

CONSTRUCTION REQUEST FOR PROPOSAL

RFP# 22-20

2022 Miscellaneous Utility Projects

City of Ann Arbor
Public Services Area
Engineering Unit



Due Date: Thursday, March 24, 2022 by 2:00 p.m. (local time)

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

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SECTION I - GENERAL INFORMATION

A. OBJECTIVE

The purpose of this Request for Proposal (RFP) is to select a firm to provide construction services for the 2022 Miscellaneous Utility Projects.

B. QUESTIONS AND CLARIFICATIONS / DESIGNATED CITY CONTACTS

All questions regarding this Request for Proposal (RFP) shall be submitted via e-mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFP.

All questions shall be submitted on or before March 11, 2022 at 10:00 a.m. (local time), and should be addressed as follows:

Scope of Work/Proposal Content questions shall be e-mailed to Chris Elenbaas, Project Manager, Stantec – christopher.elenbaas@stantec.com

RFP Process and Compliance questions shall be e-mailed to Colin Spencer, Buyer - CSpencer@a2gov.org

Should any prospective bidder be in doubt as to the true meaning of any portion of this RFP, or should the prospective bidder find any ambiguity, inconsistency, or omission therein, the prospective bidder shall make a written request for an official interpretation or correction by the due date for questions above.

All interpretations, corrections, or additions to this RFP will be made only as an official addendum that will be posted to a2gov.org and MITN.info and it shall be the prospective bidder's responsibility to ensure they have received all addenda before submitting a proposal. Any addendum issued by the City shall become part of the RFP, and must be incorporated in the proposal where applicable.

C. PRE-PROPOSAL MEETING

A pre-proposal conference for this project will be held virtually through Microsoft Teams on **Monday, March 7, 2022 at 2:00 p.m.** Interested parties can receive an invitation to the conference by contacting Chris Elenbaas, Project Manager at christopher.elenbaas@stantec.com

Attendance at this conference is highly recommended. Administrative and technical questions regarding this project will be answered at this time. The pre-proposal conference is for information only. Any answers furnished will not be official until verified in writing by the Financial Service Area, Procurement Unit. Answers that change or substantially clarify the proposal will be affirmed in an addendum.

D. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the prospective bidder. An official authorized to bind the bidder to its provisions must sign the proposal in ink. Each proposal must remain valid for at least one hundred and twenty (120) days from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the bidder's ability to meet the requirements of the RFP. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

E. SELECTION CRITERIA

Responses to this RFP will be evaluated using a point system as shown in Section III. A selection committee comprised primarily of staff from the City will complete the evaluation.

If interviews are desired by the City, the selected firms will be given the opportunity to discuss their proposal, qualifications, past experience, and their fee proposal in more detail. The City further reserves the right to interview the key personnel assigned by the selected bidder to this project.

All proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the proposal response shall be documented and included as part of the final contract.

F. SEALED PROPOSAL SUBMISSION

All proposals are due and must be delivered to the City on or before March 24, 2022 by 2:00 p.m. (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each respondent should submit in a sealed envelope

- **one (1) original proposal**
- **two (2) additional proposal copies**
- **one (1) digital copy of the proposal preferably on a USB/flash drive as one file in PDF format**

Proposals submitted should be clearly marked: **“RFP No. 22-20 – 2022 Miscellaneous Utilities Project”** and list the bidder's name and address.

Proposals must be addressed and delivered to:
City of Ann Arbor
c/o Customer Service
301 East Huron Street
Ann Arbor, MI 48107

All proposals received on or before the due date will be publicly opened and recorded on the due date. No immediate decisions will be rendered.

Hand delivered proposals may be dropped off in the Purchasing drop box located in the Ann Street (north) vestibule/entrance of City Hall which is accessible to the public at all hours. The City will not be liable to any prospective bidder for any unforeseen circumstances, delivery, or postal delays. Postmarking on the due date will not substitute for receipt of the proposal.

Bidders are responsible for submission of their proposal. Additional time will not be granted to a single prospective bidder. However, additional time may be granted to all prospective bidders at the discretion of the City.

A proposal may be disqualified if the following required forms are not included with the proposal:

- **Attachment D - Prevailing Wage Declaration of Compliance**
- **Attachment E - Living Wage Declaration of Compliance**
- **Attachment G - Vendor Conflict of Interest Disclosure Form**
- **Attachment H - Non-Discrimination Declaration of Compliance**

Proposals that fail to provide these forms listed above upon proposal opening may be deemed non-responsive and may not be considered for award.

G. DISCLOSURES

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

H. TYPE OF CONTRACT

A sample of the Construction Agreement is included as Attachment A. Those who wish to submit a proposal to the City are required to review this sample agreement carefully. **The City will not entertain changes to its Construction Agreement.**

For all construction work, the respondent must further adhere to the City of Ann Arbor General Conditions. The General Conditions are included herein. Retainage will be

held as necessary based on individual tasks and not on the total contract value. The Contractor shall provide the required bonds included in the Contract Documents for the duration of the Contract.

The City reserves the right to award the total proposal, to reject any or all proposals in whole or in part, and to waive any informality or technical defects if, in the City's sole judgment, the best interests of the City will be so served.

This RFP and the selected bidder's response thereto, shall constitute the basis of the scope of services in the contract by reference.

I. NONDISCRIMINATION

All bidders proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in Attachment G shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

J. WAGE REQUIREMENTS

The Attachments provided herein outline the requirements for payment of prevailing wages or of a "living wage" to employees providing service to the City under this contract. The successful bidder must comply with all applicable requirements and provide documentary proof of compliance when requested.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. Use of Michigan Department of Transportation Prevailing Wage Forms (sample attached hereto) or a City-approved equivalent will be required along with wage rate interviews.

