HARRY I. PAPADOPOULOS, PhD

SAMPLING OF PROJECTS: Cont.

Municipal Projects Cont.

City of Detroit; Soil investigations and QC during construction for several new playgrounds
City of Dearborn; Evaluations of concrete of an existing parking structure adjacent to Michigan Avenue
City of Detroit; Evaluation of concrete and QC during construction of several underground parking structures

Healthcare Facilities

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

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

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

STEVEN C. PELTO, MS, PE

TITLE:

Senior Project Engineer
Geotechnical Services

EDUCATION:

University of Detroit-Mercy; MS in Geotechnical/Environmental Engineering, 1998
Lawrence Technological University; BS in Civil Engineering, 1995
Mid-State Technical College; AAS in Civil Engineering Technology, 1984

PROFESSIONAL DEVELOPMENT:

8-Hour Annual HAZWOPER Refresher Training, 2013
DOT Supervisor Awareness Training, 2011
Excavation/Trenching Safety Training, 2008
10-Hour OSHA Construction Safety Training, 2006
40-Hour HAZWOPER Training, 1991
Troxler Electronics, 1985
TWIC Cardholder

LICENSES/REGISTRATIONS:

Licensed Professional Engineer, State of Michigan, #6201050152
Licensed Professional Engineer, State of Nevada, #023602

EXPERIENCE:

Experienced in the evaluation of distress studies for pavements, building foundations and floor slabs, foundation underpinning, bearing capacity analyses, deep foundation analyses, retaining wall analyses and design, settlement analyses and construction dewatering feasibility studies, wetlands and gravel mine reclamations, groundwater communication studies for wetlands and 100 year basement floodplain studies Phase I and Phase II ESA's and Hydrogeological Studies. Extensive geotechnical and materials laboratory experience.

Experienced in the Supervision and Monitoring of Aquifer Pumping Tests for Wellhead Protection Studies, Pile Load Tests, Slope Indicators, Test Pit Investigations, boring layout and basic surveying tasks.

Extensive experience in the supervision, placement and monitoring of engineered fills over difficult soils, shallow and deep foundation inspections, mechanically stabilized earth (MSE) retaining walls.

PROJECT EXPERIENCE:

<u>Light Industrial Projects</u>

- Chrysler Stamping Plant – Sterling Heights, Michigan
- Dow Chemical North America – Midland, Michigan
- Saltzburg Landfill (Dow Chemical)- Midland, Michigan

STEVEN C. PELTO, MS, PE

PROJECT EXPERIENCE: Cont.

Industrial Projects

- US Steel Corporation – Gary, Indiana
- BP Products North America – Whiting, Indiana
- Ashland Chemical Company – Willows Springs, Illinois
- MAC Steel – Monroe, Michigan
- Linde- Proposed Hydrogen Plant (Lemont, IL)
- CITGO Refinery- Lemont, IL
- Midwest Generating Station (Units 3 and 4)- Romeoville, IL
- Indiana Harbor East- Proposed Barge Terminal
- ArcelorMittal – No. 504 Boiler Project at Indiana Harbor
- ArcelorMittal Burns Harbor – New Solid Waste Transfer Station
- Port of Indiana
- Port of Chicago

Highways, Bridges and Tunnels

- Davison Freeway Reconstruction – Detroit, Michigan
- University Drive Construction- Auburn Hills, Michigan
- Interstate 696 Construction
- Indiana Toll Road Reconstruction
- North Calumet Road Improvements- Valparaiso, IN
- Lincolnway Phase II- South Bend, IN
- Pere Marquette Railroad Bridge- LaPorte, IN
- Tri-State Tollway over Balmoral Ave.- Rosemont, IL
- Bridge 71 Replacement Project- Lakeville, IN
- East Jackson Street Bridge over Metra Yard- Chicago, IL
- I-294 Widening/Reconstruction- Rosemont, IL
- I-65 Improvements- Gary, IN
- Main Street Underpass- Mishawaka, IN
- Dowling Street Improvements- Kendallville, IN
- County Roads 200E and 300E Improvements- LaPorte, IN
- Pine Road Extension Project- Marshall County, IN
- South Calumet Road Improvements- Chesterton, IN
- Marshall County Bridge 89 Replacement

Public Works Projects

- Detroit Wastewater Treatment Plant - Michigan
- Algonac Wastewater Treatment Plant – Michigan
- Studebaker Storm Sewer Feasibility Study – South Bend, Indiana
- Lemont WRP Project- Lemont, IL
- IDNR Campground and Comfort Station- Salomonie and Missisenewa Reservoirs
- Fir Road Booster Station- Mishawaka, IN

STEVEN C. PELTO, MS, PE

PROJECT EXPERIENCE: Cont.

US Government

- Selfridge Air National Guard Base – Mt. Clemens, Michigan
- Camp Atterbury – Edinburg, Indiana
- Joint Forces Reserve Center- South Bend, IN
- Cannelton Hydroelectric Cofferdam Project- Hawesville, Kentucky

Private Sector

- Island Lakes of Novi Subdivision – Novi, Michigan
- Stonewater Subdivision – Northville, Michigan
- Preserves of Genoa – Genoa Township, Michigan
- Stonewater Subdivision – Oxford, Michigan
- Soccer City of Shelby Township – Michigan
- Fountain View Condominiums – South Lyon, Michigan
- Arrowhead Golf Course Reclamation – Auburn Hills, Michigan
- Co-Alliance – Malden, Indiana
- Carmeuse Lime- Hammond, IN

K-12 Schools

- Proposed Artificial Turf and Drainage System; Chesterton High School Athletic Field - Chesterton, IN
- Ground Water Investigation; Walter H. Dyett Academic Center - Chicago, IL
- Proposed Tennis Courts; Academy of the Sacred Heart - West Bloomfield, MI

SCOTT M. CHANDLER, CIH, LEED AP

TITLE:

Manager
Industrial Hygiene Services

EDUCATION:

BS, Biology
University of Detroit, 1976

Mathematics Curriculum
Oakland University & Macomb Community College, 1983-1985

LICENSES/REGISTRATION:

Certified Industrial Hygienist; Comprehensive Practice;
American Board of Industrial Hygiene, #4849 CP, 1989-2017
Licensed Asbestos Building Inspector/Management Planner, #A14134 since 1992
LEED Accredited Professional;
Green Building Certification Institute, 2009-2015
Water Restoration Certification; IICRC. 2007 - 2015
Advanced Structural Drying Certification; IICRC, 2007 - 2015

PROFESSIONAL DEVELOPMENT:

Lead Supervisor Initial Training, 2014
Mercury Spill Response Workshop, 2014
Infection Control for Healthcare Construction; Linders Health Institute, 2012
Recognition, Evaluation and Control of Indoor Mold. AIHA, 2009
Moisture Control, Mold and the Science within the Building; AIHA, 2007
8-Hour Hazardous Waste Training Refresher, 1996 – 2013
Confined Space Entry; MIHS, 2005
Heat and Cold Stress; MIHS, 2005
Mold, Allergens, Sampling and Report Interpretation; EM Labs, 2005-2013
Current Development in Occupational Noise Exposure; MIHS, 2004
Health Issues in Construction; MIHS, 2004
Principles of Gas Detection; Argus Group, 2004
Advancements in Air Sampling; Argus Group, 2003
Lead Paint Analyzer Training; Niton, 2003
IAQ Update; MIHS, 2003
Isocyanates; MIHA, 2002
Exposure Assessment Strategies and Statistics; AIHA, 2002
Mold Spores and Remediation Workshop; ACGIH, 2002
New Concepts in Air Sampling; SKC, Inc., 2001
Bioaerosols; MIHS, 1999 and 2000
Hearing Conservation; MIHS, 1999
Fundamentals of IAQ and HVAC; AIHA, 1997
40-Hour Hazardous Waste Training Certification (OSHA), 1995
Industrial Noise; NIOSH, 1994
Statistical Analysis for Industrial Hygiene Decision Making; NIOSH, 1993

SCOTT M. CHANDLER, CIH, LEED AP

Removing Lead Paint from Industrial Structures; SSPC, 1992

PROFESSIONAL DEVELOPMENT Cont.

Lead Abatement Training for Supervisors and Contractors; University of Cincinnati, 1992
Industrial Ventilation; MDPH, 1990
Industrial Hygiene Review Course; University of Michigan, 1989
Analysis of Organic Pollutants Workshop; University of Michigan, 1986
Gas Chromatography/Mass Spectrometry Workshop; Extrel Corporation, 1985

EXPERIENCE:

Mr. Chandler has 30 years of experience conducting evaluations of air quality complaints related to construction and renovation activities, as well as worker exposure to a wide variety of workplace contaminants; including toxic metals, organic solvents, organic and inorganic dusts and combustion byproducts. He has specialized experience in evaluating indoor air quality complaints in schools and office buildings. These include sampling and investigative procedures geared at identifying primary pollutant sources. Experienced in communicating risks associated with environmental contaminants to contractors, construction managers, building owners and employee representatives, school districts, communities and the media.

He has developed work specifications and conducted on-site monitoring and clearance sampling for the removal of building materials containing mold, asbestos, and lead based paint.

Provides professional consulting services to assist clients in compliance with numerous federal and state environmental regulations, including: hazard communication, respiratory protection, general industry and construction industry occupational health standards, air emissions, brownfield redevelopment, and asbestos and hazardous waste.

In addition, Mr. Chandler has 10 years' experience as director of an environmental laboratory. Responsibilities included financial oversight, personnel acquisition, method development and laboratory quality control with concurrent responsibility as Director of Asbestos Analytical Laboratory. Attained initial AIHA accreditation status and re-accreditation of that laboratory.

SAMPLING OF PROJECTS:

Pre-Demolition/Renovation Surveys - Project Oversight

DTMB; Walter P. Reuther Hospital – Westland, MI
Theodore Levin Federal Courthouse – Detroit, MI
Coleman A. Young Building – Detroit, MI
Detroit Public Schools; multiple projects in 2009 – Detroit, MI
Detroit Public Schools (various locations prior to 2009) – Detroit, MI
Former Packard Plant - Detroit, MI
City of Pontiac, blanket contract
City of Detroit; DPW, various residential properties - Detroit, MI
City of Troy; multiple municipal facilities- Troy, MI
Michigan Department of Transportation, statewide contract
Former MGM Grand Casino (new Detroit Police Headquarters)- Detroit, MI
Renaissance Center - Detroit, MI
General Motors Technical Center - Warren, MI
City of Eastpointe, blanket contract

SCOTT M. CHANDLER, CIH, LEED AP

SAMPLING OF PROJECTS: Cont.

Water Infiltration & Mold Assessments

Michigan education Association – East Lansing, MI
General Motors Technical Center - Warren, MI
Grand Ledge Public Schools
Grosse Pointe Public Schools
Berkley Public Schools
Marysville Public Schools
Blue Cross Blue Shield of Michigan – Various locations in SE MI
Allstate Ins. Company; multiple residential locations throughout SE Michigan
Meridian Ins. Company; multiple residential locations throughout SE Michigan
Citizens Insurance Company; multiple residential locations throughout SE Michigan
Chubb Group Insurance Company; multiple residential locations throughout SE Michigan
AAA Insurance Company; multiple residential locations throughout SE Michigan
Detroit Institute of Art; Mold assessment of basement
EJH Construction; Mold related services at construction project in Ann Arbor, MI

Lead Risk Assessment Oversight

Aramark (for Education Achievement Authority)-Detroit, MI
Grosse Pointe Public Schools
Grand Ledge Public Schools
Charter School Partners
Multiple Public Housing Projects sites for Detroit Housing Commission- Detroit, MI

Lead Paint Inspections Oversight

Levin Federal Courthouse – Detroit, MI
Desmond Village Senior Housing – Port Huron, MI
Peru Village Senior Housing – Port Huron, MI
Pebble Creek Condominiums, Bloomfield Hills, MI

Drinking Water Sampling & Analysis

College for Creative Studies – Detroit, MI
Blue Cross Blue Shield of Michigan – Detroit, MI
Oakland County Parks & Recreation– Rochester, MI
Kelly Services – Troy, MI
Henry Ford Health Systems – Detroit, MI

Indoor Air Quality Investigations

Fraser High School – Fraser, MI
Elementary School (Downriver)
Numerous confidential clients in southeast Michigan- Legionnaire's Disease assessments

AHERA (Asbestos Management in Schools) Projects

Detroit Public Schools
Aramark (for Education Achievement Authority); Detroit, MI
Troy Public Schools

SCOTT M. CHANDLER, CIH, LEED AP

SAMPLING OF PROJECTS: Cont.

AHERA (Asbestos Management in Schools) Projects Cont.

Grosse Pointe Public Schools
Marysville Public Schools
Grand Ledge Public Schools
Port Huron Area School District

PRESENTATIONS:

IAQ Training Presentations

AJ Etkin Construction Company
Hobbs & Black Architects
Nelson-Trane Contractors
Associated General Contractors
Michigan School Business Officials

Educational Presentations:

The Farbman Group
Kelley, Casey & Clarke, PC (Attorneys)
IAQ in Schools; MSBO, 2001-2005
Mold in Construction; Associated Builders & Constructors, 2003
IAQ during Construction/Renovation – Various General Contractors, Industry Groups
Panel Member for AGC Roundtable on Mold in Construction, 2003
Mold in Construction: AGC, 2001

TECHNICAL SOCIETY AFFILIATIONS:

American Industrial Hygiene Association (AIHA), 1990 - Present
Michigan Industrial Hygiene Society (MIHS), 1990 – Present
Board of Directors, 2018
Associated General Contractors of America - Detroit Chapter
Member, Safety Committee, 1997 - 2003
American Society of Heating, Refrigeration & Air Conditioning Engineers, 1994- 2002, 2006-2009
Engineering Society of Detroit (ESD)

DONALD C. KAYLOR, PG (IN, TN), EP

TITLE:

Manager, Environmental Assessment

EDUCATION:

Graduate Diploma in Waste Management/Groundwater Contamination, McGill University, 1991
Master of Science (Geology), McGill University, 1988
Bachelor of Science (Geology), McGill University, 1982

LICENSES/REGISTRATIONS:

Professional Geologist (PG), #1584, Indiana
Professional Geologist (PG), #TN2438, Tennessee
Certified UST Professional (CP), #663, Michigan
Certified Class A UST System Operator, Michigan
Certified Class B UST System Operator, Michigan
Certified Stormwater Operator (CSO) for Construction Sites, #03033, Michigan
Certified Stormwater Operator (CSO) for Industrial Sites, #05834, Michigan
Asbestos Inspector, #A22920, Michigan

PROFESSIONAL DEVELOPMENT:

OSHA 40-Hour, 8-Hour Supervisor, and Current 8-Hour Annual Refresher Safety Training
Underground & Aboveground Storage Tank Inspector, University of Wisconsin
Environmental Assessment for Commercial Real Estate, ASTM
Asbestos Building Inspector Training
Vapor Intrusion Pathway Training, ITRC
IAQ/Mold Inspector
Certified Project Manager
Cleanup Criteria Training, Michigan DEQ
Risk-Based Corrective Action Applied at Petroleum Release Site, ASTM
First Aid and CPR, American Red Cross

EXPERIENCE:

Mr. Kaylor is a Professional Geologist (IN, TN), a Certified Underground Storage Tank Professional (MI), and is qualified as an Environmental Professional (EP) per 40 CFR 312, with more than 25 years of progressively-responsible environmental consulting experience in Michigan. Previously, Mr. Kaylor was an oil and gas exploration geologist. He specializes in conducting or overseeing all aspects of environmental due diligence, hydrogeological investigation, contamination assessment, Risk-Based Corrective Action, and UST/leaking UST projects. As Manager of Environmental Assessment, his responsibilities include department and project management, report writing, client consultation, staff training and supervision, senior technical review, department P/L, and business development.

