



COPY

Liberty Mutual Surety
Attention: LMS Claims
PO Box 34526
Seattle, WA 98124
Phone: (206) 473-6210
Fax: (866) 548-6873
Email: HOSCL@libertymutual.com
www.LibertyMutualSuretyClaims.com

Liberty Mutual Insurance Company
BID OR PROPOSAL BOND

KNOW ALL MEN BY THESE PRESENTS, That we, E T MacKenzie Company of 6400 Jackson Road Ann Arbor MI 48103 (hereinafter called the Principal) as Principal, and Liberty Mutual Insurance Company, with its principal office in the City of Boston, MA (hereinafter called the Surety), as Surety, are held and firmly bound unto City of Ann Arbor, 301 E Huron Street, Ann Arbor, MI 48104 (hereinafter called the Obligee) in the penal sum of Five Percent of Bid Dollars (5% of Bid) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas, the Principal has submitted the accompanying bid dated 1/13/2022 for ITB#4702 Third & Mosley Water Main and Resurfacing Project.

NOW, THEREFORE, if the Obligee shall make any award according to the terms of said bid and the Principal shall enter into a contract with said Obligee in accordance with the terms of said bid and give bond for the faithful performance thereof within the time specified; or if no time is specified within thirty days after the date of said award; or if the Principal shall, in the case of failure so to do, indemnify the Obligee against any loss the Obligee may suffer directly arising by reason of such failure, not exceeding the penalty of this bond, then this obligation shall be null and void; otherwise to remain in full force and virtue.

Signed, sealed and dated: 1/13/2022

E T MacKenzie Company
Principal

By: 
Michael S. Marks, President

Liberty Mutual Insurance Company

By: 
Robert G Chapman (Attorney-in-fact)





This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: 8204909-013057

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Cloyd W. Barnes; David G. Chapman; Marcia J. Miller; Nathan G. Chapman; Robert G. Chapman

all of the city of Lansing state of MI each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 24th day of February, 2021.



Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 24th day of February, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 13th day of January, 2022



By: Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, nor loan, letter of credit, currency rate, interest rate, residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

INVITATION TO BID

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, Notice of Pre-Bid Conference, Instructions to Bidders, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this Bid is one part.

In accordance with these bid documents, and Addenda numbered 1, the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:320 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Bid shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS 13TH DAY OF January, 2022

E.T. Mackenzie company

Bidder's Name

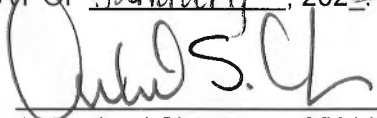
8197 JACKSON RD.

ANN ARBOR, MI 48103

Official Address

734-761-5050

Telephone Number



Authorized Signature of Bidder

Michael S. Marks, President

(Print Name of Signer Above)

mmarks@mackenzieco.com

Email Address for Award Notice

dk.pke@mackenzieco.com

LEGAL STATUS OF BIDDER

(The Bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the State of Michigan, for whom Michael S Marks, bearing the office title of President, whose signature is affixed to this Bid, is authorized to execute contracts.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

~~A limited liability company doing business under the laws of the State of _____ whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.~~

~~* A partnership, organized under the laws of the state of _____ and filed in the county of _____, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):~~

~~_____

_____~~

* An individual, whose signature with address, is affixed to this Bid: N/A
(initial here)

Authorized Official  Date January 13, 2022

(Print) Name Michael S Marks Title President

Company: E. T. Mackenzie Company

Address: 8197 JACKSON RD., ANN ARBOR, MI 48103

Contact Phone (734) 761-5050 Fax (734) 761-5323

Email mmarks@mackenzieco.com
dk.pke@mackenzieco.com

BID FORM
SCHEDULE OF PRICES

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
130	Protective Fencing	Ft	400	\$ 2.90	\$ 1,160.00
201	General Conditions, Max \$135,000 (10%)	LS	1	\$ 23,681.00	\$ 23,681.00
202	Project Supervision, Max \$35,000 (2.5%)	LS	1	\$ 12,598.00	\$ 12,598.00
203	Minor Traffic Control, Max \$65,000 (5%)	LS	1	\$ 1.00	\$ 1.00
204	Digital Audio Visual Coverage	LS	1	\$ 1,111.50	\$ 1,111.50
205	Certified Payroll Compliance and Reporting	LS	1	\$ 1.00	\$ 1.00
206	"No Parking" Sign	Each	27	\$ 115.50	\$ 3,118.50
207	Type III Lighted Barricade, Furn. & Oper.	Each	15	\$ 73.00	\$ 1,095.00
208	Sign, Portable, Changeable Message, Furn & Oper	Each	2	\$ 2,239.50	\$ 4,479.00
209	Plastic Drum, Lighted, Furn. & Oper.	Each	75	\$ 25.30	\$ 1,897.50
210	Temporary Type B Signs, Furn & Oper	SF	802	\$ 4.35	\$ 3,488.70
211	Temporary Type B Sign, Special, Furn & Oper	SF	68	\$ 4.50	\$ 306.00
212	Sidewalk Barricade, Furn & Oper	Each	8	\$ 68.10	\$ 544.80
213	Lighted Arrow, Type C, Furn & Oper	Each	2	\$ 487.00	\$ 974.00
214	Clean-Up & Restoration, Special, Max \$25,000 (1.7%)	LS	1	\$ 1.00	\$ 1.00
215	Pedestrian Type II Channelizer, Temp	LF	300	\$ 11.35	\$ 3,405.00
216	Pedestrian Path, Temp	LF	100	\$ 49.20	\$ 4,920.00
217	Pedestrian Ramp, Temp	Each	4	\$ 1,439.00	\$ 5,756.00
218	Irrigation System, Protection and Maintenance	LS	1	\$ 2,566.50	\$ 2,566.50
220	Adjust Structure Cover, Modified	Each	13	\$ 999.25	\$ 12,990.25
221	Additional Depth Structure Cover, Adjust/Repair	Each	7	\$ 620.75	\$ 4,345.25
222	Structure Cover, Special	Lbs	4200	\$ 1.65	\$ 6,930.00
230	Sewer Any Size or Depth, Remove	Lft	120	\$ 7.30	\$ 876.00
231	Dr Structure, Any Size or Type, Rem	Each	8	\$ 147.25	\$ 1,178.00
240	Water Main Pipe Abandonment, Modified	LF	1483	\$ 2.80	\$ 4,152.40
241	Fire Hydrant Assembly Abandonment	Each	3	\$ 1,155.50	\$ 3,466.50
242	6 inch Temporary Water Main Line Stop	Each	2	\$ 12,182.50	\$ 24,365.00
243	8 inch Temporary Water Main Line Stop	Each	2	\$ 12,543.25	\$ 25,086.50
244	12 inch Temporary Water Main Line Stop	Each	2	\$ 13,611.50	\$ 27,223.00
TOTAL THIS PAGE (BF-1) (Also to be entered on BF-4)				\$	181,717.40

BID FORM
SCHEDULE OF PRICES

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
245	6 inch Temporary Water Main Line Stop, Additional Rental	Each	2	\$ 529.25	\$ 1,058.50
246	8 inch Temporary Water Main Line Stop, Additional Rental	Each	2	\$ 529.25	\$ 1,058.50
247	12 inch Temporary Water Main Line Stop, Additional Rental	Each	2	\$ 529.25	\$ 1,058.50
248	Tapping Sleeve, Valve and Well, Remove	Each	1	\$ 105.00	\$ 105.00
250	Fire Hydrant Assembly	Each	3	\$ 5,882.00	\$ 17,646.00
260	Pavement Removal, Any Thickness	SY	3750	\$ 3.60	\$ 13,500.00
262	Remove Concrete Curb or Curb and Gutter - Any Type, Mo	LF	1400	\$ 7.40	\$ 10,360.00
263	Remove Concrete Sidewalk, Ramp, and Drives - Any Thick	SF	3060	\$ 1.60	\$ 4,896.00
264	Maintenance Gravel	Ton	200	\$ 25.10	\$ 5,020.00
265	Subgrade Undercutting and Backfill, Type IIB, Modified	CY	150	\$ 97.50	\$ 14,625.00
266	Machine Grading, Modified (Third)	Sta	4.7	\$ 1,370.35	\$ 6,440.65
267	Machine Grading, Modified (Mosely)	Sta	10.5	\$ 2,140.00	\$ 22,470.00
268	Flowable Fill (Backfill)	Cyd	5	\$ 315.50	\$ 1,577.50
269	Non-Hazardous Contam'd Material Handling & Disposal	Cyd	50	\$ 150.75	\$ 7,537.50
270	21AA Limestone - C.I.P	Cyd	880	\$ 59.50	\$ 52,360.00
273	Cold-Milling HMA Surface	SY	2370	\$ 6.95	\$ 16,471.50
274	Hand Patching, Modified	Ton	10	\$ 450.00	\$ 4,500.00
275	HMA, 4E1 -Top Course	Ton	710	\$ 125.00	\$ 88,750.00
277	HMA,4E1 - Base Course	Ton	415	\$ 140.75	\$ 58,411.25
280	Concrete Curb and Gutter, Conc, Det SD-R-1, Special	LF	1000	\$ 33.95	\$ 33,950.00
282	4" Concrete Sidewalk	SF	380	\$ 11.90	\$ 4,522.00
283	6" Concrete Sidewalk, Ramp, or Drive Approach	SF	200	\$ 11.65	\$ 2,330.00
284	6" Concrete Sidewalk, Ramp, or Drive Approach-HE	SF	2065	\$ 11.80	\$ 24,367.00
285	Concrete Type M Drive Opening, HE	LF	400	\$ 38.10	\$ 15,240.00
287	Detectable Warning, Cast In Place	SF	30	\$ 30.35	\$ 910.50
290	Sprayable Thermoplastic, White, 12 inch	Lft	565	\$ 5.80	\$ 3,277.00
291	Sprayable Thermoplastic, White, 24 inch Stop Bar	Lft	105	\$ 11.60	\$ 1,218.00
TOTAL THIS PAGE (BF-2) (Also to be entered on BF-4)				\$	413,660.40

BID FORM

SCHEDULE OF PRICES

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
295	Fertilizer, Chemical Nutrient, CL A	Lbs	115	\$ 2.20	\$ 253.00
296	Mulch Blanket, High Velocity	Syd	845	\$ 9.55	\$ 8,069.75
297	Seeding, Mixture THM	Lbs	50	\$ 3.65	\$ 182.50
298	Topsoil Surface, Furn, 4 inch	Syd	845	\$ 10.10	\$ 8,534.50
320	RCP, Sewer, C76, CL-IV, 12 inch, Tr Det I	LFt	120	\$ 191.25	\$ 22,950.00
335	SDR 35, PVC Tee	Each	2	\$ 685.55	\$ 1,371.10
350	SDR 35, PVC Riser	Vft	10	\$ 105.65	\$ 1,056.50
353	SDR 35, PVC Service Lead 4 inch	LF	40	\$ 100.60	\$ 4,024.00
367	Single Inlet	Each	11	\$ 3,056.20	\$ 33,618.20
400	12 inch, Class 50, DIP w/polywrap, Tr Det I, Mod	LF	1110	\$ 246.55	\$ 273,670.50
401	8 inch, Class 50, DIP w/polywrap, Tr Det I, Mod	LF	596	\$ 193.60	\$ 115,385.60
410	12" 11.25° Bend	Each	1	\$ 1,186.35	\$ 1,186.35
411	12" 22.5° Bend	Each	2	\$ 1,369.50	\$ 2,739.00
412	12" 45° Bend	Each	24	\$ 1,340.35	\$ 32,168.40
413	8" 11.25° Bend	Each	2	\$ 1,103.60	\$ 2,207.20
415	8" 45° Bend	Each	19	\$ 1,079.55	\$ 20,511.45
416	12" x 8" Reducer	Each	1	\$ 850.00	\$ 850.00
417	12" x 6" Reducer	Each	3	\$ 738.25	\$ 2,214.75
418	8" x 6" Reducer	Each	3	\$ 662.15	\$ 1,986.45
430	12" x 12" x 12" Tee	Each	5	\$ 1,484.60	\$ 7,423.00
431	12" x 12" x 8" Tee	Each	1	\$ 1,392.75	\$ 1,392.75
432	8" x 8" x 8" Tee	Each	2	\$ 1,210.25	\$ 2,420.50
442	8" Gate Valve-in-Box	Each	1	\$ 3,392.25	\$ 3,392.25
443	12" Gate Valve-in-Box	Each	1	\$ 4,430.75	\$ 4,430.75
446	12" Gate Valve-in Well	Each	4	\$ 9,114.00	\$ 36,456.00
460	Excavate and Backfill for Water Service Tap and Lead	LFt	335	\$ 261.55	\$ 87,619.25
482	Gate Valve-in-Box Abandonment	Each	2	\$ 1,270.80	\$ 2,541.60
483	Gate Valve-in-Well Abandonment	Each	1	\$ 1,240.50	\$ 1,240.50
TOTAL THIS PAGE (BF-3) (Also to be entered on BF-4)				\$	679,895.85

BID FORM
SCHEDULE OF PRICES

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
516	6" Wrapped Edge Drain	Lft	1045	\$ 20.00	\$ 20,900.00
702	Inlet Filter	Each	19	\$ 142.40	\$ 2,705.60
703	Silt Fence	LF	400	\$ 2.80	\$ 1,120.00
TOTAL THIS PAGE (BF-4) (Also to be entered below)				\$	24,725.60
TOTAL FROM PAGE BF-1				\$	181,717.40
TOTAL FROM PAGE BF-2				\$	413,660.40
TOTAL FROM PAGE BF-3				\$	679,895.85
TOTAL FROM PAGE BF-4				\$	24,725.60
TOTAL BASE BID				\$	1,299,999.25

BID FORM

Section 2 – Material, Equipment and Environmental Alternates

The Base Bid proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

If an environmental alternative is bid the City strongly encourages bidders to provide recent examples of product testing and previous successful use for the City to properly evaluate the environmental alternative. Testing data from independent accredited organizations are strongly preferred.

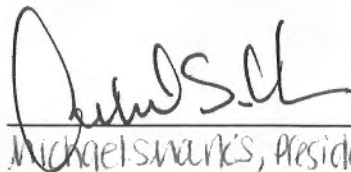
<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
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N/A

If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the Contract.

Signature of Authorized Representative of Bidder


Michael Swank's, President

Date 1/13/2022

BID FORM

Section 3 - Time Alternate

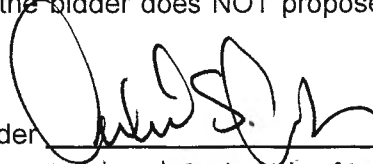
If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-2, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

N/A

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the Contract.

Signature of Authorized Representative of Bidder



Date

1/13/2022

Michael S. Marks, President

BID FORM

Section 4 - Major Subcontractors

For purposes of this Contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of Contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision to Section 4 of the General Conditions covering subcontractor's employees who perform work on this contract.

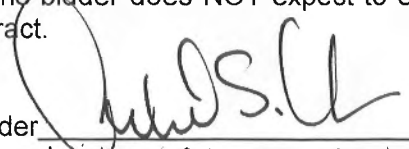
For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified:

<u>Subcontractor (Name and Address)</u>	<u>Work</u>	<u>Amount</u>
FINISHING TOUCH PHOTO STUDIO	ASPHALT CONCRETE	TBD
CADILLAC ASPHALT	ASPHALT PAVING	TBD
PAYMENT RECYCLING, INC	COLD MILLING	TBD
WATER TAP, INC	LINE STOPS	TBD
PK CONTRACTING	PAYMENT MARKINGS	TBD
SPARTAN BARRICADE	TRAFFIC CONTROL	TBD

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the Contract.

Signature of Authorized Representative of Bidder



Michael S. Marks, President

Date 1/13/2022

BID FORM

Section 5 – References

Include a minimum of three (3) references from similar projects completed within the past three (3) years.

1) See attached. _____
Project Name Cost Date Constructed

Contact Name Phone Number

2) _____
Project Name Cost Date Constructed

Contact Name Phone Number

3) _____
Project Name Cost Date Constructed

Contact Name Phone Number

BID FORM

Section 6 – Contractor Information and Responsible Contractor Criteria

Backup documentation may be requested at the sole discretion of the City to validate all of the responses provided herein by bidders. False statements by bidders to any of the criteria provided herein will result in the bid being considered non-responsive and will not be considered for award.

Failure to provide responses to all questions may result in being deemed non-responsive.

Attach additional pages as needed if space below is insufficient.

Pursuant to Sec 1:312(20) of the City Code which sets forth requirements of a responsible bidder, Bidder is required to submit the following:

1. Organization Name: E.T. MacKenzie Company

Social Security or Federal Employer I.D. #: 38-2405622

Address: 4248 West Saginaw Hwy.

City: Grand Ledge State: MI Zip: 48837

Type of Organization (circle one below):

Individual Partnership Corporation Joint Venture Other

If "Other" please provide details on the organization:

Year organization established: 1982

2. Current owners/principals/members/managing members/partners of the organization:

Michael S. Marks, President Thomas MacKenzie, Vice President Stephanie MacKenzie, Sec/Treasurer

3. Assumed Names, "doing business as" d/b/a, and/or former organization names(s), if applicable: None

Explanation of any business name changes:

N/A

4. If applicable, please provide a list of all bidder's litigation and arbitrations currently pending and within the past five years, including an explanation of each (parties, court/forum, legal claims, damages sought, and resolution).

N/A

5. Qualifications of management and supervisory personnel to be assigned by the bidder:

Please see the attached resumes.

6. List the state and local licenses and license numbers held by the bidder:

State Of Michigan - 2104063278; City of A2 Contractor - Cont-4881; City of A2 Sewer Installer - 2849; City of Jackson prequalified
City of Grand Rapids - UG-00172 and SBL-10016; City of Lansing Drain Layer - 129 and Demo - 4278; MDOT prequalified -01886

7. Will all subcontractors, employees and other individuals working on the construction project maintain current applicable licenses required by law for all licensed occupations and professions?

Yes

No

8. Will contractors, subcontractors, employees, and other individuals working on the construction project be misclassified by bidder as independent contractors in violation of state or federal law?

Yes

No

9. Submit a statement as to what percentage of your work force resides within the City of Ann Arbor, and what percentage resides in Washtenaw County, Michigan, and the same information for any major subcontractors.

City of Ann Arbor - 1 employee, 0.5%

Washtenaw County - 3 employees, 1.7%

10. Submit documentation as to bidder's employee pay rates (e.g., certified payroll without SSN or personal identifying information, or chart of job titles and pay rates, or other evidence). Please find the attached Prevailing Wage rates that will be utilized for this project attached after the "Responsible Contractor Criteria"

11. State whether bidder provides health insurance, pension or other retirement benefits, paid leave (vacation, personal time, sick leave, etc), or other benefits to its employees, and if so, state whether each benefit is provided directly to employees, by payments or contributions to a third-party administered plan, in cash (e.g., fringe benefit portion of prevailing wages), or other manner.

Medical insurance, voluntary dental and vision, a profit sharing 401K plan and an Employee Assistance program is provided to all eligible employees.

12. State whether bidder is an equal opportunity employer and does not discriminate in its hiring on the basis of race, sex, pregnancy, age, religion, national origin, marital status, sexual orientation or gender identity, height, weight, or disability.

Yes

No

13. State whether bidder has Equal Employment Opportunity Programs for minorities, women, veterans, returning citizens, and small businesses, and if so, submit supporting documentation or other evidence of such program(s).

Please find an attached copy of our Equal Employment Opportunity Policy Statement and our Employee Handbook for supporting documentation.

14. Has bidder had any violations of state, federal, or local laws or regulations, including OSHA or MIOSHA violations, state or federal prevailing wage laws, wage and hour laws, worker's compensation or unemployment compensation laws, rules or regulations, issued to or against the bidder within the past five years?

Yes

No

If you answered "yes" to the question above, for each violation provide an explanation of the nature of the violation, the agency involved, a violation or reference number, any other individual(s) or party(ies) involved, and the status or outcome and resolution. *Please find the attached information following the "Responsible Contractor Criteria"*

15. Does bidder have an existing Fitness for Duty Program (drugs and alcohol testing) of each employee working on the proposed jobsite?

Yes

No

If you answered "Yes", please submit documentation of the Fitness for Duty Program and what it entails. *Please find the attached information following the "Responsible Contractor Criteria"*

16. Submit documents or evidence of any debarment by any federal, state or local governmental unit and/or findings of non-responsibility or non-compliance with respect to any public or private construction project performed by the bidder. *N/A*

17. Proof of insurance, including certificates of insurance, confirming existence and amount of coverage for liability, property damage, workers compensation, and any other insurances required by the proposed contract documents. *See attached - Proof of Insurance Statement / Policy*

18. Does bidder have an on-going MIOSHA-approved safety-training program for employees to be used on the proposed job site?

Yes

No

If bidder answered "yes" to the question above, submit documentation of your safety-training program.

19. Does bidder have evidence of worker's compensation Experience Modification Rating ("EMR")?

Yes

No

EMR = 0.60 See attached letter

20. Will bidder use masters, journeypersons and apprentices on the project?

Yes

No

If bidder answered "yes" to the question above, provide the ratio of masters and journeypersons to apprentices for this project.

Ratio: N/A

If bidder answered "no" to the question above, submit documentation regarding the qualifications of each worker who may or will be assigned on the project.

If, yes, Ratio = N/A

Please find the attached information following the "Responsible Contractor Criteria"

21. Can bidder provide documentation that it participates in a Registered Apprenticeship Program (RAP) that is registered with the United States Department of Labor Office of Apprenticeship or by a State Apprenticeship Agency recognized by the Office of Apprenticeship?

Yes

No

If bidder answered "yes" to the question above, please submit a copy of the program document(s) and evidence of its registration.

If bidder answered "no" to the question above, please provide details on how you assess the skills and qualifications of any employees who do not have master or journeyperson certification or status, or are not participants in a Registered Apprenticeship Program.

Please find the attached information following the "Responsible Contractor Criteria"

22. Will bidder comply with all applicable state and federal laws and visa requirements regarding the hiring of non-US citizens, and disclosure of any work visas sought or obtained by the bidder, any of the bidder's subcontractors, or any of the bidder's employees or independent contractors, in order to perform any portion of the project?

Yes

No

23. Submit evidence that bidder has financial resources to start up and follow through on the project and to respond to damages in case of default as shown by written verification of bonding capacity equal to or exceeding the amount of the bidders scope of work on the project. The written verification must be submitted by a licensed surety company rated B+ or better in the current A.M. Best Guide and qualified to do business within the State of Michigan, and the same audited financial information for any subcontractor estimated to be paid more than \$100,000 related to any portion of the project. Please find the attached information following the "Responsible Contractor Criteria"

24. Submit evidence of a quality assurance program used by the bidder and the results of same on the bidder's previous projects.

Please find the attached information following the "Responsible Contractor Criteria"

**CITY OF ANN ARBOR
PREVAILING WAGE DECLARATION OF COMPLIANCE**

The "wage and employment requirements" of Section 1:320 of Chapter 14 of Title I of the Ann Arbor City Code mandates that the city not enter any contract, understanding or other arrangement for a public improvement for or on behalf of the city unless the contract provides that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. Where the contract and the Ann Arbor City Code are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used. Further, to the extent that any employees of the contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with section 1:320 of Chapter 14 of Title I of the Code of the City of Ann Arbor, employees shall be paid a prescribed minimum level of compensation (i.e. Living Wage) for the time those employees perform work on the contract in conformance with section 1:815 of Chapter 23 of Title I of the Code of the City of Ann Arbor.

At the request of the city, any contractor or subcontractor shall provide satisfactory proof of compliance with this provision.

The Contractor agrees:

- (a) To pay each of its employees whose wage level is required to comply with federal, state or local prevailing wage law, for work covered or funded by this contract with the City,
- (b) To require each subcontractor performing work covered or funded by this contract with the City to pay each of its employees the applicable prescribed wage level under the conditions stated in subsection (a) or (b) above.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the wage and employment provisions of the Chapter 14 of the Ann Arbor City Code. The undersigned certifies that he/she has read and is familiar with the terms of Section 1:320 of Chapter 14 of the Ann Arbor City Code and by executing this Declaration of Compliance obligates his/her employer and any subcontractor employed by it to perform work on the contract to the wage and employment requirements stated herein. The undersigned further acknowledges and agrees that if it is found to be in violation of the wage and employment requirements of Section 1:320 of the Chapter 14 of the Ann Arbor City Code it shall be deemed a material breach of the terms of the contract and grounds for termination of same by the City.

K. J. Mackenzie Company
Company Name
[Signature] 1/13/2022
Signature of Authorized Representative Date
Michael S. Marks, President
Print Name and Title
8197 Jackson Rd., Ann Arbor, MI 48103
Address, City, State, Zip
734-761-5050 mmarks@mackenzieco.com
Phone/Email address dkrke@mackenzieco.com

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500

**CITY OF ANN ARBOR
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE**

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here No. of employees

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$14.05/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$15.66/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

Check the applicable box below which applies to your workforce	
<input type="checkbox"/>	Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
<input checked="" type="checkbox"/>	Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

E.T. Mackenzie Company
Company Name

[Signature]
Signature of Authorized Representative

Date

8197 JACKSON Rd.
Street Address

ANN ARBOR, MI 48103
City, State, Zip

Michael S. Marks, President
Print Name and Title

734-761-5050 mmarks@mackenzie.com
Phone/Email address

dkipck@mackenzie.com

**CITY OF ANN ARBOR
LIVING WAGE ORDINANCE**

RATE EFFECTIVE APRIL 30, 2021 - ENDING APRIL 29, 2022

\$14.05 per hour

If the employer provides health care benefits*

\$15.66 per hour

If the employer does **NOT** provide health care benefits*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

**For Additional Information or to File a Complaint contact
Colin Spencer at 734/794-6500 or cspencer@a2gov.org**



Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr/> <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other (please describe in box below)

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
E.T. Mackenzie company	734-761-5050	
Vendor Name	Vendor Phone Number	
	1/13/2012	Michael S Marks, President
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

**CITY OF ANN ARBOR
DECLARATION OF COMPLIANCE**

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

E. Mackenzie Company
Company Name

[Signature] 1/13/2022
Signature of Authorized Representative Date

Michael S Marks, President
Print Name and Title

8197 JACKSON RD, ANN ARBOR, MI 48103
Address, City, State, Zip

734-761-5050 mmarks@mackenzieco.com
Phone/Email Address dk.pkc@mackenzieco.com

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.
You can review the entire ordinance at www.a2gov.org/humanrights.

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

E.T. MacKenzie Company Complete Projects Profile

Project Name	Owner	Engineer	Date Completed	Contract Amount	Reference	Percentage Completed by ETMC Personnel
Costco Wholesale East Lansing East Lansing, MI	Costco Wholesale, Inc. 999 Lake Drive Issaquah, WA 98027	Mulvanny G2 Architecture 1101 Second Ave., Ste. 100 Seattle, WA 98101	November 2017	Original \$5,948,885.00 Ending \$7,299,361.00	Jerry Pollock Jackson Dean Construction 3414 South 116th Street Seattle, WA 98168 425-531-1077	94%
Hoover, Greene & Hill Improvements Ann Arbor, MI	City of Ann Arbor 301 East Huron Ann Arbor, MI 48104 734-794-6410		August 2020	Original \$4,692,900.00 Ending \$5,585,055.50	Christopher Wall City of Ann Arbor 301 East Huron Ann Arbor, MI 48104 734-794-6410	82%
Cider Mill Crossings, Phase 4 Tyrone Twp., MI	Sun Cider Mill Crossings, LLC 27777 Franklin Road, Ste. 200 Southfield, MI 48034 248-208-2500	Matt Diffin Diffin-Umlor & Associates 49287 West Road Wixom, MI 48393 248-437-7803	November 2019	Original \$3,988,939.35 Ending \$4,446,073.33	Ron Hill Atwell Group LLC Two Towne Square, Ste. 700 Southfield, MI 48076 248-477-2000	78%
Honey Creek, Phase 1 Earthwork, underground utilities Scio Twp., MI	Jack Carnahan HC Investment Holdings, LLC 89 Lake Shore Road Grosse Pointe Farms, MI 48236 248-563-5800		October 2017	Original \$3,722,765.70 Ending \$4,059,244.94	Scott Betzoldt Midwestern Consulting, LLC 3815 Plaza Drive Ann Arbor, MI 48108 734-995-0200	99%
Mt Hope Park Phases I/II Delta Township, MI	Delta Charter Township 7710 West Saginaw Hwy Lansing, MI 48917 517-323-8500	Woody Isaacs Viridis Design Group 313 North Burdick Street Kalamazoo, MI 49007 269-585-2051	August 2019	Original \$3,579,300.00 Ending \$3,833,983.04	Ernie West Delta Charter Township 7710 West Saginaw Hwy Lansing, MI 48917 517-323-8500	55%
Oaks of Rockford Phase 2 Cortland Twp., MI	Oaks of Rockford MHC, LLC 11640 Townsquare Blvd. Rockford, MI 49341 248-379-2941	Zack Voogt Moore & Bruggink, Inc. 2020 Monroe NW Grand Rapids, MI 49505 616-363-9801	August 2020	Original \$3,347,506.95 Ending \$3,313,120.36	Brian Fannon Oaks of Rockford MHC, LLC 11640 Townsquare Blvd. Rockford, MI 49341 248-379-2941	86%
CRIA Taxiway Turning Improvement Lansing, MI	Capital Region Airport Authority 4100 Capital City Blvd. Lansing, MI 48906	RS&H G-3101 West Bristol Road, Ste. 300 Flint, MI 48507 810-496-6746	June 2017	Original \$3,256,594.25 Ending \$3,879,532.74	Erich Thiel RS&H G-3101 West Bristol Road, Ste. 300 Flint, MI 48507 810-496-6746	45%
100 Grand River East Lansing, MI	100 Grand River LLC 540 West Madison Ave., Ste. 2500 Chicago, IL 60661	Solomon, Cordwell, Buenz, Inc. 625 N. Michigan Ave., Ste. 800 Chicago, IL 60611	July 2021	Original \$3,156,472.30 Ending \$3,496,986.80	Chris Oakley 100 Grand River LLC 540 West Madison Ave., Ste. 2500 Chicago, IL 60661	86%

Project Name	Owner	Engineer	Date Completed	Contract Amount	Reference	Percentage Completed by MC Personnel
Cider Mill Crossings Manufactured Housing Comm. Earthwork and underground utilities Tyrone Twp., MI	Sun Cider Mill Crossings, LLC 27777 Franklin Road, Ste. 200 Southfield, MI 48034	Matt Diffin Diffin-Umlor & Associates 53115 Grand River Ave. New Hudson, MI 48165 248-437-7803	December 2016	Original \$2,995,903.30 Ending \$3,234,305.57	Erik Fix Schostak Brothers & Company, Inc. 17800 Laurel Park Drive N., Ste. 200C Livonia, MI 48152 248-262-1000	82%
Grand Ledge 2020 Streets Improvements Grand Ledge, MI	Adam Smith City of Grand Ledge 310 Greenwood Street Grand Ledge, MI 48837 517-627-2149	Wolverine Engineers & Surveyors 312 North Street Mason, MI 48854 517-676-9200	November 2020	Original \$2,767,080.75 Ending \$2,620,716.05	Don Heck, PE Wolverine Engineers & Surveyors 312 North Street Mason, MI 48854 517-676-9200	88%
Pauline Blvd MDOT Contract ID 81000-201737 Washtenaw County, MI	Michigan Dept. of Transportation State Transportation Building 425 West Ottawa Street PO Box 30050 Lansing, MI 48909	City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48104 734-794-6410	July 2019	Original \$2,430,900.00 Ending \$2,276,487.99	Igor Kotlyar City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48104 734-794-6410	78%
McLaren Offsite Infrastructure Improvements Lansing, MI	McLaren Greater Lansing 401 West Greenlawn Lansing, MI 48910	C2AE 106 West Allegan Street, Ste. 500 Lansing, MI 48933 517-371-9131	October 2020	Original \$2,387,461.90 Ending \$2,390,442.69	Adam Falkowski C2AE 106 West Allegan Street, Ste. 500 Lansing, MI 48933 517-371-9131	80%
Waverly Shores Village MHC Holland, MI	Waverly Shores Village II LLC 27777 Franklin Road, Ste. 200 Southfield, MI 48034	Atwell Group LLC Two Towne Square, Ste. 700 Southfield, MI 48076 248-477-2000	September 2017	Original \$2,325,288.80 Ending \$2,462,592.80	Ron Hill Atwell Group LLC Two Towne Square, Ste. 700 Southfield, MI 48076 248-477-2000	82%
Redwood Living @ DeWitt Twp. Clearing and Earthwork DeWitt Twp., MI	Redwood Living USA, Inc. 7007 East Pleasant Valley Road Independence, OH 44131 216-360-9441	Ian Graham Bergmann 7050 West Saginaw Hwy., Ste. 200 Lansing, MI 48917 517-272-9836	April 2021	Original \$2,206,718.46 Ending \$2,195,671.03	Steve Schlabach XL Builders LLC PO Box 267 Mount Eaton, OH 44659 330-465-4781	99%
Sunset Ridge Phase 3 Portland, MI	Len Shember Sun Communities Funding II LLC 27777 Franklin Road, Ste. 200 Southfield, MI 48034 248-208-2500	Matt Diffin Diffin-Umlor & Associates 49287 West Road Wixom, MI 48393 248-437-7803	October 2018	Original \$2,060,002.15 Ending \$2,844,187.96	Ron Hill Atwell Group LLC Two Towne Square, Ste. 700 Southfield, MI 48076 248-477-2000	84%
Plymouth & Green Water Main Ann Arbor, MI	City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48104 734-794-6410	City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48104 734-794-6410	December 2017	Original \$2,059,990.00 Ending \$2,690,955.92	Igor Kotlyar City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48104 734-794-6410	70%
					Scott Betzoldt	