For laborers whose wage level are subject to federal, state and/or local prevailing wage law the appropriate Davis-Bacon wage rate classification is identified based upon the work including within this contract. **The wage determination(s) current on the date 10 days before proposals are due shall apply to this contract.** The U.S. Department of Labor (DOL) has provided explanations to assist with classification in the following resource link: www.wdol.gov.

For the purposes of this RFP the Construction Type of Heavy will apply.

K. CONFLICT OF INTEREST DISCLOSURE

The City of Ann Arbor Purchasing Policy requires that the consultant complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected

bidder unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Conflict of Interest Disclosure Form is attached.

L. COST LIABILITY

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the bidder prior to the execution of an Agreement. The liability of the City is limited to the terms and conditions outlined in the Agreement. By submitting a proposal, bidder agrees to bear all costs incurred or related to the preparation, submission, and selection process for the proposal.

M. DEBARMENT

Submission of a proposal in response to this RFP is certification that the Respondent is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

N. PROPOSAL PROTEST

All proposal protests must be in writing and filed with the Purchasing Manager within five (5) business days of the award action. The bidder must clearly state the reasons for the protest. If any bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the bidder to the Purchasing Manager. The Purchasing Manager will provide the bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee, whose decision shall be final.

Any inquiries or requests regarding this procurement should be only submitted in writing to the Designated City Contacts provided herein. Attempts by the bidder to initiate contact with anyone other than the Designated City Contacts provided herein that the bidder believes can influence the procurement decision, e.g., Elected Officials, City Administrator, Selection Committee Members, Appointed Committee Members, etc., may lead to immediate elimination from further consideration.

O. SCHEDULE

The following is the schedule for this RFP process.

Activity/Event	Anticipated Date
Virtual Pre-proposal Meeting	March 7, 2022, 2:00 p.m. (Local Time)
Written Question Deadline	March 11, 2022, 10:00 a.m. (Local Time)
Addenda Published (if needed)	Week of March 14, 2022
Proposal Due Date	March 24, 2022, 2:00 p.m. (Local Time)
Selection/Negotiations	April 2022
Expected City Council Authorizations	May 2022

The above schedule is for information purposes only and is subject to change at the City's discretion.

P. IRS FORM W-9

The selected bidder will be required to provide the City of Ann Arbor an IRS form W-9.

Q. RESERVATION OF RIGHTS

1. The City reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part, with or without cause.
2. The City reserves the right to waive, or not waive, informalities or irregularities in terms or conditions of any proposal if determined by the City to be in its best interest.
3. The City reserves the right to request additional information from any or all bidders.
4. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select one or more contractors or service providers to perform services.
7. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this RFP, unless clearly and specifically noted in the proposal submitted.
8. The City reserves the right to disqualify proposals that fail to respond to any requirements outlined in the RFP, or failure to enclose copies of the required documents outlined within the RFP.

R. IDLEFREE ORDINANCE

The City of Ann Arbor adopted an idling reduction Ordinance that went into effect July 1, 2017. The full text of the ordinance (including exemptions) can be found at: www.a2gov.org/idlefree.

Under the ordinance, No Operator of a Commercial Vehicle shall cause or permit the Commercial Vehicle to Idle:

- (a) For any period of time while the Commercial Vehicle is unoccupied; or
- (b) For more than 5 minutes in any 60-minute period while the Commercial Vehicle is occupied.

In addition, generators and other internal combustion engines are covered

- (1) Excluding Motor Vehicle engines, no internal combustion engine shall be operated except when it is providing power or electrical energy to equipment or a tool that is actively in use.

S. ENVIRONMENTAL COMMITMENT

The City of Ann Arbor recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a vibrant community and economy. The City further recognizes that the products and services the City buys have inherent environmental and economic impacts and that the City should make procurement decisions that embody, promote, and encourage the City's commitment to the environment.

The City encourages potential vendors to bring forward emerging and progressive products and services that are best suited to the City's environmental principles.

T. BID SECURITY

Each bid must be accompanied by a certified check, or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

U. MAJOR SUBCONTRACTORS

The Bidder shall identify each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor. The Bidder shall not change or replace a subcontractor without approval by the City.

V. LIQUIDATED DAMAGES

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the City as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the City shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

SECTION II - SCOPE OF WORK

Please see the plan set and detailed specifications for more details.

SECTION III - MINIMUM INFORMATION REQUIRED

PROPOSAL FORMAT

The following describes the elements that should be included in each of the proposal sections and the weighted point system that will be used for evaluation of the proposals.

Bidders should organize Proposals into the following Sections:

- A. Qualifications, Experience and Accountability
- B. Workplace Safety
- C. Workforce Development
- D. Social Equity and Sustainability
- E. Schedule of Pricing/Cost
- F. Authorized Negotiator
- G. Attachments

Bidders are strongly encouraged to provide details for all of the information requested below within initial proposals. 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 proposal being considered non-responsive and will not be considered for award.

Pursuant to Sec 1:314(9) of the City Code which sets forth requirements for evaluating construction bids, Bidders should submit the following:

A. Qualifications, Experience and Accountability - 20 Points

1. Qualifications and experience of the bidder and of key persons, management, and supervisory personnel to be assigned by the bidder.
2. References from individuals or entities the bidder has worked for within the last five (5) years including information regarding records of performance and job site cooperation.
3. Evidence of any quality assurance program used by the bidder and the results of any such program on the bidder's previous projects.
4. A statement from the bidder as to any major subcontractors it expects to engage including the name, work, and amount.

B. Workplace Safety – 20 Points

1. Documentation of an on-going, Michigan OSHA-approved safety-training program for employees to be used on the proposed job site.
2. Evidence of the bidder's worker's compensation Experience Modification Rating ("EMR"). Preference within this criterion will be given to an EMR of 1.0 or less based on a three-year average.
3. Evidence that all craft labor that will be employed by the bidder for the project has, or will have prior to project commencement, completed at least the OSHA 10-hour training course for safety established by the U.S. Department of Labor, Occupational Safety & Health Administration.
4. The safety record of bidder and major subcontractors, including OSHA, MIOSHA, or other safety violations.

