numerous projects in Michigan and Ohio. These projects include school and university buildings, medical and office buildings, industrial facilities, retail commercial buildings, utility infrastructure, and detention and retention basins.

Skilled in performing in-situ pressuremeter testing and collecting inclinometer measurements, including data reduction and engineering analysis.

Experienced in field construction monitoring of shallow and deep foundations, earthwork operations, and earth retention systems.

Kevin is responsible for developing scopes and budgets for geotechnical evaluations. He manages and conducts geotechnical evaluations to address design and construction of geotechnical projects.

Related Project Experience:

- Project Engineer/Manager for geotechnical evaluations for numerous sewer and water main improvement projects, including: the Ypsilanti Community Utility Authority (YCUA) Water Main Replacement in Ypsilanti; Collins Road Water Main in West Bloomfield; Southwest Sanitary Sewer and Water Main Phases II and III, Pontiac Trail and West Pontiac Trail Sanitary Sewers in Lyon Township; GM Willow Run Storm Sewer in Ypsilanti; Water Main in Chelsea; Sanitary Sewer and Water Main in Sumpter Township; Parker High School Sewer and Water Main in Howell Township; Sierra Drive Sanitary Sewer in Novi; and Pilgrim Hills Subdivision Sanitary Sewer and Water Main in Plymouth.

- Project Engineer for geotechnical evaluations for medical facilities including, Ingham Regional Medical Center, Providence Hospital, Southfield Regional Hospital and DMC Hutzel Women's Hospital.

- Project Engineer for geotechnical evaluations for new schools and school additions for the following districts: Howell, Lake Fenton, Mt. Clemens, Plymouth-Canton, Rochester Hills, Warren Consolidated, Redford, Milan, Cranbrook Education Community, St. Mary's Preparatory School, Chelsea, Belleville, Linden, Oak Park, Bloomfield, Brownstown, Van Buren, Royal Oak, Temperance, Brighton, White Lake, Milford, Walled Lake, Birmingham, Troy, Avondale, Livonia and Port Huron.

- Provided geotechnical engineering recommendations for deep foundations for the following projects: Broadway Village at Lowertown; Rochester Hotel, Detroit Opera House, Maple Corporate Office Center, Arnold Transit Company, General Motors Powertrain, numerous Telecommunications Towers and numerous residential structures.

- Performed in-situ pressuremeter testing, data reduction, and engineering analysis for projects including University of Michigan Stadium, University of Michigan Ross School of Business, University of Michigan Law Library Expansion, Blue Cross/Blue Shield, Motor City Casino, General Motors Powertrain, Green County Courthouse-Indiana, Western Michigan University Chemistry Building, Detroit Financial Center, Skylofts at Royal Oak, Royal Oak Center, 601 Forest Mixed Use, Pizza House Mixed Use, The Varsity Mixed Use, St. Joseph Hospital, Weill Hall, Detroit Arsenal, 413 East Huron Mixed Use, North Quad U of M, and Computer Science of Engineering Building at U of M.

- Familiar with geotechnical instrumentation, including monitoring and data reduction for slope stability analysis using inclinometers. Representative projects include: Great Lakes Crossing, Blue Cross/Blue Shield Parking Structure, The Premier Garage, and Koenig Concrete Dock.

ERIC P. ECKLER

Senior Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 2004; other firms from 1999

Registrations/Certifications:
OSHA 40-Hour HAZWOPER
Concrete Field Testing Technician Level I- ACI/MCA
Certified Nuclear Density Meter Operator - Troxler
Certified Soil Erosion and Sedimentation Control Inspector - MDEQ
Certified Storm Water Operator – MDEQ
Nuclear Gauge Safety Training Program - InstroTek, Inc.

Education:
M.S. Construction Engineering and Management, Lawrence Technological University (LTU)
B.S., Civil Engineering, LTU

Affiliations:
American Society of Civil Engineers

Eric provides construction materials services (CMS) and evaluations related to engineered fill/backfill, concrete, foundation bearing soils, masonry and pavements, as well as laboratory testing of soil and concrete. Provides resident engineering services related to daily construction activities including scheduling and reviewing of submittals and change orders for environmental and CMS projects. Assists in project management duties related to CMS services. Conducts geotechnical evaluations related to shallow foundations and other geotechnical concerns.

Related Project Experience:

- Observed daily construction operations for redevelopment of a 40-acre park in a metro Detroit suburb that had historically been used for sand mining and landfilling. Performed on-site daily resident engineering services for the project which included installation of a geotextile and clean soil cover exposure barrier to prevent direct contact and construction of a passive ventilation trench for methane mitigation. Reviewed material submittals including analytical laboratory tests of engineered fill to be used onsite.

- Provided multi-disciplined services for the Gateway Marketplace Development, a large multi-tenant retail complex in Detroit, Michigan. Observed the removal of unsuitable material from the project site. Collected and reviewed manifest logs of material being transported off site. Performed onsite environmental sampling of possible impacted soils discovered onsite to be sent for laboratory testing. Reviewed the daily operations of the field engineers and technicians providing CMS services for the project.

- Provided services for multiple University of Michigan projects including reviewing mechanical layout around existing foundations for installation of underground utilities at East Quad, CMS testing at Mosher Jordan, performing subgrade evaluation for foundation installation at the Museum of Art, and vibration monitoring at The Rackam Graduate School.

- Provided resident engineering services during construction of an infrastructure project at Henry Ford Community College (HFCC) in Dearborn, Michigan. Reviewed plans and specifications, observed construction operations, reviewed testing reports, and coordinated construction activities between the general contractor and HFCC.

- Provided geotechnical field services for the Chelsea Community Hospital Expansion Project in Chelsea, Michigan. Services included monitoring the removal of undocumented fill, fibrous and amorphic peat, and organic clay; evaluating the condition of the subgrade soils for their suitability for support of foundations, utilities, and slabs; and monitoring the installation of helical piers.

- Project technician experienced in distributing and collecting return manifests and weight tickets from landfills. Experienced with maintaining tracking sheets of trucks and assisting in distinguishing between fill and native soils for the University of Michigan Ann Street, CVC Building and Crisler Utility Duct projects in Ann Arbor, Michigan.

- Provided CMS related to evaluations and testing of engineered fill, foundations and concrete for the Conner Creek Waste Water Treatment Plant in Detroit, Michigan.

- Provided CMS related to evaluations and testing of engineered fill, and concrete foundations bearing capacities.

- Provided resident engineering and CMS related the Hartland Towne Square Development, a large multi-tenant retail complex in Hartland, Michigan. Observed daily construction activities related to the earthwork operations, coordinated earthwork with the contractor to prepare the Meijer parcel, and verified that the Due Care Plan established for the Hartland Towne Square Development was being followed.

Larry P. Jedele, PE, D.GE

VICE PRESIDENT/PRINCIPAL, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1986 - Other firms from 1973

Education:
B.S and M.S., Civil Engineering, University of Michigan

Registration:
Professional Engineer: Michigan, Indiana, Ohio, and Tennessee

Certifications:
Diplomate, Geotechnical Engineer (D.GE) - Academy of Geo-Professionals

Affiliations:
Academy of Geo-Professionals Board of Trustees
Past President Geo-Institute Board of Governors
Civil Engineering Advisory Board Lawrence Technological University, 2005-2009
ASCE - Director District 7, 2002-2005
Chi Epsilon Trustee, 1976-Present, University of Michigan
Construction Innovation Forum, Chair, 2003-2004
Chapter Honor Member-2003, Chi Epsilon, University of Michigan

Awards:
Engineer of the Year - 1991, ASCE, Michigan Section
Engineer of the Year - 1987, ASCE, Ann Arbor Branch

Expertise:
39 years experience in geotechnical evaluations and design recommendations.

Specialist in geodynamic services including measuring vibrations, conducting field testing, evaluating data, and providing recommendations.

Skilled in hydrogeological evaluations for landfills, municipalities, housing and commercial developments.

Larry manages geotechnical services for all SME offices. He provides project management and geotechnical consultation for engineering projects from proposals to final reports. He is also the lead technical resource for geodynamic services.

Related Project Experience:

- Project Manager for geotechnical evaluation for numerous water main replacement projects including: Water Main Improvements in Ferndale, and the Water Main and Water Tank Tower in Hartland; Michigan; and Risingsun Sanitary Sewer in Risingsun, Ohio; and Tedrow Water Supply Improvements in Wauseon, Ohio.

- Conducted and evaluated crosshole data for the Light Rail Transit project in Pittsburgh, Pennsylvania. Ground conditions were modified by chemical grouting granular soils supporting shallow foundations of buildings along an underground tunnel alignment constructed by cut and cover. Seismic crosshole tests were conducted before and after grouting to monitor the grouting operations to evaluate the effectiveness of grout.

- Project Manager for the proposed Ten-Mile Creek Interceptor Sewer and related structures in Toledo, Ohio. Project consisted of approximately 18 miles of sewer lines, 3 to 8.5 feet in diameter. Sewer lines are located throughout the City of Toledo. Prepared recommendations for foundation support for proposed structures including bearing pressure and bearing level.

- Project Manager for geotechnical evaluation for the Influent Sewer in Warren, Michigan. Prepared recommendations of construction. Also, evaluated tunnel for required thickness and reinforcement, and soil stability of the tunnel face.

- Conducted seismic refraction surveys for the proposed Superconducting Supercollider project at four general sites near Stockbridge, Michigan including 24 key locations along the proposed tunnel alignment to determine stratification of soil and depth to bedrock.

- Project Engineer for Evergreen-Farmington relief sewer project in Southfield, Michigan. Project consisted of sewer lines along with a metering chamber. Prepared recommendations for tunneling and construction of a sinking caisson for the metering chamber.

- Conducted slope stability analyses on a number of projects including localized and staged excavations for construction of various structures at the wastewater treatment plant in Detroit.

CHRISTOPHER G. NAIDA, PE

Senior Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 2008; other firms from 2004

Registration:
Professional Engineer (PE) – Michigan

Certifications:
Certified Nuclear Density Meter Operator - Troxler
MUST Safety Program
Achieved rank of Intermediate on the Dynamic Measurement, Analysis Proficiency Test and CAPWAP

Education:
B.A., Civil Engineering, Lawrence Technological University (LTU)
M.A., Geotechnical Engineering, University of Michigan

Affiliations:
American Society of Civil Engineers
Chi Epsilon - National Civil Engineering Honor Society

Expertise:
Experienced in field testing, monitoring of shallow and deep foundations, earthwork operations and earth retention systems.