SAMPLING OF PROJECTS:

<u>Environmental Due Diligence/Investigation Project Experience:</u>

- DTMB; Grand Rapids Consolidation - Walker View Site, Walker, MI: TEC conducted a preliminary assessment of contaminants in soil at the Project Site. Nine soil borings were advanced using a hand auger. Soil sampling locations were selected to provide an overview of near-surface soil quality. Two soil samples (one per shallow soil type) were retained from boring and were

DONALD C. KAYLOR, PG (IN, TN), EP

SAMPLING OF PROJECTS: Cont.

Environmental Due Diligence/Investigation Project Experience: Cont.

analyzed for arsenic and lead, based on the former presence of an apple orchard on-site and previous sampling in the area that had indicated elevated concentrations of these metals. Previous sampling at the Site had indicated that the Site was a "facility" (a contaminated property) based on a single exceedance of arsenic in soil.

TEC conducted a statistical evaluation of the old and new arsenic data. By calculating a 95% Upper Confidence Limit (UCL) on the Mean for the arsenic concentrations, TEC demonstrated that the "facility" status of the Site could be reliably refuted. TEC provided the DTMB with a discussion of the options for, and implications of, treating the Site as a facility or not as a "facility," including providing budgetary estimates for various options if treated as a "facility". TEC provided its recommendations for the best options for the DTMB.

- DTMB; Walter P. Reuther Psychiatric Hospital – Westland, MI. TEC was directed to investigate the source of the diesel fuel contamination and identified an exterior foundation drainage bed as the migration pathway from an above ground storage tank filling area to the sump pit. An investigation was then undertaken to estimate the quantity of impacted soils and determine best feasible means of removal of contaminated soil as well as free product. TEC coordinated soil and diesel fuel removal with the hospital's environmental contractor. Verification samples were collected afterward to demonstrate that impacted soils had been removed.
- State of Michigan, Department of Transportation; Proposed Transportation Service Center, Detroit, MI: Conducted Phase I ESA, geophysical investigation (GPR/EM), Phase II/III drilling investigations, and Section 7a (Due Care) Compliance Analysis on former automobile manufacturing facility.
- State of Michigan, Department of Transportation; Proposed Transportation Service Center, Pontiac, MI: Conducted Phase I ESA, Phase II/III drilling investigations, Baseline Environmental Assessment, and Section 7a (Due Care) Compliance Analysis on former State Psychiatric Hospital facility.
- State of Michigan, Department of Transportation; Multiple Transportation Corridors, MI: Conducted Preliminary Site Investigations (PSIs) including review of PACs reports, environmental drilling, field-screening, laboratory analysis, report preparation, and Client consultation.
- State of Michigan, Department of Transportation; Proposed Transportation Service Center, Detroit, MI: Conducted Phase I ESA, geophysical investigation (GPR/EM), Phase II/III drilling investigations, and Section 7a (Due Care) Compliance Analysis on former automobile manufacturing facility.
- MDOT & Windsor-Detroit Bridge Authority; Gordie Howie International Bridge, Detroit, MI: Conducted multiple Phase I ESAs, Preliminary Site Assessments, Baseline Environmental Assessments (BEAs), & Due Care Plans (DCPs) to support parcel acquisition (MDOT) and parcel leasing (WDBA).
- Greektown Casino LLC; Multiple Property Refinancing, Detroit, MI: Conducted multi-property Phase I ESAs to support refinancing. Subsequently conducted update of Phase I ESAs.
- Greektown Casino LLC; Former Wayne County Sheriff's Administration Building (Greektown Valet Parking Deck), Detroit, MI: Conducted Phase I ESA, Phase II ESA, supplemental Chromium sampling, Baseline Environmental Assessment (BEA), and Due Care Plan (DCP) to support property acquisition and re-development.

DONALD C. KAYLOR, PG (IN, TN), EP

SAMPLING OF PROJECTS: Cont.

- Standard Federal Bank; RJ Marshall sites, Various Locations: Managed multi-state Phase I ESA portfolio (California, Arkansas, and Michigan). Additional detailed regulatory review services provided on critical sites.
- Private Owner; Proposed Retail Gas Station, Ecorse, MI: Conducted Phase I ESA, Phase II ESA, and Type S Baseline Environmental Assessment (affirmed by DEQ) on former gas station.
- Detroit Brownfield Redevelopment Authority; Former Conrail Property, Detroit, MI: Conducted a Phase I ESA, Phase II ESA, Baseline Environmental Assessment (BEA), Due Care consulting, and extensive client consultation as part of City plan to market property coincidental with the extensive Uniroyal cleanup on adjacent land.

UST / Petroleum Project Experience:

- State of Michigan, Department of Environmental Quality; Mercury Manufacturing Site, River Rouge, MI: Project manager for Leaking Underground Storage Tank Acute Risk Abatement Project. Extensive investigation and remediation of free product.
- State of Michigan, Department of Management and Budget; Flint State Office Building, Flint, MI: Certified UST Professional and project manager for UST removal and Leaking UST investigation, risk assessment (RBCA), and closure project. Conducted on an expedited basis to prevent release from adversely impacting existing construction project schedule.
- Amoco; Multiple Sites, MI: Project manager/certified UST professional for multi-site long-term quarterly/annual groundwater monitoring and free product recovery programs.
- Almont Schools; Former High School, Almont, MI: Certified UST Professional and senior reviewer for long term groundwater monitoring program for leaking UST plume. Assisted with Adaptive Reuse Study, Leaking UST reporting, risk assessment, well maintenance and repair.
- Charter Township of West Bloomfield; Fire Station No. 2, West Bloomfield, MI: Certified UST Professional and project manager for Underground Storage Tank removal, Leaking Underground Storage Tank investigation, and unrestricted residential RBCA closure.
- State of Michigan, Department of Environmental Quality; Berrien County, MI: Project manager/certified UST professional for investigations/acute risk abatement of drinking water impact from abandoned former gasoline station.
- Troy School District Transportation Department; Troy, MI: Certified UST Professional for Leaking UST investigation, contaminated groundwater investigation, risk assessment (RBCA), reporting (Initial Assessment and Closure reports).
- Walther P Reuther Psychiatric Hospital; Westland, MI: Senior Geologist/Reviewer for investigation of impacted soil causing vapor intrusion into hospital. Soil sampling, analyses, risk assessment, reporting, and Client Consultation.
- Mobil Oil Corporation; Multiple Sites, MI: Project manager/certified UST professional for multi-site investigations, RBCA risk assessments, long-term quarterly/annual groundwater monitoring program, and site closures/delisting.
- Lincoln Plaza, Warren, MI: Certified Professional for UST registration, removal, site assessment/release discovery, investigation, and closure reporting for orphan UST discovered during construction activities.
- Detroit Catholic Pastoral Alliance Residential Re-Development, Detroit, MI: Managed investigation for orphan USTs and known petroleum releases to assist Client with multi-family housing redevelopment. Conducting GPR and drilling and sampling investigations to locate additional

DONALD C. KAYLOR, PG (IN, TN), CP (MI), EP

SAMPLING OF PROJECTS: Cont.

UST and assess site especially for vapor intrusion concerns. Provided documentation to support MSHDA application.

- Coca-Cola Enterprises North; Multiple Sites, MI: Project geologist for investigation and remediation of leaking UST plumes via soil excavation and thermal destruction; report preparation. Multi-site long-term quarterly/annual groundwater monitoring program.
- Lincoln Plaza, Warren, MI: Certified Professional for UST registration, removal, site assessment/release discovery, investigation, and closure reporting for orphan UST discovered during construction activities.
- National Steel; Zug Island, MI: Project manager/certified UST professional for multi-site investigations, RBCA risk assessments, and long term monitoring. Recovered several thousand gallons of free product.
- Birmingham Cleaners; Birmingham, MI: Project manager for removal of two diesel USTs and closures in place of two solvent USTs, including regulatory reporting and on-site supervision of confined space entry and cleaning of USTs.

Brownfields Project Experience:

- Stuart Frankel Development Company, City of Highland Park, Wayne County; Former Chrysler Manufacturing Site, Highland Park, MI: Extensive site investigation and remediation. Preparation of Brownfield Plan and Act 381 Work Plan for review and approval by city, county, and state to obtain tax increment financing (TIF). Consulted/coordinated with local/state technical personnel and elected officials.
- Private Developer & the City of Warren; Former Equipment Manufacturing Inc. Site, Warren, MI: Assessed site conditions and prepared Brownfields Investigation Work Plan for review and approval by Michigan DEQ under Site Reclamation. Coordinated with city personnel, site developer, and DEQ to facilitate redevelopment of a contaminated former heavy industrial property and ensure compliance with reimbursement/brownfield credits requirements.
- Former Contrail Property in Detroit c/o DBRA. Provided environmental consulting services including Phase I & II Environmental Site Assessments, Baseline Environmental Assessment (BEA), draft Due Care Plan and client consultation.

Compliance/Health & Safety Project Experience:

- Grand Ledge Public Schools: Grand Ledge, MI: Manager and Senior Reviewer for Environmental Health and Safety Management program development. Supervised in-district review of current Environmental Health and Safety Management plans (e.g., personal protective equipment, playground safety management, medication disposal). Researched current regulations and guidance. Deliverables included compliance plans, informational summaries, website postings, and training materials. Managed annual training sessions for school employees.

Hazardous Substances Project Experience:

- Arte Express Detroit; Former Packard Plant; Detroit, MI: Managed hazardous materials/regulated waste surveys, reporting, and recommendations. Provided consultation on due care obligations and up to 50 suspected orphan/abandoned USTs.
- Hopkins International Airport; Cleveland, OH: On-site environmental consulting services related to investigation and recovery of de-icing fluids from the subsurface. Obtained security clearance and safety training to conduct on-site work. On-site monitoring of de-icing fluids recovery.

DONALD C. KAYLOR, PG (IN, TN), EP

SAMPLING OF PROJECTS: Cont.

Hazardous Substances Project Experience:

- South Macomb Disposal Authority (SMDA) Landfill Site #11, Macomb County, MI: Project management, analytical data/peer review and validation, assessment of field sampling and laboratory techniques and results, and groundwater monitoring report preparation for multi-year quarterly groundwater sampling and monitoring of a landfill.
- Marysville Public Schools; Middle School, Marysville MI: Manager and Senior Technical Reviewer for Science Waste Drain Line Assessment and Remediation. Provided rapid response assessment of impact (to soil/groundwater and health and safety issues for workers/students) from the release of hazardous waste material that originated in chemistry classrooms. Waste characterization/disposal assistance, bid spec preparation, remediation design and contractor supervision, mercury vapor monitoring, verification of soil remediation, client consultation, and documentation. Consulted on exceedances at outfalls to sanitary sewers, and facilitated Client interaction with wastewater treatment plant officials to resolve regulator concerns.
- West Lake Landfill; St. Louis, MO: Project geologist for RI/FS investigation and risk assessment of radioactive waste disposal site, including development of ARARs.
- Neumann Smith & Associates; Oak Pointe Church, Novi, MI: Conducted investigation of arsenic impacted soil prior to site redevelopment. Performed drilling and soil sampling, statistical data evaluation, and report preparation.
- Mass Transit Authority; Flint, MI: Project manager for investigation of risk assessment of arsenic-impacted soil that was scheduled to be removed from various project locations. Performed soil sampling, data evaluation, risk assessment, and risk management consulting regarding worker health and safety and waste relocation for a transportation improvement project.

TECHNICAL SOCIETY AFFILIATIONS:

Michigan Association of Environmental Professionals, Immediate Past President (2013-2014), President (2012-2013), Vice-President (2009-2012), & Board Member (2007-2009)

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION

2019 Indefinite-Scope Indefinite-Delivery – Request for Proposal
General Materials Testing, Quality Control and Geotechnical Engineering Services
(Architecture, Engineering, Landscape Architecture)

Firm Name	**Testing Engineers & Consultants, Inc.**
Yearly Hourly Billing Rate Increase	**1.5%**
Mark-up for Sub-Consultants (not to exceed 5%)	N/A
Mark-up for Reimbursables (not to exceed 5%)	N/A

Position/Classification	Rate Ranges			
	Year 1	Year 2	Year 3	Year 4
Technician I	$40-50.00	$40.60-50.75	$41.20-51.50	$41.80-57.25
Technician II	$50-60.00	$50.75-60.90	$51.50-61.80	$52.25-62.70
Technician III	$60-70.00	$60.90-71.05	$61.50-72.10	$62.40-73.20
CWI Steel Inspector	$75-85.00	$76.10-86.25	$77.25-87.50	$78.40-88.80
Sr. CWI Steel Inspector	$85-95.00	$86.25-96.40	$87.55-97.85	$88.85-99.30
Senior Inspector	$75-85.00	$76.10-86.25	$77.25-87.50	$78.40-88.80
Project Manager	$95-105.00	$96.40-106.55	$97.85-108.15	$99.30-109.75
Sr. Project Manager	$100-110.00	$101.50-111.65	$107.05-113.25	$108.65-114.75
Project Engineer	$95-105.00	$96.40-106.55	$97.85-108.15	$99.30-109.75
Sr. Project Engineer	$100-110.00	$101.50-111.65	$107.05-113.25	$108.65-114.75
Sr. Consultant	$115-125.00	$116.70-126.85	$118.45-128.75	$120.20-130.65
Roofing Consultant	$100-110.00	$101.50-111.65	$107.05-113.25	$108.65-114.75
Sr. Engineer/Consultant	$115-125.00	$116.70-126.85	$118.45-128.75	$120.20-130.65
Principal/Engineer/Consultant	$150-160.00	$152.35-162.40	$154.50-164.80	$156.80-167.25

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

** Key Project Personnel

SECTION 3

MANAGEMENT SUMMARY, WORK PLAN & SCHEDULE

- Quality Control Plan

SECTION 3
MANAGEMENT SUMMARY, WORK PLAN AND SCHEDULE

Construction Materials Testing and Engineering Services

Since various projects and project types may fall under this contract, TEC is prepared to provide a full range of testing services to fit each situation. We have selected technicians familiar with working throughout the State of Michigan, cross-trained for many types of testing and certified in their field(s). A full-service laboratory will support each field technician and experienced staff engineers are available to prepare and review technical data, project specifications, or provide technical consulting as needed. Field and laboratory personnel are familiar with a variety of testing methodologies and requirements, such as those developed by MDOT (MTM), ASTM and AASHTO Standards. TEC maintains MDOT prequalification for construction materials testing and maintains national accreditation for soils, aggregate, asphalt and concrete testing through AASHTO's Materials Reference Laboratory (AMRL) and Cement and Concrete Reference Laboratory (CCRL). *Copies of the prequalification and accreditation reports/certificates are included with this submittal.*

An important part of ensuring that the field and laboratory test results are correct is effective review of all reports by senior technical staff. Laboratory manager William J. West, PE reviews all field and laboratory test reports for technical and administrative accuracy.

The success of a small or complex project hinges on one key element, timely and effective communication. Since a structured method of team communication gives each team member a clear understanding of each team and team members' roles, TEC will develop a quality control manual that describes testing and reporting methods as well as contact names and telephone numbers for communication when issues arise. The chain of command for verbal and written reports will be clearly spelled out as well as the method to be used to resolve conflicting test results. TEC will be actively involved in the planning, understanding and execution of the Quality Control Manual.