C. Workforce Development – 20 Points

1. The ratio of masters or journeypersons to apprentices proposed to be used on the construction project job site, if apprentices are to be used on the project.
2. Documentation as to bidder's pay rates, health insurance, pension or other retirement benefits, paid leave, or other fringe benefits to its employees.
3. Documentation that the bidder participates in a Registered Apprenticeship Program that is registered with the United States Department of Labor Office of Apprenticeship or by a State Apprenticeship Agency recognized by the USDOL Office of Apprenticeship.
4. Documentation of how the bidder assesses 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.

D. Social Equity and Sustainability – 20 Points

1. A statement from the bidder as to what percentage of its workforce resides in the City of Ann Arbor and in Washtenaw County, Michigan. The City will consider in evaluating which bids best serve its interests, the extent to which responsible and qualified bidders are able to achieve this goal.

2. Evidence of Equal Employment Opportunity Programs for minorities, women, veterans, returning citizens, and small businesses.
3. Evidence that the bidder is an equal opportunity employer and does not discriminate on the basis of race, sex, pregnancy, age, religion, national origin, marital status, sexual orientation, gender identity or expression, height, weight, or disability.
4. The bidder's proposed use of sustainable products, technologies, or practices for the project, which reduce the impact on human health and the environment, including raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and waste management.
5. The bidder's environmental record, including findings of violations and penalties imposed by government agencies.

E. Schedule of Pricing/Cost – 20 Points

Company: _____

Unit Price Bid

<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	920	\$ _____	\$ _____
140	Exploratory Excavation (0-10' deep)	EA	5	\$ _____	\$ _____
201	Project Supervision, Max \$40,000	LS	1	\$ _____	\$ _____
202	General Conditions, Max \$60,000	LS	1	\$ _____	\$ _____
203	Digital Audio Visual Coverage	LS	1	\$ _____	\$ _____
204	Minor Traffic Devices, Max \$30,000	LS	1	\$ _____	\$ _____
205	Clean-Up & Restoration, Special, Max \$20,000	LS	1	\$ _____	\$ _____
206	"No Parking" Signs	EA	20	\$ _____	\$ _____
207	Certified Payroll Compliance and Reporting	LS	1	\$ _____	\$ _____
208	Allowance for Unforeseen Site Conditions	DLR	20000	\$ _____	\$ _____
209	Remove Concrete Curb or Curb & Gutter, Any Type	FT	1220	\$ _____	\$ _____
210	Remove Concrete Sidewalk and Pavement - Any Thickness	SYD	360	\$ _____	\$ _____
211	HMA Pavement Removal, Any Depth	SYD	3470	\$ _____	\$ _____
213	Tree Removal, 6 inch to 24 inch	EA	45	\$ _____	\$ _____
214	Remove Fence	FT	110	\$ _____	\$ _____
215	Sign, Salvage & Replace	EA	2	\$ _____	\$ _____
216	Sewer, Any Size/ Depth, Remove	FT	240	\$ _____	\$ _____
217	Sewer, Any Size/ Depth, Abandon in Place	FT	320	\$ _____	\$ _____
218	Structure, Abandon	EA	2	\$ _____	\$ _____
219	Structure, Remove	EA	19	\$ _____	\$ _____

TOTAL THIS PAGE (15)
(Also must be entered on Page 19)

\$ _____

220	Water Main, Abandon	FT	1260	\$ _____	\$ _____
221	Water Main, Remove	FT	30	\$ _____	\$ _____
222	Fire Hydrant, Remove	EA	2	\$ _____	\$ _____
223	Machine Grading (Dicken / Maple)	SYD	2070	\$ _____	\$ _____
224	Machine Grading (Eighth)	SYD	2300	\$ _____	\$ _____
225	Machine Grading (Hiscock)	SYD	2200	\$ _____	\$ _____
226	Machine Grading (Sunrise Ct)	SYD	1700	\$ _____	\$ _____
227	Subgrade Undercutting - Type II	CYD	100	\$ _____	\$ _____
228	Sand Subbase Course, Class II - C.I.P	CYD	95	\$ _____	\$ _____
229	21AA Limestone, C.I.P.	CYD	960	\$ _____	\$ _____
230	HMA LVSP	TON	540	\$ _____	\$ _____
231	HMA Hand Patching	TON	5	\$ _____	\$ _____
232	Concrete Curb or Curb & Gutter, All Types	FT	360	\$ _____	\$ _____
233	6 inch Concrete Pavement	SFT	370	\$ _____	\$ _____
234	4 inch Concrete Sidewalk	SFT	4150	\$ _____	\$ _____
235	6 inch Concrete Sidewalk, Ramp or Drive Approach	SFT	1890	\$ _____	\$ _____
236	Concrete Type M Drive Opening	FT	70	\$ _____	\$ _____
237	Concrete Type L Drive Opening	FT	80	\$ _____	\$ _____
238	Aggregate Surface Course, 6 inch	SYD	200	\$ _____	\$ _____
239	Detectable Warning, Cast in Place	FT	40	\$ _____	\$ _____
240	Pavement Marking, Overlay Cold Plastic, 12 inch, Crosswalk	FT	80	\$ _____	\$ _____
241	Lighted Arrow Board, Furnish and Operate	EA	1	\$ _____	\$ _____
242	Plastic Drum - Lighted, Furnish and Operate	EA	40	\$ _____	\$ _____
243	Barricade Type III - Lighted, Furnish and Operate	EA	11	\$ _____	\$ _____
244	Temporary Sign, Type B, Furnish and Operate	SFT	300	\$ _____	\$ _____
245	Temporary Sign, Type B, Furnish and Operate, Special	SFT	10	\$ _____	\$ _____
246	Channelizing Devide, 42 Inch, Furnish and Operate	EA	4	\$ _____	\$ _____

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(Also must be entered on Page 19)