Skilled in performing geotechnical field evaluations for new construction and preparing geotechnical evaluation reports.

Skilled in performing vibration measurement evaluations for new construction as well as evaluations of distressed structures.

Experienced in monitoring piles, pile dynamic analysis testing, and setting-up and evaluating pile load tests.

Provides geotechnical engineering services including preparation of geotechnical evaluation reports to address shallow and deep foundations, earth retention systems and other related geotechnical concerns. Also provides field engineering services related to both shallow and deep foundations, subgrade evaluations, and specialized project assignments.

Related Project Experience:

- Provided PDA testing, load tests, and observations of driven H-Piles for the proposed Samaritan Wellness Center in Detroit, Michigan and Great Lakes Research Center in Houghton, Michigan.
- Prepared a geotechnical evaluation report for the proposed Wayne State University Campus Apartments in Detroit, Michigan. Provided recommendations for general site preparation, subgrade preparation for grade slab, reuse of on-site soils as engineered fill, foundation design, preliminary pavement design, and general construction considerations.
- Provided observation of auger cast piles for an MRI addition at Harper Hospital in Detroit, Michigan.
- Provided geotechnical design and/or construction materials services (CMS) with geotechnical related field testing for University of Michigan (U-M) Alice Lloyd and East Quadrangle Dormitory. Services included the design of temporary earth retention systems (TERS) such as shotcrete walls, push pier and concrete minipiles, concrete underpinning, tiebacks, soil nails, and soil grouting.
- Project Engineer for several geotechnical evaluations for new construction and building additions including U-M Laundry Building, U-M Driving Range and Putting Facility, U-M Institute for Social Research, Glacier Hills Senior Living Facility, and the Michigan Islamic Academy in Ann Arbor; Assisted Living Community Center (various sites); and Wal-Mart (various sites).
- Project Engineer for several preliminary geotechnical evaluations for projects throughout southeast Michigan and northwest Ohio.
- Provided geotechnical related services for slope stability analysis for the Blue Water Bridge in Port Huron, 10 Mile Road failure in Lyon, and I-94 and I-69 interchange.
- Provided construction materials services (CMS) and geotechnical related field testing for Market Square in West Bloomfield including observation of geopier installation and a vibration measurement program. Duties also included the observation and testing of foundation installation operations, density testing of engineered fill, concrete testing, preparation of active clay subgrade soils, client meetings, and structural steel review.
- Field Engineer providing geotechnical related field observation and testing relating to drilling operations including observation of drilling activities, visual classification of soil samples, soil specimen sampling/collection using split barrel and thin-walled tubing, and boring backfilling. Duties also include the observation of Pitcher Sampling and performing Vane Shear Testing.
- Prepared geotechnical evaluation reports for proposed elevated water storage tanks in Farmington Hills, Michigan.
- Prepared geotechnical evaluation reports for proposed Walmart Stores in Michigan and Ohio.
- Performed Vibration Monitoring during sheet pile installation near sensitive structures.

- Performed pile dynamic analysis at Delaware State Park Marina in Delaware, Ohio. The project involved installation of numerous pipe piles for construction of new boat docks.

- Provided geotechnical engineering services for the Hogsback Lane slope repair project in Lakewood, Ohio.

JASON A. SCHWARTZENBERGER, PE

Senior Project Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1997

Registrations/Certifications:
Professional Engineer - Michigan
ASCE, Michigan Section, Ann Arbor Branch

Education:
B. S., Civil Engineering, University of Michigan

Expertise:
Experienced in pavement design, management, and evaluation.

Experienced in state-of-the-art nondestructive pavement testing and field analyses.

Knowledgeable in geotechnical and materials sampling and laboratory testing.

Experienced in design, construction, and inspection of shallow and deep foundations and earthwork operations, and earth retention systems.

Team Leader of SME Pavement Services Group in the Plymouth, Michigan office. Manages pavement related projects throughout Michigan, Ohio, Indiana, and Illinois. Services include pavement condition assessments, implementing pavement management systems, destructive and nondestructive testing, developing feasible pavement rehabilitation options utilizing latest construction techniques, preparing plans and specifications, and providing construction administration and testing services. Duties also include review of asphalt mix designs and test data from our Plymouth asphalt laboratory.

Related Project Experience:

- Project Engineer and Project Manager for the City of Livonia Annual Street Paving Program for asphalt and concrete streets. Reviews existing pavement conditions. Coordinates pavement and subgrade sampling procedures. Develops feasible pavement rehabilitation options based on pavement and subgrade conditions. Provides consultation during construction.

- Project Engineer for pavement engineering services for reconstruction/rehabilitation of various streets in Plymouth, Michigan. The project has included performing pavement evaluations including Falling Weight Deflectometer (FWD) testing, developing pavement rehabilitation recommendations, and providing construction materials services.

- Project Engineer for pavement/geotechnical evaluations of numerous roadways and parking lots statewide. Performed field investigations, including pavement and subgrade sampling and distress surveys, and prepared pavement design recommendations. Projects include pavement evaluation and design for the City of Westland, City of Dearborn, City of Inkster as well as for the Brush Park Infrastructure and Fox Creek Infrastructure projects in Detroit.

- Project Engineer for the rehabilitation of Turner and Scribner Avenue. Collected data using FWD to determine properties of existing pavement layers and the subgrade. Located pavement core locations based on existing pavement surface conditions and FWD test results. Developed feasible pavement rehabilitation options based on FWD and pavement/subgrade results.

- Project Engineer for the Pavement Management System (PMS) for Grand Valley Metro Council and for MDOT Bureau of Aeronautics. A PMS for 1050 miles was implemented for the Grand Valley Metro Council. Also performed pavement conditions surveys on roadways in Genesee County, Michigan. The MDOT Bureau of Aeronautics project involves surveying airport pavements for updating their database. The pavement management systems were developed using the Paver software. Duties included project management, training of field staff, supervision of data collection, and performing quality control checks on the collected data.

PHILLIP J. BARTON, P.E.

Project Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME full time since 2007
SME intern 2003 through 2006

Registrations/Certifications:
Professional Engineer (PE) – Michigan
MDOT Certified Concrete Paving Inspector
MDOT Certified HMA Paving Inspector
Nuclear Density Meter Operation-Troxler
MUST Safety Program

Education:
A.S., Engineering, Schoolcraft College
B.S., Civil Engineering, Michigan Technological University
M.S., Civil Engineering, Wayne State University

Expertise:
Experienced in pavement and soil exploration techniques and preparation of pavement and geotechnical reports.

Experienced in pavement design, management, and evaluations.

Experienced in performing visual condition and distress survey of pavements.

Knowledgeable in geotechnical and materials sampling and laboratory testing.

Specialist in field construction techniques related to earthwork, foundations, utility installation, and pavements.

Experienced in preparing project design plans and specifications for pavement rehabilitation and site improvement projects.

Prepares project level design plans and specifications for road and infrastructure improvement projects. Assists clients through all phases of projects including evaluation, design, bidding, construction, and close out. Performs pavement distress surveys, pavement evaluations, and pavement designs for new pavements, and develops feasible rehabilitation strategies for pavements. Also has experience in construction material services related to asphalt and concrete pavements, deep and shallow foundations, masonry, reinforcing steel, and laboratory testing related to soils, aggregates, concrete, and bituminous materials.

Related Project Experience:

- Developed pavement rehabilitation options and pavement cross-section design for municipal roadway segments located in Novi and Northville, Michigan. Projects have included Nine Mile Road, Grand River Avenue, and Meadowbrook Road in Novi, and Dunlap Street, Main Street, and Rogers Street in Northville.

- Provided pavement evaluations and performed pavement design services for the annual street rehabilitation program for the City of Plymouth from 2009 through 2012.

- Provided pavement evaluations and performed pavement design services for the annual street rehabilitation program for the City of Livonia from 2006 through 2012. Also provided construction material services and engineering evaluations including testing of concrete, bituminous materials, and aggregate bases and performing proofroll subgrade evaluations of residential and commercial streets.

- Served as Project Engineer for Links of Northville Hills Condominium roadway improvement project. Performed evaluation services to determine causes of pavement distress, developed pavement rehabilitation strategies, prepared project engineering drawings and specifications, solicited for contractor bids, and oversaw construction. Worked with home owner's association on all phases of the project.

- Served as the Field Engineer for pavement and subgrade sampling for pavement rehabilitation of the Southfield Freeway M-39 and the Lodge Freeway M-10. Coordinated traffic control, pavement coring, and soil boring sampling procedures. Performed core classifications and laboratory soil testing.

- Served as Project Engineer preparing design plans and specifications for pavement rehabilitation and site improvement projects for Ford Motor Company at numerous North American Ford plants and facilities. Projects included evaluation, design and construction of industrial roads, truck docks, and parking lots. Assisted Owner through project inception, design, bidding, construction, and closeout.

- Performed a visual condition survey, pavement sampling and exploration, as well as developed rehabilitation techniques for the entire road network servicing the Michigan National Guard Camp Grayling Base.

Jeremy S. Friedley, EIT

Staff Engineer, **SOIL AND MATERIALS ENGINEERS, INC.**

Years Experience:
SME since 2014; Intern 2011-2014; Co-op 2010

Registrations/Certifications:
Engineer-in-Training (EIT) - Michigan
MUST Safety Program
Nuclear Density Meter Operator - Troxler

Education:
B. S., Civil Engineering, Lawrence Tech University

Performs pavement distress surveys, pavement evaluations, pavement designs for new pavements, and develops feasible rehabilitation strategies for pavements. Prepares project level design plans and specifications for road and infrastructure improvement projects. Assists clients through all phases of projects including evaluation, design, bidding, construction, and close out. Also has experience in construction material services related to asphalt and concrete pavements, deep and shallow foundations, masonry, reinforcing steel, and laboratory testing related to soils, aggregates, concrete, and bituminous materials.

Related Project Experience:

- Engineering Technician for the 2013 Livonia Paving Program. Services include reviewing existing pavement conditions, coordinating pavement and subgrade sampling procedures, developing feasible pavement rehabilitation options based on pavement and subgrade conditions, and providing consultation during construction. Provided field testing and sampling of construction materials for asphalt and concrete pavement bases.
- Field Engineer for the reconstruction of 1/2 mile 'M' Road inside the Ford Rouge Plant. and the water main and fire line reconstruction. Provided quality control and field engineering support.
- Lead Technician for the Ford Flat Rock Assembly Plant employee lot improvements. Field representative for mill and overlay of the road located inside the plant.
- Lead Technician and field representative for the reconstruction of the newly designed Lyonhurst Circle and Lochmoor Court in the Links of Northville Hills subdivision.
- Engineering Technician for the Plymouth Infrastructure Improvement Program. Provided field testing of construction materials for the annual street rehabilitation program.