Our project approach with delivery of daily handwritten field reports, prompt laboratory turnaround, issuance of non-conformance reports (NCR) for non-conforming work and NCR follow up are a few examples of our communication philosophy. Scheduling is also very important in our plan. Our offices and laboratories in Ann Arbor, Detroit and Troy, Michigan and our proximity to local secondary roads and freeways allows us to efficiently service any project within southern Lower Michigan. During construction, TEC is capable of providing construction materials testing and engineering services in less than 24 hours notice. We seamlessly integrate with the project team during construction, and communicate to clients, contractors and colleagues using cellular telephones. Attendance at planning and progress meetings is crucial and the TEC project manager will attend as needed.

The daily preliminary reports will be given to your representative and final reports will be e-mailed within five days. At the end of each project the State of Michigan will receive a summary disk that contains all reports for TEC's scope of the work.

Geotechnical Engineering Services

Geotechnical programs and investigations are developed by our staff of professional engineers within the geotechnical group. One of our professional engineers will be assigned to lead the efforts for a particular geotechnical task for the State of Michigan project. The project scoping will be reviewed by the Geotechnical Engineering Principal in Charge. The assigned professional engineer will be the lead engineer for the project with assistance, review and quality control/quality assurance from other geotechnical staff with skills and experience best suited for the given task. Drilling and sampling will be performed by our own in-house experienced drilling crews with our own fleet of drilling equipment.

Geotechnical laboratory analysis will be performed within TEC's in-house laboratory. Field and laboratory testing follow the appropriate agency-developed standards such as ASTM, MTM, AASHTO, Army Corps of Engineers and others, as applicable for the project.

A typical geotechnical engineering project would proceed as follows:

Step 1. Establish Scope/Budget with State of Michigan

The designated Geotechnical Project Engineer will contact the State of Michigan Representative and discuss the scope of the assignment and develop a budget.

Step 2. Document Review

Any existing documents including existing geotechnical data, drawings, specifications, sketches, maintenance records, etc. will be gathered and reviewed as applicable.

Step 3. Field Investigation

The Geotechnical Project Engineer will visit the site and perform a visual assessment of the conditions. Photographs and field measurements will be performed as applicable. The Geotechnical Project Engineer will assess the site access conditions, identify relevant site and surrounding features pertinent to the geotechnical assignment, and will coordinate utility clearance in accordance with the MISSDIG and site-specific utility location protocols. The project manager will schedule and coordinate drilling activities and any other field testing or assessment activities.

Step 4. Laboratory Analysis Program

The geotechnical project engineer will review the field data and develop a specific laboratory analysis program for the given soil and groundwater conditions and project specifies. The principal in charge will review the laboratory program.

Step 5. Calculations and Report Preparation

TEC will perform appropriate interpretation calculation and analyses and prepare a written report, which will include the findings and recommendations of our investigation, study, etc. as requested by State of Michigan. The principal in charge will review all calculations, interpretations and submittals for quality control/quality assurance.

QUALITY CONTROL PROCESS

TABLE OF CONTENTS

QUALITY CONTROL PLAN

DEFINITIONS:

Quality Control – Testing Engineers & Consultants' Quality Management System (QMS) is the mechanism which establishes and assures that the work and services, including studies, reports, drawings, plans, specifications and contract documents are prepared in accordance with industry standards, clients requirements and a high level of professionalism.
This system has elements of project and administrative monitoring and control that help contain costs within established budgets and help in the completion of projects within the agreed upon time frame with the client.

Quality Assurance – TEC is fully committed to an effective program that ensures delivery of quality services and test results. The department managers have the responsibility for quality control procedure within their departments and have the authority and freedom to identify quality problems and to implement solutions. Mr. Carey Suhan, PE, principal and Vice President is the Quality Assurance Director, and is responsible for the overall implementation of TEC's Quality Management System.

Quality Control Plan – The QCP consists of written procedures and activities intended to deliver quality services/test results that are technically accurate, comprehensive and which recognize industry standards. Departmental procedures and corporate administrative functions are clearly stated so that employees have standard guidance on preparation of deliverables (goals, objectives and expectations) for our customers. The QPC is developed and implemented to:

- Assure technical quality of all documents, including reports, designs and engineering services
- Meet project schedule including all individual task schedules
- Ensure staffing needs are met
- Track project status, project communication and cost control utilizing software management systems
- Ensure that all tasks will be executed in a technically sound manner that is repeatable, coincides with the customers goals, objectives and expectations

Quality Mission Statement:

It is the goal of Testing Engineers & Consultants, Inc. to provide our customers with the necessary confidence in the validity of our professional services and test results.

AUTHORITY & RESPONSIBILITY:

The Quality Assurance Director institutes and directs the over all quality procedures and policies of the company. Most of the coordination for instituting procedures and policies is between the QA Director and the department managers.

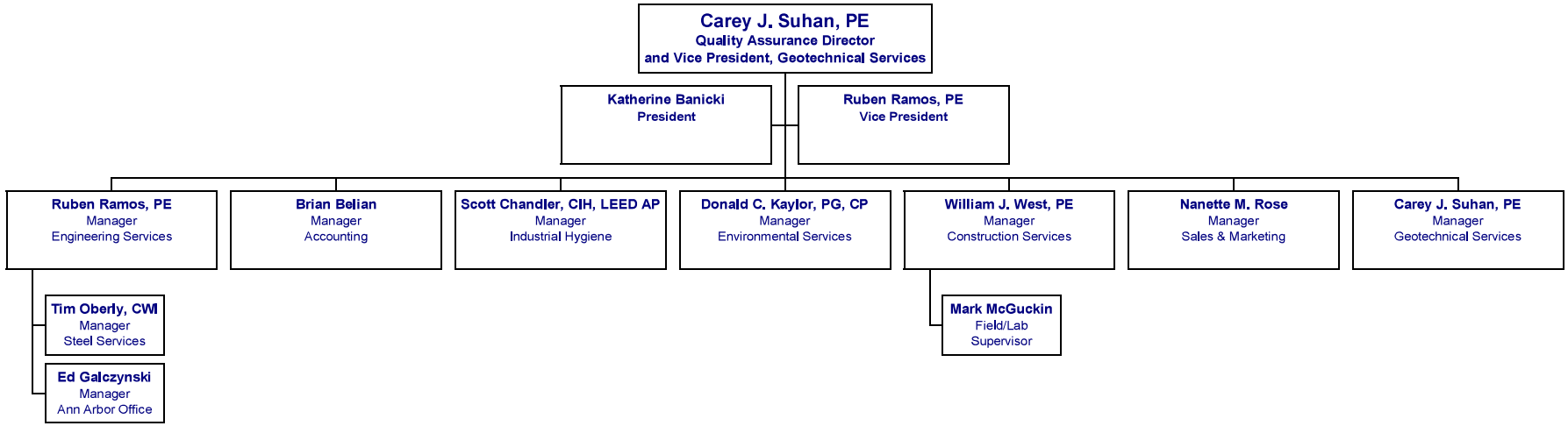
Quality Assurance Director

- Over all direction of the QA program
- Maintain management oversight
- Initiate and review corporate objectives and corrective actions
- Oversee, direct and implementation of changes and method of implementation
- Reports status to QMS to corporate officers

Department Manager

- Initiate, review and follow up corrective actions
- Perform audits
- Oversee billing and cost control
- Implement specific QA/QC requirements for department needs
- Reports Status of department QMS efforts to QA Director

Quality Management System
Testing Engineers & Consultants, Inc.



ENVIRONMENTAL DRILLING CHECKLIST

TEC Job No. _____

Date:_____

1. Number of Borings:_____
2. Depth of Borings:_____
3. Type of Sampling: Standard Continuous
4. Auger Size: 2 ¼" 3 ¼" 4 ¼" 6 ¼" 8 ¼"
5. Steam Clean: before borings between borings
6. Potable Water On-Site: Yes No
7. Electricity On-Site: Yes No
8. Asphalt Patch: Yes No
9. Concrete Patch: Yes No
10. Drilling: Inside Outside
11. Overhead Clearance Minimum 25': Yes No
    Small ATV 10' Clearance Buck Rogers 17' Clearance
12. Monitoring Wells: Yes (if yes, please continue) No
13. Size: 2" 4"
14. Type: PVC Stainless Steel
15. Number of Monitoring Wells:_____
16. Length of Screen:_____
17. Length of Risers:_____
18. Protective Covers: Yes No
19. Manhole Covers: Yes No
20. Manhole Cover Size: 8" 10" 12"
21. Locking Caps: Yes No
22. Grout Annular Space: Yes No

NOTES:_____

_____

_____

Prepared by:_____

Asbestos / Lead Paint: Report QC Checklist

By: _____ Project #: _____

Date: _____

BUG	OK	
☐	☐	Copy cover to letterhead stock
☐	☐	Project No. Correct
☐	☐	Prepared By and Reviewed By complete on cover
☐	☐	City, State, Zip on cover
☐	☐	Table of Contents
☐	☐	Custom Executive Summary Paragraph of Results included
☐	☐	Add the following text to the Lead/Asbestos Executive Summary
☐	☐	Section 1
☐	☐	Section 2
☐	☐	Section 3
☐	☐	Section 4
☐	☐	Section 5
☐	☐	Footers OK

Appendicies

Asbestos Only

☐	☐	A Definitions
☐	☐	B Bulk Sampling Protocol
☐	☐	C Lab Data & COC's
☐	☐	D Regs. Summary
☐	☐	E. *Drawing(s)

Lead Only

☐	☐	A Paint Chip Sampl. Prot.
☐	☐	B Lab Data & COC's
☐	☐	C *Drawing(s)

* All spaces shown, samples shown, legend, scale, north, title block, leader coordination

---

☐	☐	Make Changes, reprint, and Return for Review
☐	☐	Copy, File, and Send to Client

Asbestos / Lead Paint: Report QC Checklist

Date: _____ Site: _____

By: _____ Bldg.: _____

BUG	OK	
☐	☐	Copy cover to letterhead stock
☐	☐	Project No. Correct
☐	☐	Prepared By and Reviewed By complete on cover
☐	☐	City, State, Zip on cover
☐	☐	Table of Contents
☐	☐	Appendix Separator Pages
☐	☐	Surveyor Training Certificate included
☐	☐	Section 1 - included, dates, firm, etc. complete
☐	☐	Footers OK
☐	☐	Custom Executive Summary Paragraph of Results included (Lead Only)
☐	☐	Add the following text to the Lead/Asbestos Executive Summary
☐	☐	Section 2
☐	☐	Section 3 - Review Asbestos Material Descriptions
☐	☐	Section 4 (Qty. on Positive materials, units)
☐	☐	Section 5
☐	☐	Leave off Disclosure Section since No Lead above 0.0 mg/cm2 was found - Fix TOC
☐	☐	Review space list, check for duplicates, coordination between asbestos and lead.
		Asbestos Only
		Appendix
☐	☐	A Definitions
☐	☐	B Bulk Sampling Protocol
☐	☐	C Lab Bulk Samples
☐	☐	D Regs. Summary
☐	☐	Drawing (all spaces shown, samples shown, legend, scale, north, title block, leader coordination, reduced to 8 1/2x 11" if possible)
☐	☐	Make Changes, reprint, re-colocate and_____
☐	☐	Return for Review / Copy, File, and Send to Client

Field Paperwork QC Checklist

Job Number: _____
Completed by: _____
Date: _____

Check off as complete

- ☐ Building Data Sheet included and completed showing site ID, Site Name, Building ID, Building Name, and Building Serial Code (for asbestos electronic imports).
- ☐ Drawing included showing all space IDs used on asbestos and lead data sheets.
- ☐ Chain of custody forms complete including proper sample ID's and building serial code.
- ☐ Confirm that all the friable materials have been assessed, or that a note has been attached confirming that all materials are in good condition.
- ☐ Confirm that all asbestos material codes used in the survey are already in the code library. For any new codes created in the field, provide a note indicating that the code has been added and provide: Description, friability, unit abatement cost, EPA category (Friable, Category 1, category2, needs determination).
- ☐ Confirm that quantities have been provided for all suspect materials (or that the Autocalc box has been checked).
- ☐ Confirm that X and Y coordinates are provided for all samples.
- ☐ Confirm that all samples are marked on the field drawing and the chain of custody form.
- ☐ Review the data sheets and be sure that samples are recorded on the chain of custody form for all suspect materials recorded on the space detail sheets.
- ☐ Philip COC filled out.

Corrective Action Procedure

Purpose

The purpose of this Procedure is to describe the process by which internal audit findings, concerns, and complaints (generated internally or externally) are investigated and resolved.

Scope

This Procedure applies to all departments within Testing Engineers & Consultants, Inc.

Definitions

Discrepancy: an equipment malfunction, deviation from procedure, out of calibration verification or other observation made that could adversely affect test results.

Complaint/Concern: an observation (made by the customer or laboratory personnel) submitted in writing or oral means regarding the laboratory's activities.

Initiator: any employee, customer or 3rd party auditor with any complaint concerning activities performed in the Applied Technology's laboratory.

CAR: Corrective Action Request form.

Discrepancy Report: a supplemental report submitted to the customer in the event that test results are suspect.

Notice of Report Revision: a supplemental report submitted to the customer that indicates corrections made to the original test report as well as why the corrections are necessary.

Responsibility

Department Manager / Quality Assurance Director

- Evaluates CARs
- Assigns CAR ID Numbers
- Updates CAR Tracking Log
- Ensures resolution of all CARs

Initiator

- Generates a CAR when activity deviates from approved procedures
- Submits CAR for resolution to the Department Manager or Quality Assurance Director

Corrective Action Procedure Cont.

Related Documents

Corrective Action Request form

Customer Complaints Procedure

Discrepancy Report

Notice of Report Revision

Test Report Preparation Procedure

Procedure

The corrective action process established for Testing Engineers & Consultants, Inc. includes the recording of all complaints and corrective actions generated, follow-up of implementations, and reviewing of the status by laboratory management. A Corrective Action Request can be generated by an Initiator who has a complaint or by a customer. If the CAR is considered invalid, the Department Manager informs the Initiator of the disposition of the submitted CAR and discards the invalid CAR appropriately.

CAR Identification Numbers

All CARs are assigned a unique identification number for tracking purposes. The five-character hyphenated number assigned represents the last two numerals of the year in which the CAR was generated, and the remaining three characters represent the numerical sequence in which the CAR was added to the quality system.

Example: 99-001

99 = the year in which the CAR was generated (1999)

001 = the numeric sequence in which the CAR was added to the system

Corrective Action for Complaints and Concerns

The Initiator generates a CAR based upon an identified complaint or concern. The CAR is then submitted to the Department Manager for evaluation and resolution. This evaluation includes review of the nature of the complaint or concern, validity, and area affected. If the Car is considered to be valid, the Department Manager assigns a CAR ID Number to the CAR.

The Department Manager or Quality Assurance Director analyzes the root cause of the CAR and outlines an appropriate corrective action plan. The Department Manager or Quality Assurance Director defines and assigns responsibilities as appropriate. Once the implementation activities have been completed, the Department Manager or Quality Assurance Director updates the CAR with appropriate information and files documentation appropriately.

Corrective Action Procedure Cont.

Discrepancies

When a discrepancy is identified, the Laboratory Manager must determine if results or documented information submitted to customers are affected. This process includes the review of calibration, maintenance and equipment usage data, original data from test, and any other pertinent documents. If it is determined that results are affected, the Department Manager must communicate in writing via a Discrepancy Report to the customer the effect of the discrepancy or this information maybe contained in a Notice of Report Revision. Where appropriate, this may also include further actions to be taken to resolve the issue. A copy of the Discrepancy Report is maintained in the customer's project file.