\$ _____

247	Pedestrian Type II Barricade, Temp	EA	9	\$ _____	\$ _____
248	Sign Cover	EA	10	\$ _____	\$ _____
249	Topsoil Surface, 4 inch	SYD	2940	\$ _____	\$ _____
250	Seed, Turf Grass	LBS	50	\$ _____	\$ _____
251	Seed, Mesic Woodland	LBS	7	\$ _____	\$ _____
252	Seed, Pollinator Garden	LBS	2	\$ _____	\$ _____
253	Split Rail Fence	FT	110	\$ _____	\$ _____
254	Woodchip Path, 4 inch	SFT	830	\$ _____	\$ _____
255	Precast Modular Gravity Retaining Wall	SFT	287	\$ _____	\$ _____
256	Sacrificial Anode, 17lb	EA	3	\$ _____	\$ _____
257	Sacrificial Anode, 32lb	EA	2	\$ _____	\$ _____
258	Riprap, Plain	SYD	30	\$ _____	\$ _____
259	6-Inch Wrapped Underdrain	FT	1150	\$ _____	\$ _____
305	8 inch PVC SDR 35 Sanitary Sewer Pipe, Trench Detail Type I	FT	14	\$ _____	\$ _____
306	8 inch PVC SDR 35 Sanitary Sewer Pipe, Trench Detail Type V	FT	40	\$ _____	\$ _____
315	12 inch HDPE Storm Sewer Pipe, Trench Detail Type I	FT	250	\$ _____	\$ _____
320	12 inch CL IV RCP Storm Sewer Pipe, Trench Detail Type I	FT	50	\$ _____	\$ _____
321	18 inch CL IV RCP Storm Sewer Pipe, Trench Detail Type I	FT	140	\$ _____	\$ _____
322	30 inch CL IV RCP Storm Sewer Pipe, Trench Detail Type I	FT	63	\$ _____	\$ _____
323	36 inch CL IV RCP Storm Sewer Pipe, Trench Detail Type I	FT	95	\$ _____	\$ _____
324	36 inch CL IV RCP Storm Sewer Pipe, Trench Detail Type V	FT	47	\$ _____	\$ _____
340	Dr Inlet structure, 18 inch Dia, Nyloplast	EA	2	\$ _____	\$ _____
341	Dr Inlet Structure, 24 inch Dia, Nyloplast	EA	1	\$ _____	\$ _____
342	Dr Inlet Structure, 24 inch Dia	EA	7	\$ _____	\$ _____
343	Dr Structure, 48 inch Dia	EA	4	\$ _____	\$ _____
344	Dr Structure, 60 inch Dia	EA	3	\$ _____	\$ _____
345	Dr Structure, 72 inch Dia	EA	2	\$ _____	\$ _____

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(Also must be entered on Page 19)

\$ _____

322	Connect to Existing Sanitary Sewer	EA	1	\$ _____	\$ _____
360	Type I Manhole, 48-inch Dia (0-10' deep)	EA	1	\$ _____	\$ _____
374	12 inch HDPE End Section	EA	2	\$ _____	\$ _____
401	6 inch PC 350 DIP w/ polywrap, Trench Detail Type I	FT	40	\$ _____	\$ _____
402	8 inch PC 350 DIP w/ polywrap, Trench Detail Type I	FT	1110	\$ _____	\$ _____
403	8 inch PC 350 DIP w/ polywrap, Trench Detail Type V	FT	40	\$ _____	\$ _____
405	12 inch PC 350 DIP w/ polywrap, Trench Detail Type I	FT	350	\$ _____	\$ _____
406	12 inch PC 350 DIP w/ polywrap, Trench Detail Type V	FT	80	\$ _____	\$ _____
410	8" 22.5° Bend	EA	4	\$ _____	\$ _____
411	8" 45° Bend	EA	8	\$ _____	\$ _____
412	12" 45° Bend	EA	2	\$ _____	\$ _____
413	8"x 6" Reducer	EA	2	\$ _____	\$ _____
414	12"x 8" Reducer	EA	1	\$ _____	\$ _____
430	6"x 6" Tee	EA	1	\$ _____	\$ _____
431	8"x 6"x 8" Tee	EA	2	\$ _____	\$ _____
432	8"x 8" Tee	EA	1	\$ _____	\$ _____
433	12"x 6" Tee	EA	1	\$ _____	\$ _____
440	Fire Hydrant Assembly	EA	4	\$ _____	\$ _____
446	8" Gate Valve-in-Well	EA	3	\$ _____	\$ _____
447	12" Gate Valve-in-Well	EA	1	\$ _____	\$ _____
450	20"x 12" Tapping Sleeve and Valve in Box	EA	1	\$ _____	\$ _____
460	Excavate and Backfill for Water Service Lead	FT	430	\$ _____	\$ _____
470	8 inch PC 350 DIP in 18 inch Steel Casing by Boring & Jacking	FT	45	\$ _____	\$ _____
563	Structure Covers	LBS	9200	\$ _____	\$ _____
566	Adjust Structure Cover	EA	7	\$ _____	\$ _____
567	Adjust Monument Box or Gate Valve Box	EA	2	\$ _____	\$ _____
702	Erosion Control, Inlet Filter	EA	22	\$ _____	\$ _____

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(Also must be entered on Page 19)

\$ _____

703	Erosion Control, Silt Fence	FT	1030	\$ _____	\$ _____
810	Hackberry (<i>Celtis occidentalis</i>), 2.5 inch caliper	EA	2	\$ _____	\$ _____
811	Honeylocust (<i>Gleditsia Triacanthos</i>), 2.5 inch caliper	EA	2	\$ _____	\$ _____
812	Eastern Redbud (<i>Cercis Canadensis</i>), 2.5 inch caliper	EA	1	\$ _____	\$ _____
813	Red Maple, (<i>Acer rubrum</i>), 4 inch caliper	EA	1	\$ _____	\$ _____

TOTAL THIS PAGE (19) \$ _____

TOTAL FROM PAGE 15 \$ _____

TOTAL FROM PAGE 16 \$ _____

TOTAL FROM PAGE 17 \$ _____

TOTAL FROM PAGE 18 \$ _____

TOTAL BID \$ _____

F. AUTHORIZED NEGOTIATOR / NEGOTIATIBLE ELEMENTS (ALTERNATES)

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the City.