BRAD J. MASSERANT

Project Consultant—Soil Probe Services SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 2001; other firms from 1991

Certifications:
40-Hour HAZWOPER Course
Geoprobe® Field Day - Midwest

Education:
B.S., Resource Development, Michigan State University

Expertise:
Experienced in the collection of soil, soil gas, and groundwater samples utilizing soil probe/ direct push equipment at contaminated and potentially contaminated sites throughout Michigan and surrounding states.

Experienced in the installation, development, sampling and abandonment of monitoring wells utilizing soil probe/direct push equipment.

Experienced in the oversight and sampling at underground storage tank closures.

Brad directs, manages, and operates SME soil probe equipment.

Related Project Experience:

- Operation of a Geoprobe® for sewer and water main projects for various municipalities including the Cities of Ann Arbor, Kalamazoo, Lansing, and Ypsilanti.
- Operation of a Geoprobe® for pavement evaluations on state, county and municipal roads; school parking lots, tracks, and tennis courts; and commercial/industrial parking lots and roadways. These evaluations include pavement coring, advancement of Army Corps of Engineers Dynamic Cone Penetrometer, and soil sampling.
- Operation of a Geoprobe® for pavement evaluation for Walmart stores in Ohio and Virginia.
- Operation and management of a Geoprobe® for a month-long soil and water sampling project at a chemical manufacturing/waste water treatment plant in Holland, Michigan utilizing Environmental Protection Agency (EPA) sampling protocol.
- Operation and management of a Geoprobe® for soil and water sampling at State of Michigan level of effort (LOE) sites throughout the state.
- Operation and management of a Geoprobe® for soil and water sampling at Michigan National Guard Armory sites in Lansing, Grayling, Dowagiac, Montague, Sault Ste. Marie, Kingsford, Ironwood, and Adrian, Michigan, for the Army Corps of Engineers.
- Operation and management of a Geoprobe® for soil, soil gas, and water sampling for numerous environmental consulting and engineering firms throughout Michigan and surrounding states. The sites include: retail petroleum, manufacturing, industrial, commercial, former landfill, former manufactured gas plants, prisons, bulk oil facilities, cell tower locations, police posts, and auto dealerships.
- Operation of a Geoprobe® for implants for ozone injection.
- Operation of a Geoprobe® at a site in Livonia for the injection of oxygen releasing compounds (ORC) into the aquifer to aid natural attenuation/bioremediation of a gasoline contaminant plume.

STEVEN R. GOOD

CAD Manager, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 2008; other firms from 1984

Education:
Michigan Technological University
Washtenaw County Community College
Henry Ford Community College

Affiliations:
AutoCAD Users Group International (AUGI)
The Associated General Contractors of America (AGC of America)

Expertise:
Skilled in preparation of all types of survey drawings, such as topographic, boundary, as-built, mortgage, and ALTA.

Experienced in preparing electronic data for field surveyors and cut sheets needed for construction staking.

Skilled in preparation of civil design plans, including grading and paving plans, site utility installation (storm, sanitary, water main), storm water management, soil erosion and sedimentation control plans, as-built documents, and road plan and profile drawings.

Experienced in preparation of geotechnical designs such as retaining walls and temporary earth retention systems.

Experienced in preparation of structural and architectural plans and details.

Skilled in the use of AutoCAD Civil 3D and its preceding software down to Autodesk LDD Release 12 to prepare the above referenced documents.

Skilled in the use of other Microsoft Office software in conjunction with CAD software to prepare the above referenced documents.

Coordinates and manages design and drafting assignments for SME. Develops and implements CAD standards and templates to facilitate efficient production of drafting documents in compliance with government and industry standards.

Related Project Experience:

- Lead CAD Operator of the Waterstone project in Oxford, Michigan, a 1400+ residential unit and multi-commercial development.
- CAD Operator for the raw water main re-alignment in Ann Arbor, Michigan.
- CAD Operator for the Dixboro Road Bridge project in Ann Arbor, Michigan.
- Survey CAD Technician for several topographical surveys prepared of the University of Michigan and Michigan State University.
- CAD Operator for the temporary earth retention system of the 5th Avenue underground parking structure in Ann Arbor, Michigan.
- CAD Operator for the pavement reconstruction of Warren Consolidated Schools projects, including Sterling Heights High School, Wilkerson Elementary, and others.
- CAD Operator for the parking lot reconstruction of the Ford Sterling Axle Plant in Sterling Heights, Michigan.
- CAD Operator for the Oakland University 2010 parking lot expansion plan, which added approximately 400+ parking spaces for their students and faculty.

Years Experience:
SME since 2005

Registrations/Certifications: Engineer-in-Training (EIT) - Michigan
Level 2 Unbonded Post-Tensioning Inspector
Structural Masonry Special Inspector - ICC
Nuclear Density Meter Operation – Troxler
MUST Safety Program

Education:
B.S., Civil Engineering, Michigan State University
M.S., Civil Engineering, Wayne State University - In Progress

Expertise:
Specialist in performing special field observations, evaluation and testing for exterior building façade including CMU, brick, stone, etc.

Experienced in visual observation and monitoring for roofing and waterproofing construction practices.

Experienced with monitoring and evaluation of masonry and roofing restoration.

Experienced with inspection of post-tension concrete beams and decks.

Skilled in observing and testing concrete, masonry, and asphalt placement procedures.

Specialist in field construction observation of shallow and deep foundations.

Specialist in evaluation of subgrade soil conditions and their suitability for support of pavements, slabs, foundations, sport fields, etc.

Experienced with observing and monitoring soldier and auger cast in-place piles.

Specialist in monitoring underpinning procedures for shallow foundations and slabs.

KEVIN M. BARTON, PE

Senior Engineer, **SOIL AND MATERIALS ENGINEERS, INC.**

Provides field engineering evaluations and preparation of reports related to masonry, roofing, waterproofing, pavements, foundations, earth retention systems, post-tensioning, reinforcing steel, floor flatness, concrete, and earthwork construction projects. Also provides laboratory testing of aggregates, concrete, and bituminous materials.

Related Project Experience:

- Provided field observation for the roofing replacement at the University of Michigan East Quad Dormitory in Ann Arbor, Michigan. Services included field monitoring during the removal and replacement of single-ply EPDM and slate roofing systems.
- Provided field observation for roofing construction at Stevenson High School in Livonia, Michigan. Services consisted of field monitoring during the removal and replacement of single-ply PVC roofing system, including inspection for damaged or wet insulation on building sections where existing insulation was to be left in place and reused to provide economy to the project.
- Provided field observation for the Madonna Entrance Vault waterproofing project in Livonia, Michigan. Services included periodic inspection of modification of masonry construction, substrate surface preparation, installation of hot liquid-applied water-proofing; and documenting unanticipated conditions uncovered during selective demolition.
- Provided construction materials services (CMS) for The Landmark Housing and the Varsity Project both in Ann Arbor, Michigan. Services included testing of foundation bearing soil; reviewing placement of reinforcing steel placed for foundations, columns and walls, and post-tension beams and decks; and documenting post-tension tendon quantity, location and elevations, along with elongation of tendons during the stressing operations. Services also involved testing and observations related to masonry construction, field testing of concrete, and density testing of engineered fill and asphalt pavement.
- Provided CMS for the University of Michigan Crisler Arena Player Development Center in Ann Arbor, Michigan. Services included reviewing construction related to auger cast piles, soldier piles, tieback installation and load testing, underpinning, and minipiles.
- Provided CMS for the Lucas County Multipurpose Arena in Toledo, Ohio. Services included reviewing the placement of reinforcing steel, field testing of concrete, and density testing of engineered fill.
- Provided CMS for the Michigan International Speedway (MIS) Infield Media Suites in Brooklyn, Michigan. Services included testing of foundation bearing soil, reviewing the placement of reinforcing steel, testing and observations related to masonry construction, field testing of concrete, and density testing of engineered fill and asphalt pavement.
- Performed laboratory testing on construction materials including soils, concrete and bituminous materials. Testing performed included moisture content of soils, visual engineering classifications, unconfined compressive strength of soils, atterberg limits, grain size analysis (including hydrometer method), specific gravity and soundness testing, modified and standard proctors, direct shear of soils, concrete compressive strength testing, potential alkali reactivity of aggregates, asphalt extraction analysis, asphalt volumetric testing, asphalt theoretical maximum density, asphalt stability and flow testing, and asphalt cement penetration testing.

BRADLEY M. BRESKY
Staff Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 2006

Registrations/Certifications:
Concrete Field Testing Technician
Level I – MCA/ACI
Nuclear Density Meter Operations – Troxler
MUST Safety Program
PCI Level I and II
Structural Masonry Special Inspector

Education:
B.S., Civil Engineering, Michigan
Technological University

Expertise:
Specialist in field construction observation of shallow and deep foundations.

Specialist in evaluation of subgrade soil conditions and their suitability for support of slabs, pavements, tennis courts, etc.

Skilled in observing and testing concrete and masonry placement and construction procedures.

Experienced with monitoring and testing placement of engineered fill such as utility trench backfill and building pad earthwork.

Provides construction materials services (CMS) and evaluations related to foundations, concrete, re-steel, floor flatness, masonry, EFIS, and concrete and asphalt pavements. Also provides laboratory testing of soil, aggregates, concrete and bituminous materials.

Related Project Experience:

- Provided CMS for the University of Michigan (U-M) North Quad Residential and Academic Complex in Ann Arbor. Monitored installation of auger cast piles. Services also included CMS related to bearing soils for 12,000 psf, concrete, resteel, structural slabs, waterproofing, masonry, earth retention systems, and density testing of engineered fill.

- Provided CMS and engineering evaluation services for the U-M Mosher Jordan Renovation and New Dining Center in Ann Arbor. Monitored the installation of an earth retention auger cast pile wall. Tested grout and tiebacks for the retention system. Monitored mini-pile installation for support of existing footings. Monitored the performance of the earth retention system using slope indicators and crack monitors placed on existing adjacent structures and the installation of the waterproofing system for the below grade walls. Performed a “quick” load test on a mini-pile to verify its design load. Tested foundation bearing soils, concrete, re-steel, masonry, shotcrete, density testing of engineered fill and asphalt paving. Performed proof roll evaluations of subgrade soils.

- Provided CMS for the Commerce Township Waste Water Treatment Plant expansion. Services included CMS related to bearing soils, concrete, re-steel, structural slabs, waterproofing, masonry, roofing, density testing of engineered fill, and evaluations of building and pavement subgrade soil.