All activities surrounding discrepancies are captured on a CAR. The information is also captured on the CAR ID Log to ensure initiation and closure to the issue.

Post-Resolution Activities

When the resolution of a CAR involves a response to a client, the appropriate documentation is prepared, submitted, and included in the Master File for the client's project, if appropriate. Post-resolution activities may also result in the implementation of a new process, a change in an existing process, the purchase of new equipment, and/or additional training for laboratory personnel. When this is the case, the appropriate policies and processes documented throughout the quality system are followed.

Post-Resolution Activities for Complaints and Concerns

In the event that a complaint or concern requires a written response to a customer, it is the Department Manager's responsibility to properly communicate the activities surrounding the CAR to the customer. This can be accomplished by submitting a formal explanation letter to the customer or by forwarding a Discrepancy Report or Notice of Report Revision if data supplied to the customer is adversely affected.

Post Resolution Activities for Discrepancies

Discrepancies require a written response to all affected customers. The report contains the problem that was identified, the corrective and/or preventive action taken to address the problem, and the potential affect the problem may have on test results provided to the customer prior to the identification of the problem. A copy of the Discrepancy Report is maintained in the customer's project file for reference.

Field Paperwork QC Checklist

Job Number: _____
Completed by: _____
Date: _____

Check off as complete

- ☐ Building Data Sheet included and completed showing site ID, Site Name, Building ID, Building Name, and Building Serial Code (for asbestos electronic imports). Confirm that the assigned building serial code does not start with a zero.
- ☐ Drawing included showing all space IDs used on asbestos and lead data sheets.
- ☐ Chain of custody forms complete including proper sample ID's and building serial code.
- ☐ Confirm that all the friable materials have been assessed, or that a note has been attached confirming that all materials are in good condition.
- ☐ Confirm that all asbestos material codes used in the survey are already in the code library. For any new codes created in the field, provide a note indicating that the code has been added and provide: Description, friability, unit abatement cost, EPA category (Friable, Category 1, category2, needs determination).
- ☐ Confirm that quantities have been provided for all suspect materials (or that the Autocalc box has been checked).
- ☐ Confirm that X and Y coordinates are provided for all samples.
- ☐ Confirm that all samples are marked on the field drawing and the chain of custody form.
- ☐ Review the data sheets and be sure that samples are recorded on the chain of custody form for all suspect materials recorded on the space detail sheets.
- ☐ Philip COC filled out.

GEOTECHNICAL DRILLERS CHECKLIST

TEC Job No. _____

JOB INFORMATION:

Date Authorized:_____ Date Drilling Promised:_____

Report Due Date:_____ Verbal Results Required: Y N Date:_____

SITE INFORMATION:

Existing Buildings:_____

Existing Pavement:_____

Existing Utilities:_____

Miss Dig Number:_____

Date Clear/Meet:_____ Time:_____

LAYOUT INFORMATION:

Meet Client: Y N Time/Date:_____

Name:_____

Location:_____

Borings Staked: Y N By When:_____

Location Plan Needed: Y N

Elevations Needed: Y N Benchmark:_____

PROPOSED DEVELOPMENT:

Description:_____

New Pavement: Y N New Utilities: Y N Buildings: Y N

No. of Stories:_____ Basement: Y N Pits: Y N Cranes: Y N

LOADS: Light Medium Heavy

Deep Foundation Expected: Y N

DRILLING INSTRUCTIONS:

ATV Required: Y N Traffic Control Required: Y N

Coring Required: Y N Patching Required: Y N Asphalt or Concrete

Backfill Required:_____ Cutting Disposal:_____

Blows Required:_____ Depth:_____

Fill Out Site Description: Y N

COMMENTS:

_____

_____

_____

_____

Documented Format for Checking Plans, Prints Calculations, etc.

The laboratory has an established process of implementing checks, in addition to the auditing procedure, to secure confidence that the data provided to its customers are at the highest level of quality possible

Observations, Data & Calculations

Processes are in place to ensure that the results or information acquired are reported accurately, in a timely manner, clearly, unambiguously and objectively, in accordance with any instructions in the customer specifications, test method(s) or procedure(s). The format, in which results are reported, is designed to include all the information necessary for the interpretation of the results and all information required by the method used.

Error Correction

Documents that are amended/changed by hand have the old information crossed out and the new or “correct” information written close by. The personnel doing the changes will initial the change.

Data Transfers

Calculation and data transfers are double-checked by the technician and the Department Manager where appropriate.

Results Reported Accurately

Processes are in place to ensure that the results are reported accurately, clearly, unambiguously and objectively, in accordance with any instructions in the customer specifications, test method(s) or procedure(s). The format, in which results are reported, is designed to include all the information necessary for the interpretation of the test results and all information required by the customer.

GEOTECHNICAL PROJECT
SIGN OFF SHEET

Printed Technician Name(s) _____ Employee # _____
Project: _____ Location: _____
Client Name: _____

SOP TASK	TECH INITIALS	DATE
1.0 PRELIMINARY OFF SITE ACTIVITIES		
Preparatory Information		
Obtain Completed Work Order		
Obtain Completed Drillers Instruction Sheet		
Obtain Map to the Site		
Obtain Boring Location Plan		
Obtain Utility Locations, Clearances and Permits		
Health and Safety Considerations		
Required Personal Protective Equipment (PPE) includes:		
1. Steel-Toed Boots		
2. Long Pants		
3. Shirts		
4. Eye Protection		
5. Hard Hats		
Suggested PPE includes		
1. Gloves		
2. Ear Protection		
Drill Rig Preparation		
Each truck and trailer must be inspected for the following items:		
1. Lights		
2. Reflectors		
3. Tire Pressure		
4. Brakes		
5. Steering		
6. Horn		
7. Mirrors		
8. Coupling Device		
2.0 INITIAL ON-SITE ACTIVITIES		
Coordinate with On-site Personnel		
Verification of Boring Layout and Elevations		
Verification of Existing Utilities		
Set-up of Traffic Control		
Set-up of Drilling Equipment		
3.0 FINAL ON-SITE ACTIVITIES		

GEOTECHNICAL PROJECT
SIGN OFF SHEET

SOP TASK	TECH INITIALS	DATE
Some or all of the following activities will be necessary:		
1. All of the tools should be washed, allowed to dry, oiled where necessary, and put in the appropriate storage box.		
2. Place in the auger rack in such a fashion that it will stay secure during travel. The drill rod should be placed in its proper storage location.		
3. Excess mud removed from the frame and tires of the drill rig and support vehicle.		
4. Fill the surface of boreholes on pavement with asphalt patch, ready-mix concrete, or non-shrink grout.		
5. Fill the surface of boreholes on pavement with asphalt patch, ready-mix concrete, or non-shrink grout.		
6. Lock up any gates and repair any fences.		
7. Sign out with on-site personnel.		
4.0 PAPER AND RECORD KEEPING		
Prepare Soil Boring Logs		
A soil boring log should provide the following information:		
1. Soil description.		
2. Terminal depth of each strata		
3. Sample type, beginning and ending depth of each sample.		
4. Standard penetration blows.		
5. Water level during drilling, upon completion and at other times as required.		
6. Presence of below grade obstructions.		
Complete Timesheet(s)		
Complete Daily Field Logs		

I verify that _____ has correctly completed all the steps identified above.
(Print technician name)

_____
PRINT QC REVIEWER'S NAME

_____
QC REVIEWER'S SIGNATURE

DATE: _____

Error Prevention and Detection Processes

Complaints

Complaints received from customers or other concerned parties regarding Testing Engineers and Consultants, Inc. activities or performance are resolved according to the established Customer Complaint Procedure and the Corrective Action Procedure. The Laboratory Manager maintains final records.

When a complaint or other circumstance raises doubt concerning compliance with policies, procedures, or quality of tests performed, it is Testing Engineers & Consultants policy to promptly check the area of activity and responsibility involved.

Corrective Action

Policy & Procedure

The process for Corrective Action is documented in the Complaint/Corrective Action Procedure. The appropriate action required is determined by the magnitude of the problem and the impact it has on the quality system. Any changes to the documented system resulting from corrective and/or preventive action are implemented per the Manager of the Department.

The corrective action process established for Testing Engineers & Consultants includes the recording of complaints and corrective actions generated, follow-up of implementations, and reviewing of the status by Quality Management. A Corrective Action Request can be generated by an Initiator who has a complaint or by an individual employee receiving a complaint from a customer.

Cause Analysis

The Laboratory Manager analyzes the root cause of the CAR and outlines an appropriate corrective action plan. The Laboratory Manager defines and assigns responsibilities as appropriate.

The process for Corrective Action is documented in the Complaint/Corrective Action Procedure. The appropriate action required is determined by the magnitude of the problem and the impact it has on the quality system.

Selection & Implementation of Corrective Actions

When the resolution of a CAR involves a response to a client, the appropriate documentation is prepared, submitted, and included in the Master File for the client's project, if appropriate. Post-resolution activities may also result in the implementation of a new process, a change in an existing process, the purchase of new equipment, and/or additional training for laboratory personnel. When this is the case, the appropriate policies and processes documented throughout the quality system are followed.

Monitoring of Corrective Actions

The Laboratory Manager updates the CAR and the CAR Tracking Log, after implementation activities have been completed. It is the Laboratory Manager's responsibility to ensure timely and effective resolution to all outstanding CARs.

Preventative Action

Improvements

The company's quality system is reviewed at least once per year by the Quality Assurance Director to ensure its continued adequacy and to introduce any changes or improvements. The Quality Assurance Director is responsible for ensuring that all reviews are conducted systematically and also ensures that any actions resulting from the review(s) are implemented in a timely manner. The Quality Assurance Director reports quality status to the corporate officers.

Items reported on include but are not limited to:

- Matters arising from previous review
- Suitability of Policies & Procedures
- Reports from audits by clients
- Results of corrective actions implemented, Results of in-house quality checks
- Details of any complaints from clients
- Staff training (for both new and existing staff members)
- Adequacy of staff, equipment and facility resources
- Future plans and projections for new work, new staff, new equipment
- Needed Improvements and potential sources for non-conformance Preventative Actions.

Procedures

Testing Engineers and Consultants, Inc. policy for action plans uses the Quality Improvement Process. Department meeting are held monthly or as required to address concerns and or ideas for proactive improvement in regards to the quality system, work procedures, documentation.

Corrective Action

The process for Corrective Action is documented in the Complaint/Corrective Action Procedure. The appropriate action required is determined by the magnitude of the problem and the impact it has on the quality system. Any changes to the documented system resulting from corrective and/or preventive action are implemented per the Quality Assurance Director / Department Manager.

Subcontracting

Competent Subcontractors

Testing Engineers & Consultants, Inc. has established policies for activities performed by sub-consultants / sub-contracted sources. These policies are designed to ensure that sub-consultants / sub-contractors are competent to perform the requested activities and comply with equivalent criteria of competence as the laboratory with respect to the requested test or service.

Sub-consultants / sub-contractors performing tests or services at the request of Testing Engineers & Consultants, Inc. are required to have compliance to ISO 9000 / ISO/IEC 17025 / pre qualified by MDOT for the particular service or test they are performing. The responsible person from the department follows the process further described in the Subcontractor Quality Audit Procedure.

Subcontractor Quality Audit Procedure

1. Purpose

The purpose of this Procedure is to ensure that all subcontracted activities are performed by competent, qualified service professionals on behalf of Testing Engineers & Consultants, Inc.

2. Definitions

Subcontractor: a service professional (not employed by Testing Engineers & Consultants, Inc.) that performs testing activities on behalf of Testing Engineers & Consultants, Inc.

3. Responsibility

Laboratory Manager (or Designee)

- Performs quality audits
- Communicates results of quality audits
- Maintains records of all quality audits

4. Procedure

Throughout the course of conducting daily testing activities, certain aspects of the laboratory require testing support or service from sources outside of the organization. It is the laboratory's policy to procure such support and/or services from accredited, certified or equivalently recognized sources (i.e. A2LA accredited, ISO 9000 certified, etc.).

When subcontracted sources do not meet the requirements listed above, it is the laboratory's policy to perform an assessment of the source's capability to provide the service or support required. The Laboratory Manager is primarily responsible for ensuring that this activity is conducted, recorded and communicated to the appropriate personnel.

6.1 Performing Subcontractor Quality Audits

The Laboratory Manager or his designee conducts quality audits of subcontractors by completing the following activities:

- Schedule site visit with subcontractor
- Prepares questions regarding specific issues that are applicable to the service requested of the subcontractor using the Subcontractor Quality Audit Questionnaire T
- Collect or verify evidence of compliance
- Evaluate subcontractor's performance objectively
- Prepare written report of subcontractor's capability and approval for services required
- Provide a copy of the written report to the subcontractor and maintain a copy in the files maintained for subcontracted support and/or services

6.2 Subcontractors with Unfavorable Quality Audit Results

In the event that a subcontractor receives unfavorable results in any area audited, it is the laboratory's policy to notify the subcontractor of the unfavorable results and discontinue requests for service from the subcontractor.

Subcontractor Quality Audit Questionnaire

Please complete the following information:

Company Name:_____

Address:_____

Telephone Number:_____ Fax Number:_____

Contact: Person:_____ Title:_____

Date:_____ Quality Manager: _____

QUESTIONS

1. Is your company certified in ISO 9002 or QS9000? _____
   If yes, please provide a copy of your certification.

2. Is your company in the process of implementing a Quality System which will be Certified? If yes, to what standard? What is the target date for completion?
   _____
   _____

3. If your company is not in the process of implementing a quality system which will be certified, does your company have plans to pursue certification in the near future? _____

4. If your company does not have a quality system how do you ensure the quality Of your product? _____
   _____
   _____

5. If you calibrate any equipment a) how do you ensure that the measurements are Traceable and b) do you have a procedure for calculating the uncertainty of the Measurements? _____
   _____
   _____

Corrective Action Request (CAR)

CAR ID Number:	**Date Issued:**
Nonconformity Description:	
Initiator: **Signature:**	**Quality Assurance Director's or** **Department Manager's Signature:**
Root Cause Description:	
Corrective Action Description (short-term solution): **Completion Date:**_____	
Preventive Action Description (long-term solution): **Verification Date:**_____ **Signature:**_____	
Implementation Follow-up (if appropriate):	
Comments:	

SECTION 4

DTMB QUESTIONNAIRE

- **DTMB ISID Professional Questionnaire**
  - Laboratory Accreditations
  - Equipment Lists
  - MDOT Prequalification Status
  - Sample Reports
  - Michigan-based Business and Responsibility Certifications

Questionnaire for Professional Services

Department of Technology, Management and Budget
2019 Indefinite-Scope Indefinite-Delivery – Request for Qualifications
Materials Testing, Quality Control and Geotechnical Engineering Services
Various Locations, Michigan

INSTRUCTIONS: Firms shall complete the following information in the form provided. A separate sheet may be used if additional space is needed; please key the continuation paragraphs to the questionnaire. Answer questions completely and concisely to streamline the review process.

ARTICLE 1: BUSINESS ORGANIZATION

1. Full Name: Testing Engineers & Consultants, Inc.
   Address: 1343 Rochester Road, Troy, Michigan 48083
   Telephone and Fax: (248) 588-6200, (248) 588-6232
   Website: www.testingengineers.com E-Mail: tec@tectest.com
   SIGMA Vendor ID: CV0021540

   If applicable, state the branch office(s), partnering organization or other subordinate element(s) that will perform, or assist in performing, the work: Branch offices in Troy, (1343 Rochester Road, Troy, MI 48083, Ann Arbor, (3985 Varsity Drive, Ann Arbor, MI 48108) & Detroit (660 Woodward Avenue, Suite 1500, Detroit, MI 48226).