Project	Owner	Engineer	Date Completed	Contract Amount	Reference	Percentage Completed by C Personnel
Trailwoods 2V Scio Township, MI	HC Investment Holdings LLC 1943 Henrietta Street Birmingham, MI 48009 248-563-5800	Midwestern Consulting LLC 3815 Plaza Drive Ann Arbor, MI 48108 734-995-0200	July 2019	Original \$1,928,042.89 Ending \$2,342,809.99	Midwestern Consulting LLC 3815 Plaza Drive Ann Arbor, MI 48108 734-995-0200	99%
Austin/Sharon Valley/McCollum Bridges MDOT Contract ID 81000-129377 Washtenaw County, MI	Michigan Dept. of Transportation State Transportation Building 425 West Ottawa Street PO Box 30050 Lansing, MI 48909	Washtenaw County Road Commission 555 Zeeb Road Ann Arbor, MI 48103 734-761-1500	January 2020	Original \$1,920,965.10 Ending \$2,276,219.80	Kelly Jones Washtenaw County Road Commission 555 Zeeb Road Ann Arbor, MI 48103 734-761-1500	82%
Oaks of Rockford Phase 2 Cortland Twp., MI	Brian Fannon Oaks of Rockford MHC, LLC 11640 Townsquare Blvd. Rockford, MI 49341 248-379-2941	Moore & Bruggink, Inc. 2020 Monroe NW Grand Rapids, MI 49505 616-363-9801	November 2018	Original \$1,915,427.25 Ending \$2,189,643.24	Zack Voogt Moore & Bruggink, Inc. 2020 Monroe NW Grand Rapids, MI 49505 616-363-9801	86%
Dansville Schools Earthwork, Underground Utilities Dansville, MI	Amy Hodgson Dansville Schools 1264 Adams Street Dansville, MI 48819	Mark Reile Kingscott & Associates 259 East Michigan Ave., Ste 308 Kalamazoo, MI 49007 269-388-4880	June 2019	Original \$1,900,800.00 Ending \$2,125,672.55	Chad Stahl Miller-Davis Construction 1029 Portage Street Kalamazoo, MI 49001 269-345-3561	94%
Dexter High School Athletic Fields Dexter, MI	Dexter Community Schools 7714 Ann Arbor Street Dexter, MI 48130	Carey Baker Beckett & Raeder 535 West William Street, Ste. 101 Ann Arbor, MI 48103 734-663-2622	December 2019	Original \$1,888,076.00 Ending \$2,053,550.68	Mike Nowosad Granger Construction Company 6267 Aurelius Road Lansing, MI 48911 517-393-1670	90%
Former Detroit House of Corrections Plymouth Township, MI	State of Michigan Dept of Tech, Management & Budget PO Box 30026 Lansing, MI 48909	Rob Smith ATC Group Service, Inc. 46555 Humboldt Dr., Ste 100 Novi, MI 48377 248-669-5140	June 2017	Original \$1,874,357.00 Ending \$1,785,387.63	Kim Smith E.T. MacKenzie Company, LLC 4248 West Saginaw Hwy Grand Ledge, MI 48837 517-627-8408	64%
Copper Creek Condominium Haslett, MI	Haslett Holdings, LLC 1650 Kendale Blvd. East Lansing, MI 48823 517-371-5000	AJ Patrick Kebs, Inc. 2116 Haslett Road Haslett, MI 48840	June 2021	Original \$1,857,117.07 Ending \$1,889,651.62	David Straub Haslett Holdings, LLC 1650 Kendale Blvd. East Lansing, MI 48823 517-371-5000	94%
Northpointe at College Fields Meridian Twp., MI	Gary Jones Jones Property Development, LLC c/o Altman Greenfield & Selvaggi, LLP 10960 Wilshire Blvd., Ste. 1900 Los Angeles, CA 90024-3805	Kebs, Inc. 2116 Haslett Road Haslett, MI 48840 517-339-1014	November 2017	Original \$1,818,845.55 Ending \$1,818,845.55	Jim Rundquist Jones Property Development, LLC 3800 Hegadorn Road Okemos, MI 48864 517-333-8900	92%
Volaris	Waypoint Residential Services, LLC 13355 Noel Road	Greg Petru Kebs, Inc. 2116 Haslett Road	November 2020	Original \$1,814,549.00	Keith Ivkovich Wieland 4162 English Oak Drive	97%

Project	Owner	Engineer	Date Completed	Contract Amount	Reference	Percentage Completed by TIC Personnel
Lansing, MI	Dallas, TX 75240 214-261-3414	Haslett, MI 48840 517-339-1014		Ending \$2,746,635.19	Lansing, MI 48911 517-372-8650	
Athens Road Bridge over St. Joseph River Branch County, MI	Branch County Road Commission 23 East Garfield Ave. Coldwater, MI 49036 517-278-2022		January 2016	Original \$1,756,911.62 Ending \$1,729,126.26	Trent Averb Branch County Road Commission 23 East Garfield Ave. Coldwater, MI 49036 517-278-2022	94%
CRIA Cargo Apron Expansion Earthwork Lansing, MI	Capitol Region International Airport 4100 Capitol City Blvd Lansing, MI 48906	Nicholas Patterson RS&H 827 Willow Run Airport, 2nd Floor Ypsilanti, MI 48198 810-496-6756	December 2019	Original \$1,755,158.00 Ending \$2,215,865.16	Tony Cardillo Florence Cement Company 51515 Corridor Shelby Twp., MI 48315 586-987-2666	98%
Lakewood 2017 Pump Station Improvements Lake Odessa, MI	Lakewood Wastewater Authority 839 Fourth Ave. Lake Odessa, MI 48849	Fishbeck, Thompson, Carr & Huber 1515 Arboretum Drive, SE Grand Rapids, MI 49546 616-464-3815	July 2020	Original \$1,712,833.20 Ending \$2,119,011.51	Wayne Langeland Fishbeck, Thompson, Carr & Huber 1515 Arboretum Drive, SE Grand Rapids, MI 49546 616-464-3815	77%
Redwood Living @ Texas Twp. Clearing and Earthwork Texas Twp., MI	Redwood Living USA, Inc. 7007 East Pleasant Valley Road Independence, OH 44131 216-360-9441	Ceso, Inc 175 Montrose West Ave., Ste. 400 Akron, OH 44321 330-396-5676	October 2020	Original \$1,700,739.57 Ending \$1,679,754.17	Steve Schlabach XL Builders LLC PO Box 267 Mount Eaton, OH 44659 330-465-4781	92%
Hewett, Russell, Russett and Redeemer Water Main Replacement Ann Arbor, MI	City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48107 734-794-6410	City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48107 734-794-6410	August 2016	Original \$1,609,990.00 Ending \$1,587,608.89	David Dykman City of Ann Arbor 301 East Huron Street Ann Arbor, MI 48107 734-794-6410	80%
Ballenger Hwy Bridge MDOT Contract ID 25007-118516 Genesee County, MI	Michigan Dept. of Transportation State Transportation Building 425 West Ottawa Street PO Box 30050 Lansing, MI 48909	Genesee County Road Commission 211 West Oakley Street Flint, MI 48503 810-767-4920	May 2016	Original \$1,609,504.58 Ending \$1,605,669.74	John Plamondon Genesee County Road Commission 211 West Oakley Street Flint, MI 48503 810-767-4920	78%
Courtyard By Marriott Site work, underground utilities, site concrete, road construction Mt. Pleasant, MI	Darrell Herbruck Mt. Pleasant Hospitality 5225 East Pickard Street Mt. Pleasant, MI 48858 989-773-2400	Tim BeBee CMS&D 310 West Pickard Street, Ste. C Mt. Pleasant, MI 48858 989-775-0756	March 2016	Original \$1,580,950.00 Ending \$1,924,734.64	Jim Ficarek Pioneer Construction 550 Kirtland Street, SW Grand Rapids, MI 49507 616-247-6966	83%

Project	Owner	Engineer	Date Completed	Contract Amount	Reference	Percentage Completed by I/C Personnel
John Earl Drain Eaton County, MI	Eric Deible Eaton County Drain Commission 1045 Independence Blvd. Charlotte, MI 48813 517-543-3809	Spicer Group 1400 Zeeb Drive St. Johns, MI 48879 989-224-2355	August 2020	Original \$1,552,735.60 Ending \$1,486,722.50	Chris Mattison Spicer Group 1400 Zeeb Drive St. Johns, MI 48879 989-224-2355	97%
Austin Road Bridge MDOT Contract ID 81013-115681 Washtenaw County, MI	Michigan Dept. of Transportation State Transportation Building 425 West Ottawa Street PO Box 30050 Lansing, MI 48909	Washtenaw County Road Commission 555 North Zeeb Road Ann Arbor, MI 48103 734-761-1500	January 2016	Original \$1,472,194.53 Ending \$1,443,086.81	Kelly Jones Washtenaw County Road Commission 555 North Zeeb Road Ann Arbor, MI 48103 734-761-1500	85%
Eberspacher NA Addition Earthwork, sanitary sewer, storm sewer, water Brighton, MI	Eberspacher North America 2035 Orndorf Drive Brighton, MI 48116	Wayne Perry Desine, Inc. 2183 Pless Drive Brighton, MI 48114 810-227-9533	May 2016	Original \$1,402,996.65 Ending \$1,408,506.76	Mark Jeffries Corrigan Construction 775 North Second Street Brighton, MI 48116 810-229-6323	99%
Elkhart County Jail Demo Goshen, IN	Elkhart County Board of Commissioners 117 North Second Street Goshen, IN 46526 574-534-9394	Tom Rushlow, P.E. Elkhart County Board of Commissioners 117 North Second Street Goshen, IN 46526 574-534-9394	December 2020	Original \$1,391,392.80 Ending \$1,181,392.14		92%
Silverstone Estates Okemos, MI	Mayberry Homes 1650 Kendale Blvd. East Lansing, MI 48823 517-371-5000	Joe Schroeder Mayberry Homes 1650 Kendale Blvd. East Lansing, MI 48823 517-371-5000	January 2021	Original \$1,372,222.10 Ending \$1,441,998.14		94%
Lift Station 102 and 501 Clinton County, MI	Brad Gurski SCCMUA 3671 West Herbison Road DeWitt, MI 48820 517-669-8311	C2AE 106 West Allegan Street, Ste. 500 Lansing, MI 48933 517-371-1200	December 2017	Original \$1,372,155.00 Ending \$1,410,914.35	Brian Van Zee C2AE 106 West Allegan Street, Ste. 500 Lansing, MI 48933 517-371-1200	%
Bayberry Chase Apartments Cascade Twp., MI	Norm VanDonselaar Bayberry Chase One LLC 2651 Grove Circle Commerce Twp., MI 48382 216-360-9441	Mark Belmont CESO, Inc. 395 Springside Drive, Ste. 202 Akron, OH 44333 330-665-0660	July 2018	Original \$1,312,152.75 Ending \$1,316,979.53	Steve Schlabach X.L. Builders PO Box 267 Mt. Eaton, OH 44659 330-465-5255	95%

Project	Owner	Engineer	Date Completed	Contract Amount	Reference	Percentage Completed
e						b) IC Personnel
Shield Road Bridge over Mill Creek MDOT Contract ID 81161-126689 Dexter, MI	Michigan Dept. of Transportation State Transportation Building 425 West Ottawa Street PO Box 30050 Lansing, MI 48909	Washtenaw County Road Commission 555 North Zeeb Road Ann Arbor, MI 48103 734-751-1500	February 2018	Original \$1,309,909.93 Ending \$1,281,146.28	Kelly Jones Washtenaw County Road Commission 555 North Zeeb Road Ann Arbor, MI 48103 734-751-1500	86%
Gander Mountain - Lansing Earthwork, underground utilities Delta Twp., MI	Gander Mountain Company 180 East Fifth Street, Ste. 1300 St. Paul, MN 55101	Opus Design Build LLC 3610 River Crossing Parkway, Ste. 230 Indianapolis, IN 46240 317-816-5728	August 2016	Original \$1,269,925.00 Ending \$1,206,041.00	Eric Boehner Opus Design Build LLC 3610 River Crossing Parkway, Ste. 230 Indianapolis, IN 46240 317-816-5728	89%
Arlington Woods Webster Twp., MI	Norfolk Development 8178 Jackson Road Ann Arbor, MI 48103 734-408-0777	Scott Betzoldt Midwestern Consulting, LLC 3815 Plaza Drive Ann Arbor, MI 48108 734-995-0200	December 2018	Original \$1,260,108.75 Ending \$1,337,451.31	Sean Lefere Norfolk Development 8178 Jackson Road Ann Arbor, MI 48103 734-408-0777	94%
Songbird Way Delta Twp., MI	Unified Group, LLC 6250 West Michigan Ave. Lansing, MI 48917 517-316-4415	Paul Furtaw Bergmann Associates 7050 West Saginaw Hwy Lansing, MI 48917 517-272-9835	July 2017	Original \$1,240,442.00 Ending \$1,289,308.30	John Peckham Unified Group, LLC 6250 West Michigan Ave Lansing, MI 48917 517-316-4415	86%
Paw Paw Laundry Paw Paw, MI	State of Michigan Dept of Tech, Management & Budget PO Box 30026 Lansing, MI 48909	Sarat Bobba DLZ Michigan, Inc. 535 South Burdick Street, Ste. 248 Kalamazoo, MI 49007 269-553-0640	September 2017	Original \$1,230,245.00 Ending \$782,911.89	Kim Smith E.T. MacKenzie Company, LLC 4248 West Saginaw Hwy Grand Ledge, MI 48837 517-627-8408	99%
Ashley Capital Water Main Delta Twp., MI	Marty Gorski Ashley Delta, LLC 2575 South Haggerty Rd, Ste. 500 Canton, MI 48188 773-490-4815	Webb Engineering, Inc. 3315 North Campbell Road, Ste. 200 Royal Oak, MI 48073 248-783-1105	October 2018	Original \$1,229,987.40 Ending \$1,424,072.93	Joe Webb Webb Engineering, Inc. 3315 North Campbell Road, Ste. 200 Royal Oak, MI 48073 248-783-1105	98%
Bristol Rd & Atlas Rd Bridges Genesee County, MI	Michigan Dept. of Transportation State Transportation Building 425 West Ottawa Street PO Box 30050 Lansing, MI 48909	Genesee County Road Commission 211 West Oakley Street Flint, MI 48503 810-767-4920	November 2016	Original \$1,226,547.54 Ending \$1,274,890.00	Alex Patsy Genesee County Road Commission 211 West Oakley Street Flint, MI 48503 810-767-4920	87%

Project Name	Owner	Engineer	Date Completed	Contract Amount	Reference	Percentage Completed by MC Personnel
Moon Lake Road Bridge MDOT Contract ID 38000-133156 Jackson County, MI	Michigan Dept. of Transportation State Transportation Building 425 West Ottawa Street PO Box 30050 Lansing, MI 48909	Casey Collings Great Lakes Engineering Group, LLC 521 Seymour Ave. Lansing, MI 48933 517-363-4400	August 2020	Original \$1,217,926.42 Ending \$1,221,982.69	Bret Taylor Jackson Co. Dept. of Transportation 2400 North Elm Ave. Jackson, MI 49201 517-788-4230	83%



Ann Arbor Division - E.T. MacKenzie Company

o (734) 761.5050

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c (734) 216.0995

jniemiec@mackenzieco.com

John W. Niemiec

Division Manager / Project Manager

With nearly 20 years' experience, John directs our Ann Arbor Division's operations and estimates, bids and manages residential, commercial and industrial projects.

EDUCATION

BS, Civil Engineering, Civil Concentration
Lawrence Technological University
May 1998

ADDITIONAL QUALIFICATIONS

- Member, Chi Epsilon Honor Society, Lawrence Tech Chapter
- Captain, AISC Lawrence Tech Steel Bridge Team
- Passed Part 1, State of Michigan Fundamentals of Engineering Exam
- Certified Storm Water Operator
- Highly proficient in Agtek Software Suite, Bid2Win Estimating Software and all MS Office Software applications.

PROFESSIONAL EXPERIENCE

E.T. MacKenzie Company

Division Manager

Dec 2005 – Present

- Responsibilities include managing Ann Arbor Division and estimating, site planning, equipment and labor coordination, procurement of materials, contracting with subcontractors, scheduling and coordinating of subcontractors, coordination with local municipalities, site safety, creating and maintaining field documents, inspections.

Project Manager / Project Estimator

Sept 1998 - Dec 2005

Bartlett Nuclear

Fermi1 Nuclear Power Plant

Radwaste Shipping Engineer

May 1998 – Sept 1998

Detroit Edison

Fermi1 Nuclear Power Plant

Radwaste Shipping Technician

May 1994 – Dec 1997



Ann Arbor Division - E.T. MacKenzie Company

o (734) 761.5050

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c (517) 499.6248

dkipke@mackenzieco.com

Duston Kipke

Project Manager / Estimator

Estimating and managing site development and underground utility projects and overseeing day-to-day operations at project site.

PROFESSIONAL EXPERIENCE

E.T. MacKenzie Company - Ann Arbor Division

Estimator / Project Manager

2014 - Present

- Responsible for bidding and negotiating contracts, project management and coordination of projects in the areas of site-work, earthwork, mass grading, and site utilities including sanitary sewers, storm sewers, watermain and roads.

Michigan Pipe & Valve

Estimator

2012 - 2014

E.T. MacKenzie Company - North Carolina Division

Entry Level Estimator / Project Manager

2009 - 2011

Slusarski Excavating and Paving

Internship

Summer 2008

Slusarski Excavating and Paving

Laborer / Equipment Operator

2002 - 2007

EDUCATION

Bachelor of Science

Construction Management

Eastern Michigan University

2009

ADDITIONAL QUALIFICATIONS

- Construction Management
- Field Management
- Certified Storm Water Operator #C-18163
- Bid2Win
- OSHA Confined Space Standards 2016
- AGTEK



Ann Arbor Division - E.T. MacKenzie Company

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aarendt@mackenzieco.com

Art Arendt

Project Manager

Project manager overseeing commercial, residential, and industrial site development and underground utility projects.

PROFESSIONAL EXPERIENCE

E.T. MacKenzie Company

Project Manager

2018

- Oversee and coordinate construction projects including underground, road, and mass grading projects.

RIPA and Associates, Tampa FL

Project Manager

2015 - 2018

- Project manager on multiple projects of varying complexity and scope. Often relied upon to serve as PM and sole superintendent from start to completion.

Project Engineer

2011 - 2013

- Tracked jobsite quantities for billing purposes, and reviewed and submitted documents and RFI's to the necessary entities.

Skilled Laborer

2009 - 2011

- Worked on a pipe crew; learned valuable hands-on experience.

Pepper Construction, Tampa FL

Assistant Project Manager

2014 - 2015

- Assisted project managers and superintendents on multiple DOT projects. Learned requirements and needs related to DOT roadway construction.

EDUCATION

Bachelor Degree

Major in Marketing, Minor in Management

Kent State University

CERTIFICATIONS

- Certified Storm Water Operator, License #C-20288
- 30-Hour OSHA, Cert #36-601451774



Ann Arbor Division - E.T. MacKenzie Company

o (734) 761.5050

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alahaie@mackenzieco.com

Andrew LaHaie

Project Manager / Estimator

Estimating and managing site development and underground utility projects and overseeing day-to-day operations at project site.

PROFESSIONAL EXPERIENCE

E.T. MacKenzie Company

Estimator / Project Manager

2020

- Responsible for bidding and negotiating contracts, project management and coordination of projects in the areas of site-work, earthwork, mass grading, and site utilities including sanitary sewers, storm sewers, watermain and roads.

Merlo Construction Co., Inc.

Project Manager / Estimator

2017 - 2020

- Project manager for the entire project lifecycle, including bidding and estimation for concrete foundations, earthwork and utility contracts.

6K Construction Co., Inc.

Project Manager / Estimator

2014 - 2017

Mannik Smith Group

Project Geologist / Environmental Consultant

2008 - 2014

EDUCATION

Bachelor of Science in Hydrogeology

Eastern Michigan University

2008

ADDITIONAL QUALIFICATIONS

- Construction Management
- Field Management
- Certified Storm Water Operator #C-21499
- Bid2Win
- Agtek Earthworks
- Planswift
- OnScreen TakeOff



Ann Arbor Division - E.T. MacKenzie Company

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dmcnamaraetmc@gmail.com

Dennis J. McNamara

Foreman

Managing large site development projects, including coordination of subcontractors and scheduling.

PROFESSIONAL EXPERIENCE

E.T. MacKenzie Company

Superintendent, Ann Arbor Division

1996 - Present

- Supervisor for site development. Responsibilities include construction site layout and planning, equipment and labor coordination, procurement of materials, contracting with subcontractors, scheduling and coordinating of subcontractors, coordination with local municipalities, site safety, creating and maintaining field documents, inspections and coordination with customers to assure project meets or exceed needs and expectations.

J&D Construction

Superintendent / Field Supervisor

1989 - 1996

Den-Ron, Inc.

Part Owner

1981 - 1989

Delta Construction

Field Supervisor

1978 - 1981

American Excavators

Heavy Equipment Operator

1975 - 1978

ADDITIONAL QUALIFICATIONS

- Confined Space Training
- OSHA & MIOSHA Training
- CPR & First Aid Certificate
- Competent Person Excavation Training

EDUCATION

Monsignor Orafferty (Catholic Central)

High School

Diploma



Ann Arbor Division - E.T. MacKenzie Company

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dkempheretmc@gmail.com

Daryl B. Kempfer

Foreman

Managing large site development projects, including coordination of subcontractors and scheduling.

PROFESSIONAL EXPERIENCE

E.T. MacKenzie Company

Foreman

2007 - Present

- Supervisor for site development. Responsibilities include construction site layout and planning, equipment and labor coordination, procurement of materials, contracting with subcontractors, scheduling and coordinating of subcontractors, coordination with local municipalities, site safety, creating and maintaining field documents, inspections and coordination with customers to assure project meets or exceed needs and expectations.

Equipment Operator

1998 - 2007

G & W Construction

Equipment Operator

1996 - 1998

Chie Contracting

Equipment Operator

1994 - 1995

L & K Construction

Labor/Equipment Operator

1991 - 1994

ADDITIONAL QUALIFICATIONS

- MI Storm Water Operator License #C-18363
- OSHA & MIOSHA Training
- CPR & First Aid Certificate

EDUCATION

Clinton High School

Diploma



Ann Arbor Division - E.T. MacKenzie Company

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rcurbyetmc@gmail.com

Russell J. Curby

Foreman

Managing large site development projects, including coordination of subcontractors and scheduling.

PROFESSIONAL EXPERIENCE

E.T. MacKenzie Company

Foreman

1994 - Present

- Supervisor for site development. Responsibilities include construction site layout and planning, equipment and labor coordination, procurement of materials, contracting with subcontractors, scheduling and coordinating of subcontractors, coordination with local municipalities, site safety, creating and maintaining field documents, inspections and coordination with customers to assure project meets or exceed needs and expectations.

Pipe Layer

1991 - 1994

D.N. Higgins Company

Pipe Layer

1991

Saline Construction

Pipe Layer/Equipment Operator/Truck Driver

1984 - 1991

United States Marine Corp.

1980 - 1984

ADDITIONAL

QUALIFICATIONS

- MI Storm Water Operator License #C-01705
- 40-Hour OSHA Hazwoper
- OSHA & MIOSHA Training
- Lead, Cadmium & Chromium Training
- Confined Space Entry Training
- CPR & First Aid Certificate
- PipePatch Factory Trained Installer

EDUCATION

Construction Management

Eastern Michigan University

1984 - 1990

Industrial Technology

Central Michigan University

1976 - 1980

Pioneer High School

Diploma



MacKenzie Companies

Contracting and Consulting

Equal Employment Opportunity Policy Statement

- A. MacKenzie Companies shall hire and do business in a nondiscriminatory manner, and provide an aggressive and coherent management program to provide for equal employment opportunity.
- B. This policy of equal employment opportunity shall apply to, but is not limited to, hiring, recruitment, selection, placement, training, promotion, demotion, transfer, lay-off, recall, termination, rate of pay, fringe benefits and other forms of compensation. This policy applies to full time, part time, seasonal and temporary employees.
- C. The supervisory staff has been made aware of this policy and is expected to comply with both the letter and the spirit of this policy.
- D. A copy of this Equal Employment Opportunity Statement has been distributed to all employees, and they have been made aware of where to report actions which they feel to be discriminatory.
- E. Only criteria based on an individual's merit will be used in making determinations relating to the actions in paragraph number B and all other personnel matters. These decisions shall not be made on a basis of race, color, national origin, religion, sex (including pregnancy), disability, marital status, height, weight, age, genetic information or arrest record.
- F. The company will maintain a list of agencies to contact when there are job openings. Aside from the local unemployment office, this list will include organizations in the area who maintain lists of qualified minority and women applicants. These agencies will be contacted on an annual basis
- G. The Equal Employment Officer is Heather Hufnagel, and may be contacted at the address and phone number below.



Michael S. Marks, President

3/20/20
Dated



MacKenzie Companies

Contracting and Consulting

MacKenzie Companies Affirmative Action Program

- I. Equal Employment Opportunity Policy Statement:
- A. MacKenzie Companies shall hire and do business in a nondiscriminatory manner, and provide an aggressive and coherent management program to provide for equal employment opportunity.
 - B. This policy of equal employment opportunity shall apply to, but is not limited to, hiring, recruitment, selection, placement, training, promotion, demotion, transfer, lay-off, recall, termination, rate of pay, fringe benefits and other forms of compensation. This policy applies to full time, part time, seasonal and temporary employees.
 - C. The supervisory staff has been made aware of this policy and is expected to comply with both the letter and the spirit of this policy.
 - D. A copy of this Equal Employment Opportunity Statement has been distributed to all employees, and they have been made aware of where to report actions which they feel to be discriminatory.
 - E. Only criteria based on an individual's merit will be used in making determinations relating to the actions in paragraph number B and all other personnel matters. These decisions shall not be made on a basis of race, color, national origin, religion, sex (including pregnancy), disability, marital status, height, weight, age, genetic information and arrest record.
 - F. The company will maintain a list of agencies to contact when there are job openings. Aside from the local unemployment office, this list will include organizations in the area who maintain lists of qualified minority and women applicants. These agencies will be contacted on an annual basis.
 - G. The Equal Employment Officer is Heather Hufnagel, and may be contacted at the address and phone number below.

II. Dissemination of the E.E.O. Policy:

- A. The E.E.O. policy is distributed to employees on an annual basis as the construction season begins. This is accomplished either by placing a copy of the policy in payroll envelopes or including in the company's quarterly newsletter. The E.E.O. policy is discussed at regular employees meetings, included in the Employee Handbook, and displayed at offices and jobsites
- B. The fact that the MacKenzie Companies is an Equal Opportunity Employer is stated on our letterhead and in our company newsletter. When advertising for employees or subcontractors the Equal Opportunity Employer notification is included in the ad, and noted on the employment application forms.

III. Management' responsibilities through the designated E.E.O. Officer:

- A. MacKenzie Companies will conduct business in a nondiscriminatory manner. This practice will apply to, but is not limited to, hiring, training, promotion, transfer, termination, layoff, benefits, harassment, non-segregated facilities, and solicitation of minority and female owned contractors. Decisions in all areas will be based on merit and not on the basis of race, color, national origin, religion, sex (including pregnancy), disability, marital status, height, weight, age, genetic information, arrest record or familial status.

- 1. All supervisory personnel are directed to implement the above policy. Those specifically assigned with the task of monitoring and reviewing policies and decisions are Michael Marks, President and Heather Hufnagel, E.E.O. Officer.

B. Statement of Procedures:

- 1. The E.E.O. Officer is assigned the task of monitoring all activities pertaining to personnel and identifying any problem areas where discrimination occurs. It is her responsibility to notify recruiting sources of possible job openings in order to meet the company's affirmative action goals.
 - 2. As problem areas or complaints are identified, the E.E.O. Officer has the authority to investigate the situation and suggest corrective action, subject to final approval of the president of the company.
 - 3. The E.E.O. Officer will periodically review the progress made in the Affirmative Action Program and update, where necessary, the policies of the company.



4. Reviews of hiring, terminating, training opportunities, promotion and layoff procedures are performed by the E.E.O. Officer, as well as periodic site visits to determine if unreported incidences of discrimination occur.
5. A list of referral sources for minority and female job applicants includes the organizations below. These organizations are notified at least once a year:

NAWIC Lansing Chapter
Cristo Rey Community Center
Michigan Indian Employment & Training Services
Women's Center of Greater Lansing
Greater Lansing Urban League
NAACP Lansing Branch
Great Lakes Christian College
UnidosNow
Manatee County Black Chamber of Commerce
NAWIC Tampa
NAACP Manatee County

IV. Goals and Timetables for Minorities and Females:

- A. MacKenzie Companies will strive for workplace diversity within all job classifications.
- B. Approximately every six weeks, the workforce is reviewed by the E.E.O. Officer for compliance. Based on these reviews recommendations are made to the President and supervisory personnel to help reach the goals which have been set by the company.
- C. Approximately every six months, the workforce is evaluated in the areas of rate of pay, fringe benefits, and other forms of compensation, by the E.E.O. Officer and the President.

V. Indicate the Due Process for Handling:

- A. In the event that a complaint is received, it will be reviewed and investigated by the E.E.O. Officer. Appropriate corrective action is to be recommended to and reviewed by the President, including a review of whether discrimination may extend beyond these actions reviewed. Corrective action will include all affected persons.



- B. If an employee wishes to appeal a decision made by the President in a case of grievance or harassment, they may do this through the E.E.O. Officer who will reopen the investigation.
- C. Persons responsible to handle complaints and appeals are Michael Marks, President and Heather Hufnagel, E.E.O. Officer.
- D. Complaints pertaining to civil rights that are not resolved may also be appealed to any of the following departments:

Michigan Department of Civil Rights - Complaint Investigation

Battle Creek Office (616) 964-7193
Benton Harbor Office (616) 925-7044
Detroit Office (313) 256-2658
Flint Office (313) 235-4653
Grand Rapids Office (616) 456-7543
Lansing Office (517) 335-4026
Muskegon Office (616) 739-7168
Saginaw Office (517) 758-1701

Office of Federal Contract Compliance Programs (OFCCP)

Grand Rapids Office (616) 456-2166
Washington, D.C. Office (202) 523-9368

U.S. Equal Employment Opportunity Commission

Detroit Office (313) 226-7636
Washington, D.C. Office (800) 669-4000



EMPLOYEE HANDBOOK

MacKenzie Companies

Welcome new employee!

On behalf of your colleagues, we welcome you to MacKenzie Companies and wish you every success here.

We believe that each employee contributes directly to MacKenzie Companies' growth and success, and we hope that you take pride in being a member of the team.

The safety, health and welfare of every employee at MacKenzie Companies is at the utmost of our concern. If there is ever a safety concern, or if you ever find an unsafe working condition, we request that you bring it to our attention immediately. This open door policy is strongly encouraged and you are asked to contact us at the phone numbers listed below. In the event of our absence a message will reach us promptly.

This handbook was developed to describe some of the expectations of employees and to outline the policies, programs and benefits available to eligible employees. Employees should familiarize themselves with the contents of the employee handbook as soon as possible, as it will answer many questions about employment with MacKenzie Companies.

We hope that your experience at MacKenzie Companies continues to be challenging, enjoyable and rewarding. Again, welcome!

Sincerely,

Michael Marks - President
Thomas E. MacKenzie - Vice-President
Stephanie MacKenzie – Corp. Secretary/Treasurer

(517) 627-8408

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COMPANY INFORMATION

Organization Description

The MacKenzie Companies perform underground excavating & construction, contracting and environmental work in the commercial, industrial, municipal and private sectors. With offices located in Michigan and Florida, services provided include:

- Site Development
- Underground Utility Construction
- Highway and Road Construction
- Demolition
- Environmental Construction and Consulting
- Concrete and Paving
- Landscaping
- Site Services
- Bridge Construction

Mission Statement

At MacKenzie Companies, we believe the single most important concern in the underground excavating & construction, contracting and environmental business is the customer. Our objective is to achieve complete customer satisfaction by offering customers the best possible value. As workers at MacKenzie Companies, we will reach our objective through hard work, determination, and our constant pursuit of excellence.