- Provided CMS for the Nordstrom store at Twelve Oaks Mall in Novi, Michigan. Services included testing of foundation bearing soils, re-steel, concrete, evaluations of the stability of subgrade soils, and density testing of engineered fill.

- Provided pre-cast concrete plant inspections for the Ann Arbor Bridges project. Provided inspections for mechanically stabilized earth (MSE) wall panels, box culverts and manhole structures. Services included concrete testing verification, reinforcing steel reviews and project special provisions compliance for materials, dimensional tolerances appearance acceptance, handling and shipping, and repair observation.

- Provided CMS for the 601 Forest student housing high-rise project. Services also included CMS related to bearing soils for 15,000 psf, concrete, re-steel, earth retention systems and density testing of engineered fill.

MICHAEL L. KAPETANSKY, EIT, SMSI

Staff Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since May 2011

Registration:
Engineer-in-Training (EIT) - Michigan

Education:
B.S., Civil Engineering, Lawrence Technological University

Certifications:
MUST Safety Program
Nuclear Density Meter Operation – Troxler
OSHA Confined Space Entry Training
Structural Masonry Special Inspector, ICC

Affiliations:
American Society of Civil Engineers
Chi Epsilon National Civil Engineering Student Honor Society
Engineering Society of Detroit
A.S.F.E.

Expertise:
Specialist in field construction observation of earthwork, including shallow and deep foundations.

Experienced with monitoring and testing placement of engineered fill such as in utility trench backfill and building pad earthwork.

Skilled in observing and evaluating masonry construction, masonry flashing, and structural masonry placement and construction practices.

Specialist in evaluation of subgrade soil conditions and their suitability for support of slabs, pavements, and foundations.

Skilled in observing and testing concrete, and asphalt placement construction procedures.

Experienced in providing field inspections of waterproofing materials and installation procedures.

Experienced in reviewing light gauge steel framing including load bearing and non-load bearing members.

Michael provides construction materials services (CMS) and evaluations related to foundations, concrete, reinforcing steel, light gauge steel framing, masonry, E.I.F.S. (Exterior Insulated Finish System) waterproofing, and concrete and asphalt pavements. He also provides laboratory testing of soil, aggregates, and concrete materials.

Related Project Experience:

- Provided CMS for the University of Michigan East Quad renovation project in Ann Arbor, Michigan. Services included overseeing soil grouting operations and push pier installation for existing foundations reinforcement; monitoring excavation operations to assure footing integrity and safety; recommending and documenting underpinning procedures; performing building monitoring; observing auger-cast pile installation; performing bearing soil capacity assessments, re-steel reviews and concrete testing for footing construction; observing soil nails installations and pull tests for basement wall reinforcement; backfill density testing; and reviewing continually updated plans for changes in design in an effort to maximize contractor efficiency and minimize extras. Also participated in daily meetings, planning and communication with the Owner, construction manager, and contractors.

- Provided CMS for the General Dynamics Land Systems new Vehicle Testing Center project in Sterling Heights, Michigan. Services included overseeing mass undercuts to remove undocumented fill, field evaluations of natural soils for suitability of foundation construction, concrete testing, reinforcing steel reviews including footings, foundation walls, and a dynamometer inertia block, and aiding in the development of a drainage system design for the dynamometer excavation pit.

- Provided CMS for the Glacier Hills Retirement Community addition and renovation in Ann Arbor, Michigan. Performed evaluations and testing for foundation subgrades, concrete, backfill density, and waterproofing. Observed the construction practices and placement of structural masonry, brick veneer and flashing, and tested grout for adherence to the project specifications.

- Observed proofrolls and evaluated subgrades for parking lot construction and building pad preparation for the Promess Building light manufacturing addition in Brighton, Michigan. Provided undercutting and subgrade improvement recommendations and monitoring, as well as concrete, asphalt, waterproofing and backfill density testing services.

- Provided CMS related to foundations, undercutting, concrete, and re-steel at Lafontaine Chevrolet in Dexter, Michigan.

- Observed helical pier pile installation at the Hope Lutheran Church in Novi, Michigan. Performed concrete testing, re-steel reviews, and subgrade evaluations.

- Provided CMS related to subgrade evaluation and undercutting recommendations for the foundations, building pad and parking areas at the Hartland of Macomb Nursing Facility in Sterling Heights, Michigan. Other services included concrete, backfill, re-steel, bearing capacity evaluations and laboratory evaluation Atterberg soil limits.

- Provided EIFS reviews at 601 Forest in Ann Arbor, Michigan including documentary materials for adherence to specifications, as well as workmanship and adherence to manufacturer installation recommendations.

SCOTT D. ZIELINSKI, EIT

Staff Engineer, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME full time since 2012
SME Intern 2011, 2010 and 2008
SME Co-op 2007
Isabella County Road Commission
Intern Summer 2009

Registration:
Engineer-in-Training (EIT) - Michigan

Certifications:
Concrete Field Testing Technician Level I – ACI/MCA
Nuclear Density Meter Operation – Troxler
Structural Masonry Special Inspector

Education:
B.S., Civil Engineering, Michigan Technological University, minor in Enterprise and in Fundamentals of Coaching

Expertise:
Skilled in observing and testing concrete and asphalt placement construction procedures.

Experienced with monitoring and testing placement of backfill.

Experienced in building materials services including historic mortar tests, weld inspections, wood beam testing, and water leak testing of roofs.

Experienced with Road Soft and Passor rating for pavement evaluation and documentation.

Experienced in surveying.

Experienced in reinforcing steel placement evaluation.

Experienced in posttension evaluations.

Scott provides construction materials services (CMS) and evaluations related to concrete, soil, earth retention systems, reinforcing steel, and concrete and asphalt pavements.

Related Project Experience:

- Provided testing of structural concrete at the Varsity Residential Development in Ann Arbor, Michigan. Also, conducted monitoring of posttensioning and reinforcing steel systems.
- Conducted testing of gypcrete at the Macomb Community College Center Campus Building CG in Clinton Township, Michigan.
- Provided concrete testing at the Ford Truck Assembly Plant in Wayne, Michigan.
- Provided concrete testing of curbs and gutters for multiple parking lots.
- Conducted monitoring of installation of heavy foundations for numerous ITC projects.
- Provided asphalt density testing at Chelsea Proving Grounds in Chelsea, Michigan.
- Provided CMS related to asphalt and undercuts during parking lot and sidewalk rehabilitation at Oakland University in Rochester, Michigan.
- Conducted density testing during backfill placement for sanitary and water sewers at Belleville High School.
- Provided density testing during construction of an earth retention wall at Market Square in West Bloomfield, Michigan.
- As a Field Technician for Isabella County Road Commission, performed survey work, AutoCAD drawings and assessments, volume estimates, general supervision of road construction, bridge work, and culvert placement.
- Provided concrete testing for runway replacements at Detroit Metro Airport.
- Conducted parking lot evaluations and asphalt repair recommendations for multiple Lowes stores across Illinois, Iowa, Wisconsin and Michigan.
- As undergrad at Michigan Technological University, evaluated the City of Houghton's city roads, provided repair/replace recommendations and updated the city's road soft data base as part of a minor in enterprise.

TREVOR D. SHAHEEN, SMSI

Operations Supervisor, **SOIL AND MATERIALS ENGINEERS, INC.**

Years Experience:
SME since 2006

Registrations/Certifications:
Competent Person – Fall Protection Course – Amerisure Insurance
Concrete Field Testing Technician Levels I and II – MCA/ACI
MUST Safety Program
Radiation Safety Officer
Structural Masonry Special Inspector – ICC

Education:
B.S., Construction Management, Lawrence Technological University

Affiliations:
Michigan Concrete Association

Expertise:
Specialist in field construction observation of shallow and deep foundations.

Specialist in evaluation of subgrade soil conditions and their suitability for support of slabs, pavements, athletic fields, etc.

Experienced in monitoring installation of augercast piles and micropiles.

Skilled in monitoring and reviewing structural masonry construction practices.

Skilled in concrete mix design work and the testing of concrete.

Experienced with monitoring and testing placement of engineered fill such as utility trench backfill and building pad earthwork.

Experienced in monitoring air/ vapor barrier and coating applications.

Field Services Supervisor for construction materials services (CMS) technicians including scheduling projects, assigning and training field staff, and reviewing field reports. Performs specialized project assignments related to foundations, subgrade evaluations, concrete, asphalt pavements, masonry, and air barrier construction. Serves as project manager for numerous CMS projects. Also serves as SME corporate Radiation Safety Officer.

Related Project Experience:

- Provided construction observation and testing for the Ambassador Bridge Main Deck Span Rehabilitation Project in Detroit, Michigan.
- Provided CMS related to foundation and masonry construction for the Wildwood Orthopedic Hospital Addition in Toledo, Ohio.
- Lead technician monitoring the subgrade preparation and fill placement operations and performing density testing of the engineered fill placed during construction of the Village of Jenera wastewater lagoons in Jenera, Ohio.
- Provided auger cast pile and micropile installation review and testing during construction of additions to Consumer's Energy Karn Weadock Generating Complex in Essexville, Michigan.
- Lead field engineer for L.A. Fitness in Royal Oak, Michigan. Provided soil bearing testing, reinforcing steel review, and concrete testing of footings and foundation walls.
- Provided structural masonry construction reviews and grout testing for the additions to Hickory Woods Elementary School in Novi, Michigan.
- Provided structural masonry and air barrier reviews, MSE retaining wall installation review, foundation soil bearing testing, reinforcing steel review, and concrete testing for the footings and foundation walls of the new Kingswood Girls Middle School on the Cranbrook Educational Campus in Bloomfield Hills, Michigan.
- Provided concrete testing for caissons at Greektown Casino in Detroit, Michigan.

CASEY L. COFFIN

Materials Technician, **SOIL AND MATERIALS ENGINEERS, INC.**

Years Experience:
SME since 2004

Certifications:
Asbestos Awareness 2 Hr. Training
Certified Aggregate Technician – MDOT
Certified Density Technician – MDOT
Certified MDOT FieldManager® and FieldBook®
Certified MDOT Computerized Office Technician
Certified Nuclear Density Meter Operator – CPN
Concrete Field Testing Technician Levels I and II - MCA/ACI
Concrete Strength Testing Technician – ACI
MUST Safety Program
Superpave Hot Mix Asphalt Mix Design Course – MDOT

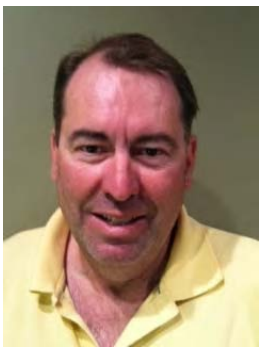
Education:
Associate in Applied Science, Concrete Technology, Alpena Community College
Architecture Courses, Ferris State University

Affiliations:
American Concrete Institute
Michigan Concrete Association

Provides construction materials services (CMS) including review and testing of pavement subgrade, foundation subgrade, engineered fill, concrete, asphalt concrete, EFIS, masonry, resteel, and fireproofing. Also provides laboratory testing of soil, concrete, aggregates, and masonry materials.