The 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 bidder 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 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 its proposed time for performance of the work.

Consideration for any proposed alternative items or time may be negotiated at the discretion of the City.

G. ATTACHMENTS

General Declaration, Legal Status of Bidder, Conflict of Interest Form, Living Wage Compliance Form, Prevailing Wage Compliance Form and the Non-Discrimination Form should be completed and returned with the proposal. These elements should be included as attachments to the proposal submission.

PROPOSAL EVALUATION

1. The selection committee will evaluate each proposal by the above-described criteria and point system. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm to be a candidate for an interview if interviews are selected to be held by the City. The committee may contact references to verify material submitted by the bidder.
2. The committee then will schedule interviews with the selected firms if necessary. The selected firms will be given the opportunity to discuss in more detail their qualifications, past experience, proposed work plan (if applicable) and pricing.
3. The interview should include the project team members expected to work on the project, but no more than six members total. The interview shall consist of a

presentation of up to thirty minutes (or the length provided by the committee) by the bidder, including the person who will be the project manager on this contract, followed by approximately thirty minutes of questions and answers. Audiovisual aids may be used during the oral interviews. The committee may record the oral interviews.

4. The firms interviewed will then be re-evaluated by the above criteria and adjustments to scoring will be made as appropriate. After evaluation of the proposals, further negotiation with the selected firm may be pursued leading to the award of a contract by City Council, if suitable proposals are received.

The City reserves the right to waive the interview process and evaluate the bidder based on their proposal and pricing schedules alone.

The City will determine whether the final scope of the project to be negotiated will be entirely as described in this RFP, a portion of the scope, or a revised scope.

Work to be done under this contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents.

Any proposal that does not conform fully to these instructions may be rejected.

PREPARATION OF PROPOSALS

Proposals should have no plastic bindings but will not be rejected as non-responsive for being bound. Staples or binder clips are acceptable. Proposals should be printed double sided on recycled paper.

Each person signing the proposal certifies that they are a person in the bidder's firm/organization responsible for the decisions regarding the fees being offered in the Proposal and has not and will not participate in any action contrary to the terms of this provision.

ADDENDA

If it becomes necessary to revise any part of the RFP, notice of the addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or the City of Ann Arbor web site www.A2gov.org for all parties to download.

Each bidder should acknowledge in its proposal all addenda it has received on the General Declarations form provided in the Attachments section herein. The failure of a bidder to receive or acknowledge receipt of any addenda shall not relieve the bidder of the responsibility for complying with the terms thereof. The City will not be bound by oral responses to inquiries or written responses other than official written addenda.

SECTION IV - ATTACHMENTS

Attachment A – Sample Standard Contract

Attachment B – General Declarations

Attachment C - Legal Status of Bidder

Attachment D – Prevailing Wage Declaration of Compliance Form

Attachment E – Living Wage Declaration of Compliance Form

Attachment F – Living Wage Ordinance Poster

Attachment G – Vendor Conflict of Interest Disclosure Form

Attachment H – Non-Discrimination Ordinance Declaration of Compliance Form

Attachment I – Non-Discrimination Ordinance Poster

Sample Certified Payroll Report Template

**ATTACHMENT A
SAMPLE STANDARD CONTRACT**

If a contract is awarded, the selected contractor will be required to adhere to a set of general contract provisions which will become a part of any formal agreement. These provisions are general principles which apply to all contractors of service to the City of Ann Arbor such as the following:

Administrative Use Only
Contract Date: _____

CONTRACT

THIS CONTRACT is between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 ("City") and _____ ("Contractor")

(An individual/partnership/corporation, include state of incorporation) (Address)

Based upon the mutual promises below, the Contractor and the City agree as follows:

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled **[Insert Title of Bid and Bid Number]** in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, all of which are incorporated as part of this Contract:

- | | |
|--|-------------------------|
| Non-discrimination and Living Wage Declaration of Compliance Forms (if applicable) | General Conditions |
| Vendor Conflict of Interest Form | Standard Specifications |
| Prevailing Wage Declaration of Compliance Form (if applicable) | Detailed Specifications |
| Bid Forms | Plans |
| Contract and Exhibits | Addenda |
| Bonds | |

ARTICLE II - Definitions

Administering Service Area/Unit means **Public Services Area / Engineering Unit**

Project means **RFP #22-20 – 2022 Miscellaneous Utility Projects**

Supervising Professional means the person acting under the authorization of the manager of the Administering Service Area/Unit. At the time this Contract is executed, the Supervising Professional is: **Nicholas Hutchinson, P.E.** whose job title is **City**

Engineer. If there is any question concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

Contractor's Representative means _____ **[Insert name]** whose job title is **[Insert job title]**.

ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.
- (B) The entire work for this Contract shall be completed within one hundred seventy (170) consecutive calendar days.
- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount equal to **\$500** for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

ARTICLE IV - The Contract Sum

- (A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Form for the estimated bid total of:

_____ Dollars (\$_____)
- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the Contract Documents. Increases or decreases shall be determined only by written agreement between the City and Contractor.

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by the City.

ARTICLE VI - Choice of Law

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this Contract, the Contractor and the City agree to venue in a court of

appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

Whenever possible, each provision of the Contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the Contract.

ARTICLE VII - Relationship of the Parties

The parties of the Contract agree that it is not a Contract of employment but is a Contract to accomplish a specific result. Contractor is an independent Contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any Contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this Contract.

ARTICLE VIII - Notice

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

ARTICLE IX - Indemnification

To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor's behalf under this Contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party's failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract.