Introductory Statement

This handbook is designed to acquaint you with MacKenzie Companies and provide you with information about working conditions, employee benefits and some of the policies affecting your employment. You should read, understand and comply with all provisions of the handbook. It describes many of your responsibilities as an employee and outlines the programs developed by MacKenzie Companies to benefit employees. One of our objectives is to provide a work environment that is conducive to both personal and professional growth.

No employee handbook can anticipate every circumstance or question about policy. The need may arise, and MacKenzie Companies reserve the right to revise, supplement, or rescind any policies or portion of the handbook from time to time as it deems appropriate, in its sole and absolute discretion. The only exception to any change is our employment-at-will policy permitting you or MacKenzie Companies to end our relationship for any reason at any time. Employees will, of course, be notified of such changes to the handbook as they occur.

EMPLOYMENT

Nature of Employment

This handbook is intended to provide employees with a general understanding of our personnel policies. Employees are encouraged to familiarize themselves with the contents of this handbook, for it will answer many common questions concerning employment with MacKenzie Companies.

However, this handbook cannot anticipate every situation or answer every question about employment. It is not an employment contract and is not intended to create contractual obligations of any kind. Neither the employee nor MacKenzie Companies is bound to continue the employment relationship if either chooses, at its will, to end the relationship at any time.

In order to retain necessary flexibility in the administration of policies and procedures, MacKenzie Companies reserve the right to change, revise, or eliminate any of the policies and/or benefits described in this handbook, except for its policy of employment-at-will. The only recognized deviations from the stated policies are those authorized by the President of MacKenzie Companies.

Employee Relations

MacKenzie Companies believe that the work conditions, wages, and benefits offered to employees are competitive with those offered by other employers in this area and in this industry. If employees have concerns about work conditions or compensation, they are strongly encouraged to voice these concerns openly and directly to their Division Manager or President of MacKenzie Companies.

Our experience has shown that when employees communicate openly and directly, the work environment can be excellent, communications can be clear, and attitudes can be positive. We believe that MacKenzie Companies amply demonstrates its commitment to employees by responding effectively to employee concerns.

Federal and State Employment Laws

In compliance with federal, state and local employment laws, required information is posted in areas readily accessible to all employees. "Your Right to Know" folders are located in every job office and job trailer for quick access. Please refer to the folder for information and/or contact Human Resources with any questions.

Equal Employment Opportunity

In order to provide equal employment and advancement opportunities to all individuals, employment decisions at MacKenzie Companies will be based on merit, qualifications and abilities. MacKenzie Companies do not discriminate in employment opportunities or practices on the basis of race, color, national origin, religion, sex (including pregnancy), disability, marital status, height, weight, age, genetic information, arrest record or any other characteristic protected by law. This policy governs all aspects of employment, including selection, job assignment, compensation, discipline, termination and access to benefits and training.

In addition to a commitment to provide equal employment opportunities to all qualified individuals, MacKenzie Companies has established an affirmative action program.

Any employees with questions or concerns about any type of discrimination in the workplace are encouraged to bring these issues to the attention of their Division Manager, Human Resources, or the President of MacKenzie Companies. Employees can raise concerns and make reports without fear of reprisal. Anyone found to be engaging in any type of unlawful discrimination will be subject to disciplinary action, up to and including termination of employment.

Equal Employment Opportunity Statement

1. MacKenzie Companies shall hire and do business in a nondiscriminatory manner, and provide for an aggressive and coherent management program to provide for equal employment opportunity.
2. This policy of equal employment opportunity shall apply to, but is not limited to hiring, recruitment, selection, placement, training, promotion, demotion, transfer, lay-off, recall, termination, rate of pay, fringe benefits and other forms of compensation. This policy applies to full time, part time, seasonal and temporary employees.
3. Supervisory staff have been made aware of this policy and are expected to comply with both the letter and the spirit of this policy.
4. A copy of this Equal Employment Opportunity Statement has been distributed to all employees, and they have been made aware of where to report actions which they feel are discriminatory.
5. Only criteria based upon an individual's merit will be used in making determinations relating to the actions in paragraph number 2 and all other personnel matters. These decisions shall not be made on a basis of race, color, national origin, religion, sex (including pregnancy), disability, marital status, height, weight, age, genetic information, or arrest record.
6. The company will maintain a list of agencies to contact when there are job openings. Aside from the local unemployment office, this list will include organizations in the area who maintain lists of qualified minority and women applicants. These agencies will be contacted on an annual basis.
7. An Equal Employment Officer may be contacted in both Michigan and Florida main offices.

American with Disabilities Act (ADA) and Amendments Act (ADAAA)

The American with Disabilities Act (ADA) and the Americans with Disabilities Amendments Act (ADAAA), are federal laws that prohibit employers with 15 or more employees from discriminating against applicants and individuals with disabilities and that when needed provide reasonable accommodations to applicants and employees who are qualified for a job, with or without reasonable accommodations, so that they may perform the essential job duties of the position.

It is the policy of MacKenzie Companies to comply with all federal and state laws concerning the employment of persons with disabilities and to act in accordance

with regulations and guidance issued by the Equal Employment Opportunity Commission (EEOC). Furthermore, it is our company policy not to discriminate against qualified individuals with disabilities in regard to application procedures, hiring, advancement, discharge, compensation, training or other terms, conditions and privileges of employment.

The company will reasonably accommodate qualified individuals with a disability so that they can perform the essential functions of a job unless doing so causes a direct threat to these individuals or others in the workplace and the threat cannot be eliminated by reasonable accommodation and/or if the accommodation creates an undue hardship to MacKenzie Companies. Contact Human Resources with any questions or requests for accommodation.

Social Security Privacy Protection Policy

This Social Security Privacy Protection Policy applies to Social Security Numbers (SSNs) that MacKenzie Companies obtains from employees. Access and/or disclosure of such information is restricted to those who have a legitimate business need for access and is stored in a safe and secure manner.

Background and Reference Checks

To ensure that individuals who join MacKenzie Companies are well qualified and to ensure that MacKenzie Companies maintains a safe and productive work environment, it is our policy to conduct pre-employment background checks on all applicants who accept an offer of employment. Background checks may include verification of any information on the applicant's application form or resume. MacKenzie Companies also reserves the right to conduct a background check for current employees to determine eligibility for promotion or reassignment in the same manner as described above.

Sexual and Other Unlawful Harassment

MacKenzie Companies is committed to providing a work environment that is free of discrimination and unlawful harassment. Actions, words, jokes, or comments based on an individual's sex, race, ethnicity, age, religion, or any other legally protected characteristic will not be tolerated. As an example, sexual harassment (both overt and subtle) is a form of employee misconduct that is demeaning to another person, undermines the integrity of the employment relationship, and is strictly prohibited.

If employees believe they have been subject to sexual harassment or any unwanted sexual attention, they should make their unease and/or disapproval directly and immediately known to the harasser and tell the harasser to stop. If the harasser does not stop, employees should promptly report the matter to his or her Supervisor. If the Supervisor is unavailable or the employee believes it would be inappropriate to contact that person, the employee should immediately contact Human Resources or the President of MacKenzie Companies. Employees can raise concerns and make reports without fear of reprisal.

Any Supervisor or Manager who becomes aware of possible sexual or other unlawful harassment should promptly advise Human Resources or the President

of MacKenzie Companies who will handle the matter in a timely and confidential manner.

Anyone engaging in sexual or other unlawful harassment will be subject to disciplinary action, up to and including termination of employment.

Employment Termination

Termination of employment is an inevitable part of personnel activity within any organization, and many of the reasons for termination are routine. Below are examples of some of the most common circumstances under which employment is terminated:

RESIGNATION - voluntary employment termination initiated by an employee.

DISCHARGE - involuntary employment termination initiated by the organization.

LAYOFF - involuntary employment termination initiated by the organization for nondisciplinary reasons.

Since employment with MacKenzie Companies is based on mutual consent, both the employee and MacKenzie Companies have the right to terminate employment at will, with or without cause, at any time.

Return of Company Property

The separating employee must return all company property at the time of separation, including but not limited to uniforms, cell phones, keys, credit cards, fuel cards and wash cards. Failure to return some items may result in deductions from the final paycheck. MacKenzie Companies may also take all action deemed appropriate to recover or protect its property.

Amendments

No individual, other than the President of MacKenzie Companies, is authorized to amend these policies. The Employee Handbook is intended to give you a general overview of MacKenzie Companies and information regarding policies and procedures. Because we operate in a dynamic industry, some policies and benefits currently in effect may be revised, suspended, or eliminated by MacKenzie Companies in response to business needs or changing legal requirements.

WORKPLACE SAFETY

To assist in providing a safe and healthful work environment for employees, customers, and visitors, MacKenzie Companies have established a workplace safety program. This program is a top priority for MacKenzie Companies. The Safety Director has responsibility for implementing, administering, monitoring, and evaluating the safety program. Its success depends on the alertness and personal commitment of all. Please refer to the *Safety Program Handbook* for further safety instructions and information.

MacKenzie Companies provide information to employees about workplace safety and health issues through training sessions and regular internal communication channels such as supervisor-employee meetings, bulletin board postings, newsletters, memos or other written communications.

Some of the best safety improvement ideas come from employees. Those with ideas, concerns, or suggestions for improved safety in the workplace are encouraged to raise them with their Supervisor, or with another Supervisor or Manager, or bring them to the attention of the Safety Director. All reports can be made without fear of reprisal.

Each employee is expected to obey safety rules and to exercise caution in all work activities. Employees must immediately report any unsafe condition to the appropriate Supervisor. Employees who violate safety standards, who cause hazardous or dangerous situations, or who fail to report or, where appropriate, remedy such situations, may be subject to disciplinary action, up to and including termination of employment.

In the case of accidents that result in injury, regardless of how insignificant the injury may appear, employees should immediately notify their Supervisor.

Workplace Monitoring

Workplace monitoring may be conducted by MacKenzie Companies to ensure quality control, employee safety, security and customer satisfaction. MacKenzie Companies may conduct video surveillance of workplace areas. Video monitoring is used to identify safety concerns, maintain quality control, detect theft and misconduct, and discourage or prevent acts of harassment and workplace violence.

Drivers' License Records

All employees must maintain a driving record acceptable to MacKenzie Companies. An employee who does not maintain an acceptable driving record will be subject to disciplinary action up to and including termination.

Employee Medical Examinations

To help ensure that employees are able to perform their duties safely, medical examinations may be required.

After an offer has been made to an applicant entering a designated job category, a medical examination will be performed at MacKenzie Companies' expense by a

health professional of MacKenzie Companies' choice. The offer of employment and assignment to duties is contingent upon satisfactory completion of the exam.

Current employees may be required to take medical examinations to determine fitness for duty. Such examinations will be scheduled at reasonable times and intervals and performed at MacKenzie Companies' expense.

Information on an employee's medical condition or history will be kept separate from other employee information and maintained confidentially. Access to this information will be limited to those who have a legitimate need to know.

Drug and Alcohol Use

MacKenzie Companies is committed to providing a safe, efficient and productive work environment for all employees. To promote this goal, employees are required to report to work in appropriate mental and physical condition to perform their jobs in a satisfactory manner.

Using or being under the influence of drugs or alcohol on the job may pose serious safety and health risks. While on MacKenzie Companies' premises (including job sites), during lunch and rest breaks (including off-site locations), and when conducting business-related activities off MacKenzie Companies' premises, no employee may use, possess, distribute, sell, or be under the influence of alcohol or illegal drugs. The legal use of prescribed drugs is permitted on the job only if it does not impair an employee's ability to perform the essential functions of the job effectively and in a safe manner that does not endanger other individuals in the workplace.

Violations of this policy may lead to disciplinary action, up to and including immediate termination of employment, or required participation in a substance abuse rehabilitation or treatment program. Such violations may also have legal consequences.

Testing for Alcohol and Drugs

Employees are subject to testing of urine and/or blood to detect prohibited drugs or alcohol in the following circumstances:

1. **Pre-Employment Testing.**
All prospective job candidates must pass a drug test as a condition of employment.
2. **Reasonable Cause Testing.**
Employees may be subject to a fitness for duty evaluation, to include appropriate urine and/or blood testing, when there is reason to believe that drug or alcohol use is adversely affecting job performance. Examples of reasonable cause include but are not limited to the following: (a) physical signs and symptoms consistent with prohibited drug and alcohol use, (b) evidence of the distribution, dispensing, possession or use of prohibited drugs or alcohol, (c) occurrence of an accident that may have been caused by human error.

3. Post-Accident Testing.

Drug and alcohol testing is mandatory for any employee who either contributed to an accident or appears to have contributed to an accident involving death. Drug and alcohol testing may be required in the event of any injury or damage to property, at MacKenzie Companies' discretion.

4. Return to Duty Testing.

Any employee who has enrolled in a rehabilitation program or is off work for failing a drug and/or alcohol test must pass a return to duty drug or alcohol test before returning to work. Any employee who has completed rehabilitation under the EAP program and who has tested negative on the return to duty test will be subject to unannounced drug and/or alcohol tests after being returned to work.

5. CDL Required Testing.

All CDL drivers are subject to the U.S. Department of Transportation's Federal Motor Carrier Safety Administration's drug and alcohol regulations and testing. For more information, refer to our Drug and Alcohol Plan for CDL Drivers.

Employees with drug or alcohol problems that have not resulted in, and are not the immediate subject of, disciplinary action may request approval to take unpaid time off to participate in a rehabilitation or treatment program. Leave may be granted if the employee agrees to abstain from use of the problem substance; abides by all MacKenzie Companies' policies, rules, and prohibitions relating to conduct in the workplace; and if granting the leave will not cause MacKenzie Companies any undue hardship.

Our Employee Assistance Program (EAP) provides confidential counseling and referral services to employees for assistance with such problems as drug and/or alcohol abuse or addiction. It is the employee's responsibility to seek assistance from the EAP prior to reaching a point where his or her judgment, performance, or behavior has led to imminent disciplinary action. Participation in the EAP after the disciplinary process has begun may not preclude disciplinary action, up to and including termination of employment.

Employees with questions on this policy or issues related to drug or alcohol use in the workplace should raise their concerns with their Supervisor or Human Resources without fear of reprisal.

WORKPLACE EXPECTATIONS

New Employee Orientation

The first thirty (30) days of employment are considered to be an orientation period. During this time, you will have a chance to determine your satisfaction with MacKenzie Companies and your job. At the same time, your Supervisor will evaluate your work and attitude to determine if you are in the right job and able to meet the job requirements.

Work Schedules

Work schedules for employees vary throughout our organization. All employees are expected to report to work as needed. Staffing needs and operational demands may necessitate variations in starting and ending times, as well as variations in the total hours that may be scheduled each day and week. If employees do not avail themselves to work the necessary hours, within reason, they may become ineligible to receive certain benefits. Supervisors will advise employees of their individual work schedules. All employees must be conveniently reachable via phone in order to receive work schedules.

Attendance and Punctuality

To maintain a safe and productive work environment, MacKenzie Companies expect employees to be reliable and to be punctual in reporting for scheduled work. Absenteeism and tardiness place a burden on other employees and on MacKenzie Companies. In the rare instances when employees cannot avoid being late to work or are unable to work as scheduled, they should notify their Supervisor as soon as possible in advance of the anticipated tardiness or absence. Poor attendance and excessive tardiness are disruptive. Either may lead to disciplinary action, up to and including termination of employment.

Job Sites/Teamwork

All crew members are expected to work as a team and remain on site until the following items are complete at the end of every work day:

- All equipment tracks are cleaned
- All equipment is fueled and greased
- The job site is cleaned up.

Please work together to make sure our equipment and job sites are properly maintained.

Employee Conduct and Work Rules

To ensure orderly operations and provide the best possible work environment, MacKenzie Companies expect employees to follow rules of conduct that will protect the interests and safety of all employees and the organization. Employees are expected to act in a professional manner in order to maintain a working environment that encourages mutual respect among coworkers, customers, vendors and subcontractors, and is free from all forms of harassment and violence.

It is not possible to list all the forms of behavior that are considered unacceptable in the workplace. The following are examples of infractions of rules of conduct that

may result in disciplinary action, up to and including termination of employment:

- Theft or inappropriate removal or illegal possession of company property.
- Falsification of timekeeping records.
- Working under the influence of alcohol or illegal drugs.
- Possession, distribution, sale, transfer, or use of alcohol or illegal drugs in the workplace, while on duty, or while operating employer-owned vehicles or equipment.
- Violation of safety or health rules.
- Absenteeism or any absence without notice.
- Behaving in a manner that is hostile or disrespectful.

Employment with MacKenzie Companies is at the mutual consent of MacKenzie Companies and the employee, and either party may terminate that relationship at any time, with or without cause, and with or without advance notice.

Confidentiality

Employees are expected to maintain the confidentiality of MacKenzie Companies' trade secrets and private or confidential information. Trade secrets may include information regarding the development of systems, processes, know-how and technology. Do not post internal reports, job site photos, policies, procedures or other internal business-related confidential communications without prior approval.

Our clients and other parties with whom we do business entrust the company with important information relating to their businesses. It is our policy that all information considered confidential will not be disclosed to external parties or to employees without a "need to know." If an employee questions whether certain information is considered confidential, he/she should first check with his/her immediate supervisor. This policy is intended to alert employees to the need for discretion at all times and is not intended to inhibit normal business communications.

All media inquiries should be directed to the President of MacKenzie Companies. Employees should not speak to the media on MacKenzie Companies' behalf without prior approval from the President of MacKenzie Companies.

Social Media Policy

MacKenzie Companies understand that social media can be a fun and rewarding way to share your life and opinions with family, friends and co-workers around the world. We also appreciate the dedication and enthusiasm of our workforce and the pride our employees have for our projects. However, use of social media also presents certain risks and carries with it certain responsibilities. To assist you in making responsible decisions about your use of social media, we have established these guidelines for appropriate use of social media.

Guidelines

In the rapidly expanding world of electronic communication, social media can mean many things. Social media includes all means of communicating or posting information or content of any sort on the Internet, including to your own or someone else's web log or blog, journal or diary, personal web site, social networking or affinity web site, web bulletin board or a chat room, whether or not

associated or affiliated with MacKenzie Companies, as well as any other form of electronic communication.

Know and follow the rules

Ultimately, you are solely responsible for what you post online. Before creating online content, consider some of the risks and rewards that are involved. Keep in mind that any of your conduct or postings regarding your job performance, the performance of fellow associates, customers, suppliers, people who work on behalf of MacKenzie Companies or MacKenzie Companies legitimate business interests, could have adverse effects.

Inappropriate postings that may include discriminatory remarks, harassment, and threats of violence or similar inappropriate or unlawful conduct will not be tolerated and may subject you to disciplinary action up to and including termination. Always be fair and courteous to fellow associates, customers, members, suppliers or people who work on behalf of MacKenzie Companies. Also, keep in mind that you are more likely to resolve work-related complaints by speaking directly with your co-workers or by utilizing our Open Door Policy than by posting complaints to a social media outlet. Nevertheless, if you decide to post complaints or criticism, avoid using statements, photographs, video or audio that reasonably could be viewed as malicious, obscene, threatening or intimidating, that disparage customers, members, associates or suppliers, or that might constitute harassment or bullying. Examples of such conduct might include offensive posts meant to intentionally harm someone's reputation or posts that could contribute to a hostile work environment on the basis of race, sex, disability, religion or any other status protected by law or company policy.

Be honest and accurate

Make sure you are always honest and accurate when posting information or news, and if you make a mistake, correct it quickly. Be open about any previous posts you have altered. Remember that the Internet archives almost everything; therefore, even deleted postings can be searched. Never post any information or rumors that you know to be false about MacKenzie Companies, fellow associates, members, customers, suppliers, and others working on behalf of MacKenzie Companies or competitors.

Post only appropriate and respectful content

- Maintain the confidentiality of MacKenzie Companies trade secrets and private or confidential information. Trade secrets may include information regarding the development of systems, processes, products, know-how and technology. Do not post internal reports, policies, procedures or other internal business-related confidential communications.
- Do not create a link from your blog, website or other social networking site to a MacKenzie Companies website without identifying yourself as a MacKenzie Companies associate.
- Express only your personal opinions. Never represent yourself as a spokesperson for MacKenzie Companies. If MacKenzie Companies is a subject of the content you are creating, be clear and open about the fact that

you are an associate and make it clear that your views do not represent those of MacKenzie Companies, fellow associates, members, customers, suppliers or people working on behalf of MacKenzie Companies. If you do publish a blog or post online related to the work you do or subjects associated with MacKenzie Companies, make it clear that you are not speaking on behalf of MacKenzie Companies. It is best to include a disclaimer such as "The postings on this site are my own and do not necessarily reflect the views of MacKenzie Companies."

Using social media at work

Refrain from using social media while on work time or on equipment we provide, unless it is work-related as authorized by your manager or consistent with the Company Equipment Policy. Do not use MacKenzie Companies email addresses to register on social networks, blogs or other online tools utilized for personal use.

Retaliation is prohibited

MacKenzie Companies prohibits taking negative action against any associate for reporting a possible deviation from this policy or for cooperating in an investigation. Any associate who retaliates against another associate for reporting a possible deviation from this policy or for cooperating in an investigation will be subject to disciplinary action, up to and including termination.

Please refer to our Employee Handbook for other policies and procedures that relate to confidentiality and/or social media, and do not allow the posting of internal reports, job site photos, policies, procedures or other internal business-related confidential communications without prior approval.

Solicitations, Distributions and Posting of Materials

Non-employees may not solicit employees or distribute literature of any kind on Company premises at any time. Employees may only admit non-employees to work areas with management approval or as part of a Company-sponsored program. These visits should not disrupt workflow. Former employees are not permitted onto Company property except for official Company business. The sole exceptions to this policy are charitable and community activities supported by MacKenzie Companies' management and company-sponsored programs related to MacKenzie Companies' services.

Use of Phone and Mail Systems

Employees should practice discretion in using company phones when making personal calls and may be required to reimburse MacKenzie Companies for any charges resulting from their personal use. The use of MacKenzie Companies-paid postage for personal correspondence is not permitted.

Use of Cell Phones

In the interest of everyone's safety and production, employees' personal cell phones must be left in vehicles. Equipment operators, laborers and pipe layers shall not take their cell phones onto our job sites. In the event of an emergency, family members may contact the office in order to contact employees between break periods. Cell phones must be a hands-free application in order to use while driving company motor vehicles.

Use of Equipment and Vehicles

Equipment and vehicles essential in accomplishing job duties are expensive and may be difficult to replace. They are for business use only and are only to be operated by the assigned driver or another approved driver of the company. When using property, employees are expected to exercise care, perform required maintenance, and follow all operating instructions, safety standards and guidelines.

All company drivers are expected to remain safe and courteous at all times. Aggressive driving or behaviors, even when reacting to a situation where the other driver is at fault, is never appropriate. Always remain in control of your vehicle, stay safe, maintain a calm demeanor, and do not make or reciprocate any gestures, actions or words.

Please notify the Supervisor if any equipment, machines, tools, or vehicles appear to be damaged, defective, or in need of repair. Prompt reporting of damages, defects, and the need for repairs could prevent deterioration of equipment and possible injury to employees or others. The Supervisor can answer any questions about an employee's responsibility for maintenance and care of equipment or vehicles used on the job.

Equipment Operators are required to complete an *equipment repair request* every week regardless of whether or not the equipment requires repair. The unit number and equipment hours or miles must be written on the repair request in order to track necessary equipment maintenance.

Drivers are required to complete a *daily vehicle inspection report* every day.

The improper, careless, negligent, destructive, or unsafe use or operation of equipment or vehicles, as well as excessive or avoidable traffic and parking violations, can result in disciplinary action, up to and including termination of employment.

Employee Purchases

Receipts must be turned in to the office for all purchases, with a clear description on the receipt for the intended use. An employee who does not deliver the required receipt to the office will be held accountable for the charges.

Any purchase made by any employee of MacKenzie Companies that is not required for use related to a specific project is to be authorized prior to the purchase. Examples of non-project related purchases include but are not limited to cell phones, food and beverages, computers and accessories, and electronics.

In no instance shall an employee purchase an item either with company credit account or company credit card that is intended for non-business use.

Documentation and Record Keeping

Employees are required to maintain, complete and report all necessary records on a timely and accurate basis. Documentation such as receipts, shippers, purchase orders and invoices must be turned in to the appropriate office with purchaser's (employee) name, written legibly (not signed), equipment and/or job number and phase code written legibly on the document. Accidents, damages to equipment and/or property and theft of company property must be reported promptly as well.

Personnel Data Changes

It is the responsibility of each employee to promptly notify MacKenzie Companies of any change in personal information. Personal mailing addresses, telephone numbers, number and names of dependents, individuals to be contacted in the event of an emergency, and other such status reports should be accurate and current at all times. If any personnel data has changed, please notify Human Resources.

COMPENSATION

Timekeeping

Accurately recording time worked is the responsibility of every hourly (nonexempt) employee. Federal and state laws require MacKenzie Companies to keep an accurate record of time worked in order to calculate employee pay and benefits. Time worked is the time actually spent on the job performing assigned duties. Hourly employees should accurately record the time they begin and end their work, as well as the beginning and ending time of each meal period. They should also record the beginning and ending time of any split shift or departure from work for personal reasons. It is the employees' responsibility to sign their time records to certify the accuracy of all time recorded. The Supervisor must review and initial the time record before it is submitted for payroll processing.

Altering, falsifying, tampering with time records, or recording time on another employee's time record may result in disciplinary action, up to and including termination of employment.

All time must be turned in to the appropriate office by the following Monday.

Job site work hours are turned in daily, on job daily reports. Job site Supervisors complete these reports which include all on-site crew members. Therefore, employees working on job sites do not need to complete tickets and have them verified. However, a *Payroll Time Sheet Summary* form is available for employees to complete so that our payroll department may verify hours worked have been turned in on the job daily. You must write your name on this form. The completion of the *Payroll Time Sheet Summary* is not mandatory; it is offered to help ensure the accuracy of your paycheck. You will not be paid from this form.

Payment of Wages

All employees are paid weekly. Each paycheck will include earnings for all work performed through the end of the previous payroll period, and the check will be made available on Friday. In the event that a regularly scheduled payday falls on a day off such as a holiday, employees will receive pay on the last day of work before the regularly scheduled payday.

Employees may have pay directly deposited into their bank accounts if they provide MacKenzie Companies with their account information. The forms necessary to initiate direct deposit may be received from Human Resources. Employees will receive an itemized statement of wages every week.

Administrative Pay Corrections

MacKenzie Companies take all reasonable steps to ensure that employees receive the correct amount of pay in each paycheck and that employees are paid promptly on the scheduled payday. In the event that there is an error in the amount of pay, the employee should promptly bring the discrepancy to the attention of the Payroll Administrator or Human Resources so that corrections can be made as quickly as possible.

BENEFITS

Eligible employees at MacKenzie Companies are provided a wide range of benefits. A number of the programs (such as social security, workers' compensation and state unemployment insurance) cover all employees in the manner prescribed by law.

In addition, Group Health Insurance, Voluntary Benefits, a Profit Sharing/401(k) Plan, and an Employee Assistance Program are offered to eligible employees:

Health Insurance

Upon completion of a thirty (30) day new employee orientation period, eligible employees of MacKenzie Companies will be offered company provided health insurance within ninety (90) days. Temporary, seasonal employees, whose employment is expected to last for only a limited period of time, are not eligible for company provided health insurance. Employees must maintain an average of thirty (30) hours per week in order to be eligible for company provided health insurance coverage.

All employees must promptly report personal and dependent status changes to Human Resources.

As defined by the federal Consolidated Omnibus Budget Reconciliation Act (COBRA), employees and their qualified beneficiaries may have the opportunity to continue coverage under MacKenzie Companies' health plan, if enrolled, when a "qualifying event", as defined by COBRA, would normally result in the loss of eligibility. Under COBRA, the employee pays the full cost of coverage at MacKenzie Companies' group rates plus an administration fee of 2% (see below).

Benefits Continuation (COBRA)

The federal Consolidated Omnibus Budget Reconciliation Act (COBRA) gives employees and their qualified beneficiaries the opportunity to continue health insurance coverage under MacKenzie Companies' health plan when a "qualifying event" would normally result in the loss of eligibility. Some common qualifying events are resignation, termination of employment, or death of an employee; a reduction in an employee's hours or a leave of absence; an employee's divorce or legal separation; and a dependent child no longer meeting eligibility requirements.

Under COBRA, the employee or beneficiary pays the full cost of coverage at MacKenzie Companies' group rates plus an administration fee. Each eligible employee shall be provided with a written notice describing rights granted under COBRA when the employee becomes eligible for coverage under MacKenzie Companies' health insurance plan. The notice contains important information about employee rights and obligations.

Voluntary Benefits

Once eligible for company-provided health insurance, employees of MacKenzie Companies may opt for voluntary benefits including dental, vision and Aflac. All policies are voluntary and at the employee's discretion and expense as pre-tax payroll deductions.

Profit Sharing/401(k) Plan

Provided you are not an Excluded Employee (as defined in the summary plan description), you will be eligible to participate in the Plan once you satisfy the Plan's age and service requirements. You will have met the age requirement when you attain age 18 and the service requirement when you complete one Year of Service. You will have completed a Year of Service if, at the end of your first twelve consecutive months of employment with us, you have been credited with at least 1,000 Hour(s) of service. If you have not been credited with 1,000 Hour(s) of Service by the end of your first twelve consecutive months of employment, your entry date into the Plan will be the first day of the Plan Year quarter coinciding with or next following the date you satisfy the eligibility requirements.

Notwithstanding the preceding, your entry date with respect to salary deferrals is the first day of the quarter coinciding with or immediately following the date you satisfy the Plan's salary deferral eligibility requirements. In addition, and notwithstanding the preceding, your entry date with respect to matching contributions is the first day of the quarter coinciding with or immediately following the date you satisfy the Plan's matching contribution eligibility requirements.

Once eligible to participate in the profit sharing/401(k) plan, all employees will automatically participate in the profit sharing portion of the plan. The profit sharing account is funded by yearly voluntary contributions made by MacKenzie Companies. The 401(k) portion of the plan, however, is voluntary and at the employee's discretion. Each employee is able to contribute up to 100% of his/her gross income (up to yearly IRS limit), and the company may, at its discretion, match a portion of this contribution. Employee contributions are only subject to social security taxes, as they are exempt from federal, state and local taxation. Please refer to the summary plan description for a complete description of participants' rights, obligations and benefits under the plan.

Employee Assistance Program

MacKenzie Companies offer an employee assistance program (EAP) to all employees. All help received through the EAP is completely free and confidential. If you or members of your household seek help, this information is kept private. Only you can decide who will know about your participation. If you or members of your household have a personal problem, your EAP is ready to help. In Michigan, contact Sparrow's GuidanceResources EAPPlus at 877.595.5284. In Florida, contact Centerstone Employee Assistance Program at 941.782.4379.

Employees of MacKenzie Companies may also be referred to the EAP because of poor job performance. While an employee cannot be forced to participate or seek assistance through the program, the EAP can be helpful where job performance is a problem. By making available a system for employees to resolve personal problems,

MacKenzie Companies gain a more productive work force and a better functioning business.

TIME OFF/LEAVES OF ABSENCE

Time Off Requests

It is policy of MacKenzie Companies that all employees use time off requests to ensure better worksite communication.

Planned Time Off

All employees must fill out a time off request when planning to take time off from work. If you are going to be away from the office or job site you must fill out a time off request.

Unplanned Time Off

When unable to come to work for various reasons, such as an illness, you must contact your Supervisor. If your Supervisor is unreachable, you will need to contact the Dispatcher. The Dispatcher will notify your Supervisor of your absence. Your Supervisor or the Dispatcher will complete a time off request for you.

Jury Duty

Upon receipt of notification from the state or federal courts of an obligation to serve on a jury, employees must notify their supervisor and provide him/her with a copy of the jury summons.

Military Leave

MacKenzie Companies is committed to protecting the job rights of employees absent on military leave. In accordance with federal and state law, it is the company's policy that no employee or prospective employee will be subjected to any form of discrimination on the basis of that person's membership in or obligation to perform service for any of the Uniformed Services of the United States.

Lactation/Breastfeeding

Pursuant to the Patient Protection and Affordable Care Act of 2010, and up to one year after a child's birth, MacKenzie Companies shall provide breastfeeding employees with reasonable break times as needed to express breast milk in a private location.

Family and Medical Leave (FMLA)

Under this policy, MacKenzie Companies will grant up to 12 weeks (or up to 26 weeks of military caregiver leave to care for a covered service member with a serious injury or illness) of unpaid leave during a 12-month period to eligible employees. Please refer to the FMLA notice provided in the "Your Right to Know" folder for information on eligibility, types of leave covered, amount of leave, and other details.

11/19/21

E.T. MacKenzie Company

OSHA Citations during the past five years:

5/20/19	#1403568	Closed; no safety manual on site. \$0 Citation.
5/10/18	#1323922	Closed; broken fire extinguisher, CPR, annual excavator inspection. \$0 Citation.
1/11/18	#1287402	Closed; improper angle of repose. \$2400 Citation.
7/24/17	#1249398	Closed; accident/fire prevention. \$0 Citation.