Related Project Experience:

- Project Manager for the WCAA Runway 4R-22L and Taxiway Reconstruction project in Romulus, Michigan. Services included the development of Portland Cement Concrete mix designs, laboratory testing of aggregates used in the production of Portland Cement Concrete paving, and laboratory testing of hardened Portland Cement Concrete.
- Project Manager for BASF Laboratory Testing. Services included development of concrete mixtures and associated material testing using BASF chemical admixtures to verify and submit dosage rates for the usage in Michigan Department of Transportation projects.
- Lead Technician for the M-59 Sound Wall project in Oakland County, Michigan. Provided QA verification testing and inspection using FieldBook.
- Provided CMS for the $104-million, 220,000-square-foot Federal Reserve Bank. Services included new concrete testing methods developed for the use of self-consolidating concrete.
- Performed field tests on intumescent fire coatings and sprayed-on fireproofing at the Greenleaf Trust Building in Birmingham, Michigan.
- Provided MDOT QA/QC concrete testing for the fast track replacement of the 9 Mile Bridge over I-75 in Hazel Park, Michigan.
- Provided QA/QC concrete testing for the reconstruction of American Center exit off I-696 and Franklin Road Bridge at M-10 in Southfield, Michigan. Services included mainline paving, sign, light foundation, and patching.
- Provided contractor quality control and MDOT quality assurance on various bridge, paving, curb and barrier wall projects, including I-96/Beck Road interchange in Novi and M-53/18 Mile Road interchange in Sterling Heights, Michigan.
- Performed quality assurance tests on plastic concrete for the reconstruction of the main runway and associated taxiways at Detroit Metro Airport in Romulus, Michigan. Services included AASHTO T318 testing and daily moistures/gradations on project aggregates.
- Provided sprayed-on fireproofing testing and reviews including thickness, density, and adhesion/cohesion for 4000 Town Center in Romulus; Fleming Steakhouse in Birmingham; and Borg Warner in Auburn Hills, Michigan.
- Assisted in the design, development, and verification of concrete trial mixes for several paving and chemical admixture companies including Ajax, John Carlo, Six-S, Tony Angelo, BASF, and Premiere-Mix.
- Provided structural masonry inspection including grout/mortar testing for Adams Marketplace in Auburn Hills; Heritage Village in Warren; and the Alcan Building in Novi, Michigan.
- Provided construction materials services including concrete quality control and density testing for various General Motors and Ford facilities.
- Lead Technician for Vine Street reconstruction in St. Clair, Michigan. Services included testing for concrete, engineered fill, subgrade preparation, and asphalt pavement construction.



DOUGLAS W. GROVES

Engineering Technician, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1999; other firms from 1990

Registrations/Certifications:
40-Hour Hazardous Waste Operations and Emergency Response Course
Asbestos Awareness 2-Hr. Training
Certified Aggregate Technician – MDOT
Certified Density Technician – MDOT
Certified MDOT FieldBook®
Certified Nuclear Density Meter Operator – Troxler
Concrete Field Testing Technician Level I - MCA/ACI
MUST Safety Program

Education:
B.S., Geo-Biology, Central Michigan University

Doug provides construction materials services (CMS) including review and testing of engineered fill, concrete, asphalt, masonry as well as proofroll of subgrade soil and soil bearing testing for footings. Also provides laboratory testing of soil, concrete, and aggregates.

Related Project Experience:

- Conducted lead sampling during paint removal at the US Postal Processing Plant in Allen Park, Michigan.
- Conducted air quality testing of air emissions from various industrial plants.
- Conducted testing of organic compounds at various processing plants.
- Provided CMS testing for several major school projects including testing for concrete, engineered fill, subgrade preparation, and asphalt pavement construction. Projects have included Hartland High School in Hartland; Milford High School in Milford; Centerline High School in Centerline; Allendale Elementary School in Melvindale; Oakland Community College Crest Project; and University of Michigan Rackham Building in Ann Arbor, Michigan.
- Field Technician for Lincoln High School in Ypsilanti, Michigan. Provided CMS testing related to footings, density, and concrete.
- Field Technician for Belleville High School in Belleville, Michigan. Provided CMS testing related to concrete, density, masonry, and pavements.
- Provided lime stabilization observation and testing, as well as asphalt concrete testing for the pavement reconstruction project at Henry Ford Community College in Dearborn and the new Bosch test track in Flat Rock, Michigan.
- Performed field density testing for the contaminated soil remediation project at the Detroit River Waterfront Belleview project located at the Uniroyal Tire Plant site. The project included logging of GPS data for the test locations.
- Lead Technician during construction of Independence Marketplace in Allen Park, Michigan. Provided testing and project quality control services including lime stabilized soil observations, foundations, engineered fills, masonry, concrete, and pavement construction reviews. The development is located at the site of the former VA Medical Center. Retailers include Lowe's Home Improvement Center, Starbucks Coffee, Staples, Jo-Ann Fabrics, John Carino's Italian Restaurant, and Applebee's.
- Lead Technician for Waterside Marketplace in Chesterfield Township, Michigan. Provided review and testing for lime stabilization of soil subgrade, concrete, engineered fill, soil bearing test for foundations, masonry, and asphalt pavement construction. Retailers included Old Navy, TJ Maxx, Ulta Beauty, Dick's Sporting Goods, and Bath and Body Works.
- Performed aggregate testing and sampling on I-96 and I-275.
- Provided QA/QC concrete testing for several Michigan Department of Transportation (MDOT) bridge and paving projects including M-10, Upper Lodge, and I-75 in Detroit; M-50 in Dundee; Telegraph Road in Taylor; and the M-5 connector in Novi.
- Provided soil density testing services for the Judd Road Bridge over Ann Arbor Railroad Bridge in York Township, Michigan.
- Provided CMS for the new Ford Test Track in Dearborn, Michigan. Services included evaluation of subgrade soil conditions and testing of engineered fill, concrete, and asphalt concrete.

- Performed concrete testing for Keel Runway Section at Detroit Metro Airport, as well as runway sections at Toledo Airport in Ohio.
- Provided CMS testing on engineered fill and concrete for the North Parking Deck Addition at Oakwood Hospital in Dearborn, Michigan.
- Provided CMS for the Ford Rouge Plant in Dearborn, Michigan. Services included concrete testing.
- Conducted QA/QC asphalt batch plant testing for Selfridge Air National Guard Base main runway reconstruction project.
- Provided engineered fill and aggregate base testing for MDOT projects on Telegraph Road in Dearborn and Palmer and Newburgh Roads in Westland.
- Performed QA asphalt batch plant testing at various locations for the Washtenaw County Road Commission including Packard Road, Textile Road, Geddes Road, Tyler Road, and Jackson Road.

WALLACE T. HARRIS

Engineering Technician, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1997

Registrations/Certifications:
24-Hour Hazardous Waste Operations and Emergency Response Course
Certified Aggregate Technician Levels I and II – MDOT
Certified Bituminous Plant Technician – MDOT
Certified Bituminous QC/QA Technician - MDOT
Certified Density Technician – MDOT
Certified FieldBook® - MDOT
Certified Nuclear Density Meter Operator – Troxler
Concrete Field Testing Technician Levels I and II – MCA/ACI
MDOT HMA Paving Operations Course
MUST Safety Program

Education:
Engineering Coursework at Oakland Community College
Engineering Coursework at Western Michigan University
Henry Ford Community College/Architectural Construction

Provides construction material services (CMS) for concrete, asphalt concrete, engineered fill, fireproofing, roofing, masonry, foundations, and subgrade preparations. Also provides laboratory testing of soil, aggregates, concrete, and bituminous materials.

Related Project Experience:

- Field Technician for Gateway Marketplace in Detroit, Michigan. Provided CMS testing related to density, concrete, asphalt, and masonry.
- Field/Laboratory Technician for Ann Arbor Bridges. Provided field density, field and laboratory aggregate testing, HMA field verifications, and HMA mix verifications.
- Performed aggregate sampling and field density testing of utility backfill for the Ann Arbor Bridges project in Ann Arbor, Michigan.
- Provided CMS related to density and concrete for the Dexter Pinckney Road Bridge replacement project in Dexter Township, Michigan.
- Provided CMS testing and inspection related to density, concrete, and asphalt for two miles of concrete pavement widening and reconstruction of Jackson Road from Dino Drive to Honey Creek in Scio Township, Michigan.
- Project Technician for construction on Dixboro Road Bridge. Provided compaction testing for utility installations and mass fills. Also, provided concrete testing for the Washtenaw County Road Commission.
- Performed CMS bituminous batch plant and field testing for the Newburgh Road resurfacing project in Livonia, Michigan, consisting of superpave mixes.
- Provided QA/QC concrete testing for several MDOT projects including US-24 bridge in Flat Rock, Telegraph Road reconstruction in Taylor, I-75 reconstruction in Detroit, M-5 connector in Novi, lower Lodge bridges in Detroit, and M-50 bridge in Dundee.
- Performed QA/QC field testing on concrete for reconstruction of the Martin Luther King Bridge over M-10 located in Detroit, Michigan.
- Performed QA/QC concrete testing for reconstruction of I-696 and M-10 in Southfield, Michigan. Services included field density tests on aggregate subbase, and field tests on plastic concrete and mold cylinders for compressive strength testing.
- Performed QA/QC batch plant testing of bituminous material for The Mall at Partridge Creek in Clinton Township, Michigan.
- Provided CMS for testing of concrete at Selfridge Air Force Base, in Mt. Clemens, Michigan.
- Provided CMS for an addition to the Ford Motor Michigan Truck Plant in Wayne, Michigan. Services included concrete and density testing.
- Provided CMS related to testing of concrete and engineered fill at the Henry Ford Hospital Underground Parking Garage in Detroit.
- Provided CMS testing at Dearborn Civic Center in Dearborn, Michigan. Services included concrete testing, compaction testing, and review of fireproof applications.
- Provided CMS testing for concrete as well as asphalt placement at the Visteon project in Dearborn.