2. Check the appropriate status:

   ☐ Individual firm ☐ Association ☐ Partnership ☒ Corporation, or ☐ Combination – Explain: 0T

   If you operate as a corporation, include the state in which you are incorporated and the date of incorporation: Michigan, 1966.

   Include a brief history of the Professional's firm: Testing Engineers & Consultants, Inc. (TEC) is a certified Women Business Enterprise, founded in 1966 in the State of Michigan with offices in Ann Arbor, Troy, and Detroit, Michigan. TEC provides engineering consulting in the building and infrastructure, geotechnical, environmental and industrial hygiene disciplines as well as construction materials testing and inspection services. TEC is Prequalified with the State of Michigan Department of Transportation in the following categories: Aggregate Testing, Asbestos Investigations, Bituminous Pavement Inspection, Density Inspection & Testing, Geotechnical Engineering Services, Portland Cement Concrete Inspection & Testing, Site Investigation and UST Removal Services. Further, TEC is accredited by the American Association of State Highway & Transportation Officials (AASHTO) for Bituminous and Aggregate.

ARTICLE 2: PRIOR EXPERIENCE

1. Provide an organization chart depicting all personnel and their roles/responsibilities. Please refer to Section 2.

2. Provide an organization chart depicting key personnel and their roles for a typical assigned project. Include generic supporting staff positions. Please refer to Section 2.

3. Provide a four year rate schedule per position. Enclosed in Section 2.

ARTICLE 2: PRIOR EXPERIENCE

Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to the work requested in this Request for Proposal.

Project 1 Reference Information:

Project Name: State of MI; Walter P. Reuther Psychiatric Hospital
Project Address: 30901 Palmer Road
Project City/State/Zip: Westland, MI
Contact Name and Telephone #: Richard, T. Young/734-367-8401
Project 1 Description: TEC provided pre-demolition asbestos survey services in the tunnel system, soil contaminaiton investigation and construction materials testing as part of a hospital expansion project. Consgtrucrion materials testing included pavement, infrastructure, and building elements. TEC also provided contractor oversight during abatement of hazardous materials and clearance sampling following abatement activities.

Project 2 Reference Information:

Project Name: Consumer's Energy Roof Management Program
Project Address: Various locations throughout the State of MI
Project City/State/Zip: Various locations throughout the State of MI
Contact Name and Telephone #: Terence. Hawkins / 517-788-0512
Project 2 Description: TEC was awarded an As-Needed Contract with Consumer's Energy to provide Roof Consulting Services to include design, leak response, asset management, and QA/QC during roof replacement for various buildings throughout the State of Michigan.

Project 3 Reference Information:

Project Name: Auburn Road Reconstruction
Project Address: Auburn Road from Culbertson Ave. To Hessel Ave.
Project City/State/Zip: Rochester Hills, MI
Contact Name and Telephone #: Paul Davis / 248-656-4640
Project 3 Description: TEC is providing geotechnical engineering and construction materials testing on the Auburn Road reconstruction that spans from Culbertson to Hessell Ave in Rochester Hills (RH). TEC's scope includes geotechnical investigation and design recommendations. Constructuion materials included testing during pavement reconstruction including roundabouts, on-street parking areas, rain gardens, porous pavements and traffc calming elements for a new City of RH walkable downtown area.

ARTICLE 3: CONTRACT UNDERSTANDING

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

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

Yes ☒ No ☐

ARTICLE 4: CAPACITY AND QUALITY

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

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

4.2 Will there be a key person who is assigned to a project for its duration?
Yes ☒ No ☐

At the beginning of each project, the key project personnel are assigned who will be involved with the project through its completion. The key personnel will be responsible for scheduling testing and/or investigation services and additional staff as required.

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

As an agent of the State of Michigan, TEC will look at the project with the Owner's (State of Michigan's) interests in mind. As an agent of the State of Michigan, TEC would function under this contract as the State's representative, and always considers the long-term impacts of the soil conditions encountered and the impacts of the construction materials test results. Whenever geotechnical and/or construction materials issues arise, TEC will interpret the situation and make recommendations to the State of Michigan representative based on the anticipated cost, schedule, and long term quality impacts.

4.4 Describe your approach if a contractor disputes your firm's findings.

If a contractor ever disputes the findings of TEC representatives, the first step in the process would be to meet with the contractor to discuss the nature of the dispute. If the dispute cannot be resolved by discussion of the TEC findings, supplemental testing may be required. In the case of construction materials testing, splitting samples with the contractor or, in some cases, using an agreed-upon third- party laboratory to perform referee testing are available options. In the case of geotechnical engineering interpretations, the contractor is encouraged to utilize his own geotechnical engineering consultant to develop alternate interpretations of the project data. Once those alternate interpretations are developed, TEC is available to meet with the contractor and his consultant to resolve the situation.

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

TEC will assign a project manager for each project with the State of Michigan. The Project Manager will be responsible for providing consistent and continuous communication pertaining to project activities and project status to the State of Michigan during the progress of projects. The Project Manager will be equipped with an email and text message-equipped mobile telephone to ensure the rapid transmission of project data as issues arise. Construction materials field and laboratory testing reports are transmitted to the State electronically after review, typically within three business days. In addition, the TEC site representative will be in constant contact with the State of Michigan representative during testing operations to ensure that the State of Michigan field representative is informed on a real-time basis of the test results and construction progress.

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

TEC establishes a project distribution list for technical reports and correspondence, and those reports and correspondence are delivered electronically to the distribution list when they are available or uploaded to a document handling system with approved access by client representatives.

4.7 Are examples of reports, letters, findings from a representative sampling of projects provided?
Yes ☒ No ☐

Enclosed in this Section.

4.8 When was the accrediting agency's last inspection of your laboratory?

CCRL May 2019
AASHTO Resource (AMRL new name) November 2018

4.9 Did the inspection list any nonconformities and have these nonconformities been fully addressed?

CCRL nonconformities have been addressed.
AASHTO Resource – another inspection has been scheduled to verify that all nonconformance items were addressed.

TEC is currently accredited for performing testing under the following AASHTO standards:

Quality Systems
R18, C1077 (Portland Cement Concrete), D3666 (Aggregate), D3666 (Hot Mix Asphalt)

Hot Mix Asphalt
T30, T164, T166, T209, T269, D2041, D2172, D2726, D3203, D5444

Soil
T99, T180, T310, D698, D1557, D6938

Aggregate
T11, T19, T21, T27, T84, T85, T96, T104, T248, T255, T304, C29, C40, C88, C117, C127, C128, C131, C136, C566, C702, C1252, D5821

Portland Cement Concrete
C31 (Cylinders), C39, C138, C143, C172, C173, C231, C1064, C1231

4.10 Does your laboratory have written equipment calibration procedures for all laboratory and field testing equipment?
Yes ☒ No ☐

The Quality Manual and calibration records are available upon request. Review of these documents and records by the agencies are a component of the inspection and accreditation procedures.

4.11 How frequently are calibrations performed and are calibrations traceable to a National Standard?

The calibration frequencies vary by the type of testing equipment and the applicable ASTM and/or AASHTO standards, which are identified in the Quality Manual. Equipment is calibrated by NIST- traceable standards.

4.12 Are all Field Technicians that will be assigned to State of Michigan projects certified for the tests being performed?
Yes ☒ No ☐

Certified Technicians will be assigned to any State of Michigan projects.

4.13 Are all field and laboratory reports reviewed by a State of Michigan licensed engineer trained in Construction Materials Testing?
Yes ☒ No ☐

All field laboratory test reports will be reviewed by William J. West, PE (Michigan PE No. 62010-42702). Mr. West has more than 23 years' experience in geotechnical engineering and construction materials engineering and testing.

4.14 How many construction testing projects can be accomodated by your firm within one construction season?

1,000 projects.

TEC completed approximately 1,000 field and laboratory testing and/or investigation projects in 2018. For all intents and purposes, there is no limit to the quantity of construction testing projects that can be accommodated by the firm within one construction season.

4.15 What construction testing equipment does your firm possess or have access to?

A non-inclusive list of available testing equipment is itemized below. We own and maintain equipment to perform the following tests and inspections:

- ***Portland Cement Concrete***

Field Testing and Inspection

ASTM C172 – Sampling Freshly Mixed Concrete

ASTM C31 – Making and Curing Concrete Test Specimens

ASTM C138 – Testing for Unit Weight, Yield, and Air Content ASTM C143 – Slump Test

ASTM C1064 – Temperature of Fresh Concrete

ASTM C231 – Entrained Air Content by Pressure Method

ASTM C173 – Entrained Air Content by Volumetric Method

ASTM C42 – Obtaining and Testing Drilled Core Samples

ASTM C174 – Core Sample Thickness Determination

ASTM C293 – Beam Flexural Strength Tests

ASTM C803 – Penetration Resistance of Hardened Concrete (WPTS)

ASTM C805 – Rebound Hammer Number for Hardened Concrete

ACI 214 – Recommended Practice for Evaluation of Strength Tests of Concrete

Concrete Mix Designs and Aggregate Testing including

ASTM C29 – Unit Weight and Voids in Aggregate

ASTM C40 – Organic Impurities in Fine Aggregate

ASTM C70 – Surface Moisture in Fine Aggregate

ASTM C88 – Sodium Sulfate or Magnesium Sulfate Soundness

ASTM C117 – Wash Loss

ASTM C127 – Specific Gravity and Absorption of Coarse Aggregate

ASTM C128 – Specific Gravity and Absorption of Fine Aggregate

ASTM C702 – Aggregate Sample Reduction

ASTM C131 – Los Angeles Machine Abrasion (Small Size Coarse Aggregate)

ASTM C535 – Los Angeles Machine Abrasion (Large Size Coarse Aggregate)

ASTM C136 – Sieve Analysis of Fine and Coarse Aggregate

ASTM C702 – Aggregate Sample Reduction

MTM 107 – Aggregate Sampling

MTM 108 – Loss by Washing

MTM 109 – Aggregate Sieve Analysis MTM

107 – Crushed Particle Content MTM 118 –

Fine Aggregate Angularity

MTM 123 – Field Determination of Dry Unit Weight

ACI 211 – Selection for Normal, Heavyweight, and Mass Concrete

Concrete Batch Plant Set-Up Inspections and Certifications in Accordance with National Redi-Mix Concrete Association and Road Commission of Oakland County Requirements.

- ***Hot Mix Asphalt Materials and Mixtures***

Marshall Mix Design and Analysis

Mix Design Preparation Using Asphalt Institute MS-2 Methods

ASTM D2401 – Theoretical Maximum Specific Gravity

ASTM D5 – Penetration of Bituminous Materials

ASTM D1559 – Marshall Stability & Flow Tests

Additional Production Quality Control Testing

ASTM D979 – Sampling Bituminous Paving Mixtures

ASTM D290 – Bituminous Mixing Plant Inspection

ASTM D1856 – Recovery of Asphalt by Abson Method

ASTM D2172 – Quantitative Extraction Tests

ASTM D2726 – Bulk Spec. Gravity & Density of Compacted Mixtures

ASTM D2950 – In-place Density by Nuclear Method

ASTM E965 – Macrotexture Depth Testing Engineers & Consultants, Inc.

MTM 301 – Asphalt Recovery by Abson Method

MTM 311 – Determining Aggregate Gradation for Bituminous Mixes

MTM 313 – Sampling Bituminous Paving Mixtures

MTM 314 – Determining Maximum Theoretical Specific Gravity MTM 315 –

Bulk Specific Gravity of Compacted Specimens

MTM 316 – Penetration of Bituminous Materials

MTM 318 – Extraction of Bitumen from Paving Mixtures

Additional Field Monitoring and Quality Control Testing

ASTM D2434 – Permeability of Granular Soils

ASTM D2487 – Soil Classification (USCS Method)

ASTM D2488 – Soil Classification (Visual-Manual Methods)

ASTM D2922 – In-Place Density by Nuclear Methods

ASTM D3017 – In-Place Water Content by Nuclear Methods ASTM

D3282 – Classification of Soil and Aggregate Mixtures ASTM D4318 –

Atterberg Limits Tests

ASTM D4380 – Density of Bentonite Slurries

ASTM D4381 – Sand Content of Bentonite Slurries

ASTM D5084 – Permeability by Triaxial Methods

4.16 What laboratory facilities are available to your firm?

TEC maintains an AASHTO-accredited laboratory in Troy, Michigan and a supplemental laboratory in Ann Arbor, Michigan. Additional offices are located in Detroit, Michigan, and project-specific supplemental offices and laboratories are established when appropriate.

4.17 What types of non-destructive testing can your firm perform?

Ground Penetrating Radar (locating of buried obstructions), Pachometer (locating of buried cables/steel in concrete, Ultrasonic Pulse Velocity (concrete defect locating), UT Wall Thickness/Flaw Detection (testing of steel for thickness and flaws), Coating UT Thickness Gauge (determination of paint/coating thickness on steel, masonry, concrete, etc.), Infrared Thermographic Testing (determination of thermal/anomalies in building systems).

4.18 What types of construction quality assurance services does your firm provide?

TEC provides construction quality assurance services for all facets of building and infrastructure construction. A non-inclusive list of available Construction Quality Assurance services includes: Field and laboratory testing for cast-in-place concrete and precast concrete; field and laboratory testing of soils, aggregates, utility trench backfill and embankments; field and laboratory testing of pavement system elements such as aggregate base courses, warm mix asphalt and hot mix asphalt; structural steel inspection at the fabrication shop or onsite inspection of fit-up, welded and bolted connections; masonry inspection; and roofing inspection.

ARTICLE 5: PROJECT EXECUTION

5.1 Please provide copies of you company's current Construction Materials Testing laboratory accreditations along with a list of all accredited fields of testing: ex. Asphalt cement, hot mix asphalt, emulsified asphalt, aggregate, soil, sprayed fire – resistive materials (SFRM), Portland cement concrete, hydraulic cement, unit masonry and metals.

See enclosed in Section 4.

5.2 What is your minimum advanced notification time for scheduling Certified Technicians?

TEC requests to be notified on the day prior to the need for certified technicians, but understands that construction schedules are often dynamic, and is able to provide same-day service when required.

5.3 Are field technicians provided with company vehicles with appropriate signage identifying the testing company or are field techicians required to drive personal vehicles?
Yes ☒ No ☐

TEC's field technicians are provided with Company vehicles with appropriate signage identifying the testing company.

5.4 Are field technicians provided a company photo identification?
Yes ☒ No ☐

TEC can provide Company Photo Identification for State of Michigan projects if required.

5.5 Would certain technicians be designated for State of Michigan projects and, if not, what is done to assure that the technician assigned for field testing is familiar with State of Michigan specific project testing requirements?
Yes ☒ No ☐

TEC's technicians assigned for field testing are familiar with State of Michigan specific Project testing requirements.
If No,
0T

5.6 Are field concrete cylinder curing boxes used on all projects?
Yes ☒ No ☐

The concrete cylinder cure boxes/coolers are utilized for initial field cure of concrete cylinder samples.

5.7 Are all cylinder boxes equipped with maximum / minimum thermometers?
Yes ☒ No ☐

The cylinder core boxes/coolers are equipped as described above.

5.8 Are maximum / minimum temperatures recorded with each cylinder pickup?
Yes ☒ No ☐

5.9 Are all cylinder boxes clearly labeled with the laboratory name, address and phone number?
Yes ☒ No ☐

5.10 What portion of the assigned work will be performed with your staff and what portion will be provided by subconsultants?
100 % Staff 0% Sub Consultants

5.11 What be your response time from the notice of assignment to quote to start of work?
0T Days / Weeks
TEC can typically quote a project within one business day if needed.