Safety Program

E.T. MacKenzie Company

MICHIGAN SAFETY AND HEALTH PROTECTION ON THE JOB

THE MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, 1974 P.A. 154, AS AMENDED, REQUIRES POSTING OF THIS DOCUMENT IN A CENTRAL AND CONSPICUOUS LOCATION. FAILURE TO DO SO MAY RESULT IN A PENALTY.

The Michigan Occupational Safety and Health Act (MIOSH Act), Act No. 154 of the Public Acts of 1974, as amended, provides job safety and health protection for Michigan employees through the maintenance of safe and healthful working conditions. Under the MIOSH Act and a state plan approved in September 1973 by the U.S. Department of Labor, the Michigan Department of Licensing and Regulatory Affairs is responsible for administering the Act. Department representatives conduct job site inspections and investigations to ensure compliance with the Act and with safety and health standards.

The contents of this poster describe many important provisions of the Act. These provisions apply equally to employers and employees in either private industry or the public sector.

EMPLOYER REQUIREMENTS: MIOSHA requires that each employer:

1. Furnish to each employee employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to the employee.
2. Comply with promulgated rules and standards and with orders issued pursuant to the Act.
3. Post this and other notices and use other appropriate measures to keep his or her employees informed of their protection and obligations under the Act, including the provisions of applicable rules and standards.
4. Notify the Michigan Department of Licensing and Regulatory Affairs within 3 hours of any work-related fatality. Notification may be accomplished by calling 1-800-858-0397.
5. Notify the Michigan Department of Licensing and Regulatory Affairs within 24 hours of all work-related inpatient hospitalizations, amputations and losses of an eye. Notification may be accomplished by calling 1-844-464-6742 (MIOSHA).
6. Make available to employees, for inspection and copying, all medical records and health data in the employer's possession pertaining to that employee.
7. Afford an employee an opportunity with or without compensation to attend all meetings between the Department of Licensing and Regulatory Affairs and the employer relative to any appeal of a citation by the employer.
8. Give the representative of employees the opportunity to accompany the department during the inspection or investigation of a place of employment and to prohibit the suffering of any loss of wages or fringe benefits or discriminate against the representative of employees for time spent participating in the inspection, investigation, or opening and closing conferences.
9. Provide personal protective equipment, at the employer's expense, when it is specifically required by a MIOSHA standard.
10. Not permit an employee, other than an employee whose presence is necessary to avoid, correct or remove an imminent danger, to operate equipment or engage in a process which has been tagged by the Department and which is the subject of an order issued by the Department identifying that an imminent danger exists.
11. To promptly notify an employee who was or is being exposed to toxic materials or harmful physical agents in concentrations or at levels which exceed those prescribed by a MIOSHA standard.

EMPLOYEE REQUIREMENTS: MIOSHA requires that each employee:

1. Comply with promulgated rules and standards and with orders issued pursuant to the Act.
2. Not remove, displace, destroy, or carry off a safeguard furnished or provided for use in a place of employment, or interfere in any way with the use thereof by any other person.

INSPECTIONS/INVESTIGATIONS: Inspections and investigations are conducted by trained personnel. The Act requires that an employer representative and a representative of employees be given an opportunity to accompany the department representative for the purpose of aiding in the inspection or investigation.

If a representative of employees does not participate, the department representative will consult with a number of employees concerning matters of safety or health in the place of employment.

COMPLAINTS: Employees and employee representatives who believe that an unsafe or unhealthful condition exists in their workplace have the right to request an inspection by giving written notice to the Department of Licensing and Regulatory Affairs. If a condition exists which may present an immediate danger, the Department should be notified in the most expedient manner without regard to a written notice. The names of complainants will be kept confidential and not revealed upon the request of the employee. Employees also have the right to bring unsafe or unhealthful conditions to the attention of the department representative during the conduct of an inspection or investigation.

The U.S. Department of Labor provides that employees may not be discharged or in any manner discriminated against for filing a complaint or exercising any of their rights under the Act. An employee who believes he or she has been discriminated against may file a complaint with the Michigan Department of Licensing and Regulatory Affairs within 30 days of the alleged discrimination.

The U.S. Department of Labor is monitoring the operation of the Michigan Occupational Safety and Health Administration (MIOSHA) to assure the effective administration of the state act. Any person may make a written complaint regarding the state administration of the state act directly to the Regional Office of OSHA, 230 South Dearborn, Chicago, Illinois 60604.

CITATIONS: If upon inspection or investigation the Department of Licensing and Regulatory Affairs believes that a requirement of the Act has been violated, a citation alleging such violation and setting a time period for correction will be issued to the employer. The citation must be prominently posted at or near the place of the alleged violation for three days or until the violation is corrected, whichever is later.

The Act provides for first instance penalties of up to \$7,000 for a violation. Penalties of up to \$7,000 per day may be assessed for failure to correct a violation within a proposed abatement period. Any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$70,000 for each such violation. Employers may appeal the alleged citation, the proposed penalties or the abatement periods to the Department and to the Board of Health and Safety Compliance and Appeals. Employees may appeal the abatement period in a similar manner. Employees also may appeal to the Board of Health and Safety Compliance and Appeals any decision issued by the Department in response to an employer appeal.

Criminal penalties also are provided for in the Act. A person who knowingly makes a false statement or report pursuant to the Act upon conviction is punishable by a fine of up to \$10,000 or may be imprisoned for not more than 5 months or both. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of up to \$10,000 or by imprisonment for not more than one year or both. A second conviction doubles the maximum monetary penalty and is punishable by imprisonment for up to three years.

VOLUNTARY ACTIVITY & COMPLIANCE ASSISTANCE: The act encourages employers and employees to reduce workplace hazards voluntarily.

The Michigan Department of Licensing and Regulatory Affairs offers limited on-site consultation assistance to employers to assist them in achieving compliance with occupational safety and health standards. Training specialists are available and can give advice on the correction of hazardous conditions and on the development of safety and health systems. Department staff are available to conduct seminars and training relative to occupational safety and health for both employer and employee groups. Requests for service should be addressed to the department at the address shown below.

The U.S. Department of Labor will continue to enforce federal standards governing maritime operations of long shoring, shipbuilding, ship broking and ship repairing. These issues are not covered by the Michigan Plan for Occupational Safety and Health.

MORE INFORMATION:

Department of Licensing and Regulatory Affairs
Michigan Occupational Safety & Health Administration
530 W. Allegan Street, Box 30643
Lansing, Michigan 48909-8143
www.michigan.gov/miosha

THIS IS AN IMPORTANT DOCUMENT - DO NOT COVER!



MIOSHA Complaint Hotline 1-800-866-4674
Fatality Hotline 1-800-858-0397
MIOSHA Injuries/Illnesses Reporting 1-844-464-6742
Consultation and Training Assistance 1-517-284-7720



The Department of Licensing and Regulatory Affairs will not discriminate against any individual or group because of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. If you need assistance with reading, writing, hearing, etc. under the Americans with Disabilities Act, you may make your request known to this agency. 12,000 copies printed at \$795.54 or \$0.07 per copy.

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Introduction

It is the policy of this company to provide a safe workplace for its employees. To this end, the company, in concert with employees, will comply with all applicable standards promulgated pursuant to the Michigan Occupational Safety and Health Act (MIOSHA) and the Mine Safety and Health Act (MSHA). MIOSHA and MSHA standards are available upon request (see your Safety Officer), or online at www.michigan.gov/lara and www.msha.gov, respectively.

Since the most important component of any safety policy or program is implementation, it is our intent to communicate the contents of this program to our employees. In turn, all employees are expected to comply with this document and may be disciplined if found to be in noncompliance.

Accident Prevention Program/ General Safety Rules

1. It is the policy of this company to furnish each employee employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to such employee.
2. This company designates _____ as corporate Safety Officer. This person is responsible for the implementation of the company's safety program. If any employee needs to know who the company Safety Officer is, they can find out by asking any foreman.
3. Employees of MacKenzie Companies participate in formal and informal training programs as necessary to their daily work routines.
4. A qualified employee will be designated on each crew or project who will have the following responsibilities:
 - a. Instruct each employee regarding operating procedures, hazard and safeguards of tools and equipment when necessary to perform the job.
 - b. Inspect the construction site, tools and equipment to assure unsafe conditions that may create a hazard are eliminated.
 - c. Instruct each employee in the recognition and avoidance of hazards.
 - d. Instruct each employee, where known harmful plants, reptiles, animals or insects are present, as to the potential hazards, how to avoid injury, and applicable first aid procedures to be used in the event of injury.
 - e. Instruct each employee required to handle or use known poisons, toxic materials, caustics and other harmful substances regarding the potential hazards, safe handling, use personal hygiene, protective measures required and applicable first aid procedures to be used in the event of injury.

- f. Instruct each employee required to enter a confined space regarding the hazards involved, the necessary precautions to be taken, the use of personal protective equipment, and the procedures to be followed if an emergency occurs.
 - g. Instruct all employees in the steps to be taken in case of an injury or accident.
5. The job foreman will inspect all machines, tools and equipment on a regular basis to make certain that no defect is present that will affect the safety of employees.
 6. All employee complaints or concerns regarding safety shall be immediately brought to the attention of the Supervisor and/or Safety Officer.
 7. Periodic meetings will be held to inform all employees of the Company safety program.
 8. This safety program shall be made available to all employees.
 9. A copy of the MITA Trench Safety Handbook shall be made available to all employees who are involved in working in open excavations.
 10. Safety bulletins are located at the main office and in each job trailer and include all required safety postings.
 11. All employees are expected to comply with all applicable standards promulgated pursuant to MIOSHA and MSHA as described in the introduction section of this safety handbook.
 12. Employees will adhere to the safety rules and programs within this safety handbook.

Safety Rules and Programs

MISCELLANEOUS RULES

1. Do not use tools or equipment that you have not been trained or authorized to use. This rule also applies to power-actuated tools.
2. Gasoline must be stored and transported in approved cans only. Engines must be shut off when refueling and no smoking anywhere near flammable liquids.
3. Immediately report all injuries, whether to yourself or a co-worker, to your foreman.
4. Do not distract the attention of fellow workers.

TRENCHING RULES

1. Spoil pile must be at least 2 feet back from the lip of the trench.
2. All employees working in excavations or trenches must always stay within the protective system (trench shield, shoring, sloping).
3. Never climb on shoring, trench shields, or sloped walls or ride on any lift, hook, chain, cable, sling, or other equipment parts.
4. Ladders in a trench must extend at least 3 feet above the top of the trench. All employees working in a trench must be within 25 feet of a ladder or ramp.
5. For further excavation information, refer to the *MITA Trench Safety Handbook*, or Part 9 of MIOSHA Standards.
6. All trenches over 5' deep must be cut to the angle of repose, sheeted or shored.

CONFINED SPACE PROGRAM

GENERAL

Confined Space Definition

1. A confined space is a space having all of the following criteria: (1) is large enough and so configured that an employee can bodily enter, (2) has a limited or restricted means for entry and exit, and (3) is not designed for continuous employee occupancy.

Examples of locations where confined spaces may occur include, but are not limited to, storage tanks, manholes, sewers, water mains, storm drains, underground utility vaults, concrete pier columns, precast concrete manhole units, drilled shafts, pipelines, gatewells, ducts, catch basins and open top spaces such as pits, tubs, vaults, and vessels.

Confined Space Classifications

1. Non-Permit Space is a confined space that does not contain existing or potential physical or atmospheric hazards. A space having only physical hazard(s) that have been isolated or eliminated can be reclassified as a non-permit space. Reclassifying is not allowed when a space contains an existing or potential atmospheric hazard(s) (i.e. existing sewers, manholes, and other similar locations).
2. Alternate Entry Space is a permit space that contains no physical hazards (or the physical hazards have been eliminated or isolated.; the existing or potential atmospheric hazards can be controlled by continuous mechanical forced air ventilation; and, in the event the ventilation system stops working, entrants can exit the space safely. Alternate entry procedures are less stringent than full permit space procedures.
3. Full Permit Space is a permit space that contains existing or potential physical and/or atmospheric hazards. Full permit space entry procedures are required when workers enter the space.

MIOSHA Standard References

1. The requirements for confined spaces in construction are covered

in Construction Safety Standard (CS) Part 35 – Confined Space in Construction. Additional requirements for welding activities are covered in CS Part 7 – Welding and Cutting and General Industry Standard Part 12 – Welding and Cutting.

Part 35 – Confined Space in Construction does not apply to certain construction work activities such as diving, excavations, and underground construction (i.e. tunnels, shafts, cofferdams, and caissons). The requirements for these activities are covered in CS Part 9 – Excavation Trenching & Shoring and Part 14 – Tunnels, Shafts, Cofferdams, and Caissons; and Occupational Health Standards Part 504 - Diving Operations and Part 665 - Underground Construction, Caissons, Cofferdams, and Compressed Air.

Employee Responsibilities

1. Employees must not enter a confined space until properly trained and authorized by the supervisor/foreman. If unsure whether an area or space is considered a confined space, contact your supervisor or foreman.

Employee Training

1. Every employee shall receive training and instruction as to the existence, location, and dangers posed by permit spaces and that they must not enter such spaces without authorization by the supervisor/foreman.
2. Employees who are involved in alternate entry and full permit space entry work operations shall receive specific training to ensure they have the knowledge, understanding and skills to perform their duties safely; understand the hazards in the permit spaces and the methods used to isolate, control or protect workers; and the dangers of attempting entry rescue unless authorized.
3. Employee names, trainer names, specific duties training, and dates of training shall be recorded and maintained at the office. The training records shall be made available to employees upon request.

FIRST STEP: INITIAL WORK SITE EVALUATION

1. Before work begins, the competent person (typically the foreman) must evaluate the worksite to determine if there are any spaces that workers may enter into that meet the definition of a confined space.
2. Employees are not authorized to enter a confined space until the foreman has determined which of the following classifications and entry procedures will be used to enter the space:
 - a. Non-Permit Space Entry
 - b. Alternate Entry Space
 - c. Full Permit Space Entry

Use the **Classifying Confined Spaces** flowchart (See Appendix A. for assistance in determining classification and entry procedures.

3. Each confined space must be evaluated for existing and/or potential physical and atmospheric hazards. Whenever possible, the initial evaluation shall be completed without entering the space. If entry into the space is necessary to complete an initial evaluation, full permit space entry procedures are required.
4. The atmosphere in the space must be tested prior to changing the space's natural ventilation. Direct-reading instruments must be calibrated per manufacturers' specification and used to test for oxygen content, flammable gases and vapors, and potential toxic air contaminants, in this order. The testing will determine whether the following hazards are present or could be introduced by the work operation:
 - a. Oxygen deficiency (concentration less than 19.5 %) or excess (concentration above 23.5 %).
 - b. Concentration of any flammable gas, vapor, or mist in excess of 10 percent of its lower explosive limit (LEL).
 - c. Airborne combustible dust at a concentration equal to or greater than its lower explosive limit.
 - d. Atmospheric concentration of any substance that can cause death,

incapacitation, impairment of ability to self-rescue, injury or acute illness.

5. **Section 1** of the **Pre Entry Checklist** (See Appendix B. must be completed for each confined space that employees may enter into and kept available at the job site. The Pre-Entry Certification (PEC. is necessary to document the results of the initial evaluation and atmospheric testing; and is the rationale used to classify the space and the entry procedures.

NON-PERMIT SPACE ENTRY

1. If a space does not have an existing or potential physical or atmospheric hazard, it is classified as a non-permit space, and employees may enter. **Danger signs are not required for non-permit spaces.**
2. If a space contains an existing or potential physical hazard(s) only, the space can be reclassified as a non-permit space if the physical hazards have been eliminated or isolated. The rationale must be documented in Section 1 on the Pre Entry Certification (PEC.. Reclassifying is not allowed when a space contains an existing or potential atmospheric hazard (i.e. existing sewers, manholes, and other similar locations). In this situation, go to the Alternate Entry Space section.
3. Periodic atmospheric testing and evaluations may be necessary to ensure employee safety in a non-permit space, especially when a work operation (i.e. welding, cutting, using toxic materials) could introduce a new hazard into the space. Anytime a periodic or subsequent atmospheric test is conducted, the results must be documented and kept at the work site. (See Appendix C.: **Confined Space Atmospheric Testing Data Sheet**. Atmospheric test results are not required to be documented if *continuously monitoring* the atmosphere within the space.
4. Employees must exit the space immediately if a hazard is introduced or detected. The space is then reclassified as a full permit space until additional testing and evaluation demonstrate that the space is

safe for re-entry. The event, hazards, and steps taken to eliminate or isolate the hazard in order to prevent another occurrence must be documented in Section 3 on the PEC. The foreman must include his/her signature authorizing re-entry into the space. In addition, the GC must be informed of any hazards that occurred or were created in the space during entry.

ALTERNATE ENTRY SPACE

1. Alternate entry space procedures are less stringent requirements that may be used in lieu of the full permit space procedures, provided **all** of the following criteria can be obtained:
 - a. All physical hazards in the space are eliminated or isolated;
 - b. The only hazard is an actual or potential hazardous atmosphere that can be made safe for entry using continuous forced air ventilation; and
 - c. In the event the ventilation system stops working, entrants can exit the space safely.
2. Prior to entry, the foreman must inform the controlling contractor of the existence, location, and hazards likely to be confronted or created during entry, and that alternate entry procedures will be used to enter the space. When another employer's employee(s) is working in the space at the same time, or when work activities that could result in a hazard are performed in the space at the same time, the alternate entry procedures must be coordinated with the controlling contractor and the other affected employer.
3. **DANGER – PERMIT-REQUIRED CONFINED SPACE – DO NOT ENTER** signs must be posted at each alternative entry space location to prevent unauthorized entry.
4. **Sections 1 and 2** on the PEC must be completed prior to entering the space when using alternate entry procedures. This will document the hazards, precautions, entry procedures and the supporting data for using alternate entry procedures and to verify the space is safe for entry. The PEC must be made available to each employee entering

the space or to their authorized representative, as applicable, and kept at the job site.

5. Any conditions making it unsafe to remove an entrance cover (i.e. manhole cover) must be eliminated before the cover is removed. If an entrance cover is removed, the opening must be immediately guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and will protect employees from falling objects when working in the space.
6. Continuous mechanical forced air ventilation must be set up and used to ventilate the space. Exhaust ventilation and natural ventilation are not acceptable substitutes for forced air ventilation. The forced air ventilation must be directed to ventilate the immediate areas where each employee will be working within the space and must continue until all employees have left the space. The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space.
7. After the space has been ventilated, the atmosphere must be re-tested prior to entry to ensure that the forced air ventilation is preventing the accumulation of a hazardous atmosphere. After re-testing, the atmosphere must be continuously monitored unless periodic monitoring is sufficient to ensure that the atmosphere remains nonhazardous. Anytime a periodic, subsequent or re-test of the atmosphere is conducted, the results must be documented and kept at the work site. (See Appendix C.: **Confined Space Atmospheric Testing Data Sheet**. Atmospheric test results are not required to be documented if *continuously monitoring* the atmosphere within the space.
8. Monitoring instruments must be equipped with an early warning audible alarm that is capable of alerting employees of any atmospheric hazard that may have entered into the space and provides sufficient time to exit the space.
9. If the ventilation system is equipped with an audible alarm, employee(s) must immediately leave the space on their own if the

ventilation stops for any reason when the alarm sounds.

If the ventilation system is not equipped with an audible alarm, an employee stationed at the top of the space opening (top man) must be readily available to monitor the ventilation system and be able to effectively communicate with the employees within to immediately exit the space on their own should the ventilation stop for any reason.

10. A safe method of entering and exiting the space must be provided. Any hoisting system that is used must either be designed or manufactured for personnel hoisting or be approved for personnel hoisting by a registered professional engineer prior to use.
11. Confirm local emergency units are readily available in the case of an emergency. **Attendants, rescue equipment and rescue teams are not required during alternate entry procedures unless the space is reclassified as a full permit space.**
12. If a hazard is detected while employees are working within the space, the foreman must ensure each worker leaves the space immediately. The space is then reclassified as a full permit space until additional testing and evaluation demonstrate that the space is safe for re-entry. The foreman must document the event, hazards, and steps taken to eliminate or isolate that hazard to prevent another occurrence in *Section 3* on the PEC. The foreman must include his/her signature authorizing re-entry into the space.
13. The GC must be notified when work has been completed and informed of any hazards that occurred or were created in the space during entry. Document this in *Section 4* on the PEC.

FULL PERMIT SPACE ENTRY

1. Complete Section 1 of the PEC to verify the conditions of the permit space during the initial work site evaluation and prior to entry. When hazards or potential hazards within a space cannot be eliminated, isolated, controlled with ventilation, or entrants are unable to exit the space in the event the ventilation system stops working, full permit space entry procedures must be established and implemented.

2. DANGER – PERMIT-REQUIRED CONFINED SPACE – DO NOT ENTER signs must be posted at each full permit space location to prevent unauthorized entry.
3. Prior to entry, the foreman must inform the controlling contractor of the existence, and location, of hazards (including any hazards likely to be confronted or created., and that full permit entry procedures will be used to enter the space. The entry procedures must be coordinated with the controlling contractor when another employer’s employee(s) is working in the permit space at the same time and when a work activity that could result in a hazard is performed in the space at the same time.
4. Full permit entry procedures must be developed and implemented to ensure safe entry into the space. The entry procedures must include, at a minimum, all of the following:
 - a. Specify the acceptable entry conditions;
 - b. Provide entrants or their authorized representative an opportunity to observe any monitoring or testing of space;
 - c. Isolate the space and physical hazards within the space;
 - d. Purging, inerting, flushing, or ventilating the space as necessary to eliminate or control atmospheric hazards;
 - e. Determine that, in the event the ventilation system stops working, the monitoring procedures and equipment will detect an increase in atmospheric hazard levels in sufficient time for entrants to safely exit the space;
 - f. Provide pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards;
 - g. Verify that conditions within the space are acceptable throughout entry.
5. Provide the following equipment, maintain the equipment, and ensure employees use the equipment properly:
 - a. Testing and monitoring equipment;
 - b. Ventilating equipment;

- c. Communication equipment;
 - d. Personal protective equipment when engineering and work-practice controls do not adequately protect employees;
 - e. Approved lighting equipment;
 - f. Barriers and shields;
 - g. Equipment, such as ladders, for safe access and egress;
 - h. Rescue and emergency equipment, unless equipment is provided by rescue services; and
 - i. Any other equipment necessary for safe entry into, safe exit from, and rescue.
6. Full permit space conditions must be evaluated as follows during entry:
- a. Test the atmosphere in the space before entry to determine if acceptable entry conditions exist before changes to the space's natural ventilation are made. If isolation of the space is infeasible, due to being large or is part of a continuous system (such as a sewer), all of the following must be conducted:
 - i. Perform pre-entry atmospheric testing to the extent feasible before entry;
 - ii. Continuous monitoring of conditions in the areas where entrants are working;
 - iii. Provide an early-warning system that continuously monitors for non-isolated engulfment hazards and alerts entrants and attendants in sufficient time to safely exit the space.
 - b. Continuously monitor atmospheric hazards unless periodic monitoring is sufficient to ensure that the atmosphere remains nonhazardous.
 - c. When testing the atmosphere, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.
 - d. Allow entrants or their authorized representative to observe any testing.
 - e. Reevaluate the space as requested by the entrant or their authorized representative and provide them with the results of any

testing.

7. The authorized entrant(s), attendant(s), and foremen each have specific duties whenever work is performed in a permit space. Their specific duties are listed below:

Authorized entrants must:

- a. Know space hazards, including information on the means of exposure such as inhalation or skin contact, and symptoms of the exposure;
- b. Use appropriate personal protective equipment properly;
- c. Stay in communication with attendant as necessary to enable the attendant to monitor the entrant's status and alert to evacuate when necessary;
- d. Exit from the permit space as soon as possible when:
 - i. Ordered by the attendant or foreman;
 - ii. When he/she recognizes the warning signs or symptoms of exposure;
 - iii. A prohibited condition exists; or
 - iv. An automatic alarm is activated.
- e. Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.

Attendants must:

- a. Remain outside the permit space during entry operations unless relieved by another authorized attendant;
- b. Perform non-entry rescues when specified by the rescue procedure;
- c. Know existing and potential hazards, including information on the types of exposure, signs or symptoms, consequences, and other effects;
- d. Maintain communication with and keep an accurate account of the workers within the space;
- e. Assess conditions inside and outside the space and order evacuation of the permit space when:

- i. A prohibited condition exists;
 - ii. A worker shows behavioral effects of hazard exposure;
 - iii. A situation exists outside the confined space that could endanger the employees within the space; and
 - iv. The attendant cannot effectively and safely perform required duties.
- f. Summon rescue and other services during an emergency and when a worker becomes injured or ill;
- g. Ensure that unauthorized people stay away from permit spaces or exit immediately if they have entered into the space;
- h. Inform entry employees and foreman if any unauthorized person enters the permit space; and
- i. Perform no other duties that interfere with the attendant's primary duties.

Foremen must:

- a. Know space hazards including information on the mode of exposure, signs or symptoms and consequences;
 - b. Verify that specified entry conditions are satisfied, including permits, tests, procedures and equipment before allowing entry;
 - c. Terminate entry and cancel or suspend permits when entry operations are completed or if a condition that is not allowed under the permit arises;
 - d. Verify that rescue services are available and that the means for summoning them are operable;
 - e. Take appropriate measures to remove unauthorized entrants; and
 - f. Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.
8. At least one attendant must be stationed outside the permit space when workers are working within, and maintain communication with all entrants and keep track of their conditions. If one or more entrants suffers an injury or illness and is unable to exit the space without help, the attendant must initiate a rescue. When an attendant is required to monitor multiple permit spaces, additional procedures

must be implemented in the event of an emergency within one or more of those spaces.

9. ***Rescue and emergency*** procedures must be established for summoning rescue and emergency services and preventing unauthorized personnel from attempting rescue.
 - a. ***Non-entry rescue:*** It is preferable if the entrant(s) can be rescued without others entering the space to avoid having additional personnel exposure to the hazard that caused the illness or injury. Therefore, non-entry rescue procedures using retrieval equipment must be implemented, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant, such as when obstructions can snag the retrieval line or the line can become entangled with air lines or electric cords. The attendant must be prepared to perform non-entry rescues if needed.

When non-entry procedure is selected, each entrant must wear a chest or full body harness, with a retrieval line attached at the D-ring in the center of the back or another point which positions the entrant so that he or she is small enough to be pulled out of the space. The other end of the retrieval line must be attached to a mechanical device or a fixed point outside the permit space. A mechanical device must be available to retrieve someone from vertical type permit spaces more than 5 feet deep. Wristlets or anklets may be used instead of a chest or full body harness only if the employer can demonstrate that use of a chest or full body harness is infeasible or creates a greater hazard.

When a non-entry rescue procedure is selected, the foreman must also confirm, before entry begins, that emergency assistance (typically the local fire department) is available if the non-entry rescue fails.

- b. ***Entry rescue:*** When non-entry rescue is not feasible, the only way to rescue an entrant is for others to enter the permit space. For entry rescue, an on-site rescue team consists of our employees or another contractor's employees. An off-site rescue service is a

local fire department or other rescue service. The off-site rescue service must be able to respond in time to get the entrant out of the space to receive medical treatment, which requires the foreman to contact the rescue service prior to entering the space and informing them of the nature and hazards involved in the space. In some cases, this may require a standby rescue team, such as when the entrant is working in an atmosphere that is immediately dangerous to life or health (IDLH) and is wearing an airline respirator or a self-contained breathing apparatus.

When entry rescue takes place, an attendant must be stationed outside the permit space so that additional help can be summoned if needed. If the original attendant is to enter the space as part of the rescue team, a new attendant must be in position before the first attendant enters the space.

- c. ***Training requirements for rescue teams and off-site rescue services:*** All members of a rescue team must receive the training that is required for authorized entrants and have been trained to perform their assigned rescue duties. Rescue team members must be provided with personal protective and rescue equipment, including respirators, and must be instructed on how to use it. All rescuers must be trained in first aid and CPR. At a minimum, one rescue team member must be certified in first aid and CPR. Rescuers must be informed of the hazards within the permit space before entering. Rescue team practices or exercises must take place at least yearly. Off-site rescue services must be provided access to all permit spaces, if requested, in order to practice rescue operations.

Off-site rescue services must notify the foreman in the event that their service is unavailable. The permit space work can be postponed or another off-site rescue service can be used.

If using an off-site rescue service, the foreman must determine that the service has the ability and equipment to carry out a rescue in the particular permit space or type of permit space that entrants are working in. The foreman must contact the rescue service to make

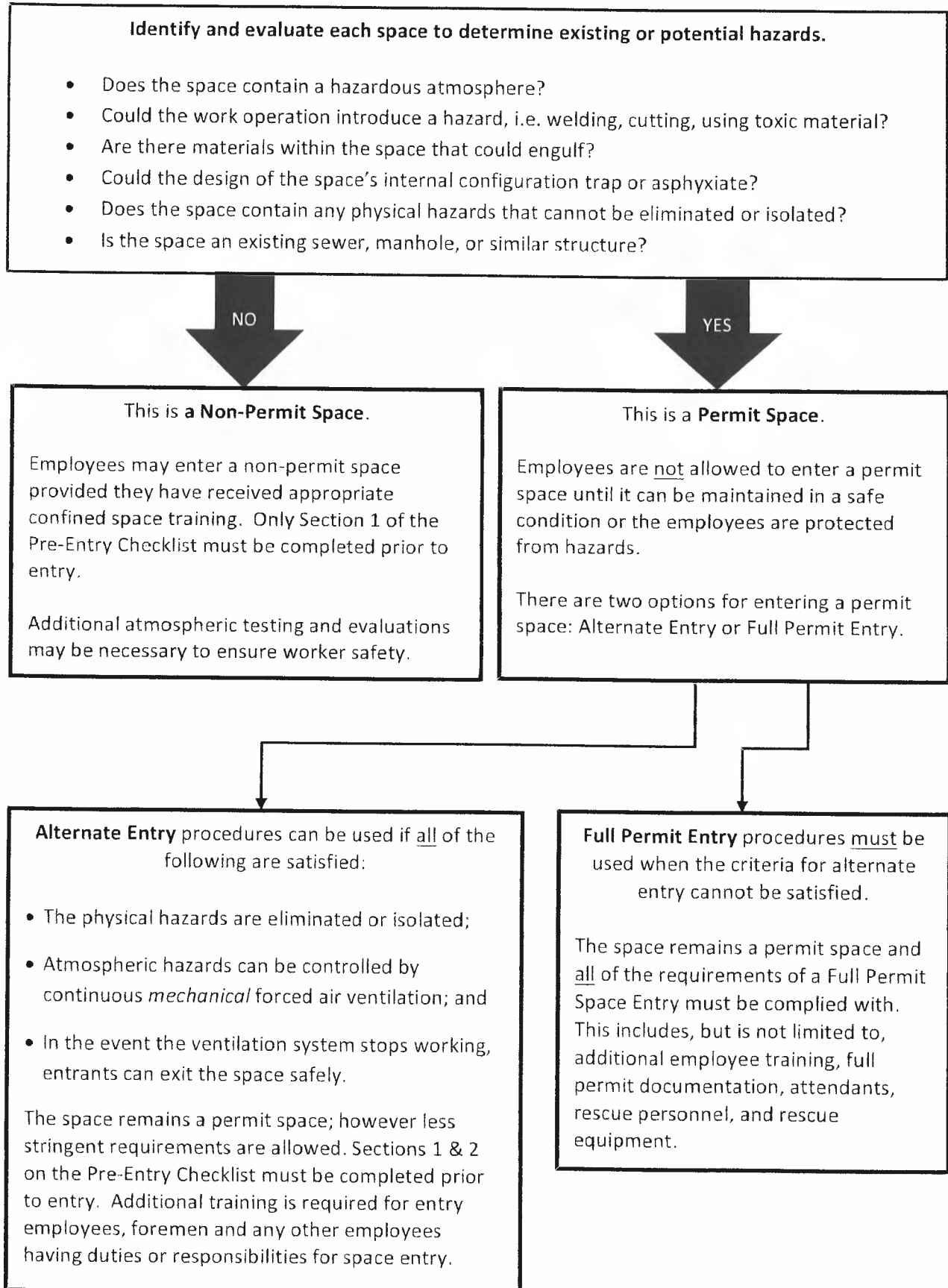
sure that it will be able to respond in a timely manner whenever an entrant is in the permit space.