- Project Technician for the Buske Warehouse in Brownstown Township, Michigan. Provided CMS for concrete, subgrade compaction, and asphalt placement.

- Lead Engineering Technician for Cambridge Apartment project in Canton and Highland Lakes Subdivision in Highland, Michigan. Provided CMS testing for road subgrade undercuts and engineered fill for road and building pads.

- Performed CMS bituminous batch plant testing for the Detroit Metropolitan Airport runway and taxiway renovations.

- Provided CMS testing at AAA Headquarters in Dearborn. Services included concrete testing, compaction testing, and monitoring and testing during asphalt pavement construction.

KELVIN SMITH

Engineering Technician, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1989

Certifications:
24-Hour Hazardous Waste Operations and Emergency Response Course
Certified Aggregate Technician – MDOT
Certified Density Technician – MDOT
Certified Nuclear Density Meter Operator-Troxler
Concrete Field Testing Technician Level I - ACI
MUST Safety Program

Education:
B.S., Business Administration, Texas College

Affiliations:
American Concrete Institute
Michigan Concrete Association

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Kelvin provides field construction materials services (CMS) for testing and review of concrete, asphalt, engineered fill and subgrade preparation. He also provides laboratory testing of soil, aggregates, concrete and bituminous materials.

Related Project Experience:

- Provided general quality control testing and inspection for concrete and density at the University of Michigan Medical Science Research Building III in Ann Arbor, Michigan.
- Project Technician for MDOT QC/QA concrete testing for I-94 and Telegraph Roads in Taylor, Michigan. Responsibilities also included aggregate sampling for the project.
- Lead Technician for four projects in City of St. Clair, Michigan. Provided density control, concrete and asphalt testing for sewer separation and pavement construction.
- Lead Project Technician for contractor quality control and MDOT quality assurance concrete testing for Telegraph Road in Taylor, M-5 connector in Commerce Township, and the Southfield Freeway projects.
- Lead Technician for the M-14 and old M-14 reconstruction project for MDOT.
- Lead Technician for rehabilitation and resurfacing paving projects on 9 Mile Road in Eastpointe and Coolidge Highway in Oak Park. Performed proofrolling, density control, concrete and asphalt concrete testing.
- Performed field tests on plastic concrete, and molding of concrete cylinders for compressive strength testing for placed concrete for reconstruction of the Martin Luther King Bridge over M-10 located in Detroit, Michigan.
- Project Technician performing contractor quality control and MDOT quality assurance concrete testing for I-75 reconstruction projects in Detroit and Flint, Michigan. Responsibilities for the two-year project included daily coordination and scheduling for one to three technicians, testing for several subcontractors, and running on-site laboratory trailer.
- Performed QA/QC concrete testing for the reconstruction of I-696 and M-10 in Southfield, Michigan.
- Project Technician for contractor quality control and MDOT quality assurance concrete testing at the M-59 reconstruction project in Utica, Michigan. Responsibilities for the two-year project included daily coordination and scheduling for one to three technicians, testing for several subcontractors, and running on-site laboratory trailer.

Years Experience:
SME since October 2005; other firms from 2002

Registrations/Certifications:
Aggregate Testing Technician Level I - ACI
Concrete Laboratory Testing Technician Level I - ACI
Concrete Strength Testing Technician - ACI
Superpave Hot Mix Asphalt Mix Design Course – MDOT

SUSAN E. BROWN

Laboratory Supervisor, **SOIL AND MATERIALS ENGINEERS, INC.**

Supervises, coordinates, and assists laboratory testing in the areas of soils, bituminous concrete, masonry, and concrete evaluation. Performs MDOT QC/QA bituminous extractions and various geotechnical laboratory testing.

Related Project Experience:

- Laboratory Technician for Belleville High School. Provided HMA mix verification, aggregate testing, and laboratory density testing.
- Laboratory Technician for Ann Arbor Bridges. Provided HMA mix verification and aggregate testing.
- Conducted geotechnical laboratory testing for multiple street reconstruction / rehabilitation projects in Livonia and Plymouth, Michigan.
- Conducted laboratory testing of bituminous paving materials for the MDOT Park and Ride in Chesterfield Township, Michigan.
- Provided soil laboratory testing for numerous projects in Michigan and Florida including moisture content of soils, visual engineering classifications, flexible wall and constant head permeability, consolidation, unconfined compressive strength, atterberg limits, grain size analysis (including hydrometer method), specific gravity, pH, resistivity, and laboratory compaction characteristics of soil. Representative projects include Rising Sun Sanitary Sewer improvements in Rising Sun, Ohio; I-75 Freeway Sign Upgrade in Oakland County; Quadplexes at Heritage Village in Warren; Addition to BMW in Ann Arbor; Country Club Village in Plymouth; Belden Village Mall Expansion in Jackson Township; Wastewater Management System at Great Lakes Works in River Rouge; Zug Island in River Rouge; and Airport Mix Designs in Waterford.
- Collected samples of roadway stabilized subgrade for new approach ways for the State Road 528 (Beach Line Expressway) bridge replacement project in Brevard County, Florida. Also performed FDOT classification and Limerock Bearing Ratio (LBR) testing for each specimen.
- Obtained core samples for the Kennedy Parkway North asphaltic resurfacing project at the Kennedy Space Center, Florida. Also performed laboratory bulk specific gravity testing.
- Performed hand auger borings of foundation subsoils and conducted laboratory classifications and testing of returned samples for the Shuttle Experience Building at the Visitors' Information Center in Kennedy Space Center, Florida.
- Performed field and laboratory testing for the structural concrete, parking/roadway base course and asphaltic surfacings for the Walmart Super Center in Viera, Florida.
- Performed numerous hand auger borings, conducted groundwater depth survey, and staked boring locations (with GPS locator verifications) for preliminary subsurface explorations program for the Parcel "T" commercial complex in Viera, Florida.

Years Experience:
SME since 2006

Certifications:
Certified Aggregate Technician - MDOT
Certified Bituminous QC/QA Technician - MDOT

JEFFREY N. MICHENER

Laboratory Technician, SOIL AND MATERIALS ENGINEERS, INC.

Jeffrey provides laboratory testing in the areas of soils, bituminous concrete, and concrete evaluation. He also provides support to the materials laboratories.

Related Project Experience:

- Laboratory Technician for Belleville High School. Provided HMA mix verification and aggregate testing.
- Laboratory Technician for Ann Arbor Bridges. Provided HMA mix verification and aggregate testing.
- Provided CMS services related to concrete strength testing for Carpenter Road in Pittsfield Township, Michigan.
- Laboratory Technician for rehabilitation and reconstruction of various streets in Livonia, Michigan. Provided laboratory quality assurance and quality control. Testing included extractions of bituminous materials, theoretical maximum density, Marshall density, and percent air voids.
- Laboratory Technician for construction of a new Wal-Mart in Canton, Michigan. Provided laboratory quality assurance and quality control. Testing included extractions of bituminous materials, theoretical maximum density, Marshall density, percent air voids, and density and compaction of asphalt cores.
- Laboratory Technician for rehabilitation and reconstruction of I-75 and Nine Mile in Hazel Park, Michigan. Provided laboratory quality assurance. Services included extraction testing.
- Laboratory Technician for rehabilitation of Runway 3R-21L and Taxiway W at Metro Detroit Airport in Romulus, Michigan. Provided CMS related to concrete strength testing.
- Laboratory Technician for Unilock in Brighton, Michigan and Rittman, Ohio. Provided laboratory quality assurance and quality control. Testing included compressive strength, density, absorption percentage, absorption per cubic feet, and freeze-thaw durability.
- Laboratory Technician for Fendt Builders Supply in Farmington, Michigan. Provided laboratory quality assurance and quality control. Testing included compressive strength, density, absorption percentage, absorption per cubic feet, and freeze-thaw durability.
- Laboratory Technician for Bosch Test Track in Flat Rock, Michigan. Provided laboratory quality assurance and quality control. Testing included several extractions of bituminous material and theoretical maximum density.
- Laboratory Technician for rehabilitation and reconstruction of Coolidge Highway in Oak Park, Michigan. Provided CMS related to concrete strength testing.

NICHOLAS E. ATKINS

Laboratory Technician, **SOIL AND MATERIALS ENGINEERS, INC.**

Years Experience:
SME since 2010; Co-op 2008-2010

Registrations/Certifications:
ACI - Certified Strength Testing Technician

Provides laboratory testing in the areas of concrete evaluation, masonry, soils, and re-steel. Provides field testing for concrete evaluations.

Related Project Experience:

- Field technician for eht I-275/I-94 overpass project in Romulus, Michigan. Testing included flexural strength of field cure beams.
- Field and laboratory technician for various street rehabilitation/reconstruction projects in Livonia and Plymouth, Michigan. Provided concrete testing including percent air, slump, unit weight, and laboratory concrete strength testing.
- Provided laboratory quality assurance and quality control testing for Oaks in Wixom and Unilock in Brighton, Michigan. Testing included compressive strength, density, percent absorption, dimensional review, and freeze-thaw durability on various retaining wall units, masonry units, and paver bricks.
- Provided laboratory quality assurance and quality control for the Ambassador Bridge project. Testing included compressive strength and density of light weight concrete used on the bridge.
- Laboratory technician for a Healthcare Client in the Midwest USA. Provided compressive strength testing on precast shortcrete panels
- Laboratory technician for ITC at various locations throughout Michigan. Provided geotechnical testing including moisture content, hand penetrometer, atterberg limits, hydrometers analysis, and visual classification.
- Laboratory technician for Aggregate Industries in Kalamazoo, Michigan. Provided laboratory testing for potential alkali-silica reactivity of aggregates (ASR).
- Laboratory technician for Davis Besse Nuclear Power Plant in Oak Harbor, Ohio. Provided laboratory testing for tensile strength of re-steel bars and splices.

JARED R. BELIAN

Driller/Drilling Supervisor, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1994 - Other firms from 1990

Registrations/Certifications:
40-Hour HAZWOPER Training
8-Hour EPA Hazardous Waste Annual Update
MUST Safety
OSHA Respiratory Protection Standard Training
OSHA Confined Space Standard Training
Respirator Fit Test - Full Face APR

Education:
B.S., Business Management, Ferris State University

Lead member of a crew who uses power equipment to drill holes in the earth, obtain representative soil and groundwater samples and provide records of subsurface conditions encountered at a site. This information then becomes the basis of the recommendations produced by engineers and/or geologists for the intended use and/or characterization of the site.