This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

ARTICLE XI – Electronic Transactions

The City and Contractor agree that signatures on this Contract may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this Contract. This Contract may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

FOR CONTRACTOR

By _____

Its: _____

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

By _____
City Administrator

By _____
Services Area Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

PERFORMANCE BOND

- (1) _____ of _____ (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$ _____, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled _____, for RFP No. _____ and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the Contract in accordance with its terms and conditions; or
 - (b) obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the Contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.
- (6) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

SIGNED AND SEALED this _____ day of _____, 202__.

(Name of Surety Company)
By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

(Name of Principal)
By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

LABOR AND MATERIAL BOND

- (1) _____
of _____(referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of \$ _____, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled _____

_____, for RFP No. _____; and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the Contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.
- (5) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

SIGNED AND SEALED this _____ day of _____, 202__

(Name of Surety Company)
By _____
(Signature)
Its _____
(Title of Office)

(Name of Principal)
By _____
(Signature)
Its _____
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

Name and address of agent:

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

The contract documents shall be signed in 2 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Bid.

Section 2 - Order of Completion

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

Section 3 - Familiarity with Work

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

Section 4 - Wage Requirements

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...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. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. A sample Prevailing Wage Form is provided in the Appendix herein for reference as to what will be expected from contractors. Use of the Prevailing Wage Form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

Where the Contract and the Ann Arbor City Ordinance 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.

If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Contract a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Contract are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

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

Section 5 - Non-Discrimination

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

Section 6 - Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

Section 8 - Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

Section 9 - Permits and Regulations

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

Section 10 - Protection of the Public and of Work and Property

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or

employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

Section 11 - Inspection of Work

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

Section 12 - Superintendence

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

Section 13 - Changes in the Work

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be

executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

Section 14 - Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;
- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section I3. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;
- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;
- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

Section 16 - Progress Payments

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than 180 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

Section 17 - Deductions for Uncorrected Work

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

Section 18 - Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within 10 days after written notice, the City may remove them and, if the removed material has value, may store the material

at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

Section 19 - Acceptance and Final Payment

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

- (1) The consent of the surety to payment of the final estimate;
- (2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City except those arising from:

- (1) unsettled liens;
- (2) faulty work appearing within 12 months after final payment;
- (3) hidden defects in meeting the requirements of the plans and specifications;
- (4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

Section 20 - Suspension of Work

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the

written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

Section 21 - Delays and the City's Right to Terminate Contract

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred. The expense incurred by the City, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

Section 22 - Contractor's Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

Section 23 - City's Right To Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

Section 24 - Removal of Equipment and Supplies

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

Section 26 - Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

Section 27 - Payments Withheld Prior to Final Acceptance of Work

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;
- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

Section 28 - Contractor's Insurance

- (1) The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself and the City from all claims for bodily injuries, death or property damage that may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor, or anyone employed by them directly or indirectly. Prior to commencement of any work under this contract, Contractor shall provide to the City documentation satisfactory to the City, through City-approved means (currently myCOI), demonstrating it has obtained the required policies and endorsements. The certificates of insurance endorsements and/or copies of

policy language shall document that the Contractor satisfies the following minimum requirements. Contractor shall add registration@mycoitracking.com to its safe sender's list so that it will receive necessary communication from myCOI. When requested, Contractor shall provide the same documentation for its subcontractor(s) (if any).

Required insurance policies include:

- (a) Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit

- (b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 04 13 or current equivalent. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. The following minimum limits of liability are required:

\$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.
\$2,000,000 Per Project General Aggregate
\$1,000,000 Personal and Advertising Injury
\$2,000,000 Products and Completed Operations Aggregate, which, notwithstanding anything to the contrary herein, shall be maintained for three years from the date the Project is completed.

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 10 13 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

- (d) Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- (2) Insurance required under subsection (1)(b) and (1)(c) above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute

with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City for any insurance listed herein.

- (3) Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional and un-qualified 30-day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number(s); name of insurance company(s); name and address of the agent(s) or authorized representative(s); name(s), email address(es), and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which may be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) and all required endorsements to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.
- (4) Any Insurance provider of Contractor shall be authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-authorized insurance companies are not acceptable unless approved in writing by the City.
- (5) City reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.
- (6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

- (1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
- (2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company authorized to transact business in Michigan and satisfactory to the City Attorney.

Section 30 - Damage Claims

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

Section 31 - Refusal to Obey Instructions

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

Section 32 - Assignment

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

Section 33 - Rights of Various Interests

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

Section 34 - Subcontracts

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

Section 35 - Supervising Professional's Status

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

Section 36 - Supervising Professional's Decisions

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

Section 37 - Storing Materials and Supplies

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

Section 38 - Lands for Work

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

Section 39 - Cleaning Up

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

Section 40 - Salvage

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

Section 41 - Night, Saturday or Sunday Work

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

Section 42 - Sales Taxes

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

Section 43

CONTRACTOR'S DECLARATION

I hereby declare that I have not, during the period _____, 20____, to _____, 20____, performed any work, furnished any materials, sustained any loss, damage or delay, or otherwise done anything in addition to the regular items (or executed change orders) set forth in the Contract titled _____, for which I shall ask, demand, sue for, or claim compensation or extension of time from the City, except as I hereby make claim for additional compensation or extension of time as set forth on the attached itemized statement. I further declare that I have paid all payroll obligations related to this Contract that have become due during the above period and that all invoices related to this Contract received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement attached regarding a request for additional compensation or extension of time.

Contractor

Date

By _____
(Signature)

Its _____
(Title of Office)

Past due invoices, if any, are listed below.