10. Full permit space entry procedures must be reviewed and deficiencies must be corrected whenever it is discovered that the procedures established may not be protecting employees adequately. Circumstances requiring a review include an injury or near misses, unauthorized entry, detection of a new hazard or condition prohibited by the Entry Permit, or an employee complaint about the program's effectiveness. In addition, the Full Permit Space Procedures will be reviewed annually for effectiveness using the cancelled entry permits
11. Prior to entry, a **Full Permit Space Entry Permit** (See Appendix D. must be completed for each full permit space that employees may enter into. The entry permit includes all of the following information:
 - a. Name of the permit space to be entered, authorized entrants(s), current attendants, and current entry foremen;
 - b. Purpose of entry;
 - c. Date and authorized duration of entry;
 - d. Means of detecting an increase in atmospheric hazard levels;
 - e. Name and signature of foreman who authorizes entry;
 - f. Known hazards in the space;
 - g. Measures to be taken to isolate permit spaces and to eliminate or control space hazards;
 - h. Acceptable entry conditions;
 - i. Test results, date and time of tests(s), and the tester's initials or signature;
 - j. Name and telephone numbers of rescue and emergency services and means to be used to contact them;
 - k. Communication procedures and equipment to maintain during entry;
 - l. Special equipment and procedures, including personal protective equipment and alarm systems;

- m. Any other information needed to ensure employee safety; and
 - n. Additional permits, such as for hot work, that have been issued authorizing work in the permit space.
12. The foreman must cancel entry permits when work has been completed within the space or when new hazards or conditions occur. Once a permit is cancelled, entry under it is no longer permitted. New hazards or conditions must be noted on the cancelled permit and used in revising the permit space program. Once the work has been completed and the entry permit cancelled, it must be kept for a least one year.
 13. The foreman may suspend an entry permit instead of cancelling it if a temporary condition has occurred in or near the space that, once corrected, is not expected to reoccur. The permit may be reinstated and entry may occur under the permit if the entry supervisor has determined that the conditions in the space match the allowable conditions listed on the permit.
 14. The GC shall be informed when work has been completed within the space and of any hazards that occurred or were created in the space during entry.

APPENDIX A

CLASSIFYING CONFINED SPACES



APPENDIX B PRE-ENTRY CHECKLIST

SECTION 1: INITIAL WORK SITE EVALUATION

Date of Initial Evaluation:	Identify space being entered:	Person completing the evaluation:
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<p>Can the initial evaluation be completed without entering?</p> <p>Yes <input type="checkbox"/> Continue to next box.</p> <p>No <input type="checkbox"/> STOP! –Use full permit space procedures.</p>	<p>If a cover or guard has to be removed to perform the initial evaluation or testing, have all hazardous conditions been eliminated, isolated, or controlled?</p> <p>Yes <input type="checkbox"/> N/A <input type="checkbox"/></p>
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Atmospheric Hazard Assessment

<p>Record initial atmospheric testing:</p> <p>Oxygen %</p> <p>Flammable/Explosive Gas % LEL</p> <p>Hydrogen Sulfide (H2S) PPM</p> <p>Carbon Monoxide (CO) PPM</p> <p>Other (Specify) _____</p> <p>Record subsequent atmospheric testing on the Confined Space Atmospheric Testing Data Sheet (Appendix C).</p>	<p>Does the space contain a hazardous atmosphere?</p> <p>No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> (Only Alternate Entry or Full Permit Entry procedures are allowed.)</p> <hr/> <p>Could a hazardous atmosphere possibly enter the space after the initial testing, (i.e. sewers and manholes) or could a hazard be introduced from a work operation (i.e. welding, cutting, applying toxic material)?</p> <p>No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> (Only Alternate Entry or Full Permit Entry procedures are allowed.)</p>
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Physical Hazard Assessment

<p>Are there existing or potential physical hazards in the space (i.e. electrical, mechanical, engulfment)?</p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/> (Check applicable boxes below)</p> <p><input type="checkbox"/> Electrical <input type="checkbox"/> Entrapment</p> <p><input type="checkbox"/> Mechanical <input type="checkbox"/> Converging Walls</p> <p><input type="checkbox"/> Engulfment/Water <input type="checkbox"/> Fall Hazard</p> <p><input type="checkbox"/> Hydraulic/Pneumatic <input type="checkbox"/> Temp. Extreme</p> <p><input type="checkbox"/> Other (Specify): _____</p>	<p>If physical hazards were detected in the space, were they eliminated or isolated?</p> <p>No <input type="checkbox"/> Yes <input type="checkbox"/> (Check applicable boxes below)</p> <p><input type="checkbox"/> Lock out/Tag out <input type="checkbox"/> Personal Fall Arrest/Rest.</p> <p><input type="checkbox"/> Isolate/Guard <input type="checkbox"/> Install Work Platform</p> <p><input type="checkbox"/> Purge/Drain/Clean <input type="checkbox"/> Guard Rails/Hole Covers</p> <p><input type="checkbox"/> Blank/Block/Bleed <input type="checkbox"/> Ventilation/Ice Vest</p> <p><input type="checkbox"/> Other (Specify): _____</p>
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SPECIFY THE APPROPRIATE CLASSIFICATION AND ENTRY PROCEDURES

- Non-Permit Space.** There are no existing or potential physical hazards or atmospheric hazards. Periodic atmospheric testing may be necessary. Employees may enter the space.
- Alternate Entry Space.** There are no physical hazards. There are existing or potential atmospheric hazards that can be controlled by ventilation; and if the ventilation system stops working, entrants can exit the space safely on their own. Continue to Section 2: Alternate Entry Space.
- Full Permit Space.** There are physical hazards that cannot be eliminated or isolated and/or there are existing or potential atmospheric hazards that cannot be controlled by ventilation. Full permit space entry procedures are required.

SECTION 2: ALTERNATE ENTRY SPACE

Confined space danger sign posted at the space? Yes

Are local emergency services readily available? Yes

GC notified of the work and entry procedure? Yes N/A

Alternate entry training provided to employees? Yes

Check applicable boxes describing the existing or potential atmospheric hazards detected in the space:

- Oxygen Deficiency Carbon Monoxide (CO) Flammable/Explosive Gases/Vapors (Specify):
- Welding/Cutting Hydrogen Sulfide (H₂S) Other (Specify):

Check applicable boxes that describe how the atmospheric hazards will be isolated or controlled in order to protect entrants:

- Mechanical ventilation system set at 100% outside air Open additional manholes to increase air circulation
- Use portable blowers to augment natural ventilation Repeat atmospheric testing after ventilating the space
- Continuous air monitoring during and after entry No burning, cutting, or welding operations in the space
- Use intrinsically safe lighting in the space Other (Specify):

In the event the ventilation system stops working, check applicable boxes that describe how the atmospheric hazards will remain at safe levels long enough for entrants to recognize the problem and safely exit the space:

- Fully ventilated space while unoccupied to get non-detect readings for atmospheric hazards; then shut down ventilation and monitored air quality. If atmospheric hazards are detected that reach maximum limits, full permit space procedures will be implemented.
- The atmospheric testing equipment is equipped with an audible alarm to alert entrants to exit the space.
- Entrants are wearing personal air monitors that are equipped with an audible alarm to alert them to exit the space.
- The ventilation system is equipped with an audible alarm to alert entrants to exit the space.
- A top man is readily available to monitor the ventilation system and alert the entrants to exit the space.
- Other (Specify):

Check applicable boxes that describe how employees are able to safely exit the space on their own:

- A fixed ladder is located in the space and safe for entrants to use to exit the space.
- A portable ladder will remain in the manhole during the time entrants are working in the space.
- A work platform has been installed in the space for egress.
- Other (Specify):

Check appropriate boxes that describe any additional steps or monitoring to be taken to ensure conditions are safe from physical hazards: Periodic inspections Early warning system Other (Specify):

SECTION 3: COMPLETE ONLY WHEN A HAZARD IS DETECTED IN THE SPACE AFTER THE INITIAL EVALUATION

Were employees evacuated from the space when the hazard was detected? Yes

Describe the event, hazard, and steps taken to eliminate or isolate the hazard to prevent another occurrence:

Is the space safe for re-entry?

Yes *Employees may re-enter the space.* Foreman Signature: _____

No *Employees must not enter the space. This is now re-classified as a full permit space. Full permit space procedures are required until space has been made safe for re-entry.*

SECTION 4: AFTER WORK HAS BEEN COMPLETED IN THE SPACE

GC informed that work has been completed? Yes GC informed of any hazards detected during entry? Yes N/A

APPENDIX C

CONFINED SPACE ATMOSPHERIC TESTING DATA SHEET

The initial atmospheric test results for a space are recorded on the Pre-Entry Checklist. This data sheet is used to record subsequent or additional atmospheric testing of a space.

Job Site: _____ Space being tested: _____

Date	Time	Oxygen	Flammable/ Explosive Gas	Hydrogen Sulfide (H ₂ S)	Carbon Monoxide (CO)	Other (Specify)	Employee Initials
Permissible Levels		19.5 to 23.5%	10% LEL	5 PPM	25 PPM		

Notes:

APPENDIX D FULL PERMIT SPACE ENTRY PERMIT

1. Permit space to be entered (i.e. sewer, tank, manhole, crawlspace, attic):		Host, GC and Subs notified of the work? Yes <input type="checkbox"/> NA <input type="checkbox"/>							
2. Purpose of entry:		Location:							
3. Date of entry:		Auth. duration of entry permit:		Entry supervisor print name/contact information:					
4. Rescue type selected: Non-entry <input type="checkbox"/> or Entry <input type="checkbox"/> Equipment: Tri-pod/Davit arm <input type="checkbox"/> or Emergency service <input type="checkbox"/> Emer. Service Available (Permit Space only): Onsite <input type="checkbox"/> or <input type="checkbox"/> Off-site (name & phone):		Communication Equipment: Radio <input type="checkbox"/> Voice <input type="checkbox"/> Cell Phone <input type="checkbox"/> Air Horn <input type="checkbox"/> <input type="checkbox"/> Other (Specify):							
Rescuer(s) trained in 1 st Aid/CPR (Permit Space only): <input type="checkbox"/> (Note: Part 1 1 st Aid requirements)									
5. Authorized entrants (Print Names) Use back or attach page for more entrants		Entry time		Entry time		Entry time		Entry time	
		In	Out	In	Out	In	Out	In	Out
6. Attendant (Print Name)		Date and Time		7. Current training for confined space workers verified?					
				Yes <input type="checkbox"/> No <input type="checkbox"/>					
8A. Identify, evaluate and record hazards of space to be entered.		Yes	No	8B. Specify equipment and measures required to eliminate/control hazards before and during entry					
A. Lack of Oxygen or Inert Gas Present (i.e. Argon, Nitrogen)	<input type="checkbox"/>	<input type="checkbox"/>		Continuous forced air ventilation <input type="checkbox"/> Blank, Block and Bleed <input type="checkbox"/>					
B. Flammable Gas/Vapor (%LEL)	<input type="checkbox"/>	<input type="checkbox"/>		Purge, Clean, Drain <input type="checkbox"/> Intrinsically Safe Lighting <input type="checkbox"/>					
C. Toxic Gas/Vapor (i.e. CO and H ₂ S)	<input type="checkbox"/>	<input type="checkbox"/>		Respiratory Protection: Supplied Air with Escape Bottle <input type="checkbox"/> SCBA <input type="checkbox"/>					
D. Chemical (impairs self-rescue)	<input type="checkbox"/>	<input type="checkbox"/>		Other (list) <input type="checkbox"/>					
E. Electrical	<input type="checkbox"/>	<input type="checkbox"/>		Lockout/Tagout <input type="checkbox"/> Isolate/Guard <input type="checkbox"/>					
F. Mechanical	<input type="checkbox"/>	<input type="checkbox"/>		Blank, Block and Bleed <input type="checkbox"/> Other (list) <input type="checkbox"/>					
G. Hydraulic/Pneumatic	<input type="checkbox"/>	<input type="checkbox"/>							
H. Temp. Extreme	<input type="checkbox"/>	<input type="checkbox"/>		Continuous forced air ventilation <input type="checkbox"/> Ice Vest <input type="checkbox"/> Other (list) <input type="checkbox"/>					
I. Engulfment	<input type="checkbox"/>	<input type="checkbox"/>		Drain <input type="checkbox"/> Pump <input type="checkbox"/> Other (list) <input type="checkbox"/>					
J. Entrapment/Converging Walls	<input type="checkbox"/>	<input type="checkbox"/>		Install Work Platform <input type="checkbox"/> Hole Covers <input type="checkbox"/> Guard Rails <input type="checkbox"/> Personal Fall Arrest /Restraint <input type="checkbox"/>					
K. Fall Hazard	<input type="checkbox"/>	<input type="checkbox"/>		Other (list) <input type="checkbox"/>					
L. Introduced Hazards (i.e. Chemical, Hot Work)	<input type="checkbox"/>	<input type="checkbox"/>		Fire extinguisher <input type="checkbox"/> Hot Work Permit <input type="checkbox"/> Other (list) <input type="checkbox"/>					
M. Other	<input type="checkbox"/>	<input type="checkbox"/>		Warning signs posted at access <input type="checkbox"/> Additional PPE <input type="checkbox"/>					
9. Gas tester(s)/monitor model(s)/type(s):		Serial/unit no(s):							
		Bump test to confirm function? Yes <input type="checkbox"/> Verified: On-site test <input type="checkbox"/> Documentation <input type="checkbox"/>							
Test Required	Permissible levels	Initial test levels (before vent)	Subsequent test type: Sample <input type="checkbox"/> Continuous <input type="checkbox"/> (take readings before EACH entry into space)						
			Test 2	Test 3	Test 4	Test 5	Test 6		
A. Oxygen (O ₂)	19.5 to 23.5%								
B. Combustible gas/vapor (LEL)	10% LEL								
C. Hydrogen sulfide (H ₂ S)	5 PPM								
D. Carbon monoxide (CO)	< 25 PPM								
E. Other									
	Tester initials								
	Test Times								
10. Are entry conditions acceptable? (Remove debris and other obstructions from entry point) Yes <input type="checkbox"/> No <input type="checkbox"/>									
Entry Suspended (time): _____ AM <input type="checkbox"/> PM <input type="checkbox"/>		Time of reentry: _____ AM <input type="checkbox"/> PM <input type="checkbox"/>							
Reason for suspending permit: _____									
Permit Canceled date/time _____ / _____ AM <input type="checkbox"/> PM <input type="checkbox"/>		Unanticipated Hazards? No <input type="checkbox"/> Yes <input type="checkbox"/> If yes, describe below: _____							
Debriefing occurred after entry? Yes <input type="checkbox"/> No <input type="checkbox"/>									
Entry Supervisor Signature: _____									

PERSONAL PROTECTIVE EQUIPMENT RULES

1. All employees outside of a cabbed vehicle or covered piece of equipment must wear a hard hat. Never use metal hard hats.
2. Wear proper eye and face protection (goggles, safety glasses, etc.) when necessary.
3. Hearing protection shall be used where loud noise is present.
4. Always wear safety vest, hard hats, and boots when directing traffic.
5. All employees must wear required hand protection, gloves, etc., when an employee is exposed to hazards such as radiation, alkalis, acids, adhesives and temperatures extreme other than those caused by weather conditions.
6. Proper clothing will be worn, including hard toe work boots when required, shirts and pants (no cutoffs).

WELDING, CUTTING AND HOT WORK

1. Hot work in any work area creates a fire hazard, especially in confined or enclosed spaces. Good ventilation must be provided to reduce the level of toxic fumes that are released during welding and cutting.
2. Only trained and authorized personnel shall perform welding and cutting operations.
3. Respirators of the proper type must be used in location where ventilation is inadequate and when welding or cutting galvanized metals.
4. Cylinders: Gas cylinders must be capped when transported and when not in use. Cylinders shall be moved on an approved cart or by tilting and rolling them on their bottom edges. Regulators shall be removed and valve caps put in place before cylinders are moved. Cylinders must be secured in an upright position to keep them from being knocked over. Gas cylinders must be in an upright position when in use. A chain, bracket, or other restraining device shall be used at all times to prevent cylinders from falling. Cylinders shall never be used

as rollers or supports. Before connecting a regulator to a cylinder, crack the valve momentarily (away from you, other workers and sources of ignition) to clear the valve of dust and dirt.

5. Welding hoses, regulators and cables must be inspected before use, and damaged equipment must not be used.
6. Hoses and cables must be arranged so that they do not create a tripping hazard and are not damaged by equipment.
7. The frame of arc welding equipment must be grounded.
8. When electrode holders are left unattended, the electrodes shall be removed and the holders protected from contact with employees. Hot electrodes shall not be dipped in water.
9. Whenever welding or cutting, a fire extinguisher of the proper type must be immediately available in the work area.
10. Make sure that each fuel gas cylinder lead is equipped with a flash arrestor to prevent flashback.
11. Perform welding in a well-ventilated area. Use mechanical ventilation in confined or enclosed spaces. Provide both general ventilation to bring in clean air and local exhaust ventilation close to the work to remove hazardous fumes.
12. Wear the proper personal protective equipment: Wear welder's leather coverings or long-sleeve, fire-retardant coveralls without cuffs. Wear high-top leather shoes or boots and keep the cuffs of pants over the top of footwear to prevent sparks from falling into shoes. Wear safety glasses and a welder's helmet with properly shaded lenses to protect eyes from harmful ultraviolet rays.

FIRE PREVENTION

1. Flammable liquids, such as gasoline, must be kept in approved, clearly labeled containers and stored in a separate area away from sources of ignition. Store in the shade whenever possible.
2. The use of gasoline is prohibited for cleaning equipment and tools

and for starting fires. Do not use gasoline to clean your hands.

3. Shut off engines when refueling and do not refuel hot engines if gas could spill on hot engine components such as mufflers.
4. Do not smoke in any area where flammables or explosives are handled or stored.
5. Oxygen (oxidizers), when stored, must be separated from flammables by 20 feet or by a 5 foot noncombustible wall with at least one-half hour rating. This includes separating oxygen and fuel gases at night when not in use.
6. Know how to use the fire extinguishers. In the event of a small fire, use the correct class of fire extinguisher for the burning material:
 - CLASS A – wood, paper, cloth
 - CLASS B – gas, oil, paints
 - CLASS C – electrical
 - CLASS D – metals

If the fire is large, evacuate the work area and call the fire department.

7. Tampering with fire extinguishers or fire hoses is prohibited.
8. Make sure that each fuel gas cylinder regulator or hose is equipped with an anti-flashback device. Regulators must be removed when transporting cylinders and when equipment is not in use.

HAND AND POWER TOOLS

1. Inspect tools daily before use to insure they are in proper working order. Damaged or defective tools must be taken out of service immediately and tagged “Do Not Use.”
2. Hand tools should be used for their intended purposes only. The design capacity of hand tools should not be exceeded by the use of unauthorized attachments.
3. Machine guards must not be removed, blocked or otherwise made

inoperative. Proper adjustment and maintenance of guards is essential.

4. Electrically powered tools and equipment shall be double insulated or of the 3-wire grounded type. Employees using electrical power tools and extension cords must be protected by an approved ground fault circuit interrupter or the tools and the cords must be inspected and electrical grounds tested in accordance with the requirements of the Assured Equipment Grounding Conductor Program.
5. Hand-held pneumatic tools must have an approved safety check valve installed at the manifold outlet of each supply line. Before removing any pneumatic tools or disconnecting hoses from the compressor, determine that the air pressure has been turned off and bled from the system.
6. All pneumatic hose connections must be fastened securely by retaining clips or approved quick disconnect couplings.
7. Always disconnect power tools from the energy source before making adjustments or changing attachments.
8. Electrical shut down switches for all power equipment must be located within the immediate reach of the operator.
9. Power tools should be hoisted or lowered by hand lines, never by their electrical cords or air hoses.
10. Power cords and hoses must be placed so they do not create tripping hazards or become subject to damage from equipment and materials.
11. Do not use electric tools while standing in water.
12. Abrasive wheels should be ping tested and checked for cracks, chips or other defects before mounting. Check the speed rating for the wheel to be sure its rated speed RPMs is not exceeded.
13. Power-actuated tools must be operated only by trained and licensed personnel wearing protective equipment, including but not limited to eye and ear protection.

14. When placing sand, gravel or concrete with pneumatic hoses, employees must wear protective head and face equipment.
15. When a mechanical or hydraulic jack is used, determine that the jack is capable of lifting the required weight and is firmly positioned to prevent the load from slipping off the jack's cap.
16. When it is necessary to work on electrically driven machinery, the disconnect switch for controlling the machine shall be in the opened or off position and locked in place by the worker or workers performing the job.

HEAVY EQUIPMENT RULES

1. Every employee, not just the equipment operator, must be fully aware of all safety aspects of heavy construction equipment.
2. Be constantly alert when working around heavy equipment. The operator cannot always see other personnel around his equipment. Stay out from under suspended loads, away from moving equipment, and counterweights.
3. Only designated individuals shall be permitted to operate or service heavy equipment.
4. Equipment and vehicles essential in accomplishing job duties are expensive and may be difficult to replace. When using, employees are expected to exercise care, perform required maintenance and follow all operating instructions, safety standards and guidelines.
5. Perform frequent and periodic inspections as required, and complete a weekly equipment repair request form so hours and other important information may be recorded for the maintenance of the machine.
6. Immediately notify your Supervisor if any equipment, machines, tools or vehicles appear to be damaged, defective or in need of repair. If a Supervisor is not available, contact the Shop immediately and discontinue operation if necessary to avoid further damage.
7. The equipment operator must wear the seat belt when required.

8. No employee is permitted to ride on any part of the equipment.
9. Do not leave trucks and equipment idling — turn them off.
10. It is the responsibility of all employees to make certain that back-up alarms on obstructed rear view heavy equipment be in operable condition. Use a flagger to move equipment when back up alarms are inoperable.
11. Maintain at least a 10' minimum clearance from energized lines; use a spotter in difficult areas.

SAFE CRANE OPERATION

1. Follow heavy equipment rules listed above.
2. Before operations begin, be sure to level crane and make sure outriggers give reliable stability and are used on proper support.
3. Inspect rigging, hooks and slings daily.
4. Avoid overturning, collapse of the boom and cable failure by recognizing manufacturer's postings of safe loads for boom angles found in the cab. Never exceed these postings.
5. Do not place water dispenser on a crane as a central location for workers.
6. Before leaving the crane for any reason, the operator should set the brakes, block the wheels, lock the boom and place the levers and controls in a neutral position.
7. Crane engines should not be refueled while running and a suitable fire extinguisher must be available.
8. Barricade the swing radius of the rotating superstructure of the crane.
9. Knowledge of hand signals assures safe communication with operator.

FORKLIFT AND INDUSTRIAL TRUCKS

1. Employees who are authorized to operate powered industrial trucks must receive training prior to engaging in their duties.
2. Follow heavy equipment rules listed above.
3. Persons are not allowed to stand or pass under elevated forks of a truck.
4. If powered industrial trucks are used to elevate persons, an appropriate man lift platform (cage with standard rails and toe-boards) that is attached to the mast must be used.
5. A safe distance must be maintained from the edge of ramps or platforms while on any elevated dock, platform, or freight car. Maintain sufficient headroom under overhead installations such as: lights, pipes, sprinkler systems, etc.
6. An overhead guard must be used as protection against falling objects and operators must wear hard hats in areas where overhead hazards exist.
7. Lift capacity must be marked on all powered industrial trucks. Operators must assure the load does not exceed rated weight limits.
8. All powered industrial trucks (with the exception of pallet jacks) must be equipped with a multi-purpose dry chemical fire extinguisher.
9. Loads should be safely arranged, stable, and centered — always use caution when handling loads.
10. Fuel tanks may not be filled while the engine is running. Avoid spillage.
11. Any powered-operated industrial truck not in safe operating condition must be removed from service. Authorized personnel must make all repairs.

FALL PROTECTION & GUARDING

1. All manholes which present a fall hazard should be covered and identified as a hole.
2. Guardrails around open shafts and bore pits deeper than 6' should be 42" plus or minus 3" high.
3. The intermediate rail should be positioned halfway between the floor and top rail.
4. The threshold for fall protection use is 6'. Fall protection may be accomplished by guarding, personal fall arrest systems or safety nets. Ask your qualified person.
5. Perimeter cables constructed of 3/8" cable with danger signs midway between the cable supports may be used as a fall protection device.
6. Perimeter cables should be 42" above floor with a maximum of 6".

TRAFFIC, SIGNALS, SIGNS AND BARRICADES

1. All traffic control devices are to be placed under the direction of the trained employee.
2. While flagging or directing vehicular traffic, a reflectorized, fluorescent orange warning vest and hard hat shall be worn at all times. Flag people are to be courteous at all times.
3. A six foot staff two-sided paddle sign with "STOP" on one side and "SLOW" on the other shall be used to control traffic.
4. Traffic control devices shall be installed and maintained as prescribed by Part 6 of the *Michigan Manual of Uniform Traffic Control Devices*.
5. When working in or adjacent to vehicular traffic, always face the flow of traffic or use a spotter.
6. Replace traffic control devices that have been damaged or downed signs as soon as possible.

7. Cover construction traffic control when work is not in progress if possible.
8. Consult the qualified person with traffic regulation questions.

SCAFFOLD SAFETY

1. Employees must receive training prior to using a scaffold.
2. A trained, competent, employee must inspect a scaffold before each day and after anything happens that could affect the structure.
3. If a scaffold is more than 2 feet above or below a level, there must be a way to get on or off — such as a ladder, ramp, or personnel hoist.
4. Put a standing scaffold on a firm foundation (with base plates attached to feet) — for instance, with one piece of wood under each pair of legs (across the shortest distance), extending at least 1 foot past each leg.
5. Uprights must be vertical and braced to prevent swaying; platforms must be level.
6. A scaffold that is more than 4 times higher than its base is wide must be tied to supports.
7. Most scaffold platforms and walkways must be 18" wide or more. If a work area is less than 18" wide, guardrails and/or personal fall-arrest must be used.
8. Ten-foot planks must extend at least 6" past the end supports, but not more than 12"; no more than 1" between planks or between planks and uprights.
9. Wood planks must be unpainted, so any cracks will show.
10. For supported scaffolds, check at least these points: completely planked platforms, proper access, complete guardrails and proper ties to building (where required..
11. Keep scaffolds 10' or more from power lines.

12. Fall protection is necessary if a scaffold is more than 10 feet above a level.
13. On most scaffolds, guard rails must be on all open sides and ends. On supported scaffolds and some other scaffolds, guardrails or personal fall protection is enough. On most suspension scaffolds, both are needed. Use a harness, not a body belt, for personal fall protection.
14. Scaffold walkways must have no more than a 9.5" gap between planks and a guardrail.
15. Don't let junk collect on the scaffold; you can trip and fall.
16. There must be a 3 1/2" high toe board to prevent things falling off a scaffold. If things on the scaffold are taller than 3 1/2" — above the toeboard — other systems, like debris nets, can be used to catch falling tools or materials. If things can fall off a scaffold, people must be prevented from walking under or near the scaffold.

RIGGING MATERIAL HANDLING

1. Inspect rigging equipment for material handling before use each day and as necessary during its use to ensure that it is safe. Remove defective rigging equipment from service.
2. Do not load rigging equipment in excess of its recommended safe working load.
3. Mark special custom-design grabs, hooks, clamps, or other lifting accessories for such units as modular panels, prefabricated structures, and similar materials to indicate safe working loads, and proof-test them before use to 125 percent of their rated load.
4. Each day before use, the sling and all fastenings and attachments must be inspected for damage or defects by a competent person designated by the employer. Perform additional inspections during sling use where service conditions warrant. Immediately remove damaged or defective slings from service.

5. Make sure that welded alloy steel chain slings have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer.
6. Check that hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments, when used with alloy steel chains, have a rated capacity at least equal to that of the chain.
7. Do not use job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments.
8. Never stand, walk, or work under suspended loads.
9. Have overhead power lines de-energized and grounded or maintain at least a 10' clearance.
10. Pipe and other materials shall be properly stacked and remain banded or otherwise secured until needed. When removing banding or chains, never pull them directly toward you. Always check the blocking before cutting the bands or loosening the chains.
11. All materials and equipment must be stored at least 2' from the edge of the trench.

PORTABLE LADDERS

1. Only use type 1A or type 1 ladders for construction purposes.
2. Always extend ladders 3' above the landing surface to which the ladder is used to gain access.
3. Never use a step ladder as a straight ladder by leaning it against a wall or support.
4. All ladders used in conjunction with platforms must be secured at top and bottom.

PERSONAL FALL ARREST SYSTEMS

1. Personal fall arrest systems must be worn when workers are exposed to falls 6' or greater.

2. The attachment point of harness shall be located in the center of the wearer's back, near the shoulder level.
3. Never use body harnesses as material handling devices.
4. Do not re-use fall protection devices that have been subjected to impact loading until they have been inspected and considered suitable for use by a qualified employee. Tag this equipment out of service until such an inspection can be performed.
5. Visually inspect all harnesses before use.
6. Do not attach fall protection devices to guardrail system.

LOCKOUT/TAGOUT

1. Lockout devices, locks and tags should be installed to isolate valves, switches, circuit breakers and other devices as necessary to ensure that those devices cannot be adjusted, removed, energized, moved or otherwise activated during the time that workers are exposed to potential hazards associated with the equipment being serviced or situations where workers could be exposed to an energy source.
2. If there is no provision for locking out a piece of equipment, a tag must be used without a lock; however, other safety measures should be taken to ensure the safety of the worker(s), such as removing the valve handle or installing a mechanical block.
3. After deactivating, locking out or blocking the energy source, attempt to operate the equipment in the normal way to ensure that it is in fact deactivated.
4. If more than one employee is involved in repairing or maintaining the circuit, piping system, machinery or equipment, each worker shall place a lock and tag on the lockout device.
5. All worker tags attached to lockout devices must be properly signed and dated.
6. When the work is completed, each worker is responsible for removing his/her individual lock and tag. Do not leave your lock and tag on

equipment when the work is completed and you are clear of the potential hazard. Never remove another person's lock and tag.

7. Only when the repair or maintenance operations are complete and all locks and tags removed should the equipment be restored to full operating condition.

EQUIPMENT GROUNDING CONDUCTOR PROGRAM

This program is designed to inform employees of the inspection and testing of all electrical cords, plugs and tools to prevent injuries from occurring. The foreman, in conjunction with the shop, is responsible for implementing this program.

1. All extension cords, plugs, electrical tools and equipment shall be visually inspected before each day's use for external defects or damage and for possible internal damage. Damaged or defective cords, plugs, electrical tools or equipment shall not be used and sent to the shop for repair.
2. For the generators equipped with ground fault interrupters, please adhere to the following:
 - a. Check all ground fault interrupters every time the generator is started.
 - b. If the reset button pops out, the ground fault interrupter is good.
 - c. If the reset button does not pop out, the ground fault interrupter is bad.
 - d. A bad ground fault interrupter will cause shocking to occur.
 - e. Call the shop to repair or replace a bad ground fault interrupter.
 - f. Do not wire the throttle. It will cause the ground fault interrupter to go bad.
 - g. The frame of all welders must be grounded.
3. The following tests shall be performed:
 - a. All equipment ground conductors shall be tested for electrical continuity.
 - b. Each receptacle or plug shall be tested for correct attachment of the

equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.

4. All required tests shall be performed:
 - a. before first use;
 - b. before equipment is returned to service following any repairs;
 - c. before equipment is used after any incident which can be reasonably suspected to have caused damage;
 - d. and at intervals not exceeding three months, except extension cords and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding six months.

CONCRETE CONSTRUCTION

1. Always wear proper personal protective equipment (ppe) when performing concrete construction, including eye protection and rubber boots
2. Fall protection should be utilized when placing concrete in areas more than 6' above adjacent areas. This can be accomplished with ppe, proper barricades or railings.
3. Never work above vertically protruding reinforcing steel unless the steel has been capped to eliminate the hazard.
4. Be aware of energized lines and maintain a clear 10' of clearance with equipment and tools.
5. Do not remove forms until concrete has cured to a point that it can support its own weight and currently intended load.
6. Stripped forms should be stored in an area away from general foot traffic. Be sure to pull or cut all protruding nails, wires or other accessories that may cause injury.
7. Be sure all heavy equipment including concrete paving machines have functioning back-up alarms. If supplier's equipment has nonfunctioning back-up alarms on site, designate a spotter until equipment has left the area.

8. If concrete construction is performed in areas that impact motor traffic, be sure proper signage is used. Refer to the MUTCD or the MITA Traffic Control Handbook. MDOT jobs may already have a required traffic set-up. If so, consult with your supervisor for required signage.
9. When using portable mixer, keep hands out of all moving areas when the unit is running. Keep the engine shroud closed when the motor is engaged.
10. When using a bull float, be aware of traffic and other dangerous contacts that may be present.

RESPIRATORY PROTECTION

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazard substance does not exceed the limits set by MIOSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard. You should do the following:

1. Follow all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certification should appear on the respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect you against. For example, a respirator designed to filter dust particles will not protect you

against gasses, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

HAZWOPER

(Hazardous Waste Operations and Emergency Response) Plan

All employees will be properly trained prior to performing hazardous waste or emergency response operations. Our training program consists of formal classroom instruction and hands on activities, and exceeds the minimal requirements specified under the HAZWOPER detailed under OSHA 29 CFR 1910.120. Upon completion of training, certificates documenting training are provided to all participants.