5.12 What is mimmum amount of notice your firm requires before commencement can begin?
0T Days / Weeks
Construction materials testing can begin typically within 24 hours and most often sooner if needed.
Geotechnical drilling can generally begin immediately after site access and utility clearance is complete.

ARTICLE 6: PERSONNEL

6.1 Has an organizational chart that includes each person on your project team and their identified roles for a typical assigned project been included in your RFP response?
Yes ☒ No ☐ See enclosed in Section 2

6.2 Has resumes for the Key Personnel been included in your RFP response?
Yes ☒ No ☐ See enclosed in Section 2

6.3 Please provide a list of Field and Laboratory Technician Certifications
TEC Field and Laboratory Technicians have the following certifications: Troxler Nuclear Gauge Safety Training, MCA/MCPA Technician Level I, ACI Concrete Technician Grade I, MCA/MCPA Concrete Construction Inspector, MCA Concrete Level II, MDOT Bituminous Paving Operations, Bituminous QC/QA, Bituminous Lab Tech I, MDOT Density Technology, MDOT Aggregate Certified.

ARTICLE 7: CONSULTANTS / SUBCONSULTANTS

Specifically identify any consultants/subcontractors you plan to use including those for engineering. *Note: If any support must be provided by a consultant/subcontractor, said consultants/subcontractors must indicate their capability and willingness to carry out the work)*:

Consultant/Subcontractor 1

Business Name: N/A
Address:
City/State/Zip:
Contact Name and Telephone #:
Description of Work to Be Conducted:

Letter of intent provided? ☐Yes ☐No

Consultant/Subcontractor 2

Business Name: N/A
Address:
City/State/Zip:
Contact Name and Telephone #:
Description of Work to Be Conducted:

Letter of intent provided? ☐Yes ☐No

Consultant/Subcontractor 3

Business Name: N/A
Address:
City/State/Zip:
Contact Name and Telephone #:
Description of Work to Be Conducted:

Letter of intent provided? ☐Yes ☐No

AASHTO ACCREDITED

CERTIFICATE OF ACCREDITATION

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AASHTO

Testing Engineers & Consultants, Inc.

in

Troy, Michigan, USA

has demonstrated proficiency for the testing of construction materials and has conformed to the requirements established in AASHTO R 18 and the AASHTO Accreditation policies established by the AASHTO Committee on Materials and Pavements.

The scope of accreditation can be viewed on the Directory of AASHTO Accredited Laboratories (aashtoresource.org).

Bud Wright,
AASHTO Executive Director

Moe Jamshidi,
AASHTO COMP Chair

This certificate was generated on 10/16/2018 at 5:18 PM Eastern Time. Please confirm the current accreditation status of this laboratory at aashtoresource.org/aap/accreditation-directory

SCOPE OF AASHTO ACCREDITATION FOR:

Testing Engineers & Consultants, Inc.

in Troy, Michigan, USA

Quality Management System

Standard:		Accredited Since:
R18	Establishing and Implementing a Quality System for Construction Materials Testing Laboratories	01/30/2012
C1077 (Concrete)	Laboratories Testing Concrete and Concrete Aggregates	05/12/2017
D3666 (Aggregate)	Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials	01/30/2012
D3666 (Asphalt Mixture)	Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials	01/30/2012

SCOPE OF AASHTO ACCREDITATION FOR:

Testing Engineers & Consultants, Inc.

in Troy, Michigan, USA

Asphalt Mixture

Standard:		Accredited Since:
T30	Mechanical Analysis of Extracted Aggregate	01/30/2012
T164	Quantitative Extraction of Asphalt Binder from Hot Mix Asphalt (HMA)	01/30/2012
T166 (Cores)	Bulk Specific Gravity of Compacted Hot Mix Asphalt Using Saturated Surface-Dry Specimens (Cores)	07/14/2016
T209	Maximum Specific Gravity of Hot Mix Asphalt Paving Mixtures	Suspended
T269	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures	01/30/2012
D2041	Maximum Specific Gravity of Hot Mix Asphalt Paving Mixtures	Suspended
D2172	Quantitative Extraction of Asphalt Binder from Hot Mix Asphalt (HMA)	01/30/2012
D2726 (Cores)	Bulk Specific Gravity of Compacted Hot Mix Asphalt Using Saturated Surface-Dry Specimens (Cores)	07/14/2016
D3203	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures	01/30/2012
D5444	Mechanical Analysis of Extracted Aggregate	01/30/2012

SCOPE OF AASHTO ACCREDITATION FOR:

Testing Engineers & Consultants, Inc.

in Troy, Michigan, USA

Soil

Standard:		Accredited Since:
T99	The Moisture-Density Relations of Soils Using a 5.5 lb [2.5 kg] Rammer and a 12 in. [305 mm] Drop	01/30/2012
T180	Moisture-Density Relations of Soils Using a 10 lb [4.54 kg] Rammer and an 18 in. [457 mm] Drop	01/30/2012
T310	In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)	01/30/2012
D698	The Moisture-Density Relations of Soils Using a 5.5 lb [2.5 kg] Rammer and a 12 in. [305 mm] Drop	01/30/2012
D1557	Moisture-Density Relations of Soils Using a 10 lb [4.54 kg] Rammer and an 18 in. [457 mm] Drop	01/30/2012
D6938	In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)	01/30/2012

SCOPE OF AASHTO ACCREDITATION FOR:

Testing Engineers & Consultants, Inc.

in Troy, Michigan, USA

Aggregate

Standard:		Accredited Since:
R76	Reducing Samples of Aggregate to Testing Size	01/30/2012
T11	Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing	01/30/2012
T19	Bulk Density ("Unit Weight") and Voids in Aggregate	01/30/2012
T27	Sieve Analysis of Fine and Coarse Aggregates	01/30/2012
T84	Specific Gravity (Relative Density) and Absorption of Fine Aggregate	01/30/2012
T85	Specific Gravity and Absorption of Coarse Aggregate	01/30/2012
T96	Resistance to Abrasion of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	01/30/2012
T104	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate	01/30/2012
T255	Total Moisture Content of Aggregate by Drying	01/30/2012
T335	Determining the Percentage of Fractured Particles in Coarse Aggregate	03/27/2014
C29	Bulk Density ("Unit Weight") and Voids in Aggregate	01/30/2012
C88	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate	01/30/2012
C117	Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing	01/30/2012
C127	Specific Gravity and Absorption of Coarse Aggregate	01/30/2012
C128	Specific Gravity (Relative Density) and Absorption of Fine Aggregate	01/30/2012
C131	Resistance to Abrasion of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	01/30/2012
C136	Sieve Analysis of Fine and Coarse Aggregates	01/30/2012
C566	Total Moisture Content of Aggregate by Drying	01/30/2012
C702	Reducing Samples of Aggregate to Testing Size	01/30/2012
D5821	Determining the Percentage of Fractured Particles in Coarse Aggregate	01/30/2012

SCOPE OF AASHTO ACCREDITATION FOR:

Testing Engineers & Consultants, Inc.

in Troy, Michigan, USA

Concrete

Standard:		Accredited Since:
M201	Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the testing of Hydraulic Cements and Concretes	05/12/2017
R60	Sampling Freshly Mixed Concrete	05/12/2017
T22	Compressive Strength of Cylindrical Concrete Specimens	05/12/2017
T23 (Cylinders)	Making and Curing Concrete Test Specimens in the Field	05/12/2017
T119	Slump of Hydraulic Cement Concrete	05/12/2017
T121	Density (Unit Weight), Yield, and Air Content of Concrete	05/12/2017
T152	Air Content of Freshly Mixed Concrete by the Pressure Method	05/12/2017
T196	Air Content of Freshly Mixed Concrete by the Volumetric Method	05/12/2017
T309	Temperature of Freshly Mixed Portland Cement Concrete	05/12/2017
C31 (Cylinders)	Making and Curing Concrete Test Specimens in the Field	05/12/2017
C39	Compressive Strength of Cylindrical Concrete Specimens	05/12/2017
C138	Density (Unit Weight), Yield, and Air Content of Concrete	05/12/2017
C143	Slump of Hydraulic Cement Concrete	05/12/2017
C172	Sampling Freshly Mixed Concrete	05/12/2017
C173	Air Content of Freshly Mixed Concrete by the Volumetric Method	05/12/2017
C231	Air Content of Freshly Mixed Concrete by the Pressure Method	05/12/2017
C511	Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the testing of Hydraulic Cements and Concretes	05/12/2017
C1064	Temperature of Freshly Mixed Portland Cement Concrete	05/12/2017
C1231 (7000 psi and below)	Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders	05/12/2017

BITUMINOUS PAVEMENT INSPECTION
FIELD TESTING EQUIPMENT
2019

DESCRIPTION/NAME	QUANTITY
Nuclear density gauge (see calibration document)	38
Thermometer (Contact & Non-Contact)	21
Pails or buckets with lids	24
Bituminous sampling shovel	2
Bituminous sampling plates	6
Tape measure	20
Identification tags and labels	10,000
Straight edge	2
Appropriate sampling and testing report forms	500
Gloves	48
Safety glasses	36
8" drill bits	2
Water	N/A
Generator	3
Cooler	7

Remarks: TEC owns all of its equipment and it is maintained in the Troy and Ann Arbor offices when not on-site.

CONSTRUCTION TESTING AND INSPECTION EQUIPMENT LIST

DESCRIPTION/NAME (QTY.)	TYPE	YEAR MANUFACTURED	DATE OF PURCHASE	DOLLAR VALUE	DEPRECIATION RATE
Concrete Unit Wt Bucket (40)	½ cu ft	UNKNOWN	UNKNOWN	$125.00 ea.	N/A
Slump Cones (40)	STD	UNKNOWN	UNKNOWN	$35.00 ea.	N/A
Press –ur- Meter (25)	High Profile	UNKNOWN	UNKNOWN	$500.00 ea.	N/A
Roll-a-Meter (10)	Brass	UNKNOWN	UNKNOWN	$800.00 ea.	N/A
Roll-a- Meter (10)	Plastic	UNKNOWN	UNKNOWN	$300.00 ea.	N/A
Tamping Rod (40)	Standard	UNKNOWN	UNKNOWN	$35.00 ea.	N/A
Scraper Plate (50)	STD	UNKNOWN	UNKNOWN	$35.00 ea.	N/A
Thermometer (50)	STD	UNKNOWN	UNKNOWN	$20.00 ea.	N/A
Troxler Density Gauge (35)	3411B	1987	1987	$2,000.00 ea.	N/A
Troxler Density Gauge (15)	3430	2006	2006	$5,000.00 ea.	N/A
Troxler Density Gauge (3)	3440	1997 - 2003	1997 - 2003	$5,000.00 ea.	N/A
Michigan Cone with Block (12)	1995	UNKOWN	VARIOUS	150.00 ea.	N/A
Forney Compression (2)	400K	1952	1966	$5,000.00 ea.	N/A
Satec Compression (universal) (1)	400K	1972	1972	$100,000 ea.	N/A
2001 Ford Truck	F150	2001	2001	$1,000.00 ea.	N/A
2003 Ford Truck	F250	2003	2003	$2,500.00 ea	N/A
2005 Ford Truck	F150	2005	2005	$4,500.00 ea	N/A
L.A. Abrasion (1)	Drum	UNKNOWN	UNKNOWN	$8,000.00 ea.	N/A
Oven (0-500^{o}F) 1)	Blue M	UNKNOWN	UNKNOWN	$5,000.00 ea.	N/A
12” Sieves (3”-#200) (4 sets)	ELE”	UNKNOWN	VARIOUS	$2,000.00 ea.	N/A
Scales (20) 100 pounds	O’Haus	VARIOUS	VARIOUS	$400.00 ea.	N/A
Scale (2) .001 12,000 Grams	A & D	1998	1998	$1,200.00 ea.	N/A
Scale (1) .0001 100 grams	Metler	1990	1990	$700.00 ea.	N/A
Scale (1) 60 lbs.	Fairbanks H-7	2003	2003		N/A
Soil Compaction Machine (2)	Ploog	2003	2005	$2,000.00 ea.	N/A
Wheel Barrows	Misc.	UNKNOWN	2012-2013	$100.00 ea.	N/A
Slump Plates	Misc.	UNKNOWN	2010-2013	$75.00 ea.	N/A

Remarks: TEC owns all of its equipment and it is maintained in the Troy and Ann Arbor offices when not on-site.

EQUIPMENT LIST

QTY.	DESCRIPTION/NAME	MANUFACTURER	DATE OF PURCHASE	SERIAL NO.	CONDITION
1	Angularity Apparatus		1996		Exc.
1	Blue-M Oven	Lindbergh	1993	D5226Q	Good
1	Breaking Head	Soiltest			Fair
2	Centrifuges	IEC Equip.	1992		Good
1	Color Plate (Organic Impurities)	Hellige			Good
1	Compaction Pedestal	Soiltest	1993	1213	Good
1	Condenser (Recovered Pen.)	Baxter	1992		New
1	Conical Cone/Tamper	Soiltest	1980	G325	Good
3	Crucibles	Coors	1992	110ML	Good
6	Crucibles/Lids	Coors	1991	60ML	Good
1	Desiccator	Unknown			Good
1	Digital Timer	Radio Shack			Good
2	Immersion Circulator	ColeParmer	1992	2245-CI6	Good
3	Extractors	Ploog	1994		New
2	Extruder Jack	Soiltest	1993		Good
1	Flowmeter	Key	1994		Good
1	Forced Air Oven	Forney	1979	57534	Good
1	Glass Plate	ACO	1994	12' X 12'	Good
2	Hand Compactor	Soiltest	1989	AP-165	Good
1	Heating Mantle	Electro	1996	10053088	Good
1	Heating Mantle	Electro	1996	1-13	Good
1	Hot Plate	Coming		PC-100	Good
2	Hot Plate	Thermolyne	2006/2012		New
1	Hydrometer	Cole Parmer	1995		New
1	LA Abrasion Machine	Dayton	1980	669	Fair
1	Loading Jack	Soiltest	1990		Good
2	Manometer	QA Resource	1996		New
1	Mechanical Compactor	Humboldt	1989	1185	Fair
1	Mechanical Mixer	Hobart	1985		Good
1	Muffle Furnace	Neyo	1994	M525	Good
1	Pentrometer	Central Sci.		9820,26,12	Good
3	Pentrometer Needles	VanKeuren	1994	9820,26,12	Good
1	Probe Themometer	Oakton	1997		Good
1	Proportional Caliper Device	Virginia Lab	2006	900719	Exc.
1	Rice Pot	Virginia Lab	1997		Good
1	Ring Dynameter	Soiltest	1990		Exc.
1	Scale- 12K	Totalcomp	1991	500001EP 12K	Good
1	Scale- 131 LB	Chatillion	1991	1JN279606	Good
1	Scale- 15K	Ohaus	1993	1P15KS	Good
1	Scale- 45 LB	Ohaus	1990	126TDAL	Good

EQUIPMENT LIST

QTY.	DESCRIPTION/NAME	MANUFACTURER	DATE OF PURCHASE	SERIAL NO.	CONDITION
1	Scale- 100 G	Mettler	1993	AMALAJ100	Good
1	Sieve Shaker	RO-Tap	1985	5646	Good
	Sieves – 12”	Soiltest			Good
	Sieves – 8”	Soiltest	2012		Good
1	Specific Gravity Basket	Soiltest	1979	G-340	Good
1	Splitter	Gilson	1980	C-1262	Good
22	Steel Balls	Unknown	1985		Good
1	Stopwatch	Crown			Good
1	Thermocouple	Omega Eng	1992	DP116-KF1	Good
1	Thermometer	17c/f Fisher	94-96		Good
3	Thermometer	49c/f Fisher	94-96		Good
1	Thermometer	63c/f Scientific	94-96		Good
1	Thermometer	7 c/f Scientific	94-96		Good
3	Thermometer	9f Scientific	94-96		Good
Misc.	Timer	Gra Lab	Misc.	Model 171	Good
1	Unit Weight Bucket	Soiltest	1993		Good
	Unit Weight Molds	Humbolt	1999		Good
1	Unit Weight Rod	Soiltest	2012		Good
1	Water bath 25C	Soiltest	1992	MW1162 SSA-1	Good
1	Shaker Table	Fasco	1995	71216088	Good
1	Water Bath 60C	Humbolt	1990	L-16554	Good

Remarks: TEC owns all of its equipment and it is maintained in the Troy and Ann Arbor offices when not on-site.