Related Project Experience - Geotechnical:

- Walmart – Grand Rapids, Michigan
- Meijer – South Haven, Michigan
- MDOT Traffic Signal/Strain Poles – Various Locations
- Wayne County Justice Center – Detroit, Michigan
- I-94 and I-96 High Tension Cable Barriers
- ITP Expansion – Grand Rapids, Michigan
- Various Bridges – Oakland County and Detroit
- Wind Turbines – Bad Axe, Michigan
- CW Post Athletic Field – Battle Creek, Michigan
- Wall Street Parking Structure – Ann Arbor, Michigan
- Various Hospital Additions – Statewide
- Proposed Retail Development at Great Lakes Crossing – Auburn Hills, Michigan
- Beaumont Hospital Proton Therapy Center and North Pavilion – Royal Oak, Mi.
- CEEP Geotechnical Evaluation Program – Essexville, Michigan
- St. Mary Mercy Momentum 2012 Phase III – Livonia, Michigan
- Allegiance Health Parking Structure – Jackson, Michigan
- Harbor Shores – Benton Harbor, Michigan
- ITC Towers – Various locations
- Greektown Casino – Detroit, Michigan
- Dow Chemical – Various projects
- The University of Michigan Stadium Improvements – Ann Arbor, Michigan
- Crittenton Hospital – Rochester Hills, Michigan
- Michigan State University – Various projects
- Beaumont Hospitals – Various locations
- Spectrum Health – Grand Rapids, Michigan
- Walmart – Whitehall, Michigan
- Northville Park Place – Northville, Michigan
- Detroit Zoo Penguin House
- Andover High School—Bloomfield Hills, Michigan
- Get-Go Store – Cleveland, Ohio
- Giant Eagle – Cleveland, Ohio
- Proposed Power Plant – Rogers City
- City Center II – East Lansing
- WWTP Improvements – West Branch
- Midland Cogeneration Venture New Boiler Building – Midland
- McCoig Recycling Flyash Storage Building – Marine City
- I-75 Freeway Signs Truss – Southeast Michigan
- Royal Oak Schools
- Hemlock Semi-Conductor - Hemlock
- Detroit Housing Projects
- Motor City Casino - Detroit
- Limestone Quarry - Roger City

Related Project Experience - Environmental:

- Former MGP Plant - Various locations
- Compressor Stations - Marion

Related Project Experience - Geotechnical Continued:

- Blue Cross Blue Shield Parking Garage - Detroit
- Glen Ann Place - Ann Arbor
- The Mall at Partridge Creek - Clinton Township
- Twelve Oaks Mall Expansion - Novi
- University of Michigan Several Projects - Ann Arbor
- Western Michigan University Chemistry Building - Kalamazoo
- K-12 Schools - Various locations
- Jackson State Prison - Laundry Facility
- Marathon/Ashland Site - Monroe
- Medical Building/Parking Structure - Grand Rapids
- Parking Structures - Detroit
- Various Bridges - Statewide
- Various Residences – Statewide
- Casino/Hotel - Petoskey
- Hospitals - Bay City, Novi, and Ann Arbor

Rudy L. Musulin

Driller, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1994

Registrations/Certifications:
40-Hour HAZWOPER Training
8-Hour EPA Hazardous Waste Annual Update
MUST Safety
OSHA Respiratory Protection Standard Training
OSHA Confined Space Standard Training
Respirator Fit Test - Full Face APR

Instrument Installation
Monitoring wells
Piezometers (pneumatic and vibrating wire)
Inclinometers (conventional and in-place)
Tell tails
Sediment Plats
Special tests
Infiltration tests
Pressure meters
Vane shear tests

In conjunction with a Driller's Assistant, Rudy uses power/soil probe equipment to obtain representative soil and groundwater samples in support of geotechnical and environmental evaluations. He also performs specialized in-situ testing of samples and provides records of subsurface conditions encountered at a site. These records become the basis of recommendations produced by engineers and/or geologists for the intended use and/or characterization of the site. Rudy also installs groundwater observation wells and specialty in-situ instrumentation, including vibrating wire and pneumatic piezometers, inclinometers, in-place inclinometers, grouted in-place tell tales, and borros anchors.

Related Project Experience - Geotechnical:

- MDOT Traffic Signal/Strain Poles – Various Locations
- I-94 and I-96 High Tension Cable Barriers
- Various Bridges – Oakland County and Detroit
- Wind Turbines – Bad Axe, Michigan
- Various Hospital Additions – Statewide
- Beaumont Hospital Proton Therapy Center and North Pavilion – Royal Oak, Mi.
- ITC Towers – Various locations
- Greektown and motor City Casinos – Detroit, Michigan
- Dow Chemical – Various projects
- The University of Michigan Stadium Improvements – Ann Arbor, Michigan
- Michigan State University – Various projects
- Beaumont Hospitals – Various locations
- Spectrum Health – Grand Rapids, Michigan
- Proposed Power Plant – Rogers City
- I-75 Freeway Signs Truss – Southeast Michigan
- Hemlock Semi-Conductor - Hemlock
- Limestone Quarry - Roger City
- The Mall at Partridge Creek - Clinton Township
- Twelve Oaks Mall Expansion - Novi
- University of Michigan Several Projects - Ann Arbor
- Western Michigan University Chemistry Building - Kalamazoo
- K-12 Schools - Various locations
- Jackson State Prison - Laundry Facility
- Parking Structures - Detroit
- Various Bridges - Statewide
- Casino/Hotel - Petoskey
- Hospitals - Bay City, Novi, and Ann Arbor
- Big Seven Lake Dam Levee Improvements – Holly
- O-N Minerals Calcite Operation – Rogers City
- O-N Operations Tailings Dam – Cedarville
- Carrier Creek Watershed Improvements – Delta/Windsor Townships
- Misteguay Creek Levee – Saginaw County
- Chappel Dam – Sage Township
- Compuware Headquarters – Detroit
- M-63 Bridge Reconstruction – Berrien County
- Independent Spent Fuel Storage Facility – Charlevoix
- Seaman Road/Norfolk Southern Grade Separation - Oregon, Ohio
- Forest Avenue Parking Structure – Ann Arbor
- Oakland Pontiac Airport Air Traffic Control Tower - Pontiac
- M-59 Vibration and Vertical Deformation Instrumentation - Utica
- Detroit Edison Gas Turbine Power Plant - St. Clair

Related Project Experience - Environmental:

- Former MGP Plant - Various locations
- Compressor Stations - Marion
- Energy Service Centers - Livonia and Fenton
- Cove Landfill - Bad Axe
- I.R.S. Data Center - Detroit
- S.A.N.G. Pump House and Water Storage Tanks - Mt. Clemens

Additional Geotechnical Projects:

- Chrysler, LLC Technology Center Expansion and Parking Structures - Auburn Hills
- Arnold Transit Dock - Mackinac Island
- 24 Mile Road over the Clinton River - Macomb Township
- Piezometer Installations, Clymers Basin - Rogers City
- DaimlerChrysler Mack Avenue Engine Plant Coolant Pits - Detroit
- CMS Rouge Power Plant - Dearborn
- Rockport Unit 1 – Rockport, Indiana
- I-94/I-69 Interchange – Port Huron
- Hemlock Semi Conductor – Hemlock
- Severstal Steel – Dearborn
- ITC – Various Sites
- GM Power Train - Toledo
- I-75 Freeway Signs, Southeast Michigan
- GM Technical Center - Thermal HVAC Center Addition - Warren
- Great Lakes Crossing Mall - Auburn Hills
- Covert Power Plant - Covert
- University of Michigan Power Plant Expansion and Cyclotron Building - Ann Arbor
- University of Michigan, various additions - Ann Arbor
- Michigan State University, various additions - Lansing
- Western and Central Michigan University, various additions - Kalamazoo and Mt. Pleasant
- Consumers Energy plants and substations - statewide
- DTE Plants - Statewide
- Gerber Food Additions - Fremont,
- General Mills Warehouse - Kalamazoo
- ITC towers and Substations - Statewide
- Wolverine Power towers - Statewide
- Cell towers - Statewide

JAMES D. ROCHFORD

Driller, SOIL AND MATERIALS ENGINEERS, INC.

Years Experience:
SME since 1993; other firms from 1984

Registrations/Certifications:
40-Hour HAZWOPER Course
8-Hour EPA Hazardous Waste Annual Update
Baroid "Mud" School
Certified Environmental Driller - South Carolina
Certified Journeyman Well Driller - Maryland and New Jersey
Certified Well Driller-National Ground Water Association
MUST Safety Program
OSHA Hazardous Waste Site Supervisor Course

Rocky is the lead member of a crew who uses power equipment to drill holes in the earth, obtain representative soil and groundwater samples and provide records of subsurface conditions encountered at a site. This information then becomes the basis of the recommendations produced by engineers and/or geologists for the intended use and/or characterization of the site.

Related Project Experience:

- Rockport Unit 1 – Rockport, Indiana
- Walmart – Waynesburg, Pennsylvania
- I-94/I-69 Interchange – Port Huron
- Hemlock Semi Conductor – Hemlock
- Severstal Steel – Dearborn
- ITC – Various Sites
- GM Power Train - Toledo
- Detroit Medical Center –Karmanos Center - Detroit
- I-75 Freeway Signs, Southeast Michigan
- Pipeline - Athens
- Walmart - New Lexington, Ohio
- K-12 Schools: Plainwell, Saline, Tecumseh
- UAW-GM Center for Human Resources - Detroit
- GM Technical Center - Thermal HVAC Center Addition - Warren
- Lower River Island Development - Sault Ste. Marie
- Great Lakes Crossing Mall - Auburn Hills
- Crossroads of America Mall - Toledo
- Taft Road Extension and Railroad Bridge - Novi
- Covert Power Plant - Covert
- Ford Co-Generation Facility - Dearborn
- GM Project Platinum - Lansing
- Independent Spent Fuel Storage, Big Rock Nuclear Power Plant - Charlevoix
- University of Michigan Power Plant Expansion and Cyclotron Building - Ann Arbor
- Detroit Opera House - Detroit

Related Project Experience:
Environmental

- Pfizer - Kalamazoo
- Citizens Disposal Landfill, Phase III - Grand Blanc
- Waste Water Treatment Lagoons - Richland Township
- Middle Grounds Development - Toledo
- Compressor Station Remediation - Marion
- Confidential Utility Service Center - Adrian
- Confidential Utility Gas Well Field - Marine City
- Confidential Utility Compressor Station - Northville
- Thorn Apple Valley Truck Depot - Detroit
- Confidential Utility Service Center - Flint, Jackson
- Newburgh Road Grade Separation - Westland
- St. Joe Waterline on Barge
- Federal Reserve Building - Detroit
- Capital City Airport - Lansing
- South Park Mall - Strongsville, Ohio
- Home Depot - West Branch
- Toyota Facility - Battle Creek
- GM Proving Grounds Improvements - Milford
- Black River Navigation Canal Improvements - Port Huron
- Central Michigan University Dormitories - Mt. Pleasant
- Detroit Medical Center Parking Deck - Detroit

APPENDIX I:

REPRESENTATIVE PROJECTS

Proposed Water Main Construction

SME worked with OHM Advisors and the City of Livonia on the design and construction of a new water main located within two residential subdivisions along sixteen residential streets.