LEAD AWARENESS

Lead is a common hazard in construction. Any worker who has the potential for exposure to lead shall be protected from the harmful effects that may occur. Paint on metal bridges and buildings may contain lead. Workers become exposed during renovation, demolition and repainting.

1. Effects from Exposure:
 - a. Lead is hazardous when inhaled and/or ingested. Lead can cause headache, poor appetite, dizziness, irritability, anxiety, constipation, metallic taste in mouth, tiredness, weakness, nausea, muscle & joint pain, pallor (pale skin), reproductive problems, hyper activity, and more.
2. Personal Hygiene:
 - a. Wash hands/face before eating, drinking or smoking.
 - b. Never eat, drink or smoke in contaminated areas.
 - c. Remove contaminated clothes before eating.
 - d. Change into work clothes at worksite. Store street clothes separate from work clothes.
 - e) Wash or shower prior to changing back into street clothes to prevent exposing friends or family members.

f) Personal vehicles should be parked away from contaminated area.

3. Health:

a. Blood test for lead levels will be required on an annual basis for all employees at risk of being exposed to lead. Blood lead levels of 1-49 are within acceptable range, levels of 40 or above require a medical exam and consultation, and levels of 50 or above call for removal from the job and any potential lead exposure.

4. Personal Protective Equipment:

a. Half mask respirators and supplied air respirators should use NEPA filters or equivalent.

b. Proper ventilation or controls should be in place to limit exposure outside work area.

c. Air monitor for presence of airborne lead and other hazardous agents.

ASBESTOS AWARENESS, INSPECTOR & SUPERVISORY TRAINING

Asbestos is a combination of minerals (chrysotile, amosite, and crocidolite, and the asbestos forms of tremolite, actinolite and anthophyllite obtained from mines). Its ability to separate into thin, strong particles makes it highly suitable for use as a noncombustible, nonconducting, and chemically resistant material. In its natural state, asbestos is a fluffy, fibrous material.

Asbestos was first used in the 1880s as insulation for steam pipes. During the 20th century, the construction industry used asbestos for cement products, roofing, plastics, insulation and floor tiling. Asbestos is also used for fireproof clothing, fire-resistant curtains, automotive undercoating, brake and clutch linings and nose cones of space vehicles.

Asbestos cannot be recognized by ordinary observation; a sample must be tested in a laboratory utilizing polarized light microscopy (PLM) or an electron microscope.

Any employee whose work activities includes contact with asbestos containing material or presumed asbestos containing material will receive asbestos awareness, inspector and/or supervisory training, depending on

their work activities. This training is in accordance with the requirements of Michigan Public Act 440 of 1988, as amended.

BENZENE AWARENESS TRAINING

Benzene, also known as benzol, is a clear, colorless liquid with a distinctive sweet odor. Benzene evaporates into air very quickly and dissolves slightly in water. Benzene is highly flammable. Most people can begin to smell benzene in air at 1.5-4.7 parts of benzene per million parts of air (ppm) and smell benzene in water at 2 ppm. Most people can begin to taste benzene in water at 0.5-4.5 ppm. One part per million is approximately equal to one drop in 40 gallons. Benzene is found in air, water, and soil, and comes from both industrial and natural sources.

Industrial Sources and Uses: Benzene was first discovered and isolated from coal tar in the 1800s. Today, benzene is made mostly from petroleum. Because of its wide use, benzene ranks in the top 20 in production volume for chemicals produced in the United States. Various industries use benzene to make other chemicals, such as styrene (for styrofoam and other plastics), cumene (for various resins), and cyclohexane (for nylon and synthetic fibers). Benzene is also used in the manufacturing of some types of rubbers, lubricants, dyes, detergents, drugs and pesticides.

Natural Sources: Natural sources of benzene, which include gas emissions from volcanoes and forest fires, also contribute to the presence of benzene in the environment. Benzene is also present in crude oil and gasoline and cigarette smoke.

Everyone is exposed to a small amount of benzene every day. You are exposed to benzene in the outdoor environmental, in the workplace, and in the home.

MIOSHA regulates levels of benzene in the workplace. The maximum allowable amount of benzene in workroom air during an 8-hour workday, 40-hour workweek is 1 ppm. Because benzene can cause cancer and many other health problems, MIOSHA recommends that all workers wear special breathing equipment and protective clothing and equipment (eye and face protection) when they are likely to be exposed to benzene at levels exceeding the recommended exposure limit.

Refer to MIOSHA Standards for more information on benzene regulations. Visit www.michigan.gov/MIOSHA standards or see your Safety Officer for information.

EMERGENCY RESPONSE PROGRAM

1. As part of its safety program, it is the policy of this company to make certain that all employees have been instructed as to proper procedures in case of an injury or accident.
2. This company designates the 911 system as its first response in the event of a medical emergency and/or rescue operation.
3. A list of emergency phone numbers will be posted at the job site when practical. If no suitable or convenient location exists, the list will be kept by the project foreman.
4. All injuries and/or accidents shall be reported to the job foreman immediately.
5. This company will provide a person at each job site who is trained in CPR and first aid procedures as required by any applicable Safety & Health Standards.

HAZARD COMMUNICATION AND “RIGHT TO KNOW PROGRAM”

The following hazard communication program has been established for this company. This program will be available for review by all employees.

1. Hazard Determination
 - a. The Safety Officer will rely on safety data sheets from suppliers to meet determination requirements.
2. Labeling
 - a. Each foreman will be responsible for seeing that all containers coming in are properly labeled. All labels shall be checked for:
 - Identity
 - Hazard
 - Name and address of responsible party

- b. Each foreman shall be responsible for seeing that all portable containers used in their work are labeled with identity and hazard warnings.
3. Safety Data Sheets (SDSs)
 - a. The Safety Officer will be responsible for compiling the master SDS file. It will be kept _____.
 - b. Copies of SDS for all hazardous chemicals to which employees may be exposed will be made available to all employees upon request.
 - c. Each foreman will be provided with the required MIOSHA Right-To-Know posters and postings notifying employees of new or revised SDSs.
 4. Employee Information and Training
 - a. The Safety Officer shall coordinate and maintain records of training conducted for this company.
 - b. The employee will be informed that the employer is prohibited from discharging, or discriminating against, an employee who exercises the rights regarding information about hazardous chemicals in the workplace.
 - c. Attendance will be taken at training sessions. The records will be kept by the Safety Officer.
 - d. Before any new hazardous chemical is introduced into the workplace, each employee will be given information in the same manner as during the safety briefing.
 5. Hazardous Non-Routine Tasks
 - a. On occasion, employees may be asked to do work in potentially hazardous areas (e. g. confined spaces). Prior to starting work in such areas, each employee will be given information about the hazards involved in these areas. This information will include:
 - specific chemical hazards;
 - protection/safety measures the employee can take to lessen risks;
 - and measures the company has taken to lessen the hazards

including ventilation, respirators, the presence of another employee and emergency procedures.

- b. It is the policy of this company that no employee will begin work in a confined space, or any non-routine task, without first receiving a safety briefing.

6. Informing Contractors

- a. It is the responsibility of the Safety Officer to provide any subcontractors with employees on the job site exposed to our chemicals with the following information:
 - Hazardous chemicals with which they may come in contact.
 - Measures the employees may take to lessen the risks.
 - Where to get SDSs for all hazardous chemicals.
- b. It is the responsibility of the Safety Officer to obtain chemical information from contractors when they will expose our employees to hazardous chemicals which they may bring into our workplace.

7. List of Hazardous Chemicals

- a. The list of the chemicals used by this company can be obtained by reviewing SDSs.

RESPONSIBILITIES OF FOREMAN/QUALIFIED EMPLOYEE

1. Assure that the safety program is implemented.
2. Inspect the job site to assure that no unsafe conditions exist
3. Make sure that necessary protective equipment is on hand and used when required.
4. Instruct all employees in safe procedures and job safety requirements. Follow up and insist on compliance.
5. Discuss safety with employees on every operation. Have periodic safety meetings.
6. See that all injuries are cared for properly and reported promptly.

7. Investigate all accidents. File a complete accident report with the Safety Officer and correct the causes immediately.
8. Be familiar with the rules pertaining to safety.
9. Report any hazardous conditions to the Safety Officer even if the condition has been corrected.

Employee Sign-off Sheet

_____, an employee of this company will immediately read this Safety Handbook in its entirety. I understand that if I have any questions concerning the handbook or safety in general, I may contact the company Safety Officer for clarification. Further, I understand that safety is everyone's responsibility, including my own.

MacKenzie Companies

Written Silica Exposure Control Program

1.0 Applicability and Scope

1.1 Applicability

This Written Exposure Control Plan (Plan) applies to personnel who are potentially exposed to airborne concentrations of respirable crystalline silica (silica) because of their work activities or proximity to the work locations where airborne silica is being emitted. This Plan also applies to superintendents, foremen, or safety personnel who may be responsible for overseeing a subcontractor's operations that have the potential to expose personnel to airborne concentrations of silica at or above regulatory and industry action levels and exposure limits.

1.2 Scope

This Plan describes the hazards associated with projects involving potential exposure to airborne concentrations of silica and the issues to be addressed during these projects. These projects include, but are not limited to:

- Handheld power saws used to cut concrete, asphalt, concrete masonry block, sheet rock, gypsum fiber roof board, or any other product containing quartz.
- Walk-behind saws used to cut concrete or asphalt.
- Rig-mounted or free standing core saws or drills (including impact and rotary hammer drills) used to penetrate concrete, concrete masonry block, sheet rock, gypsum fiber roof board, or any other structural component or product containing quartz.
- Jackhammers and handheld powered chipping tools used to demolish or modify concrete, concrete masonry block, or any other structural component or product containing quartz.
- Vehicle mounted hammers or chipping tools used to demolish concrete, concrete masonry block, or any other structural component or product containing quartz. (i.e. hydraulic breakers)
- Handheld grinders or cut-off wheels used for mortar removal or cutting/grinding of concrete, concrete masonry block, sheet rock, gypsum fiber roof board, or any other structural component or product containing quartz.
- Walk-behind milling machines or bead blasters used for surfacing activities on concrete, concrete masonry block, asphalt, or any other product containing quartz.
- Hand or power tool sanding of painted surfaces. Current latex paint products contain quartz and the painted substrate (sheet rock, concrete masonry block, concrete) contains quartz.
- Drivable asphalt milling machines used to mill asphalt roadways or walkways.
- Pug mills or crushing equipment used to size or mix products containing quartz (i.e. CTB plant).
- All housekeeping operations associated with the activities described above.

Employees who work in proximity to silica-related operations must be aware of safe work practices and take all necessary precautions associated with avoiding and minimizing airborne silica exposure.

2.0 Regulatory Review

Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1153: Respirable Crystalline Silica (Construction Industry) and 29 CFR 1910.1053: Respirable Crystalline Silica (General Industry), contain regulatory requirements specific to respirable crystalline silica. This Written Exposure Control Plan is developed in accordance with the requirements in 29 CFR 1926.1153(g).

3.0 Project Planning

3.1 Training Requirements

Employees who anticipate working on projects where they could be exposed to airborne silica will be provided training in silica hazards in accordance with the program established to comply with the hazard communication standard (29 CFR 1910.1200). Each employee will have access to labels on containers of crystalline silica and safety data sheets, and be provided information on the health hazards of silica including cancer, lung effects, immune system effects, and kidney effects. In addition, employees will be provided training and information regarding specific activities identified in this Plan that could result in airborne silica exposure, and the specific engineering controls, work practices and respiratory protection requirements to mitigate the potential airborne silica exposures. This training will provide a discussion of silica hazards, initial exposure determination either by complying with 29 CFR 1926.1153 Table 1 requirements or air monitoring, specific engineering and work practice control measures, personal protective equipment (PPE), and medical surveillance requirements. The training will also identify the competent person for silica exposure identification and determination of control requirements. All employees will be provided with access to a copy of 29 CFR 1910.1153 and be trained on the contents of 29 CFR 1926.1153.

3.2 Medical Surveillance Requirements

Medical surveillance is required for employees wearing a respirator 30 or more days per year. Initial medical surveillance consists of medical and work history with emphasis on: past, present, and anticipated exposure to silica, dust and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history; a physical examination with emphasis on the respiratory system; chest X-ray (a single posterior-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film (no less than 14 x 17 inches and no more than 16 x 17 inches) or digital radiography systems), interpreted and classified according to the International Labor Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader; a pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH approved spirometry course; testing for latent tuberculosis infection; and any other tests deemed appropriate by the Occupational Medicine Provider. Subcontractors are responsible for implementing a medical surveillance program for their employees.

3.3 Competent Person Requirements

MacKenzie shall identify a competent person to inspect and oversee all activities with potential airborne silica exposure. Subcontractors working on projects within the scope of this program shall appoint a competent person capable of executing the duties described herein. The competent person must have training in the inspection of work areas and equipment and in the determination of safe working conditions. This person shall have a working knowledge of the 1926.1153 standards, shall be capable of identifying airborne silica hazards, shall determine the need for initial and additional exposure monitoring, shall recommend and implement engineering and work practice controls, shall establish levels of PPE, and shall have the authority to take action to eliminate hazards and correct incidences of noncompliance.

3.4 Planning Activities

Projects where anticipated activities involve concrete cutting, grinding, sandblasting, drilling, coring, or other abrasive operations are treated as potential sources for airborne silica exposure. Additionally, existing structures and materials such as sheetrock, any painted surfaces with low volatile organic compounds, tile, brick, or some insulation products may contain silica. Likewise, new material installation may involve silica-containing mortar, paints, or insulation. Where process knowledge indicates the presence of silica, MacKenzie will either implement all controls required by 1926.1153 Table 1- Exposure Control Methods for Selected Construction Operations or conduct an initial determination in accordance with 29 CFR 1926.1153(d)(2).

4.0 Project Execution

4.1 Safe Work Practices

The requirements of this section are to be followed by employees who may be exposed to airborne concentrations of silica at or above the regulatory limits.

4.1.1 Exposure Assessment

- An exposure assessment is required when employees may be exposed to airborne silica at or above the action level in order to determine the extent to which employees are exposed and the appropriate exposure controls required.
- An initial determination of exposure shall be made at the beginning of operations. The determination shall consist of the collection of personal air samples representative of a full shift including at least one sample for each job classification in each work area, either for each shift, or for the shift with the highest exposure level.
- During the initial determination, until such time that actual airborne concentrations are determined, personnel shall be protected by respiratory protection based on task-specific anticipated airborne concentrations of silica as illustrated in Table 2 below:
- During the initial determination, and in addition to the levels of respiratory protection required, personnel shall be provided with protective clothing and equipment, hygiene facilities, and training.
- Whenever a change in equipment, process, controls, or personnel occurs, or a new task has been initiated, an additional exposure assessment is required.
- When an assessment determines that exposure has occurred above the action level but below the PEL, additional monitoring shall be required at least every 6 months. Additional monitoring shall continue until such time that the monitoring results fall below the action level on two separate occasions at least 7 days apart.
- When monitoring yields results above the PEL, then quarterly monitoring is required. In addition, the quarterly monitoring may be suspended when additional monitoring results fall below the action level on two separate occasions at least 7 days apart.
- When the competent person can clearly demonstrate, in the absence of air monitoring data, that a work activity will not create airborne silica concentrations in excess of the action level, then air monitoring may be unwarranted. When a negative initial determination is reached without air monitoring, the competent person must develop a written explanation as to why exposures are not expected to exceed the action level.

4.1.2 Communication of Hazards

- Each employee shall be provided training and demonstrate knowledge and understanding of the following:
 - Health hazards associated with exposure to respirable crystalline silica.
 - Specific tasks that could result in exposure to respirable crystalline silica.
 - Specific measures that are required to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and required use of respiratory protection.
 - The contents of the 29 CFR 1926.1153.
 - Purpose and description of the medical surveillance program.
- A written compliance program shall be made available to all affected employees.
- In addition, notification to owners, contractors, and other personnel working in the area shall be made.

4.1.3 Control Methods

- Engineering and work practice controls, including administrative controls, shall be implemented to reduce and maintain employee exposure to silica at or below the PEL, to the extent that such controls are feasible.
- Where all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to or below the PEL, such controls shall be used, nonetheless, to reduce employee exposure to the lowest feasible level (and in conjunction with respiratory protection).
- Respiratory protection shall be selected based on guidance in 1926.1153 Table 1 or based on a Certified Industrial Hygienist's or competent person's assessment of the potential airborne exposure that may be created by the means and methods of work (high energy operations with high airborne dust generation or low energy operations with low dust generation).
- When using mechanical ventilation to control exposure, regularly evaluate the system's ability to effectively control exposure.
- If administrative controls are used to limit exposure, establish and implement a job rotation schedule that includes employee identification as well as the duration and exposure levels at each job or work station where each affected employee is located.
- A written compliance program shall be established and implemented prior to the start of operations within the scope of this Written Compliance Plan. The written program shall outline the plans for maintaining employee exposure below the PEL.
- Maintain all surfaces as free as possible from accumulations of silica. Select methods for cleaning surfaces and floors that minimize the likelihood of silica becoming airborne (such as using a HEPA vacuum).
- If vacuuming is the method selected, specialized vacuums with HEPA filtration are required. Methods to use and empty vacuums in a manner that minimizes the reentry of silica into the workplace shall be described and used. Use of household vacuums with HEPA filters are not allowed at any time for the collection of dust or debris that contains silica.
- Never use compressed air to remove silica from any surface unless it is used in conjunction with a ventilation system designed to capture the airborne dust created while using the compressed air.
- Employees shall not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in any areas

where exposure to silica is above the PEL (in other words, regulated areas).

- Do not allow employees to leave the workplace wearing any protective clothing or equipment that is required to be worn during their work shift without HEPA vacuum removal of dust.
- Where feasible, install shower facilities and require employees who work in regulated areas to shower at the end of their work shift. Also provide an adequate supply of cleaning agents and clean towels.
- Provide hand washing facilities for use by employees working in regulated areas. Furthermore, require employees to wash their hands and face at the end of the work shift and prior to eating or entering eating facilities, drinking, smoking, or applying cosmetics.
- Eating facilities or areas shall be provided for employees working in regulated areas. These facilities shall be maintained free of silica contamination and shall be readily accessible to those employees.

4.1.4 Personal Protective Equipment (PPE)

Respiratory protection must be used for the following conditions:

- During periods when employee exposure to airborne silica exceeds the PEL.
- For work operations where engineering and work-practice controls are not sufficient to reduce employee exposure to or below the PEL.
- During periods when an employee requests a respirator.
- During periods when respirators are required to provide interim protection while conducting initial exposure assessments.
- Powered air-purifying respirators (PAPR) shall be provided to employees who request such a respirator to use where it will provide adequate protection.



**DAVID
CHAPMAN
AGENCY**

Making Insurance and Bonds Easy

August 15, 2021

E T MacKenzie Company
4848 W Saginaw
Grand Ledge, MI 48837

Experience Modification Rating (EMR)

To Whom it May Concern:

As insurance agents for E T MacKenzie Company we are pleased to report their current workers compensation experience modification (EMR) for 8/15/2021 to 8/15/2022 is **.60**.

This is an excellent EMR for the heavy construction industry. A history of low experience modification factors is the direct result of MacKenzie Companies' culture and attention to safety. If you have further questions about E T MacKenzie, their safety record, or their EMR please contact us.

Sincerely
David Chapman Agency, Inc

Robert G Chapman

ITB # 4691 Sanitary Manhole Raising Project
Contractor Information and Responsible Contractor Criteria

E.T. MacKenzie Company, 11.23.21

Response to Question #20:

Please find the attached lead employee resumes for review. As E.T. MacKenzie Company is a non-union contractor, we do not classify employees based on the "Master", "Journey person" or "Apprentice" definitions. If requested, any and all additional resume information can be provided to substantiate the ability of our work force to perform the required work included in this contract.

Response to Question #21:

See response to Question #20 as detailed above. In addition, all employees participate in regular performance reviews by their immediate foreperson, superintendent, supervisor and upper management to maintain a high level of efficiency and training. Regular equipment training, operation and safety meetings are organized and attended by all field employees. Additional support and supplemental training is provided by qualified personnel on a case by case basis to insure that all employees are working in a safe and productive environment.

November 19, 2021

E.T. MacKenzie Company

Assessing Employee Skills and Qualifications

All new employees are assessed by management at the time of hire to determine their skills and qualifications based on past training and work experiences. They are provided PPE and safety materials, including a safety video viewed during orientation and an employee safety handbook that must be read in its entirety prior to work.

All employees receive general training as well as specific training as necessary for their job position and assignment/project. Both onsite and offsite training is provided in the areas including:

- Asbestos 40-Hour & Annual Refreshers
- Company-Wide Safety Meetings
- Concrete Field Testing & Flatwork Finisher Certification
- CPR & First Aid
- Confined Space Entry
- Crane Operation Certification
- Defensive Driving
- Forklift Training
- Flagger Certification
- OSHA Hazwoper 40-Hour & Annual Refreshers
- Lead, Cadmium & Chromium
- Mine Safety Training
- Silica Training
- Storm Water Operator Certifications
- Welding Certifications

Regular safety meetings are conducted by our Safety Officer as he visits and inspects jobsites on a regular basis. We have safety training films to train onsite on topics such as excavation, overhead and underground utilities, lifting, personal protective equipment, etc. Offsite training is also held for CPR/1st aid, OSHA 10-hour, hazwoper, and many of the other certifications listed above.

Supervisors hold weekly tool box talks with their job site crews, discussing various valuable safety standards. The majority of our training is documented with individual employee certifications, while some training, such as tool box talks, is documented by an employee sign-off sheet.

Financial Information

It is our company policy that we do not provide financial information for prequalification/bid packages. Please use as a reference our 2019 Michigan Department of Transportation prequalification letter and a letter of reference from our insurance/bonding agency for our financial stability.

If you have any questions, please contact Keith Edgar, our Chief Financial Officer, at 517-627-8408.



**DAVID
CHAPMAN
AGENCY**

Making Insurance and Bonds Easy

December 3, 2020

E T MacKenzie Company
4248 W Saginaw Hwy
Grand Ledge, MI 48837

RE: Surety Bond Reference

To Whom It May Concern:

It has been the privilege of the David Chapman Agency, Inc and The Liberty Mutual Insurance Company to provide surety bonds on behalf of E T MacKenzie Company for many years. We have had excellent experience. All projects have been completed, and all obligations have been met. In addition to considering their experience, we regularly review and analyze their CPA prepared financial statements. In our opinion E T MacKenzie Company is properly financed, equipped, and managed for superior performance on the projects they undertake.

We evaluate each project opportunity based upon its own merits, and the opinion of MacKenzie management. However, we are prepared to provide bonds up to thirty million dollars single project with aggregate of eighty million dollars or more. As always, The Liberty Mutual Insurance Company reserves the right to perform normal underwriting at the time of any bond request, including, without limitation, prior review and approval of relevant contract documents, bond forms and project financing. We assume no liability if for any reason we do not execute such bonds.

The Liberty Mutual Insurance Company is listed on the U.S. Treasury Department's Listing of Approved Sureties and is rated A (XV) by A.M. Best's Company.

Sincerely
David Chapman Agency, Inc

Robert G Chapman



GRETCHEN WHITMER
Governor

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
Lansing

PAUL C. AJEGBA
Director

May 21, 2021

E.T. MacKenzie Company
4248 W Saginaw Hwy
Grand Ledge MI 48837-2225

01886
(517) 627-8408

Dear Vendor:

In accordance with our Administrative Rules we have established your numerical rating which is based on a financial rating of \$138,428,000.00 covering the classifications in the amounts stated below. This prequalification rating is effective until April 30, 2023.

1000	B	Concrete Pavement
300	Ba	Concrete Pavement Patching And Widening
138428	Ea	Grading, Drainage Structures & Agg. Cons
138428	Fa	Bridges And Special Structures
500	Fb	Structural Steel(Erection)
3000	Fd	Pumphouses
138428	G	Building Moving And Demolition
200	H	Landscaping
30000	I	Sodding And Seeding/Turf Establishment
10000	J	Concrete C, C&G, Driveways, Sidewalks
138428	K	Sewers and Watermains
138428	N2	Clearing & Grubbing

It will be assumed that the rating is satisfactory unless the Prequalification Committee is notified in writing to the contrary within 15 days after the bidder has been advised of the rating granted. The Department, may declare a prequalified bidder ineligible to bid at any time because of developments subsequent to prequalification which, in their opinion, would affect the responsibility of the bidder or their ability to perform the contract work.

Lawrence F. Strzalka
Manager
Construction Contracts Section
Contract Services Division

Reference List

TRADE REFERENCES:

Michigan CAT

Joe Edwards
(517) 204.5568

Northern Concrete Pipe

John Washabaugh
(517) 645.2777

Ferguson Waterworks

Jason Maynard
(517) 322-0300
(517) 322-4037 fax

Anderson-Fischer & Associates

John Fischer
(517) 676-5522
(517) 676-0466 fax

BANK REFERENCE:

Old National Bank

Tim Helber
2723 South State Street
Ste. 210
Ann Arbor, MI 48104
(734) 887-2635

SURETY:

Liberty Mutual

c/o The David Chapman Agency
5700 West Mt. Hope Hwy.
Lansing, MI 48917
(517) 321-4600
(517) 321-9443 fax

PRIVATE FIRM REFERENCES:

O'Neal Construction

525 West William
Ann Arbor, MI 48103
(734) 769-0770
(734) 769-1736 fax

Rockford Construction Company

5540 Glenwood Hills Parkway SE
Grand Rapids, MI 49512
(616) 285-6933
(616) 285-8001 fax

Schostak Brothers & Company

17800 Laurel Park Drive North, Ste. 200C
Livonia, MI 48152
(248) 262-1000
(248) 262-1814 fax

PROFESSIONAL ASSOCIATIONS:

MITA – Michigan Infrastructure &
Transportation Association

NUCA – National Underground
Contractors Association

NAHB – National Assoc of Home Builders

NDC – National Demolition Association

MAA – Michigan Aggregates Association

ABC – Assoc. Builders & Contractors

CFMA – Construction Financial
Management Association

E.T. MacKenzie Company

Concrete Quality Control Plan

**West Herbison Road from Old US-27 to west of
Turner Street**

Clinton County, Michigan

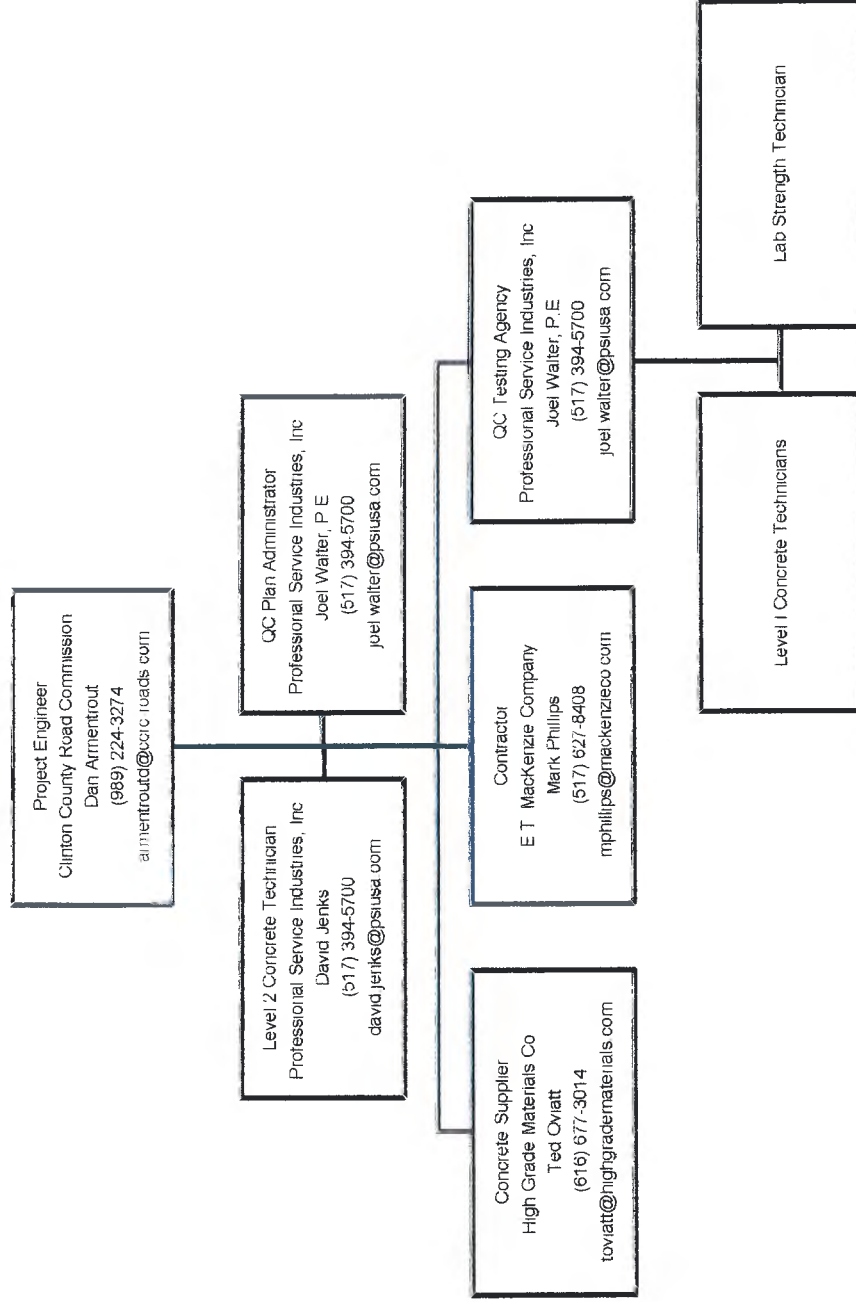
MDOT Project No. 19000-130450A

Date Submitted: August 7, 2017

A. Organizational Chart

ORGANIZATIONAL CHART

West Herbison Road from Old US-27 to west of Turner Street
 Clinton County, Michigan
 MDOT Project No. 19000-130450A



B. QC Plan Administrator

The QC plan administrator will be Mr. Joel Walter, P.E. of Professional Service Industries, Inc.

Contact Information:

Mr. Joel Walter, P.E.
Professional Service Industries, Inc.
3120 Sovereign Drive, Suite C
Lansing, Michigan 48911
Office: (517) 394-5700
Cell Phone: (517) 937-9006
Email: joel.walter@psiusa.com

C. QC Staff

This Quality Control Plan will be administered in accordance with Special Provision for Quality Control and Acceptance of Portland Cement Concrete 12SP-604B-06, dated July 13, 2016.

The individual administering the Quality Control Plan for Professional Service Industries, Inc. (PSI) is Joel Walter, P.E., Branch Manager. David Jenks will be our MCA Level 2 technician and will always be available by cellular telephone. Field concrete MCA Level 1 QC testing staff includes David Jenks, Scott Maran, Jeff Southcott and Justin Speaks. Field concrete MCA Level 2 QC testing staff includes David Jenks. PSI's laboratory ACI concrete strength testing technician is David Jenks. Scheduling of technicians will be the responsibility of Joel Walter, P.E. who can be reached at the general office number for the PSI Lansing facility (517) 394-5700 between the hours of 8:00 AM and 5:00 PM.

The concrete supplier QC staff with High Grade Materials Co. will be Ted Oviatt.

Certifications for the above PSI staff can be found appended to this document.

D. QC Personnel Interaction

When concrete loads have test results out of the specified range, PSI will immediately contact (either verbally or via cell phone) the contractor, supplier and the on-site Clinton County Road Commission representative. PSI will make the decision whether to accept and place the concrete or reject the load based on the criteria in this document. When concrete is rejected, placement shall stop until material is brought back within specifications. When concrete loads have test results out of specified ranges and are rejected by PSI, the results will be written on the concrete delivery ticket. Rejected load tickets will become part of the project documents.

In the event of continued production of nonconforming work, concrete production will stop and the PSI quality control plan administrator will work directly with the contractor and supplier to determine the actions required to bring the mix into compliance with project specifications. PSI will work with the supplier to make adjustment, if possible, to immediately correct the deviation. *If approved by the Clinton County Road Commission*, adjustments to air entraining admixture quantities and water addition rates will be periodically made to keep the concrete mixtures within the specifications.

E. Coordination of Activities

Coordination of all site activities will be at the direction of the E.T. MacKenzie Company. A 24-hour notice will be given to the Clinton County Road Commission and PSI before concrete is to be placed. The Clinton County Road Commission will be provided the opportunity to witness all sampling and testing.

F. Documentation, Procedures and Submittals

PSI will be handling the QC concrete testing for the E.T. MacKenzie Company. QC test results will be provided within 24 hours of testing to the E.T. MacKenzie Company and the Clinton County Road Commission. Sample report formats for field testing of plastic concrete and concrete compression reports are appended to this document.

G. Project and Plant Specifics

Concrete will be supplied by High Grade Materials Co. from their plant located in Lansing, Michigan. The Lansing plant is approximately 6 miles from the project.