STANDARD SPECIFICATIONS

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Bid. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

Standard Specifications are available online:

<http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx>

DETAILED SPECIFICATIONS

Project Schedule and Payment
Maintenance of Traffic
General Conditions Max 60k
Audio Visual Recording
Project Supervision Max 40k
Protective Fencing
Tree Removal
Minor Traffic Control Max 30k
Certified Payroll Compliance and Reporting
No Parking Signs
Traffic Control Signs and Barricades
Coordination & Cooperation with Others and Work by Others
Vacuum Type Street and Utility Cleaning Equipment
Materials and Supplies Certifications
Quantities and Unit Prices
Soil Boring Pavement Section and Geotechnical Data
Working in the Rain or in the Dark
Concrete Removal
HMA Pavement Removal
Machine Grading Modified
Subgrade Undercutting
Subbase and Aggregate Base
Aggregate Surface Course
HMA Paving
Concrete Drives Sidewalk and Curbs
Concrete Durability
Concrete Placement and Protection
Detectable Warning, Cast in Place
Pavement Marking
Sewer Abandonment
6 Inch Wrapped Underdrain
Water Main Abandonment
Water Main Installation and Testing
Fire Hydrant Assembly
Coordination with Existing Water Supply System
Sacrificial Anode
Precast Gravity Retaining Wall
Structure Covers
General Construction Notes
Disposing of Excavated Materials
Protection of Utilities
Soil Erosion Control
Trees and Plantings
Clean-Up & Restoration Special

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

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Description

Examination of Plans, Specifications, and Work Site

Bidders shall carefully examine the Bid Form, plans, specifications, and the work site until the Bidder is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the Contract.

The entire work under this Contract shall be completed in accordance with, and subject to, the scheduling requirements as outlined below, and all other requirements of the Contract Documents.

1. The Contractor shall begin the work of this project on **May 31, 2022**, and only upon receipt of the fully executed Contract and Notice to Proceed. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date.
2. This Contract requires sewer and/or water main work at four separate locations, and shall be completed within timeframes listed below:
 - a. Dicken Drive and Maple Road – Work at this location consists of the installation of new water main, pavement resurfacing, driveway turnaround installation, walking path installation, and associated work. The work at this location shall be completed within **thirty (30) consecutive calendar days** from commencing work at this location. Work shall commence at this location no earlier than **June 13, 2022** and shall be completed by **August 19, 2022**. The entire work at this location as required by this Contract includes, but is not limited to the following:
 - Water main and valves installation, chlorinating, pressure testing and flushing.
 - Pavement cold milling and permanent placement of hot mix asphalt and/or concrete for existing roadways and proposed truck turnaround.
 - Replacement of sidewalk and sidewalk ramps and installation of concrete walking path.
 - Restoration of all disturbed areas.
 - Removal of all traffic control devices.
 - b. Eighth Street – Work at this location consists of the installation of new water main adjacent to the existing water main, storm sewer replacements, pavement resurfacing, driveway turnaround installation, and associated work. The work at this location shall be completed within **forty-five (45) consecutive calendar days** from commencing work at this location. Work that encroaches on 6 Jefferson Ct shall commence no earlier than when the City obtains executed easements from the property owner, which shall be assumed as **July 18, 2022**.

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The entire work at this location as required by this Contract includes, but is not limited to the following:

- Water main and valves installation, chlorinating, pressure testing and flushing.
 - Transfer of existing water service leads.
 - Pavement cold milling and permanent placement of hot mix asphalt and/or concrete for existing roadways and proposed truck turnaround.
 - Replacement of sidewalk and driveway approaches as needed.
 - Replacement of storm water structures.
 - Restoration of all disturbed areas.
 - Removal of all traffic control devices.
- c. Hiscock Street – Work at this location consists of the installation of a new storm sewer, pavement resurfacing, and associated work. The work at this location shall be completed within **thirty-five (35) consecutive calendar days** from commencing work at this location. Work shall commence at this location no earlier than when the City obtains executed easements from the property owner, which shall be assumed as **September 12, 2022**. The entire work at this location as required by this Contract includes, but is not limited to the following:
- Installation of storm sewer and structures.
 - Pavement cold milling and permanent placement of hot mix asphalt.
 - Replacement of sidewalk and driveway approaches as needed and installation of new sidewalk.
 - Restoration of all disturbed areas.
 - Removal of all traffic control devices.
- d. Sunrise Court – Work at this location consists of the installation of new water main adjacent to the existing water main, storm sewer replacements, pavement resurfacing, and associated work. The work at this location shall be completed within **thirty (30) consecutive calendar days** from commencing work at this location. Work at this location must coincide with the City’s annual resurfacing program. The entire work at this location as required by this Contract includes, but is not limited to the following:
- Water main and valves installation, chlorinating, pressure testing and flushing.
 - Transfer of existing water service leads.
 - Pavement cold milling and permanent placement of hot mix asphalt and/or concrete for existing roadways.
 - Replacement of sidewalk and driveway approaches as needed.
 - Replacement of storm water structures.
 - Restoration of all disturbed areas.
 - Removal of all traffic control devices.

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3. Contractor shall provide all necessary sewer flow control to maintain flow at all existing sewer crossings, connections and lead transfers.
4. The following workday, hour and other work restrictions are imposed by the City of Ann Arbor.

Contractor operations shall be limited by local municipality work time, noise and dust ordinance:

- Monday through Friday: 7am – 8pm
- Saturday: 7am – 8pm; Notice given to City of Ann Arbor no less than 48 hours and no more than 5 days
- Sunday: Only with written approval from the City of Ann Arbor

No work shall be performed during Holiday weekends as follows, unless approved by the City of Ann Arbor:

- Memorial Day, from 3pm Friday May 27 through 7am Tuesday, May 31
- Fourth of July, from 3pm Friday July 1 through 7am Tuesday, July 5
- Labor Day, from 8pm Friday September 2 through 7am Tuesday, September 6

No work shall be performed during University of Michigan home football games:

- September 3, 2022
- September 10, 2022
- September 17, 2022
- September 24, 2022
- October 15, 2022
- October 29, 2022
- November 12, 2022
- November 19, 2022

The Contractor is expected to be furnished with two (2) copies of the Contract, for his/her execution, on or before **May 2, 2022**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance Certificate, to the City within **ten (10) days**. The Contractor shall not begin the work before the applicable date(s) as described herein without approval from the Project Engineer, and in no case before the receipt of the fully executed Contract. City Council approval is expected on or before **May 16, 2022**.