DRILLING EQUIPMENT LIST

DESCRIPTION/NAME	TYPE	YEAR MANUFACTURED	DATE OF PURCHASE	DOLLAR VALUE
Chevrolet C7500 with CME55 High Torque Drill Motor	Drill Rig	2003	9/03	$167,000
Bombardier with CME 45B Drill Motor (ATV)	Drill Rig	1992	3/98	$68,246
Mud Buggy with CME 45B Drill Motor (ATV)	Drill Rig	1986	10/89	$40,864
Ford F-550 Truck with CME 45B Drill Motor and Direct Push	Drill Rig	2008	9/07	$151,000
Buck Rogers (Trailer Mounted)	Drill Rig	1988	10/89	$11,794
Ford 150 Pick-Up	Truck	2005	9/05	$16,733
Chevrolet Silverado Pick Up	Truck	2010	9/12	$15,000
Chevrolet Silverado Pick-Up	Truck	2007	11/09	$16,971
Freightliner Flat Bed	Truck	2007	3/14	$36,500
Freightliner	Hauling Vehicle	2002	11-13	$36,000
Chevy Kodiak	Hauling Vehicle	1996	6/96	$30,152
Trail King	Trailer	1997	6/97	$9,500

DRILLING EQUIPMENT LIST

DESCRIPTION/NAME	TYPE	YEAR MANUFACTURED	DATE OF PURCHASE	COST
Landa	Steam Cleaner	2002	6/02	$3,800
Honda	Generator	1991	12/91	--
Honda	Generator	1999	6/99	--
Trash Pump	Pump	1992	--	--
Coring Rigs	Concrete	1998	--	--
Hollow Stem Augers	2 ¼" – 8 ¼" I.D.	--	--	--
Drilling Casing	3-6" Diameter	--	--	--

Remarks: TEC owns all of its equipment and it is maintained at the Troy office when not on-site.

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 - 400 feet with wash boring methods. Up to four-inch diameter wells can be installed to these depths. Six-inch wells can be installed to a depth of 30 feet.

Trailer-mounted and portable drill rigs are capable of drilling to depths of approximately 25 to 30 feet with solid-stem augers.

All rigs capable of SPT, Shelby Tube and Piston sampling.

Prequalified Service Vendors

Vendor names containing: testing engineers

As of August 08, 2019

Service Prequalification Classification	Vendor	State	Phone	Status	DBE Certified
Construction Inspection: HMA Pavement	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Construction Testing: Aggregates	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Construction Testing: Concrete	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Construction Testing: Density	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Construction Testing: HMA Assistance	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Design - Geotechnical	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No
Environmental: Contamination	TESTING ENGINEERS & CONSULTANTS, INC.	MI	248-588-6200	Approved	No

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

TEC Project Number: 54730
Date Issued: September 11, 2014

Mr. John Becht
Construction Manager
Spalding DeDecker Associates, Inc.
905 South Boulevard East
Rochester Hills, Michigan 48307

Re: PC Concrete Mix Design Review
2014 Novi Neighborhood Asphalt Road Rehabilitation Project
City of Novi, Michigan

Dear Mr. Becht:

In accordance with your request, Testing Engineers & Consultants, Inc. (TEC) has completed its review of the PC Concrete mix designs submitted by Goretski for the 2014 Novi Neighborhood Asphalt Road Rehabilitation Project in Novi, Michigan. This letter presents our comments on the mix design submittals. The mix designs reviewed were as follows:

Mix ID	Plant	Description
DDP155G8	Superior Materials Plant 102 Novi, MI	*Exterior Flat Work / Paving Mix* 5.6 sk/cy Type I/II Portland Cement with 35% Slag Cement Substitution 6AA Limestone Coarse Aggregate 2NS Natural Fine Aggregate Air Entrained with Midrange Water Reducer w/(c+p) ratio 0.41
DDP155G7	Superior Materials Plant 102 Novi, MI	*Hand Sent Curb & Gutter Mix* 5.6 sk/cy Type I/II Portland Cement with 35% Slag Cement Substitution 6AA Limestone Coarse Aggregate 2NS Natural Fine Aggregate Air Entrained with Water Reducer w/(c+p) ratio 0.45

Mr. John Becht
Spalding DeDecker Associates, Inc.
City of Novi 2014 Neighborhood Asphalt Rehabilitation Project
TEC Project Number: 54730

Mix ID	Plant	Description
P1 Slip	Messina	*Slip Form Curb & Gutter Mix* 5.6 sk/cy Type I/II Portland Cement with 25% Slag Cement Substitution 6AA Limestone Coarse Aggregate 2NS Natural Fine Aggregate Air Entrained with Water Reducer w/(c+p) ratio 0.40
P1 Conv	Messina	*P1 Exterior Paving Mix* 6.25 sk/cy Type I/II Portland Cement With 15% Class F Fly Ash Substitution 6AA Limestone Coarse Aggregate 2NS Natural Fine Aggregate Air Entrained with Midrange Water Reducer w/(c+p) ratio 0.45

The proposed admixtures are included in the MDOT Qualified Products List and the manufacturers' recommendations for the intended uses at the dosages included in the mix submittal.

Either Grade 100 slag cement substitution or Class F fly ash substitution are included in the mixes to decrease concrete permeability and increase durability over straight Type I cement mixes.

ASTM C1293 test data to document the ASR reactivity potential of the Superior mixes was also submitted. The test results indicate that the expansion potential of the proposed fine aggregate is less than the 0.40% specified maximum.

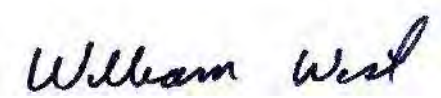
TEC recommends that the submitted mixes be approved for the intended uses on the above-referenced project. QA testing during production is recommended to confirm the material properties. A copy of the mix submittal is attached to this letter.

Mr. John Becht
Spalding DeDecker Associates, Inc.
City of Novi 2014 Neighborhood Asphalt Rehabilitation Project
TEC Project Number: 54730

We are pleased for the opportunity to provide our services. Should you have any questions or require additional information, please feel free to contact our office.

Respectfully submitted,

TESTING ENGINEERS & CONSULTANTS, INC.



William J. West, PE
Manager, Construction Services

Monroe Plant
725 N. Dixie Hwy.
Monroe, MI 48162
(734) 241-8380
Fax: (734) 241-1803

Plymouth Plant
600 Junction
Plymouth, MI 48170
(734) 459-0200
Fax: (734) 241-1803

Flat Rock Plant
14675 S. Telegraph Rd.
Flat Rock, MI 48134
(734) 783-1020
Fax: (734) 241-1803

MESSINA CONCRETE INC.

seeMIX II Mix Report
MDOT P1 SLIPFORM #08-1021
Strength Compressive: 3,500 psi
2014-07-03

Contractor : GORETSKI
Project : CITY OF NOVI
Source of Concrete : Messina Concrete Inc.
Construction Type : Slip Form Curb
Placement : Slip Form Curb Machine

Weights per Cubic Yard (Saturated, Surface-Dry)

	Quantity	Density	Yield, ft³
Lafarge Type I/II, lb	400	3.150	2.04
GRADE 100 GGBFS, lb	130	3.050	0.68
City Water, lb	210	1.000	3.37
Stoneco MDOT 6aa, lb	1,711	2.580	10.63
Barrett MDOT 2NS , lb	1,454	2.640	8.83
GRT POLY CHEM AIR , oz (US)	10.6	1.000	0.01
GRT KB1000, oz (US)	15.9	1.000	0.02
Total Air, %	6.0 ± 1.5		1.63
		TOTAL	27.20

Water/Cement Ratio, lbs/lb	0.40
Slump, High, in	2.00
Low, in	1.00
Concrete Unit Weight, pcf	143.65
Yield, %	100.7

Exposure Condition : Moderate exposure

Prepared by :

Vince Messina

Monroe Plant
725 N. Dixie Hwy.
Monroe, MI 48162
(734) 241-8380
Fax: (734) 241-1803

Plymouth Plant
600 Junction
Plymouth, MI 48170
(734) 459-0200
Fax: (734) 241-1803

Flat Rock Plant
14675 S. Telegraph Rd.
Flat Rock, MI 48134
(734) 783-1020
Fax: (734) 241-1803

MESSINA CONCRETE INC.

seeMIX II Mix Report
MDOT P1Conventional 14-0797
Strength Compressive: 4,000 psi
2014-07-03

Contractor : PAVEMENT REPAIRS
Project : CITY OF NOVI
Source of Concrete : Messina Concrete Inc.
Construction Type : EXTERIOR CONCRETE
Placement : Conventional and or Pumpable

Weights per Cubic Yard (Saturated, Surface-Dry)

	Quantity	Density	Yield, ft³
LAFARGE TYPE I/II, lb	517	3.150	2.63
HEADWATERS CLASS F FLY ASH , lb	78	2.590	0.48
City Water, lb	265	1.000	4.25
STONECO MDOT 6AA (58-9), lb	1,763	2.600	10.87
BARRETT SAND AND GRAVEL MDOT 2NS, lb	1,161	2.600	7.16
GRT KB-1200, gal (US)	0.28	1.000	0.04
GRT SA-50 AIR ENTRAINMENT , gal (US)	0.07	1.000	0.01
Total Air, %	6.5 ± 1.5		1.77
		TOTAL	27.20

Water/Cement Ratio, lbs/lb	0.45
Slump, High, in	5.00
Low, in	3.00
Concrete Unit Weight, pcf	139.24
Yield, %	100.7

Exposure Condition : Severe exposure

Prepared by :

VINCE MESSINA

July-24-14

Goretski Construction
4850 S. Hill Rd.
Milford, Mi. 48381

Administrative Office
30701 West 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

RE: Concrete submittal for 2014 Novi Neighborhood Concrete Rd. Project.

Superior Materials, LLC submits the following concrete submittal according to all known specifications and documents. Immediately below is a summary of this submittal.

1.) Mix ID # DDP155G7 - Grade P1, 3 inch slump.
   a. JMF and Verification Forms.
2.) Mix ID # DDP155G8 - Grade P1, 5 inch slump.
   a. JMF and Verification Forms.

3.) Stockpile Management SOP

4.) Certifications
   a. NRMCA certification
   b. Scale Calibration Certification
   c. Admix Calibration Certification

5.) ASR documentation
   a. ASTM C-1293

Please provide approval status when available.

Sincerely,

Nancy Donahue

Nancy Donahue
Technical Service
Superior Materials, LLC
(248) 640-2380 Cell
nxdonahue@superiormaterials.net

Michigan Department of Transportation 1976 (04/14)

JOB MIX FORMULA (JMF)
CONCRETE FIELD COMMUNICATION

his form applies only to the project listed below and is not transferable to other project
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CONTROL SECTION	JOB NUMBER	PROJECT LOCATION	PROJECT ENGINEER
		2014 NOVI NEIGHBORHOOD CONC. RD. PRJ.	

CONCRETE SUPPLIER	PLANT LOCATION	PLANT NUMBER
Superior Materials	4492 Grand River, Novi, MI 48375	Plant 102 (M-71)

GRADE OF CONCRETE	CONCRETE PSI	MIX DESIGN NUMBER	INTENDED USE (S)	CONTRACTOR QC PLAN SUBMITTED (MDOT USE ONLY)
P1	3500	DDP165G7	PAVEMENT	Y ☐ N ☐

PRIME / SUBCONTRACTOR (S)

GORETSKI CONSTRUCTION

STANDARD SPEC DATE	QC/QA SPECIAL PROVISION	DATE	DATE EFFECTIVE	AGG. CORRECTION
2012	12SP604(A)	11/22/11		0.3

MATERIALS DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	limestone	Aggregate Type	NA		
Source Name	Stoneco - Ottawa Lake	Source Name	NA	Source Name	- American Agg. Buno Road (F
MDOT Source Number	58-003	MDOT Source Number	NA	MDOT Source Number	47-016
MDOT Series Class	6AA	MDOT Series Class	NA	MDOT Series Class	2NS
Specific Gravity (Bulk Dry)	2.67	Specific Gravity (Bulk Dry)	NA	Specific Gravity (Bulk Dry)	2.63
Specific Gravity (Bulk SSD) optional		Specific Gravity (Bulk SSD) optional		Specific Gravity (Bulk SSD) optional	
Absorption	1.53	Absorption	0	Absorption	1
Unit Weight (Dry Rodded) DR or		Unit Weight (Dry Rodded) DR or		Fineness Modulus (FM)	2.77
Unit Weight (Dry Loose) DL	93.6	Unit Weight (Dry Loose) DL	0		
Percent Crushed	100	Percent Crushed	100		
MDOT Freeze-Thaw (F-T) Dilation	0.013	MDOT Freeze-Thaw (F-T) Dilation	NA		
Specific Gravity (Bulk Dry) of F-T Sample *	2.67	Specific Gravity (Bulk Dry) of F-T Sample *	NA		
Date of MDOT Freeze-Thaw Report	10/19/10	Date of MDOT Freeze-Thaw Report	NA		

* If the bulk specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tetsted freeze-thaw sample, the aggregate will be considered to have changed characteristics and be required to have a new freeze-thaw test conducted prior to use on Department projects.

CEMENTITIOUS	
Cement Source / Plant	St. Marys Detroit
Cement Type	I
Cement Specific Gravity	3.15
Fly Ash Source (distributer & plant)	NA
Fly Ash Class	NA
Fly Ash Specific Gravity	NA
Slag Cement Source	St. Marys
Slag Cement Grade	100
Slag Cement Specific Gravity	2.9
Other	NA

ADMIXTURES			
Air Entrainer* (Source/Product/Type) w/ticket code (a	BASF MasterAir AE 200	AE	XUE12
WR** (Source/Product/Type) w/ticket code (abv.)	BASF MasterPozzolith 200	D	XUN12
MR*** (Source/Product/Type) w/ticket code (abv	NA	NA	NA
HR**** (Source/Product/Type) w/ticket code (ab	NA	NA	NA
Accelerator (Source/Product/Type) w/ ticket code (ab	NA	NA	NA
Other (Source/Product/Type) w/ ticket code (abv.	NA	NA	NA

TYPE OF MIX WINTER / SUMMER Summer

*** If AE dosage is less than 1.0 oz/cwt...DO NOT REJECT...refer to notes at end of QPL Admix Listings.**

**Water Reducer / ***Mid-Range Water Reducer / ****High-Range Water Reducer

MIX PROPORTIONS

Bulk Volume of Coarse Aggregate (DL)	0.70
Coarse Aggregate Weight (Dry)	1766
Intermediate Aggregate Weight (Dry)	0
Fine Aggregate Weight (Dry)	1254
Portland Cement Weight	367
Fly Ash Weight	0
Fly Ash Percent of Cementitious	0
Slag Cement Weight	197
Slag Cement Percent of Cementitious	35
Total Water Weight	296
Net Water Weight	256
W/C (as designed)	0.45

Air Entrainer* (dosage)	1.1	oz/cwt	HR (dosage)	NA	NA
WR (dosage)	4.0	oz/cwt	Accelerator (dosage)	NA	NA
MR (dosage)	NA	NA	Other (dosage)	NA	NA

Design Slump* (in)	3.0
Design Air %	6.5%
Specified Air %	5.0% - 8.0%
PSI minimum required	3500
Total Cementitious	564
Yield cu/ft	27
Mix submitted By:	NANCY DONAHUE
	MCA/ACI Level II Certified Tech.
Date:	7/24/14

*Mixes with MR can go to a 6 inch slump max. as long as 0.45 w/c ratio is not exceeded.