H. Concrete Production Facilities Inspections and Certification

Please reference the plant certification documents prepared by High Grade Materials Co. for the E.T. MacKenzie Company appended to this QC plan.

I. Current Testing Equipment Calibrations

PSI will supply the required testing equipment including: slump kits, thermometers, air meters and locking cure boxes for QA and QC samples as required. In addition to the equipment listed, the testing equipment on site will include a roll-a-meter, unit weight bucket and scale. A roll-a-meter (volumetric) meter will be needed on-site if the pressure meter needs to be verified. If required equipment is not on site, concrete will not be placed until it is present. PSI maintains internal quality control procedures on its field and laboratory equipment. The dimensions of the slump cones are verified every twelve (12) months in accordance with ASTM C143. The calibration records for slump cones are documented on Form CCM-1 of PSI's Corporate Quality Assurance Manual (QA-M-5). The pressure-type air meters are calibrated every three (3) months in accordance with ASTM C231. The calibration records for air meters are documented on Form CCM-3 of QA-M-5. Calibration records for thermometers are documented on Form GL-6 of QA-M5. Calibration records for compression testing and beam breaker machines are provided by Calibration Services Inc.

Records of PSI's latest equipment calibrations for compression machine and beam breaker are appended to this document. Each piece of field equipment assigned to a PSI technician is labeled with a unique identification number, date of last calibration and date of next calibration. PSI will provide specific calibration records for equipment if requested.

J. Testing and Initial Curing Facilities for QC and QA Specimens

PSI field technicians will look for a level area near the site of the concrete placement to perform daily testing activities and to place the initial cure facilities for both QA and QC cylinders or beams. PSI will provide plastic coolers for the cylinders that will have a chain or hasp device to be padlocked. PSI will be responsible for the moving of the initial cure facilities between concrete placement locations. Field cure beams will be left on-site and cured in a manner consistent with the concrete they represent.

K. Stockpile Management Plan

Please reference the aggregate quality control plan prepared by High Grade Materials Co.

L. Corrective Action Plan

When concrete loads have test results out of the specified range, PSI will immediately notify the contractor, supplier and the on-site Clinton County Road Commission representative. PSI will make the decision whether to accept and place the concrete or reject the load based on the criteria in this document. When concrete is rejected, placement will stop until material is brought back within specifications. When concrete loads have test results out of specified ranges and are rejected by PSI, the results will be written on the concrete delivery ticket. Rejected load tickets will become part of the project documents.

In the event of continued production of nonconforming work, concrete production shall stop, the PSI quality control plan administrator will work directly with the contractor and supplier to determine the actions required to bring the mix into compliance with project specifications. PSI will work with the supplier to make adjustment, if possible, to immediately correct the deviation. These adjustments to air entraining admixture quantities and water addition rates will be periodically adjusted to keep the concrete mixtures within the specifications per MDOT Special Provision 12SP-604B-06.

Nonconforming material will not be allowed to be placed. Adjustments will be made before placement.

PSI will maintain records of all quality control tests and observations. These records will indicate what action was taken to correct deficient concrete when quality control tests indicate the concrete was not in compliance with the specifications.

M. Mixing Time and Transportation

Transportation of the concrete from the plant to the site will be performed by High Grade Materials Co. The anticipated transportation time to the project site from the Lansing plant is 12 minutes. The time between charging the mixer and placing concrete will be per Table 601-1 of the MDOT 2012 Standard Specification for Construction.

Table 601-1			
Time Between Charging Mixer and Placing Concrete (a)			
Type of Unit	Concrete Temperature (ASTM C1064)		
	<60°F	60°F-85°F	>85°F
Open Top Trucks (b)	60	45	30
Open Top Agitating Units (b)	60	60	30
Closed Top Agitating Units and Truck Mixers	90	60	45
Truck Mixers and Closed Top Agitating Units with Concrete Containing Water Reducing Retarding Admixtures (c)	120	90	70
a. Times shown in the table are in minutes b. Not allowed for structural concrete c. Superstructure concrete must meet the time limits for closed top agitating units and truck mixers			

N. Placement and Consolidation Methods

The mixes for the paving, sidewalk and curb and gutter are anticipated to be discharged directly from the truck. The concrete will be placed per MDOT 2012 Standard Specifications for Construction Section 703.03 Item H, "Placing Concrete".

O. Monitoring Stability of Air Content

PSI will be performing air content checks by the pressure method on an hourly basis. PSI will also do a comparison air content check with the QA representative at the start of the project to confirm that the air meters coincide with each other.

P. Hot and Cold Weather Protection

Hot weather protection for concrete will consist of waiting for favorable weather conditions for placement.

During cold weather, the concrete will be protected to prevent damage. Frozen concrete or concrete damaged by cold weather will be removed and placed. If the air temperature is forecasted to be between 40°F and 50°F, the concrete will be protected per the ordinary protection requirements of Section 706.03.J of the MDOT 2012 Standard Specifications for Construction. If the air temperature is forecasted to be below 40°F during the curing period, the concrete will be protected per the low temperature requirements of Section 706.03.J of the MDOT 2012 Standard Specifications for Construction.

Q. Control Charts with Action and Suspension Limits

S2-P1 mixes

<u>Quality Characteristics</u>	<u>Action Limits</u>	<u>Suspension Limits</u>
Air Content	<6.0% or >7.5%	<5.5% or >8.0%
Air Content Loss	>1.0%	>1.5%
Concrete Temperature	<60° or >85°F	<45°F or >90°F
Slump	>2.5"	>3.0"
Slump with Mid-Range	>5.5"	>6.0"

R. Verification for non-deleterious alkali-silica reactivity

Please reference the aggregate information prepared by High Grade Materials Co. appended to this QC plan.

S. Mix Design and JMF

Please reference the JMF's prepared by High Grade Materials Co. for the E.T. MacKenzie Company.

T. Proposed Lot Size and Location of Each Mix to Be Placed

A production lot will be defined as a single day's production or 50 cubic yards, whichever is less.

U. The frequency of Sampling and Testing

Sampling of the concrete will take place on site at the point of placement because ready mix concrete is proposed for this project. PSI will verify the correct, approved mix is delivered and placed at the project site.

PSI will sample and test for temperature, slump and air content the first load, and for each class of concrete delivered to the work site each day. Concrete placement will not begin until the quality control tests verify that the concrete meets required specifications. During the concrete placement, PSI will test for temperature, slump and air content of the concrete in a random manner at least once per a single day's production or 50 cubic yards, whichever is less. Unit weight tests shall be performed on each grade of concrete at the beginning of production. Concrete yield will be determined after the start of the first concrete operation for each mix design and immediately after the specified slump, temperature and air entrainment have been attained. PSI will keep track of batch times and discharge times for time limit restrictions. PSI will perform correlation testing with the Clinton County Road Commission inspector each time new equipment is utilized on the project site by either party. The following chart indicates the test method and frequency of proposed testing for this project:

<u>Test Method</u>	<u>Standard</u>	<u>Frequency</u>
Sampling freshly mixed concrete	ASTM C-172	Minimum of 1 per lot
Air content of freshly mixed concrete by the pressure method	ASTM C-231	First load of each mix then a minimum of once per hour
Air content of freshly mixed concrete by the volumetric method	ASTM C-173	As directed by engineer

Slump of hydraulic cement concrete	ASTM C-143	First load of each mix then a minimum of one per hour
Making and curing concrete test specimens in the field	ASTM C-31	Minimum 1 set per day
Compressive strength of cylindrical concrete specimens	ASTM C-39	As required, typically 7 and 28 days
Density (unit weight) and yield of plastic concrete	ASTM C-138	At first concrete operation, then as needed
Making and curing concrete test specimens in the lab	ASTM C-192	Curing of QC cylinders
Temperature of plastic Portland cement concrete	ASTM C-1064	Performed with slump and air tests or a minimum of once per hour

When concrete loads have test results that are out of the specified range, PSI will immediately notify the contractor, supplier and the on-site Clinton County Road Commission representative. If adjustments are made to the mix to correct deviations, the air content and slump will be tested on the next truck.

V. Handling and Protection of Test Specimens

PSI will store the concrete test specimens in the initial cure storage facility as indicated in Section J of this document. The following day PSI will return to the project site and retrieve the cylinders from the initial cure storage facility. The cylinders will be transported in an upright position and kept moist during transportation to the PSI laboratory located at 3120 Sovereign Drive, Suite C in Lansing, Michigan. Once at the laboratory the specimens will be stripped and labeled and then placed into our laboratory curing room until the required time for compression testing. The cure room is monitored via a temperature and humidity recorder. The QC cylinders will be retrieved from the cure room and testing for compressive strength at the required dates. PSI will break all of the QC cylinders. Test results of compressive strength testing will be provided to the Clinton County Road Commission and the E.T. MacKenzie Company via electronic distribution within 24 hours of testing.

W. Methods to Monitor Construction Equipment Loading and Open to Traffic Strengths

N/A

X. Finishing and Curing Procedure

Finishing and curing will be in accordance with Sections 706.03 and 701.03.C of the MDOT 2012 Standard Specifications for Construction.

Y. Ride Quality Control

Not applicable

Z. QC Records

A copy of PSI's Concrete Field Report will be provided for each day of production. The Concrete Field Report will describe the item of work represented and its location. PSI's Concrete Test Report will be provided after the testing of the specimens for compressive strength. Any actions to correct deficiencies will be included in the notes section of the report or a separate daily field report summarizing the actions will be provided.

**Michigan Concrete Association
Certification Board of Examiners**

hereby certifies that on 3/17/2016

David Jenks

did, by written and performance examinations, complete the requirements for

MCA Level II Advanced Concrete Technician

This certification expires on 4/15/2019

MCA Certification Board of Examiners
Michigan Department of Transportation
ACI Greater Michigan Chapter
ACI West Michigan Chapter
Alpena Community College

David L. Thompson

MCA Director of Technical Services/Training

Roger A. Conner, P.E.

Examiner

David Jenks

Executive Director

Michigan Concrete Association Certification Board of Examiners

Hereby certifies that on 3/8/2016

David Jenks

did, by written and performance examinations, complete the requirements for

Concrete Field Testing Technician Level I

This certification expires on 4/15/2019

MCA Certification Board of Examiners

Michigan Department of Transportation

ACI Greater Michigan Chapter

ACI West Michigan Chapter

Alpena Community College



David I. Amundson
MCA Director of Technical Services/Training



Roger A. Conrad, P.E.
Examiner



Executive Director

AMERICAN CONCRETE INSTITUTE

This is to certify that

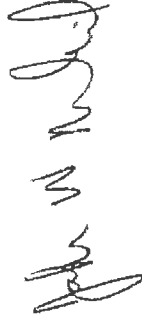
DAVID A JENKS JR

*has demonstrated knowledge and ability by
successfully completing the ACI Certification
requirements and is hereby recognized as an*

ACI Concrete Strength Testing Technician

Certified Date: 04/08/2016 Expires: 04/08/2021

Examiner of Record: Mr Steven M Waalkes



ACI Managing Director of Certification

The Authenticity of this certification can be verified at [www. ACICertification .org](http://www.ACICertification.org) verify

Michigan Concrete Association Certification Board of Examiners

Hereby certifies that on 1/19/2017

Scott Maran

did, by written and performance examinations, complete the requirements for

Concrete Field Testing Technician Level I

This certification expires on 4/15/2020

MCA Certification Board of Examiners

Michigan Department of Transportation
ACI - Greater Michigan Chapter
ACI - West Michigan Chapter
Alpena Community College



MCA Director of Technical Services/Training



Examiner



Executive Director

Michigan Concrete Association

Certification Board of Examiners

Hereby certifies that on 3/9/2017

Jeff Southcott

did, by written and performance examinations, complete the requirements for

Concrete Field Testing Technician Level I

This certification expires on 4/15/2020

MCA Certification Board of Examiners

Michigan Department of Transportation

ACI - Greater Michigan Chapter

ACI - West Michigan Chapter

Alpena Community College

Dan J. Auer

MCA Director of Technical Services/Training

Stevie Waalkes

Examiner-Steven Waalkes

Daniel DeGraaf

Executive Director-Daniel DeGraaf

Michigan Concrete Association Certification Board of Examiners

Hereby certifies that on 5/11/2017

Justin Speaks

did, by written and performance examinations, complete the requirements for

Concrete Field Testing Technician Level I

This certification expires on 4/15/2020

MCA Certification Board of Examiners

Michigan Department of Transportation
ACI – Greater Michigan Chapter
ACI – West Michigan Chapter
Alpena Community College



MCA Director of Technical Services/Training



Examiner-Steven Waalkes



Executive Director-Daniel DeGraaf

Calibration Services, Incorporated

300 Buttertown Road Emimenton, PA 16373

Phone: (724) 867-6664

Fax: (724) 867-1346

Website: www.calibrationinc.com

email: info@calibrationinc.com

Certificate of Calibration

Client:	Professional Service Industries, Inc	Report Date:	4/7/2017
Address:	3120 Sovereign Dr. Suite C	Calibration Date:	4/4/2017
City/ST/Zip:	Lansing, MI 48911	Technician:	Dan Pfeil
Calibration		Temperature:	17 Degrees C
Location:	3120 Sovereign Dr. Suite C	Humidity:	60.0%
City/ST/Zip:	Lansing, MI 48911	Barometric Pressure:	28.49 in Hg
PO Number:	0408	Device Type:	Digital Compression Machine
Cart Number:	171044	Manufacturer:	Forney
Procedure No:	CAL 1 02A	Model Number:	QC-200-GB2
Condition of Device:	Good	Serial Number:	76054-GB2 131119-472
		Range:	4,000 lbs to 400,000 lbs

CALIBRATION SYSTEM USED

All calibration standards used in this calibration are traceable to the International System of Units (SI) through NIST or equivalent National Measurement Institute signatories to the CIPM MRA.

Code	Instrument	Capacity	Serial Number	Class A
	BAROMETER - Control Company Barometer S/N 122716347			
	Reference Number: 4247-8351852 Control Company			
	Date of Test: February 28, 2017 Date Due: February 28, 2018			
C	Revere Load Cell	100K	763137	2,800.00C
	Report No. 7631372215 Morehouse Instrument			
	Calibrated: September 22, 2015 Recalibration due: September 22, 2017			
D	Lebow Load Cell	400K	139	29,760.49C
	Report No. 1392215 Morehouse Instrument			
	Calibrated: September 22, 2015 Recalibration due: September 22, 2017			

Statement of Compliance

This is to certify that the above described testing device has been calibrated in accordance with CSF's QMS Program based on ISO/IEC 17025 in accordance with ANSI/NCSL Z540-3, the procedure listed above, and ASTM E-4-16 (excluding sections: 6.2, 13 all, 16 all, A1 all). The device has been verified within $\pm 1\%$ of applied load. Uncertainties were calculated using square root sum of squares (RSS) with a confidence factor of 95% and a coverage of k = 2. The expanded uncertainty is 0.25% of applied load.

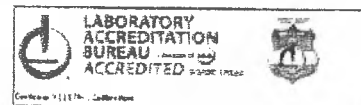
Signed

Calibration Technician

Signed

Quality Director

This Certificate is issued as a statement of the fact that on this date the above instrument(s) had an accuracy as indicated in the data section of this certificate. It should not be construed or regarded as a Guarantee or Warranty of any kind (in favor of the client, the client's customers, or the public at large) that the instrument(s) will continue to retain the same percentage (%) of accuracy or efficiency as determined on the date when the calibration, adjustments if required, was performed and reported by Calibration Services, Inc. since the calibrator has absolutely no control over the future operation, damage, maintenance, repairs, and overall condition of the instrument(s) and hereby expressly disclaims any and all liability for damage, or loss sustained by all parties arising or resulting from deterioration, obsolescence, malfunction, or substandard performance of said instrument(s), which shall be deemed to be and which shall remain the sole responsibility of the machine's regular station owner and/or manufacturer. This document shall not be reproduced except in full without the written approval of Calibration Services, Inc.



Calibration Services, Incorporated

300 Buttertown Road Emlenton, PA 16373
 Website: www.calibrationinc.com

Phone: (724) 867-6664 Fax: (724) 867-1346
 email: info@calibrationinc.com

Certificate of Calibration

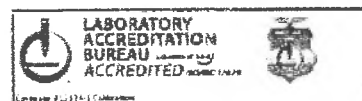
Client: Professional Service Industries, Inc	Report Date: 4/7/2017
Address: 3120 Sovereign Dr Suite C	Calibration Date: 4/4/2017
City/St/Zip: Lansing, MI 48911	Technician: Dan Pfeil
Calibration	Temperature: 17 Degrees C
Location: 3120 Sovereign Dr Suite C	Humidity: 60.0%
City/St/Zip: Lansing, MI 48911	Barometric Pressure: 28.49 in Hg
PO Number: 0408	Device Type: Digital Compression Machine
Cert Number: 171044	Manufacturer: Forcey
Procedure No: CAL 1.02A	Model Number: QC-200-GB2
Condition of Device: Good	Serial Number: 76054-GB2-131119-472
	Range: 4,000 lbs to 400,000 lbs

Range Number 1	Range: 4,000 lbs to 400,000 lbs	Graduation: 10 lbs
-----------------------	--	---------------------------

Mode: Compression

As Found: In Tolerance **As Left:** In Tolerance

<u>Grads</u> lbs	<u>Code</u>	<u>Applied</u>		<u>#1</u>		<u>#2</u>		<u>Final #1</u>		<u>Final #2</u>		<u>Algebraic Difference</u> Percent	<u>EMD</u> (+/- bins) lbs
		<u>Load</u> lbs	<u>As Found</u> lbs	<u>As Left</u> lbs	<u>As Left</u> lbs	<u>Error</u> lbs	<u>Error</u> lbs	<u>Percent</u>	<u>Percent</u>				
10	C	4000	3960	4010	4000	10.000	0.000	0.250	0.000	0.250		9.96	
10	C	8000	7930	8010	8000	10.000	0.000	0.125	0.000	0.125		19.92	
10	C	16000	15840	15990	16010	-10.000	10.000	-0.063	0.063	-0.125		19.34	
10	C	24000	23860	23990	24010	-10.000	10.000	-0.042	0.042	-0.083		59.76	
10	C	32000	31810	32020	32030	20.000	30.000	0.063	0.094	-0.031		79.68	
10	C	40000	39790	40020	40040	20.000	40.000	0.050	0.100	-0.050		99.60	
10	C	80000	79630	80010	80030	10.000	30.000	0.013	0.038	-0.025		199.20	
10	D	160000	159440	160040	160060	40.000	60.000	0.025	0.038	-0.013		398.40	
10	D	240000	239580	240040	240050	40.000	50.000	0.017	0.021	-0.004		597.60	
10	D	320000	319790	320060	320050	60.000	50.000	0.019	0.016	0.003		796.80	
10	D	400000	399810	400070	400060	70.000	60.000	0.018	0.015	0.003		996.00	
<i>Zero Return</i>			-10	10	-10								





Professional Service Industries, Inc
 3120 Sovereign Drive, Suite C
 Lansing, MI 48911

Phone: (517) 394-5700
 Fax: (517) 394-5796

Concrete Field Report

Report No: [REDACTED]
 Issue No. 2

Client: [REDACTED] CC: [REDACTED]
 Project: [REDACTED]
 EAST LANSING, MI

These test results apply only to the specific locations and materials noted and may not represent any other locations or elevations. This report may not be reproduced, except in full, without written permission by Professional Service Industries, Inc. If a non-compliance appears on this report, to the extent that the reported non-compliance impacts the project, the resolution is outside the PSI scope of engagement.

Approved Signatory: Joel Water / District Manager
 Date of Issue: 4/8/2013

General Field Data

Technician: David Jenks
 Test Date: 3/22/2013
 Weather: Partly Cloudy

Test Results

Set No	Specimens Made	Ticket	Time Batched	Time Unloaded	Cubic Yards Placed	Slump (in)	Air Content (%)	Air Temp. (°F)	Concrete Temp. (°F)
0408642-1-C1	4	14-1797860	14:32	15:25	10.0	6.00	6.40	42	65
0408642-1-C2	0	14-1797875	15:20		18.0		6.20	42	65

Location & Remarks

General Location:	Set No	Location	Remarks
[REDACTED]	0408642-1-C1	Strain pole foundation, west median	
General Location:	Set No	Location	Remarks
[REDACTED]	0408642-1-C2	Signal display poles, south side of intersection	

Mix Data

Set No	Supplier	Mix	Design Strength (psi)
0408642-1-C1	[REDACTED]	DDP165E9	3500
0408642-1-C2	[REDACTED]	DDP165E9	3500

Notes

Sampled from Revolving Drum Truck Mixer (ASTM C 172, 5.2.3)

Remarks

Applicable ASTM standards unless otherwise indicated: Making Samples: C31 (except sec. 10.1.2); Slump: C143; Air Content: C231 (except sec. 6); Temperature: C1064; Sampling: C172; Grout: C1019; Slump-Flow: C1611; Mortar: C109; Flow: C1437.



Professional Service Industries, Inc
 3120 Sovereign Drive, Suite C
 Lansing, MI 48911
 Phone (517) 394-5700
 Fax (517) 394-5796

Concrete Test Report

Report No: [REDACTED] Issue No: 2

Client: [REDACTED] CC: [REDACTED]
 Project: [REDACTED]
 EAST LANSING, MI

These test results apply only to the specific locations and materials noted and may not represent any other locations or elevations. This report may not be reproduced, except in full, without written permission by Professional Service Industries, Inc. If a non-compliance appears on this report, to the extent that the reported non-compliance impacts the project, the resolution is outside the PSI scope of engagement.

[Signature]
 Approved Signatory: Joel Walter (District Manager)
 Date of Issue: 4/30/2013

Mix Data

Mix Data Submitted By	Supplier	Plant	Mix Identification	Specified Design Strength (psi)	Design Unit Weight (pcf)	Cement Factor (Sacks/yd ³)	Water-Cement Ratio (lb/lb)	Material	Source	Amount	Moisture (%)
[REDACTED]	[REDACTED]	[REDACTED]	DDP165E9	3500 at age 28 days		6.00	0.45	Cement 1 (lb)	Lafarge	423	N/A
								Cement 2 (lb)	Lafarge-GGBFS	141	N/A
								Fly Ash (lb)			N/A
								Coarse Agg (lb)	Stoneco-Pit #58-003	1766	
								Fine Agg (lb)	Carl Schlegel-Pit #19-055	1270	
								Admix Agg 1 (lb)	BASF Micro Air	0.8	N/A
								Admix Agg 2 (lb)	BASF Polyheed 997	8.0	N/A
								Water (gal)		30.7	N/A

Details of Sample

Date Sampled	Date Received	General Location	Sample Location	Curing Method	Field Sample No	Field Cure Temp (°F) High	Field Cure Temp (°F) Low	Contractor	Truck No.	Ticket No.	Slump (in) ASTM C 143	Slump w/ plasticizer (in)	Air Temp (°F)	Concrete Temp (°F) ASTM C 1064	Air Content (%) ASTM C 231	Unit Weight (pcf) ASTM C 138	Batch Size (yd ³)	Water Added (gal) Before	Water Added (gal) After	Time Batched	Time Sampled	Time Placed	Time in Truck (mins)	Measured	Specified
3/22/2013	3/23/2013	[REDACTED]	Strain pole foundation, west median	One day Field/Laboratory Cure	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	33	14-1797860	6.00	N/A	42	65	6.40	5.5 - 8	10			14:32	15:20	15:25	53		

Compressive Strength of Concrete Cylinders

ASTM C 39

Specimen ID	Date Tested	Age (Days)	Dimensions (in) Diameter	Dimensions (in) Height	Area (in ²)	Type of Cap	Ultimate Load (lbf)	Fracture Type/Remark	Compressive Strength (psi)	Required Strength (psi)
[REDACTED]	03/29/13	7	6.03	12.00	28.56	U	90000	4	3150	
[REDACTED]	04/19/13	28	6.03	12.00	28.56	U	160000	4	5600	3500
[REDACTED]	04/19/13	28	6.03	12.00	28.56	U	158000	5	5530	3500
[REDACTED]		Hold				U				3500

Average 28 Day Compressive Strength (psi) 5570

Notes

1 Sampling to ASTM C 172
 Specimen(s) Prepared to ASTM C 31
 Caping B=Bonded ASTM C 817, U=Unbonded ASTM C 1231, C = Combined

Remarks

Fracture Type / Remarks: 4 = C39: Diagonal fracture, C1314 Tension Break, 5 = C39: Side fracture-opposite ends, C1314 Semi-Conical Break,
 Applicable ASTM standards unless otherwise indicated. Slump C143

National Ready Mixed Concrete Association



Certificate of Conformance For Concrete Production Facilities

THIS IS TO CERTIFY THAT

Lansing Plant No. 06, Lansing, MI
High Grade Materials Co., Inc.

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***



A handwritten signature in black ink, appearing to read "Keith Reenders".

Signature of Licensed Professional Engineer

February 12, 2016

Inspection Date

February 12, 2018

Certification Expiration Date

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

A handwritten signature in black ink, appearing to read "James P. Stevens".

Signature of Company Official

President

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 #: 810464

Certification ID #: 19575

© 1965, 1992, 2001, 2002, 2006, 2007, 2012

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

National Ready Mixed Concrete Association



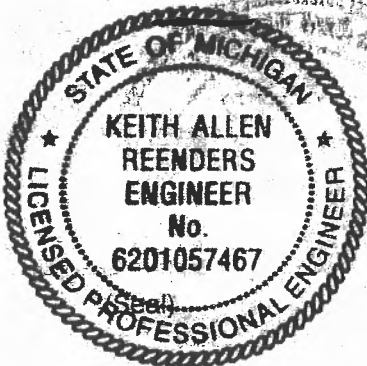
Certificate of Conformance For Concrete Production Facilities

THIS IS TO CERTIFY THAT

Lansing Plant No. 62, Lansing, MI *High Grade Materials Co., Inc.*

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



Keith Reenders

Signature of Licensed Professional Engineer

February 12, 2016

Inspection Date

February 12, 2018

Certification Expiration Date

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

James P. Stevens

Signature of Company Official

President

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 #: 843722

Certification ID #: 19576

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



West Michigan Scales

943 Industrial Parkway
Plainwell, MI 49080
(269) 685-9521
Fax (269) 685-2031

SERVICE ORDER MA2717A

ISO Registered

Form with fields: DATE OF CALL, TIME, CALL TAKEN BY, WHEN NEEDED, TYPE, TECH, DATE, CUSTOMER, PERSON CALLING, PERSON TO SEE, ADDRESS, LOCATION OF WORK, CITY, STATE, ZIP, CUSTOMER PURCHASE ORDER, NATURE OF CALL, SERVICES PERFORMED. Includes handwritten notes: 'Inspect and Calibrate scales as needed see inspection reports pages 2 and 3 of 3' and 'Thank You'.

Table with columns: SCALES SERVICED, PARTS / SUPPLIES, MODEL, SERIAL NUMBER / MACHINE NUMBER, QTY, PART NUMBER, DESCRIPTION. Contains handwritten entries for two models: T33274 A and T33274 B.

NIST HANDBOOK 44 METHODS AND TOLERANCES WILL APPLY UNLESS SUPERCEDED BY CUSTOMERS CALIBRATION REQUIREMENTS. CALIBRATION / TESTING PERFORMED BY MEANS OF TRACEABLE WEIGHTS WITH ACCURACY TRACEABLE TO NIST TO MAINTAIN COMPLIANCE TO ISO/IEC 17025. OPINIONS AND INTERPRETATIONS WILL BE CLEARLY MARKED ON THE SCALE CALIBRATION / INSPECTION REPORT IN THE COMMENTS / SERVICE RENDERED SECTION. NOTE THE CLIENT MUST TAKE INTO ACCOUNT THE MEASUREMENT UNCERTAINTY. THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF WEST MICHIGAN SCALE COMPANY INC.

CUSTOMER ASSUMES FULL RESPONSIBILITY FOR RENTAL, DEMONSTRATION AND LOANER SCALES
SERVICE CHARGE OF 1 1/2% per month will be charged on past due balance which is an ANNUAL PERCENTAGE RATE OF 18%

ALL WORK HAS BEEN CHECKED AND APPROVED

CUSTOMER SIGNATURE [Signature]
PRINT NAME Tim Hubbell



WEST MICHIGAN SCALES
943 Industrial Parkway
Plainwell, MI 49080

SCALE CALIBRATION / INSPECTION REPORT
Michigan Weights and Measures Service Registration Number 100023
ISO/IEC 17025 ♦ AC-1135

Technician M1A

Customer High Grade

Service Order# MA2712A

City Posonia

Date 2/21/17 Page 2 of 3

THIS REPORT SHALL NOT BE REPRODUCED OR REPRINTED IN FULL WITHOUT WRITTEN APPROVAL OF WEST MICHIGAN SCALES

Serial Number Location	Shift Test	Before	After	Weight Applied	Error (Standard Deviation) Units of Measure				Temperature Humidity
					Before Increase Level	Before Decreasing Level	After Increase Level	After Decreasing Level	
I33274A Plant 1 General	1			0	0	0	0	0	73.5 °F 59.1 lb
Scale Capacity 10,000 x 10 lb	2			2000	0	0	0	0	73.5 °F 59.1 lb
Calibrated 0 / N	3				0	0	0	0	73.5 °F 59.1 lb
Next Due 2/15	4				0	0	0	0	73.5 °F 59.1 lb
I33274A Plant 1 A99	1			-0	0	N/A	0	N/A	73.5 °F 59.1 lb
Scale Capacity 49,000 x 20 lb	2			6000	0	0	0	0	73.5 °F 59.1 lb
Calibrated 0 / N	3				0	0	0	0	73.5 °F 59.1 lb
Next Due 2/18	4			8340	0	0	0	0	73.5 °F 59.1 lb
I33274A Plant 1 A99	1			-0	0	N/A	0	N/A	73.5 °F 59.1 lb
Scale Capacity 10,000 x 10 lb	2			10360	0	0	0	0	73.5 °F 59.1 lb
Calibrated N/A	3			12920	0	0	0	0	73.5 °F 59.1 lb
Next Due N/A	4			16020	0	0	0	0	73.5 °F 59.1 lb
I33274A Plant 1 A99	1			22800	0	0	0	0	73.5 °F 59.1 lb
Scale Capacity 10,000 x 10 lb	2				0	0	0	0	73.5 °F 59.1 lb
Calibrated N/A	3				0	0	0	0	73.5 °F 59.1 lb
Next Due N/A	4				0	0	0	0	73.5 °F 59.1 lb

WEIGHT S.N. 011202
FCCR 001

CUSTOMER SIGNATURE

Temperature 73.5 °F
Humidity 59.1 lb



WEST MICHIGAN SCALES
943 Industrial Parkway
Plainwell, MI 49080

SCALE CALIBRATION / INSPECTION REPORT
Michigan Weights and Measures Service Registration Number 100023
ISO/IEC 17025 ♦ AC-1135

Customer High Grade

Service Order# 11A 2717A

Technician MJA

City Lawson

Date 8/2/17 Page 3 of 3

THIS REPORT SHALL NOT BE REPRODUCED OR COPIED IN FULL WITHOUT WRITTEN APPROVAL OF WEST MICHIGAN SCALES

MFG / Model Number	Serial Number	Shift	Before	After	Weights Applied	Error/Qualitative Check of Weights				Comments / Service Rendered
						Increase Load	Decreasing Load	Increase Load	Decreasing Load	
J 338274 B	Plant 2 Cement Scale Capacity 10,000 x 15 lb Calibrated 0 / N	1	N/A	N/A	2000	0	0	0	0	Measurement in progress Temperature 73.5 F Humidity 12.2 %
J 338274 B	Plant 2 Aggs Scale Capacity 40,000 x 29 lb Calibrated 0 / N	1	N/A	N/A	2000 lb 80.1 lb UP 4020	0	0	0	0	Measurement in progress Temperature 73.5 F Humidity 52.1 %
J 338274 B	Plant 2 Aggs Scale Capacity 40,000 x 29 lb Calibrated 0 / N	1	N/A	N/A	8060	0	0	0	0	Measurement in progress Temperature 73.5 F Humidity 38.9 %
J 338274 B	Plant 2 Aggs Scale Capacity 10,000 x 15 lb Calibrated 0 / N	1	N/A	N/A	10082	0	0	0	0	Measurement in progress Temperature 73.5 F Humidity 50.1 %
J 338274 B	Plant 2 Aggs Scale Capacity 14,000 x 15 lb Calibrated 0 / N	1	N/A	N/A	18040	0	0	0	0	Measurement in progress Temperature 73.5 F Humidity 38.9 %

WEIGHT SN: 1001, 1028
F.C.R. 001 RFV G

CUSTOMER SIGNATURE

[Handwritten Signature]

**NRMCA CERTIFIED CONCRETE PLANT
INTERIM CHECK ON ADMIX & WATER DISPENSERS**
(to be performed at 90 day intervals)

NAME : High Grade Materials

ADDRESS: HG06 Lansing

1800 Turner St

Lansing, MI

Date of original certification : _____

Admix Manufacture ; GRT

Admix #1
Name : AE
Dose Rate : 1 /cwt

Target	Metered	Measured
50	49	49

Admix #2 400NC
Name : _____
Dose Rate : 3 /cwt

Target	Metered	Measured
100	100	99

Admix #3
Name : R
Dose Rate : 3 /cwt

Target	Metered	Measured
100	101	101

Admix #4
Name : KB1200
Dose Rate : 5 /cwt

Target	Metered	Measured
150	152	152

WATER


Target	Metered	Measured

Performed By : _____

Date : 5-2-17

Witnessed by M.D.O.T. : YES / NO

Name : Ted Oviatt

HIGH  *GRADE*



High Grade Materials Co.