Performed fourteen borings using a conventional truck mounted drill rig and twenty-two borings using a truck mounted soil probe rig, totaling 350 linear feet of drilling/probing. Asphalt and concrete pavements were cored at twenty-two locations to accurately determine the number of pavement layers and the pavement and aggregate base thickness. SME performed U.S. Army Corps of Engineers Dynamic Cone Penetrometer (DCP) test to determine California Bearing Ratio of subgrade below the pavement section. Additional laboratory tests performed included visual engineering classification of soils, moisture content determination, and shear strength properties of soils.

SME provided a geotechnical report that included recommendations for open cut excavations, temporary groundwater control, pipe support and bedding requirements, corrosion analysis, and construction considerations.

SME staff involved:

- Kevin Wilk
- Larry Jedele
- James Rochford
- Derek Blackburn
- Susan Brown
- Nick Atkins

Location: Livonia, Michigan

Client/Owner: City of Livonia and OHM Advisors

Reference:
Rich Hobgood, PE, OHM Advisors
(734) 522-6711
rich.hobgood@ohm-advisors.com

Project Duration: 2013

SME Services:

- Geotechnical Engineering Services
- Laboratory Testing Services
- Drilling Services

City of Livonia Pavement Program

SME has worked with the City of Livonia since 2001 to provide pavement evaluations for various streets within the city. We perform pavement cores and subgrade probes to assess pavement and subsurface conditions and provide pavement rehabilitation recommendations. We conduct pavement evaluations and provide pavement recommendations for various streets within the City on an on-going basis. We also provide quality control testing during construction. SME has worked with Anderson, Eckstein and Westrick (AEW) and Orchard, Hiltz and McCliment (OHM) on these projects.

Representative road and street projects include:

- Angling
- Ann Arbor Trail
- Bloomfield
- Bobrich
- Bainbridge
- Banbury
- Cambridge
- Camden
- Ellen
- Fairfield
- Florida
- Garden
- Industrial Drive
- Iowa
- Lathers
- Laurel Park Drive
- Levan
- Lyndon
- Gary Lane
- Hartel
- Hees
- Henry
- Hillcrest
- Hubbard
- Maine
- Melrose
- Nevada
- Newburgh
- Penn
- Richland
- Schoolcraft
- Stark
- Victor Parkway
- Wayne
- West Chicago

SME staff involved:

- Trevor Shaheen
- Gary Madej
- Kelvin Smith
- Doug Groves
- Chris Naida
- Jeremy Friedley
- James Rochford
- Chris Naida
- Susan Brown
- Scott Zielinski
- Jeff Michener
- Kelvin Smith
- Wallace Harris
- Eric Eckler
- Kevin Wilk
- Jason Schwartzenberger
- Brad Masserant
- Casey Coffin
- Phillip Barton
- Nick Atkins
- Derek Blackburn
- Larry Jedele

References:

Todd Zilincik, PE, City of Livonia
33000 Civic Center Dr., Livonia, MI 48154
(734) 466-2561
Tzilincik®ci.iivonia.mi.us

Scott Lockwood, AEW
51301 Schoenherr, Shelby, MI 48315
(734) 726-1234
slockwood@aewinc.com

Mark Loch, OHM
34000 Plymouth Rd, Livonia, MI 48150
(734) 522-6711
mark.loch@ohm-advisors.com

Project Duration: 2001-present

SME Services:

- Pavement /Geotechnical Engineering Services
- Construction Materials Services

Proposed Water Main Construction

SME worked with OHM Advisors and the Ypsilanti Community Utilities Authority (YCUA) on the design and construction of a new water main located within two residential subdivisions along fourteen residential streets.

Performed thirty-five borings using a conventional truck mounted drill rig, totaling 350 linear feet of drilling. Laboratory tests performed included visual engineering classification of soils, moisture content determination, and shear strength properties of soils.

SME provided a geotechnical report that included recommendations for open cut excavations, temporary groundwater control, pipe support and bedding requirements, corrosion analysis, and construction considerations.

SME staff involved:

- Kevin Wilk
- Larry Jedele
- James Rochford
- Derek Blackburn
- Susan Brown
- Nick Atkins

Location: Ypsilanti, Michigan

Client/Owner: Ypsilanti Community Utilities Authority (YCUA) and OHM Advisors

Reference:
Patrick Droze, PE, OHM Advisors
(734) 522-6711
pat.droze@ohm-advisors.com

Project Duration: 2013

SME Services:

- Geotechnical Engineering Services
- Laboratory Testing Services
- Drilling Services

City of Plymouth Pavement Program

SME worked with Wade Trim on the 2009 and 2010 Infrastructure Improvement Programs in Plymouth, Michigan.

SME conducted pavement evaluations for various streets within the city, including performing pavement cores, subgrade probes, and non-destructive testing utilizing our Falling Weight Deflectometer (FWD) to assess pavement and subsurface conditions. Subsequently, we provided recommendations for pavement rehabilitation and utility installation, and quality control material testing during construction.

SME also teamed with Wade Trim and the Plymouth DDA to provide quality control material testing to rehabilitate the pavements of the downtown corridor of Plymouth. Improvements included mill and resurfacing of asphalt concrete roadways, construction of a decorative concrete intersection, installation of traffic mast arm signals, and sidewalk improvements.

Representative projects include:

- Main Street
- Ann Arbor Trail
- Burroughs Street
- Hartsough Street
- Holbrook Street
- Irvin Street
- McKinley Street
- Adams Street
- Evergreen Street
- Park Place
- Maple Street

SME staff involved:

- Nicholas Atkins
- Eric Michener
- Jason Nance
- Jason Schwartzenberger
- Phillip Barton
- Scott Zielinski
- Jeremy Friedley
- Trevor Shaheen
- Gary Madej
- Casey Coffin
- Kelvin Smith
- Susan Brown
- Wallace Harris
- Mike Kapetansky
- Derek Blackburn
- Doug Groves
- Rocky
- Brad Masserant
- Rudy Musulin
- Eric Eckler

Reconstruction of Burroughs Street and Irvin Street in Plymouth, Michigan.

Location: Plymouth, Michigan

Client/Owner: City of Plymouth; Wade Trim

Reference:
Shawn Keough, Wade Trim
25251 Northline Road
Taylor, Michigan 48180
(734) 947-2622
Skeough@wadetrim.com

Project Duration: 2009-2013

SME Services:

- Pavement/Geotechnical Engineering Services
- Construction Materials Services

Washtenaw County Strain Pole Foundations

SME performed the geotechnical engineering services for MDOT for 24 new strain pole foundations proposed to be located at six intersections in the City of Ypsilanti and Superior Township, Washtenaw County. The new traffic signals will be located at the following intersections: M-17 (Cross Street) at Hamilton Street, M-17 (Cross Street) at College Place, M-17 (Cross Street) at Ballard Street, US-12BR (Huron Street) at Harriet Street and Spring Street, US-12BR (Hamilton Street-Southbound) at Harriet Street, and M-153 (Ford Road) at Plymouth Road (Old M-14).

SME performed one boring at each of the 24 proposed strain pole locations. Each boring extended to a depth of 25 feet. Split-spoon soil samples were collected in each boring at about 2.5 foot intervals. Where overhead or underground utility conflicts arose, the borings were offset. The borings were performed within ten feet of the proposed strain pole foundation locations shown on the referenced plans. Otherwise, SME performed a hand auger boring at the proposed location, and performed the boring as close to the location as accessible. Hand operated borings extended to a minimum depth of seven feet below the existing ground surface.

At locations where the proposed strain pole borings needed to be relocated into the paved shoulder or roadway due to utilities, SME performed the traffic control services using signs, lighted arrowboard(s) and traffic regulators as necessary.

The recovered soil samples were delivered to the SME laboratory for further observation and testing by an SME geotechnical engineer.

SME provided geotechnical engineering recommendations and construction considerations for each of the 24 drilled shaft foundations. SME also provided MDOT with Soil Boring Data plan sheets that included information on materials encountered, penetration resistances, pertinent field observations made during the drilling operations, and the results of the laboratory tests.

SME staff involved:

- Kevin Wilk
- Jared Belian
- Kevin Barton
- Rochford
- Derek Blackburn
- Susan Brown
- Nick Atkins

Location: Washtenaw County, Michigan

Client/Owner: Michigan Department of Transportation (MDOT)

Reference:
Chris D. Johnecheck, PE
MDOT—Construction Field Services
(517) 322-6179
johnecheck@michigan.gov

Project Duration: 2013

SME Services:

- Geotechnical Engineering Services
- Laboratory Testing Services
- Drilling Services

Proposed Non-Motorized Pathway

SME worked with the Huron-Clinton Metropolitan Authority (HCMA) on the design and construction of a three mile long non-motorized asphalt concrete pathway and a 40 foot clear span pedestrian bridge along the edge of the Huron River in a heavily wooded area in Webster Township, Michigan.

SME drilled 12 borings 30 feet deep, totaling 360 linear feet, using a drill rig mounted on an all-terrain vehicle. Laboratory tests performed included visual engineering classification, moisture content determination, and shear strength properties of soils. Provided a geotechnical report that included recommendations for subgrade preparation and earthwork, bridge foundations – shallow foundations, boardwalk foundations – deep foundations including drilled shafts, and construction considerations.

SME staff involved:

- Kevin Wilk
- Larry Jedele
- Rudy Musulin
- Jason Nance
- Susan Brown
- Nick Atkins

Location: Webster Township, Michigan

Client/Owner: Huron Clinton Metropolitan Authority (HCMA)

Reference:
Mike Brahm-Henkel, HCMA
(810) 227-2757
mike.brahm.henkel@metroparks.com

Project Duration: 2011

SME Services:

- Geotechnical Engineering Services
- Laboratory Testing Services
- Drilling Services