Remarks: MEETS ALL KNOWN REQUIREMENTS

Portland Cement Concrete (PCC) Mixture Design Verification: **For PCC Grade:** P1

Mix Verification: For Mix Number: DDP165G7

Mix Verification Method: 1

Mix Verification tests conducted by: Superior Materials, LLC (Laboratory)

Project Number:
Job Number:

Address: 10147 Grand River
City / State / Zip: Brighton, MI 48116
Telephone: 248-788-8000

Verification Mix Proportions*

*Refer to accompanying JMF Form for specifics on materials used in concrete mix design.

Workability Factor, b/bo	0.70	
b/bo, Based on Unit Weight (DL) or (DR)	DL	
Coarse Aggregate Weight (Dry)	1766	
Intermediate Aggregate Weight (Dry)	0	
Fine Aggregate Weight (Dry)	1254	
Portland Cement Weight	367	
Fly Ash Weight	0	
Fly Ash Percent of Cementitious	0	
GGBFS Weight	197	
GGBFS Percent of Cementitious	35	
Total Water Weight	296	
Net Water Weight	256	
W/C (as designed)	0.45	
Air Entrainer (dosage)	1.1	oz/cwt
Water Reducer (dosage)	4.0	oz/cwt
Mid Range Water Reducer (dosage)	NA	NA
High Range Water Reducer (dosage)	NA	NA
Accelerator (dosage)	NA	NA
Other (dosage)	NA	NA

Verification Mix Properties

	Batch 1	Batch 2	Batch 3
Date of Batch	8/12/12	8/12/12	8/16/12
Air Content	5.9	6.4	6
Slump	2.75	3	2.75
Temperature	72	71	71
Density (pcf)	143.2	142.8	143.4
Strength at Days Old			
Cylinder 1			
Cylinder 2			
Average			
Strength at 7 Days Old			
Cylinder 1	4970	4990	5010
Cylinder 2			
Average	4970	4990	5010
Strength at 28 Days Old			
Cylinder 1	6340	5710	6560
Cylinder 2	6300	5640	6320
Average	6320	5675	6440

Statement of Verification

All applicable ACI and ASTM methods have been followed in verifying this mix design.

Signed: Nancy Donahue Date: 7/24/14

Title: Technical Service / MCA-ACI Level II Certified Technician

Michigan Department of Transportation 1976 (04/14)

JOB MIX FORMULA (JMF)

CONCRETE FIELD COMMUNICATION

his form applies only to the project listed below and is not transferable to other project

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CONTROL SECTION	JOB NUMBER	PROJECT LOCATION	PROJECT ENGINEER
		2014 NOVI NEIGHBORHOOD CONC. RD. PRJ.	

CONCRETE SUPPLIER	PLANT LOCATION	PLANT NUMBER
Superior Materials	4492 Grand River, Novi, MI 48375	Plant 102 (M-71)

GRADE OF CONCRETE	CONCRETE PSI	MIX DESIGN NUMBER	INTENDED USE (S)	CONTRACTOR QC PLAN SUBMITTED (MDOT USE ONLY)
P1	3500	DDP165G8	PAVEMENT	Y ☐ N ☐

PRIME / SUBCONTRACTOR (S)

GORETSKI CONSTRUCTION

STANDARD SPEC DATE	QC/QA SPECIAL PROVISION	DATE	DATE EFFECTIVE	AGG. CORRECTION
2012	12SP604(A)	11/22/11		0.3

MATERIALS DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	limestone	Aggregate Type	NA		
Source Name	Stoneco - Ottawa Lake	Source Name	NA	Source Name	- American Agg. Buno Road (F
MDOT Source Number	58-003	MDOT Source Number	NA	MDOT Source Number	47-016
MDOT Series Class	6AA	MDOT Series Class	NA	MDOT Series Class	2NS
Specific Gravity (Bulk Dry)	2.67	Specific Gravity (Bulk Dry)	NA	Specific Gravity (Bulk Dry)	2.63
Specific Gravity (Bulk SSD) optional		Specific Gravity (Bulk SSD) optional		Specific Gravity (Bulk SSD) optional	
Absorption	1.53	Absorption	0	Absorption	1
Unit Weight (Dry Rodded) DR or		Unit Weight (Dry Rodded) DR or		Fineness Modulus (FM)	2.77
Unit Weight (Dry Loose) DL	93.6	Unit Weight (Dry Loose) DL	0		
Percent Crushed	100	Percent Crushed	100		
MDOT Freeze-Thaw (F-T) Dilation	0.013	MDOT Freeze-Thaw (F-T) Dilation	NA		
Specific Gravity (Bulk Dry) of F-T Sample *	2.67	Specific Gravity (Bulk Dry) of F-T Sample *	NA		
Date of MDOT Freeze-Thaw Report	10/19/10	Date of MDOT Freeze-Thaw Report	NA		

* If the bulk specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tetsted freeze-thaw sample, the aggregate will be considered to have changed characteristics and be required to have a new freeze-thaw test conducted prior to use on Department projects.

CEMENTITIOUS	
Cement Source / Plant	St. Marys Detroit
Cement Type	I
Cement Specific Gravity	3.15
Fly Ash Source (distributer & plant)	NA
Fly Ash Class	NA
Fly Ash Specific Gravity	NA
Slag Cement Source	St. Marys
Slag Cement Grade	100
Slag Cement Specific Gravity	2.9
Other	NA

ADMIXTURES			
Air Entrainer* (Source/Product/Type) w/ticket code (a	BASF MasterAir AE 200	AE	XUE12
WR** (Source/Product/Type) w/ticket code (abv.)	NA	NA	NA
MR*** (Source/Product/Type) w/ticket code (abv	BASF MasterPolyheed 997	MR	XUM11
HR**** (Source/Product/Type) w/ticket code (abv	NA	NA	NA
Accelerator (Source/Product/Type) w/ ticket code (abv	NA	NA	NA
Other (Source/Product/Type) w/ ticket code (abv.	NA	NA	NA

TYPE OF MIX WINTER / SUMMER Summer

*** If AE dosage is less than 1.0 oz/cwt...DO NOT REJECT...refer to notes at end of QPL Admix Listings.**

**Water Reducer / ***Mid-Range Water Reducer / ****High-Range Water Reducer

MIX PROPORTIONS

Bulk Volume of Coarse Aggregate (DL)	0.70
Coarse Aggregate Weight (Dry)	1766
Intermediate Aggregate Weight (Dry)	0
Fine Aggregate Weight (Dry)	1254
Portland Cement Weight	367
Fly Ash Weight	0
Fly Ash Percent of Cementitious	0
Slag Cement Weight	197
Slag Cement Percent of Cementitious	35
Total Water Weight	296
Net Water Weight	256
W/C (as designed)	0.45

Air Entrainer* (dosage)	1.0	oz/cwt	HR (dosage)	NA	NA
WR (dosage)	NA	NA	Accelerator (dosage)	NA	NA
MR (dosage)	8.0	oz/cwt	Other (dosage)	NA	NA

Design Slump* (in)	5.0
Design Air %	6.5%
Specified Air %	5.0% - 8.0%
PSI minimum required	3500
Total Cementitious	564
Yield cu/ft	27
Mix submitted By:	NANCY DONAHUE
	MCA/ACI Level II Certified Tech.
Date:	7/24/14

*Mixes with MR can go to a 6 inch slump max. as long as 0.45 w/c ratio is not exceeded.

Remarks: MEETS ALL KNOWN REQUIREMENTS

Portland Cement Concrete (PCC) Mixture Design Verification: **For PCC Grade:** P1

Mix Verification: For Mix Number: DDP165G8

Mix Verification Method: 1

Mix Verification tests conducted by: Superior Materials, LLC (Laboratory)

Project Number:
Job Number:

Address: 10147 Grand River
City / State / Zip: Brighton, MI 48116
Telephone: 248-788-8000

Verification Mix Proportions*

Workability Factor, b/bo	0.70	
b/bo, Based on Unit Weight (DL) or (DR)	DL	
Coarse Aggregate Weight (Dry)	1766	
Intermediate Aggregate Weight (Dry)	0	
Fine Aggregate Weight (Dry)	1254	
Portland Cement Weight	367	
Fly Ash Weight	0	
Fly Ash Percent of Cementitious	0	
GGBFS Weight	197	
GGBFS Percent of Cementitious	35	
Total Water Weight	296	
Net Water Weight	256	
W/C (as designed)	0.45	
Air Entrainer (dosage)	1.0	oz/cwt
Water Reducer (dosage)	NA	NA
Mid Range Water Reducer (dosage)	8.0	oz/cwt
High Range Water Reducer (dosage)	NA	NA
Accelerator (dosage)	NA	NA
Other (dosage)	NA	NA

*Refer to accompanying JMF Form for specifics on materials used in concrete mix design.

Verification Mix Properties

	Batch 1	Batch 2	Batch 3
Date of Batch	7/12/12	7/17/12	7/23/12
Air Content	6.5	6.6	5.8
Slump	5	5	4.5
Temperature	83	82	82
Density (pcf)	142.7	142.5	143.7
Strength at Days Old			
Cylinder 1			
Cylinder 2			
Average			
Strength at 7 Days Old			
Cylinder 1	5320	5120	5230
Cylinder 2			
Average	5320	5120	5230
Strength at 28 Days Old			
Cylinder 1	5900	5820	6330
Cylinder 2	6010	6000	6430
Average	5955	5910	6380

Statement of Verification

All applicable ACI and ASTM methods have been followed in verifying this mix design.

Signed: Nancy Donahue Date: 7/24/14

Title: Technical Service / MCA-ACI Level II Certified Technician

SOP Ops82
Effective Date 1-5-03

SUPERIOR MATERIALS, INC
STANDARD OPERATING PROCEDURE

FUNCTION	OPERATIONS	TOPIC	AGGREGATE STOCK PILE MANAGEMENT & USE

OBJECTIVE (S): Standardized procedure for aggregates inventory and use during concrete production.

RESPONSIBILITY: Plant operators, yardmen, area managers.

(1) STATEMENT OF POLICY

a. Proper aggregate inventory/use procedures are mandatory to eliminate material cross contamination and segregation issues as well as inventory balancing/control.

b. The required procedures apply for all concrete production facilities – including both wet and dry batched plants, and the block plant.

(2) REQUIRED PROCEDURES

a. Before any aggregate(s) are received in the yards:
   - Appropriately sized storage bins (as determined by the applicable area manager) must be constructed.
     i. The area selected must be pitched to prevent rain-water or rain-bird collection/ponding.
     ii. The area selected must be not impede gravel train or front loader traffic.
         1. Do not allow mixer traffic and aggregate traffic to cross.
     iii. Use interlocking concrete blocks erected to an elevation of 8'.
         1 The block storage bin must have three sides and an open face.
     iv. Label each yard storage bin with lettering at least 12" in height. Use the following designations for labeling:

1. 6AA, 6A, 2NS, 467, 29A, 26A, HAYDITE C, HAYDITE B, 17A, PEASTONE, 31A, 6AASLAG

b. When receiving raw materials into the yard:
   - All delivery tickets must be signed by the plant operator, before dumping.
   - The plant operator will retain a copy of the delivery.
   - The plant operator will maintain inventory in Oracle PPM and the Spectrum/Eagle batch computer.
   - The plant operator will inter-office mail these tickets to Farmington Hills office at the end of each day.

c. Maintaining aggregate stock piles:
   - The yardman will keep the stock pile levels so that the do not extend beyond, or outside of the concrete block yard storage bins.
   - For aggregate sizes of 1.5" or larger, the stone must be remixed with the loader during stock pile maintenance.
   - The yardman will operate the rain-birds (aggregate stock pile water sprinklers) from 5/1 to 9/1.

d. Using aggregates:
   - When loading the plant(s) with aggregates from stockpiles, work across the entire face of the stock pile to prevent segregation.
   - To prevent segregation, keep the plant aggregate bins full at all times.

(3) RESPONSIBILITIES

a. Plant operators and area managers are responsible for training of gravel train drivers and yardmen on procedure execution.

b. Plant operators and yardmen are responsible for procedure execution.

Approved By:_____ Date:_____

National Ready Mixed Concrete Association

NRMCA

Certificate of Conformance For Concrete Production Facilities

THIS IS TO CERTIFY THAT

Plant No. J-102, Novi, MI

Superior Materials LLC

has been inspected by the undersigned licensed professional engineer for conformance with the requirements of the *Check List for Ready Mixed Concrete Production Facilities*. As of the inspection date, the facilities met the requirements for production by

Truck Mixing with Automatic Batching and Recordings of Cementitious Materials, Aggregate, Water, and Chemical Admixtures

STATE OF MICHIGAN
WILLIAM L. FOSTER
ENGINEER
No. 36053
LICENSED PROFESSIONAL ENGINEER

(Seal)

Signature of Licensed Professional Engineer

May 11, 2012	*June 01, 2014*
Inspection Date	Certification Expiration Date

This company will maintain these facilities in compliance with the *Check List* requirements and will correct promptly any deficiencies which develop.

Lynn D. Peckens	MANAGER
Signature of Company Official	Title of Company Official

NOTICE: The Check List indicates only that plant facilities are satisfactory for the production of concrete when properly operated. Conformance of the concrete itself with specification requirements must be verified by usual inspection methods in accordance with sales agreements.

This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal action.

Plant ID #: 814754

Certification ID #: 14462

National Ready Mixed Concrete Association 900 Spring Street • Silver Spring • Maryland 20910

BRAUN INTERTEC

Braun Intertec Corporation
11001 Hampshire Ave S
Minneapolis, MN 55438

Phone: 952.995.2000
Fax: 952.995.2020
Web: braunintertec.com

May 22, 2014

Project BL-14-00351

Mr. Lynn Peckens
Superior Materials
30701 West 10 Mile
Suite 500
Farmington Hills, MI 48336

Re: NRMCA Plant Certification
Plant #J-102,
Novi, MI

Dear Mr. Peckens:

This letter has been provided to document the inspection of Superior Materials' Plant#J-102. Mr. Gardiner visited the plant and conducted an inspection utilizing the NRMCA Plant Certification Guidelines on April 21, 2014. The documentation form this inspection was submitted to NRMCA for approval as all the criteria required for plant certification was met.

We are currently waiting to receive the certificates from NRMCA to sign and send to Superior Materials. If you have any questions or concerns, please do not hesitate to contact Alfred Gardiner at 612.685.5125.

Sincerely,

BRAUN INTERTEC CORPORATION

Alfred Gardiner, PE
Principal, Laboratory Director
Manager Concrete Consulting