0-10561 Linden Drive • Grand Rapids, MI 49544

Office 616-677-1271 • Fax 616-677-3014

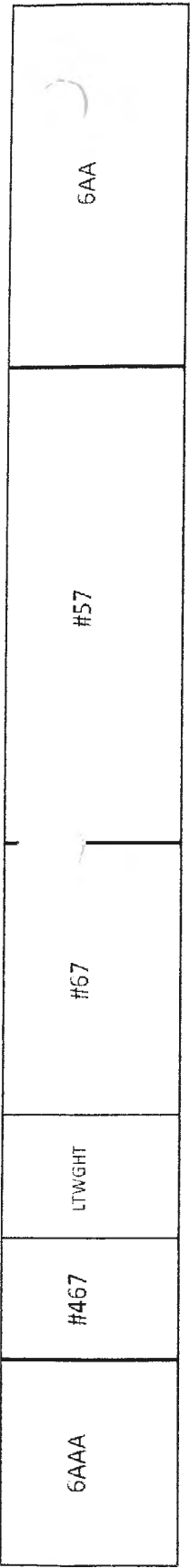
www.highgradematerials.com

MDOT Quality Control Plan Stockpile Management

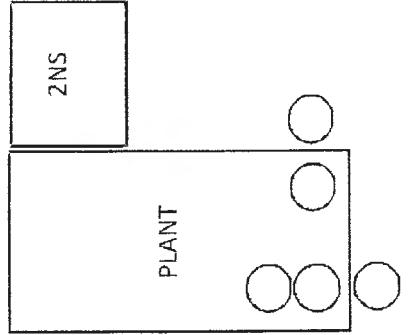
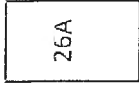
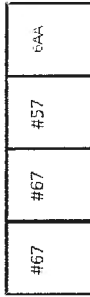
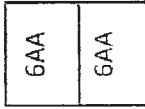
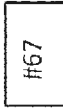
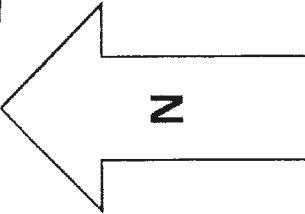
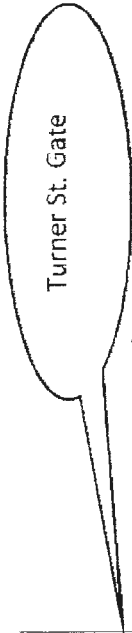
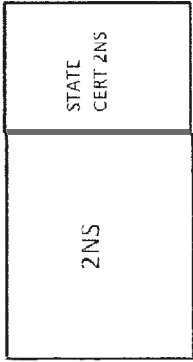
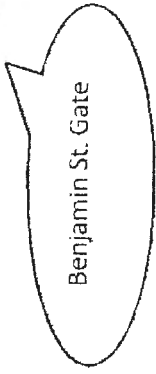
The following methods will be employed to at each of High Grade Materials' permanent batch facilities to prevent contamination of aggregates:

- Aggregate piles are divided by poured concrete walls or stacked 2' x 2' x 6' concrete blocks.
- Each aggregate pile will have a permanent designation label painted on either the dividing wall or an affixed sign.
- Aggregate piles will be monitored by the plant manager for quantity to protect against overflow of aggregate bins.
- Aggregate piles will be placed on concrete and/or operators loading material from aggregate piles into batch plant bins will leave the lower 6-8" of the aggregate pile undisturbed to prevent excess moisture and contamination from the subgrade.
- See attached map indicating location of stockpiles

**ALLENDALE • DUTTON • SAND LAKE • GREENVILLE • KALAMAZOO • BENTON HARBOR
SIX LAKES • CARSON CITY • LANSING • MUSKEGON**



HIGH GRADE MATERIALS LANSING STOCK PILE MAP 2017





SOILS & STRUCTURES

Potential Alkali Reactivity of Aggregates ASTM C1293

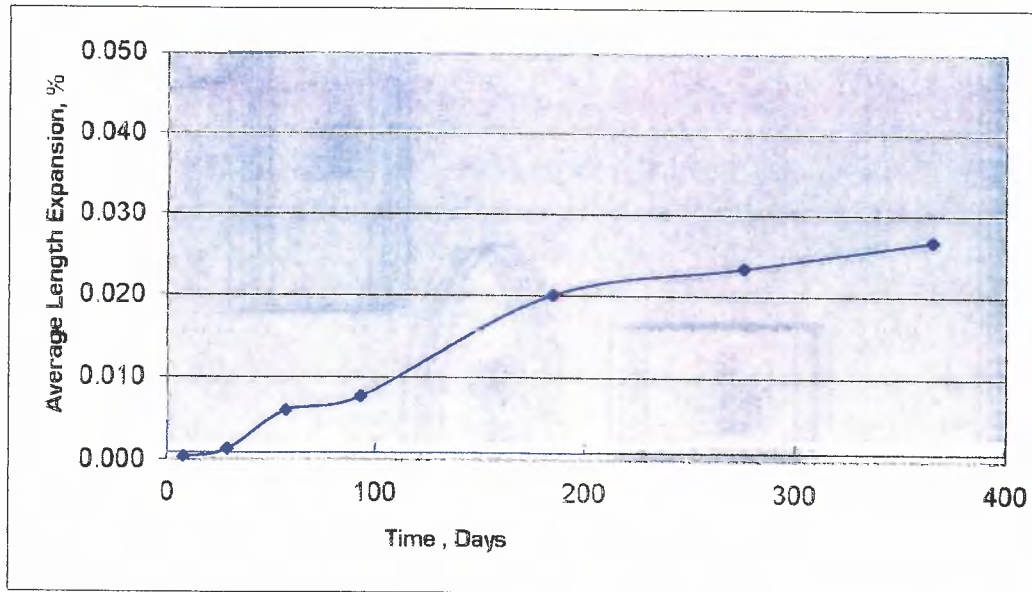
Project: Greenville Sand - 59-44
 Client: High Grade Materials
 Job No.: 2015.0244

Date Molded: 3/31/2015
 Date Stripped: 4/1/2015
 Date Reported: 4/1/2016

Fine Aggregate: 2NS Pit # 59-44
 Coarse Aggregate: Port Inland Limestone
 Portland Cement: Type I St. Marys Cement

Reagent: NaOh
 Fly Ash: None
 Other: None

Date	Days Immersed	Specimen			Average Expansion, %
		A	B	C	
4/1/2015	Initial	0.0170	0.0712	0.0773	
4/7/2015	7	0.0170	0.0713	0.0773	0.0003
4/28/2015	28	0.0170	0.0715	0.0774	0.0013
5/26/2015	56	0.0170	0.0722	0.0781	0.0060
6/31/2015	92	0.0174	0.0722	0.0782	0.0077
9/31/2015	184	0.0186	0.0733	0.0796	0.0200
12/31/2015	275	0.0194	0.0734	0.0797	0.0233
3/31/2016	365	0.0198	0.0737	0.0800	0.0267
TOTAL EXPANSION:					0.027



Comments: MDOT Special Provision for Quality Control And Acceptance of Portland Cement Concrete - ASTM 1293 - Concrete Prism Test. If the expansion of the concrete prisms is not greater than 0.040 percent after 1 year, the fine aggregate is considered non-deleterious to ASR reactivity and may be used in the concrete without the need for ASR mitigation. **This material meets the MDOT specification.**

Reviewed By: [Signature]



High Grade Materials Co.

0-10561 Linden Drive • Grand Rapids, MI 49544

Office 616-677-1271 • Fax 616-677-3014

www.highgradematerials.com

August 3, 2017

MDOT Concrete Submittal

MDOT Job# 19000-130450
Project Location: W Herbison Rd (Old US-27 to Turner St)
Prime/Subcontractor(s): E.T. Mackenzie Co
Project Engineer: Dan Armentrout – Clinton CRC
Plant Location(s): HG06 Lansing MI

JMFs Included:

Mix Design #	Mix Description	Intended Use	Type of Mix
M.S2W	MDOT S2-P1	Paving, Sidewalk, C&G, Misc	Both
M.S2M	MDOT S2-P1 w/MRWR	Paving, Sidewalk, C&G, Misc	Both
M.S2D	MDOT S2-P1 w/Retarder	Paving, Sidewalk, C&G, Misc	Both
M.S2MD	MDOT S2-P1 w/MRWR & Retarder	Paving, Sidewalk, C&G, Misc	Both
M.S2WSF	MDOT S2-P1 Slipform	Paving, Sidewalk, C&G, Misc	Both
M.S2DSF	MDOT S2-P1 Slipform w/Retarder	Paving, Sidewalk, C&G, Misc	Both

Ted Oviatt
High Grade Materials, Quality Control
MCA Level II (ACI# 01176888)

ALLENDALE • DUTTON • SAND LAKE • GREENVILLE • KALAMAZOO • BENTON HARBOR
SIX LAKES • CARSON CITY • LANSING • MUSKEGON

JOB MIX FORMULA (JMF) CONCRETE FIELD COMMUNICATION

This form applies only to the project listed below and is not transferable to other projects
DISTRIBUTION: ORIGINAL – Project Engineer **COPIES** – Contractor, Lansing CFS, Region, Inspector

CONTROL SECTION 19000	JOB NUMBER 130450	PROJECT LOCATION W Herbison Rd (Old US-27 to Turner St)	PROJECT ENGINEER Dan Armentrout - Clinton CRC
CONCRETE SUPPLIER HIGH GRADE MATERIALS		PLANT LOCATION Lansing, MI	PLANT NUMBER HG06
GRADE OF CONCRETE S2-P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER M.S2W	INTENDED USE (S)
PRIME / SUBCONTRACTOR(S) E. T. Mackenzie Co			CONTRACTOR QC PLAN Y <input type="checkbox"/> SUBMITTED? (MDOT use only) N <input type="checkbox"/>
STANDARD SPEC DATE 2012	QC/QA SPECIAL PROVISION DATE 07/08/2016	DATE EFFECTIVE 07/13/2016	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	LIME	Aggregate Type		Source Name	WHEELER #2
Source Name	WYANDOT	Source Name		MDOT Source No	59-44
MDOT Source No	93-31	MDOT Source No		MDOT Series Class	2NS
MDOT Series Class	SAA	MDOT Services Class		Specific Gravity (Bulk Dry)	2.62
Specific Gravity (Bulk Dry)	2.61	Specific Gravity (Bulk Dry)		Specific Gravity *Bulk SSD) optional	2.67
Specific Gravity *Bulk SSD) optional	2.69	Specific Gravity *Bulk SSD) optional		Absorption	1.40
Absorption	1.70	Absorption		Fineness Modulus (FM)	2.80
Unit Weight (Dry Rodded) DR or	95	Unit Weight (Dry Rodded) DR or			
Unit Weight (Dry Loose) DL	NA	Unit Weight (Dry Loose) DL			
Percent Crushed	100	Percent Crushed			
MDOT Freeze-Thaw (F-T) Dilation	0.011	MDOT Freeze-Thaw (F-T) Dilation			
Specific Gravity (Bulk Dry) of F-T Sample*	2.69	Specific Gravity (Bulk Dry) of F-T sample*			
Date of MDOT Freeze-Thaw Report	2014	Date of MDOT Freeze-Thaw Report			

*If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested 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 the use on Department projects.

CEMENTITIOUS

Cement Source / Plant	ILLINOIS CEMENT
Cement Type	I
Cement Specific Gravity	3.15
Fly Ash Source (distributor & plant)	NA
Fly Ash Class	NA
Fly Ash Specific Gravity	NA
Slag Cement Source	NA
Slag Cement Grade	NA
Slag Cement Specific Gravity	NA
Other	

ADMIXTURES

Air Entrainment	GRT POLYCHEM SA-50
Water Reducer	GRT POLYCHEM 400NC (A)
Water Reducer	
Water Reducer	
Accelerator	
Other	
(Indicate Source & Product name with ticket code)	
TYPE OF MIX WINTER/SUMMER	
	BOTH

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	89	Design Slump	3" MAX
Coarse Aggregate Weight (Dry)	1776	Design Air %	6.75 +/- 1.25
Intermediate Aggregate Weight (Dry)	0	Specified Air %	6.75 +/- 1.25
Fine Aggregate Weight (Dry)	1385	PSI minimum required	3500
Portland Cement Weight	526		
Fly Ash Weight	0	Total Cementitious	526
Fly Ash Percent of Cementitious	0	Yield cu/ft	27.2
Slag Cement Weight	0		
Slag Cement Percent of Cementitious	0		
Total Water Weight	237		
Net Water Weight	237		
WC (as designed)	45		
Air Entrainment (dosage)	1.0 OZ/CWT		
Water Reducer (dosage)	3.0 OZ/CWT (A)		
Other (dosage)	0		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF.

Ted Oviatt
Digitally signed by: Ted Oviatt
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 Date: 2017.08.03 17:01:16 -0500

MSA Level 4 Expiration Date 04/15/2019

Date 07/27/2017

JOB MIX FORMULA (JMF) CONCRETE FIELD COMMUNICATION

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CONTROL SECTION 19000	JOB NUMBER 130450	PROJECT LOCATION W Herbison Rd (Old US-27 to Turner St)	PROJECT ENGINEER Dan Armentrout - Clinton CRC
CONCRETE SUPPLIER HIGH GRADE MATERIALS		PLANT LOCATION Lansing, MI	PLANT NUMBER HG06
GRADE OF CONCRETE S2-P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER M.S2M	INTENDED USE (S) CONTRACTOR QC PLAN Y <input type="checkbox"/> SUBMITTED? (MDOT use only) N <input type="checkbox"/>
PRIME / SUBCONTRACTOR(S) E.T Mackenzie Co			
STANDARD SPEC DATE 2012		QC/QA SPECIAL PROVISION DATE 07/08/2016	DATE EFFECTIVE 07/13/2016
			AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	LIME	Aggregate Type		Source Name	WHEELER #2
Source Name	WYANDOT	Source Name		MDOT Source No	59-44
MDOT Source No	93-31	MDOT Source No.		MDOT Series Class	2NS
MDOT Series Class	5AA	MDOT Services Class		Specific Gravity (Bulk Dry)	2.82
Specific Gravity (Bulk Dry)	2.51	Specific Gravity (Bulk Dry)		Specific Gravity *Bulk SSD) optional	2.87
Specific Gravity *Bulk SSD) optional	2.69	Specific Gravity *Bulk SSD) optional		Absorption	1.40
Absorption	1.70	Absorption		Fineness Modulus (FM)	2.80
Unit Weight (Dry Rodded) DR or	95	Unit Weight (Dry Rodded) DR or			
Unit Weight (Dry Loose) DL	NA	Unit Weight (Dry Loose) DL			
Percent Crushed	100	Percent Crushed			
MDOT Freeze-Thaw (F-T) Dilation	0.011	MDOT Freeze-Thaw (F-T) Dilation			
Specific Gravity (Bulk Dry) of F-T Sample*	2.69	Specific Gravity (Bulk Dry) of F-T sample*			
Date of MDOT Freeze-Thaw Report	2014	Date of MDOT Freeze-Thaw Report			

*If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested 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 the use on Department projects.

CEMENTITIOUS

ADMIXTURES

Cement Source / Plant	ILLINOIS CEMENT	Air Entrainment	GRT POLYCHEM SA-50
Cement Type	I	Water Reducer	GRT POLYCHEM KB1200 (MR)
Cement Specific Gravity	3.15	Water Reducer	
Fly Ash Source (distributor & plant)	NA	Water Reducer	
Fly Ash Class	NA	Accelerator	
Fly Ash Specific Gravity	NA	Other	
Slag Cement Source	NA	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	NA	TYPE OF MIX WINTER/SUMMER	
Slag Cement Specific Gravity	NA		BOTH
Other			

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	89	Design Slump	6" MAX
Coarse Aggregate Weight (Dry)	1776	Design Air %	6.75 +/- 1.25
Intermediate Aggregate Weight (Dry)	0	Specified Air %	6.75 +/- 1.25
Fine Aggregate Weight (Dry)	1385	PSI minimum required	3500
Portland Cement Weight	526	Total Cementitious	526
Fly Ash Weight	0	Yield cu/ft	27.2
Fly Ash Percent of Cementitious	0		
Slag Cement Weight	0		
Slag Cement Percent of Cementitious	0		
Total Water Weight	237		
Net Water Weight	237		
WC (as designed)	45		
Air Entrainment (dosage)	1.0 OZ/CWT		
Water Reducer (dosage)	5.0 OZ/CWT (MR)		
Other (dosage)	0		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF.

Ted Oviatt
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MCA Level 1 Inspection Date 04/15/2019

Date 07/27/2017

JOB MIX FORMULA (JMF) CONCRETE FIELD COMMUNICATION

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CONTROL SECTION 19000	JOB NUMBER 130450	PROJECT LOCATION W Herbison Rd (Old US-27 to Turner St)	PROJECT ENGINEER Dan Armentrout - Clinton CRC
CONCRETE SUPPLIER HIGH GRADE MATERIALS		PLANT LOCATION Lansing, MI	PLANT NUMBER HG06
GRADE OF CONCRETE S2-P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER M.S2D	INTENDED USE (S) CONTRACTOR QC PLAN Y <input type="checkbox"/> SUBMITTED? (MDOT use only) N <input type="checkbox"/>
PRIME / SUBCONTRACTOR(S) E. T. Mackenzie Co			
STANDARD SPEC DATE 2012	QC/QA SPECIAL PROVISION DATE 07/08/2016	DATE EFFECTIVE 07/13/2016	AGG CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	LIME	Aggregate Type		Source Name	WHEELER #2
Source Name	WYANDOT	Source Name		Source Name	WHEELER #2
MDOT Source No	93-31	MDOT Source No		MDOT Source No	59-44
MDOT Series Class	6AA	MDOT Services Class		MDOT Series Class	2NS
Specific Gravity (Bulk Dry)	2.61	Specific Gravity (Bulk Dry)		Specific Gravity (Bulk Dry)	2.62
Specific Gravity *Bulk SSD) optional	2.69	Specific Gravity *Bulk SSD) optional		Specific Gravity *Bulk SSD) optional	2.67
Absorption	1.70	Absorption		Absorption	1.40
Unit Weight (Dry Rodded) DR or	95	Unit Weight (Dry Rodded) DR or		Fineness Modulus (FM)	2.80
Unit Weight (Dry Loose) DL	NA	Unit Weight (Dry Loose) DL			
Percent Crushed	100	Percent Crushed			
MDOT Freeze-Thaw (F-T) Dilation	0.011	MDOT Freeze-Thaw (F-T) Dilation			
Specific Gravity (Bulk Dry) of F-T Sample*	2.69	Specific Gravity (Bulk Dry) of F-T sample*			
Date of MDOT Freeze-Thaw Report	2014	Date of MDOT Freeze-Thaw Report			

*If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested 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 the use on Department projects.

CEMENTITIOUS		ADMIXTURES	
Cement Source / Plant	ILLINOIS CEMENT	Air Entrainment	GRT POLYCHEM SA-50
Cement Type	I	Water Reducer	GRT POLYCHEM R (D)
Cement Specific Gravity	3.15	Water Reducer	
Fly Ash Source (distributor & plant)	NA	Water Reducer	
Fly Ash Class	NA	Accelerator	
Fly Ash Specific Gravity	NA	Other	
Slag Cement Source	NA	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	NA	TYPE OF MIX WINTER/SUMMER	
Slag Cement Specific Gravity	NA		BOTH
Other			

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	59	Design Slump	3" MAX
Coarse Aggregate Weight (Dry)	1775	Design Air %	6.75 +/- 1.25
Intermediate Aggregate Weight (Dry)	0	Specified Air %	6.75 +/- 1.25
Fine Aggregate Weight (Dry)	1385	PSI minimum required	3500
Portland Cement Weight	526		
Fly Ash Weight	0	Total Cementitious	526
Fly Ash Percent of Cementitious	0	Yield cu/ft	27.2
Slag Cement Weight	0		
Slag Cement Percent of Cementitious	0		
Total Water Weight	237		
Net Water Weight	237		
WC (as designed)	45		
Air Entrainment (dosage)	1.0 OZ/CWT		
Water Reducer (dosage)	3.0 OZ/CWT (D)		
Other (dosage)	0		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF.

Digitally signed by: Ted Oviatt
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MDOT Form 1, Expiration Date 04/15/2019

Date: 07/27/2017

JOB MIX FORMULA (JMF) CONCRETE FIELD COMMUNICATION

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CONTROL SECTION 19000	JOB NUMBER 130450	PROJECT LOCATION W Herbison Rd (Old US-27 to Turner St)	PROJECT ENGINEER Dan Armentrout - Clinton CRC
CONCRETE SUPPLIER HIGH GRADE MATERIALS		PLANT LOCATION Lansing, MI	PLANT NUMBER HG06
GRADE OF CONCRETE S2-P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER M.S2MD	INTENDED USE (S)
PRIME / SUBCONTRACTOR(S) E.T. Mackenzie Co			CONTRACTOR QC PLAN Y <input type="checkbox"/> SUBMITTED? (MDOT use only) N <input type="checkbox"/>
STANDARD SPEC DATE 2012	QC/QA SPECIAL PROVISION DATE 07/08/2016	DATE EFFECTIVE 07/13/2016	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE	INTERMEDIATE AGGREGATE	FINE AGGREGATE
Aggregate Type LIME	Aggregate Type	Aggregate Type
Source Name WYANDOT	Source Name	Source Name WHEELER #2
MDOT Source No 93-31	MDOT Source No	MDOT Source No 59-44
MDOT Series Class 5AA	MDOT Services Class	MDOT Series Class 2NS
Specific Gravity (Bulk Dry) 2.61	Specific Gravity (Bulk Dry)	Specific Gravity (Bulk Dry) 2.62
Specific Gravity *Bulk SSD) optional 2.69	Specific Gravity *Bulk SSD) optional	Specific Gravity *Bulk SSD) optional 2.67
Absorption 1.70	Absorption	Absorption 1.40
Unit Weight (Dry Rodded) DR or 95	Unit Weight (Dry Rodded) DR or	Fineness Modulus (FM) 2.80
Unit Weight (Dry Loose) DL NA	Unit Weight (Dry Loose) DL	
Percent Crushed 100	Percent Crushed	
MDOT Freeze-Thaw (F-T) Dilation 0.011	MDOT Freeze-Thaw (F-T) Dilation	
Specific Gravity (Bulk Dry) of F-T Sample* 2.69	Specific Gravity (Bulk Dry) of F-T sample*	
Date of MDOT Freeze-Thaw Report 2014	Date of MDOT Freeze-Thaw Report	

*If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested 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 the use on Department projects.

CEMENTITIOUS	ADMIXTURES
Cement Source / Plant ILLINOIS CEMENT	Air Entrainment GRT POLYCHEM SA-50
Cement Type I	Water Reducer GRT POLYCHEM KB1200 (MR)
Cement Specific Gravity 3.15	Water Reducer GRT POLYCHEM R (D)
Fly Ash Source (distributor & plant) NA	Water Reducer
Fly Ash Class NA	Accelerator
Fly Ash Specific Gravity NA	Other
Slag Cement Source NA	(Indicate Source & Product name with ticket code)
Slag Cement Grade NA	TYPE OF MIX WINTER/SUMMER
Slag Cement Specific Gravity NA	
Other	BOTH

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	.69	Design Slump	6" MAX
Coarse Aggregate Weight (Dry)	1775	Design Air %	6.75 +/- 1.25
Intermediate Aggregate Weight (Dry)	0	Specified Air %	6.75 +/- 1.25
Fine Aggregate Weight (Dry)	1385	PSI minimum required	3500
Portland Cement Weight	526		
Fly Ash Weight	0	Total Cementitious	526
Fly Ash Percent of Cementitious	0	Yield cu/ft	27.2
Slag Cement Weight	0		
Slag Cement Percent of Cementitious	0		
Total Water Weight	237		
Net Water Weight	237		
WC (as designed)	45		
Air Entrainment (dosage)	1.0 OZ/CWT		
Water Reducer (dosage)	5.0 OZ/CWT (MR)		
Other (dosage)	3.0 OZ/CWT (D)		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF

Ted Oviatt

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WCA Expires 04/15/2019

07/27/2017

JOB MIX FORMULA (JMF) CONCRETE FIELD COMMUNICATION

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CONTROL SECTION 19000	JOB NUMBER 130450	PROJECT LOCATION W Herbison Rd (Old US-27 to Turner St)	PROJECT ENGINEER Dan Armentrout - Clinton CRC
CONCRETE SUPPLIER HIGH GRADE MATERIALS		PLANT LOCATION Lansing, MI	PLANT NUMBER HG06
GRADE OF CONCRETE S2-P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER M.S2WSF	INTENDED USE (S)
PRIME / SUBCONTRACTOR(S) E. T. Mackenzie Co			CONTRACTOR QC PLAN Y <input type="checkbox"/> SUBMITTED? (MDOT use only) N <input type="checkbox"/>
STANDARD SPEC DATE 2012	QC/QA SPECIAL PROVISION DATE 07/08/2016	DATE EFFECTIVE 07/13/2016	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE	INTERMEDIATE AGGREGATE	FINE AGGREGATE
Aggregate Type LIME	Aggregate Type	
Source Name WYANDOT	Source Name	Source Name WHEELER #2
MDOT Source No 93-31	MDOT Source No	MDOT Source No 59-44
MDOT Series Class 5AA	MDOT Services Class	MDOT Series Class 2NS
Specific Gravity (Bulk Dry) 2.61	Specific Gravity (Bulk Dry)	Specific Gravity (Bulk Dry) 2.62
Specific Gravity *Bulk SSD) optional 2.69	Specific Gravity *Bulk SSD) optional	Specific Gravity *Bulk SSD) optional 2.67
Absorption 1.70	Absorption	Absorption 1.40
Unit Weight (Dry Rodded) DR or NA	Unit Weight (Dry Rodded) DR or	Fineness Modulus (FM) 2.80
Unit Weight (Dry Loose) DL 100	Unit Weight (Dry Loose) DL	
Percent Crushed 100	Percent Crushed	
MDOT Freeze-Thaw (F-T) Dilation 0.011	MDOT Freeze-Thaw (F-T) Dilation	
Specific Gravity (Bulk Dry) of F-T Sample* 2.69	Specific Gravity (Bulk Dry) of F-T sample*	
Date of MDOT Freeze-Thaw Report 2014	Date of MDOT Freeze-Thaw Report	

*If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested 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 the use on Department projects.

CEMENTITIOUS

Cement Source / Plant	ILLINOIS CEMENT
Cement Type	
Cement Specific Gravity	3.15
Fly Ash Source (distributor & plant)	NA
Fly Ash Class	NA
Fly Ash Specific Gravity	NA
Slag Cement Source	NA
Slag Cement Grade	NA
Slag Cement Specific Gravity	NA
Other	

ADMIXTURES

Air Entrainment	GRT POLYCHEM SA-50
Water Reducer	GRT POLYCHEM 400NC (A)
Water Reducer	
Water Reducer	
Accelerator	
Other	
(Indicate Source & Product name with ticket code)	
TYPE OF MIX WINTER/SUMMER	
	BOTH

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	.39	Design Slump	3" MAX
Coarse Aggregate Weight (Dry)	1776	Design Air %	6.75 +/- 1.25
Intermediate Aggregate Weight (Dry)	0	Specified Air %	6.75 +/- 1.25
Fine Aggregate Weight (Dry)	1385	PSI minimum required	3500
Portland Cement Weight	526	Total Cementitious	526
Fly Ash Weight	0	Yield cu/ft	27.2
Fly Ash Percent of Cementitious	0		
Slag Cement Weight	0		
Slag Cement Percent of Cementitious	0		
Total Water Weight	237		
Net Water Weight	237		
WC (as designed)	45		
Air Entrainment (dosage)	1.0 OZ/CWT		
Water Reducer (dosage)	3.0 OZ/CWT (A)		
Other (dosage)	0		

certify that all applicable standard test methods have been followed verifying the mix design and JMF

Digitally signed by Ted Oviatt
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Date: 2017.08.03 17:02:14 -0500

MCA Level II Expiration Date 04/15/2019

07/27/2017

JOB MIX FORMULA (JMF) CONCRETE FIELD COMMUNICATION

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CONTROL SECTION 19000	JOB NUMBER 130450	PROJECT LOCATION W Herbison Rd (Old US-27 to Turner St)	PROJECT ENGINEER Dan Armentrout - Clinton CRC
CONCRETE SUPPLIER HIGH GRADE MATERIALS		PLANT LOCATION Lansing, MI	PLANT NUMBER HG06
GRADE OF CONCRETE S2-P1	PSI REQUIREMENT 3500	MIX DESIGN NUMBER M.S2DSF	INTENDED USE (S)
PRIME / SUBCONTRACTOR(S) E. T. Mackenzie Co			CONTRACTOR QC PLAN Y <input type="checkbox"/> SUBMITTED? (MDOT use only) N <input type="checkbox"/>
STANDARD SPEC DATE 2012	QC/QA SPECIAL PROVISION DATE 07/08/2016	DATE EFFECTIVE 07/13/2016	AGG. CORRECTION 0.2%

MATERIAL DESIGN SOURCES AND PROPERTIES

COARSE AGGREGATE		INTERMEDIATE AGGREGATE		FINE AGGREGATE	
Aggregate Type	LIME	Aggregate Type		Source Name	WHEELER #2
Source Name	WYANDOT	Source Name		MDOT Source No	59-44
MDOT Source No	93-31	MDOT Source No		MDOT Series Class	2NS
MDOT Series Class	9AA	MDOT Services Class		Specific Gravity (Bulk Dry)	2.62
Specific Gravity (Bulk Dry)	2.61	Specific Gravity (Bulk Dry)		Specific Gravity *Bulk SSD) optional	2.67
Specific Gravity *Bulk SSD) optional	2.69	Specific Gravity *Bulk SSD) optional		Absorption	1.40
Absorption	1.70	Absorption		Fineness Modulus (FM)	2.80
Unit Weight (Dry Rodded) DR or	95	Unit Weight (Dry Rodded) DR or			
Unit Weight (Dry Loose) DL	NA	Unit Weight (Dry Loose) DL			
Percent Crushed	100	Percent Crushed			
MDOT Freeze-Thaw (F-T) Dilation	0.011	MDOT Freeze-Thaw (F-T) Dilation			
Specific Gravity (Bulk Dry) of F-T Sample*	2.69	Specific Gravity (Bulk Dry) of F-T sample*			
Date of MDOT Freeze-Thaw Report	2014	Date of MDOT Freeze-Thaw Report			

*If the bulk dry specific gravity is more than 0.04 less than the bulk dry specific gravity of the most recently tested 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 the use on Department projects.

CEMENTITIOUS		ADMIXTURES	
Cement Source / Plant	ILLINOIS CEMENT	Air Entrainment	GRT POLYCHEM SA-50
Cement Type	I	Water Reducer	GRT POLYCHEM R (D)
Cement Specific Gravity	3.15	Water Reducer	
Fly Ash Source (distributor & plant)	NA	Water Reducer	
Fly Ash Class	NA	Accelerator	
Fly Ash Specific Gravity	NA	Other	
Slag Cement Source	NA	(Indicate Source & Product name with ticket code)	
Slag Cement Grade	NA	TYPE OF MIX	
Slag Cement Specific Gravity	NA	WINTER/SUMMER	
Other			BOTH

MIX PROPORTIONS

Volume of Coarse Aggregate (DR)	.59	Design Slump	3" MAX
Coarse Aggregate Weight (Dry)	1776	Design Air %	6.75 +/- 1.25
Intermediate Aggregate Weight (Dry)	0	Specified Air %	6.75 +/- 1.25
Fine Aggregate Weight (Dry)	1385	PSI minimum required	3500
Portland Cement Weight	526	Total Cementitious	526
Fly Ash Weight	0	Yield cuft	27.2
Fly Ash Percent of Cementitious	0		
Slag Cement Weight	0		
Slag Cement Percent of Cementitious	0		
Total Water Weight	237		
Net Water Weight	237		
WC (as designed)	45		
Air Entrainment (dosage)	1.0 OZ/CWT		
Water Reducer (dosage)	3.0 OZ/CWT (D)		
Other (dosage)	0		

I certify that all applicable standard test methods have been followed verifying the mix design and JMF

Signature

Ted Oviatt

Digitally signed by Ted Oviatt
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Grade Materials
Date: 2017.08.03 17:02:27 -0500

W.A. Level 1 Expiration Date 04/15/2019

Date 07/27/2017