Time is of the essence in the performance of the work of this contract. The Contractor is expected to mobilize sufficient personnel and equipment and work throughout all authorized hours to complete the project by the final completion date. Should the Contractor demonstrate that they must work on some Sundays in order to maintain the project schedule, they may do so between the hours of 9:00 a.m. and 5:00 p.m. with prior approval from the City. There will be no additional compensation due to the Contractor for work performed on Sundays.

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Prior to the start of any construction, the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. Work shall not be started until a schedule is approved in writing by the Engineer. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The Contractor shall update the approved work schedule upon request by the Engineer and present it to the Engineer within seven days of said request.

The Engineer may delay or stop the work due to threatening weather conditions. The Contractor shall not be compensated for unused materials or downtime due to rain, or the threat of rain. The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this contract. The Engineer may stop the work, or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work. The Contractor will not be compensated for unused materials or downtime when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons. The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the dark.

Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **\$500.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the times for each sub-phase, as required by this Detailed Specification.

Liquidated Damages will be assessed until the required work is completed in the current construction season. If, with the Engineer's approval, work is extended beyond seasonal limitations, the assessment of Liquidated Damages will be discontinued until the work is resumed in the following construction season.

Measurement and Payment

If the construction Contract is not completed within the specified calendar day period including any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor, this Contract may be terminated with no additional compensation due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least three (3) years. If the Engineer elects to terminate the Contract, Contract items paid for on a Lump Sum basis shall be paid up to a maximum percentage equal to the percentage of the Contract work that has been completed.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

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Costs for the Contractor to organize, coordinate, and schedule all of the work of the project, will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions, Max \$_____".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

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Description

Traffic shall be maintained in accordance with the City of Ann Arbor Public Services Department Standard Specifications and as specified in Sections 104.11, 812, and 922 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), and as described herein.

The Contractor shall furnish, erect, maintain and, upon completion of the work, remove all traffic control devices and barricade lights as required on the project for the safety and protection of local traffic. This includes, but is not limited to, temporary advance, regulatory, and warning signs; barricades and channelizing devices at intersections and on streets where traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets, and traffic control devices for moving construction operations.

Materials

The materials and equipment shall meet the requirements specified in the corresponding sections of the MDOT 2012 Standard Specifications for Construction and the 2011 MMUTCD.

Maintenance of Local Traffic

Unless otherwise indicated on the plans, all side roads shall not be closed to through traffic except during construction operations of short duration and only upon written approval of the Engineer.

Local access shall be maintained at all times for emergency vehicles, refuse pick-up, mail delivery, school buses, and ingress/egress to public and private properties.

Contractor must accommodate the safe access to the residential buildings and businesses located within construction area.

Driveways shall not be blocked for extended periods of time unless arrangements can be made with the affected property owner(s). When it becomes necessary to temporarily block driveways, the Contractor shall notify the affected property owners in advance to coordinate the work and allow sufficient time for vehicles to vacate from properties. It may be necessary to allow for vehicles to temporarily park in the roadway at locations that do not interfere with the Contractor's work. During these periods the owners of the respective vehicles must be available to, with proper notice, move their vehicles if it becomes necessary to accommodate the work.

At times, when it becomes necessary to temporarily obstruct local traffic during the performance of the work, the Contractor shall provide traffic regulator control in conformance with Chapter 6E of the MMUTCD, Sections 6E.01 thru 6E.08. A minimum of two traffic regulators are required. The cost of traffic regulator control shall be included in the contract pay item "Minor Traffic Control, Maximum \$30,000".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

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A lane-closure permit shall be obtained by the Contractor from the Engineering Unit, at least 48 hours in advance of any proposed lane or street closing. No lane closures shall be permitted July 4, and during the Labor Day and Memorial Day weekends.

The hours of work on all Local streets are 7:00 a.m. to 8:00 p.m., Monday through Saturday, or as specified on the lane-closure permit. No equipment will be allowed in the street before or after these hours. Local streets may only be closed to through traffic (local access only) with written authorization of the Engineer. Work must be completed each day such that all streets are re-opened to through traffic by 8:00 p.m. unless otherwise specified, directed, or authorized in writing by the Engineer. All major changes in traffic control shall be made either between 9:30 a.m. and 3:30 p.m. or between 7:00 p.m. and 6:30 a.m. to minimize interference with rush-hour traffic. All traffic controls must be in-place and ready for traffic each day by 6:30 a.m. and 3:30 p.m.

The Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer.

The Contractor shall use quantities of dust palliative, maintenance aggregate, and cold patching/HMA mixtures for use as temporary base, surfacing, and dust control at utility crossings, side roads and driveways (wherever required to maintain traffic), and where directed by the Engineer to maintain local access. The cost for the use of dust palliative, maintenance aggregate, cold patch and/or hot mix asphalt 36A mixture, as required and directed by the Engineer for maintenance of traffic and local access, shall be included in Contract pay item "General Conditions, Maximum, \$60,000", and it will not be paid for separately.

The work of maintaining and relocating existing warning, regulatory and/or guide signs; and of removing, salvaging, and reinstalling existing signs and supports is included in the bid price for the contract pay item "Minor Traffic Control, Maximum \$30,000".

Mailboxes and newspaper boxes that are in the way of the construction shall be removed and reset immediately in a temporary location approved by the Engineer. Mail and paper delivery shall not be interrupted during the construction. Upon completion of the construction, all mailboxes and newspaper boxes, including their supports, shall be repositioned in their permanent locations as approved by the Engineer. This work shall be included the contract unit price for the contract pay item "General Conditions, Maximum, \$60,000", and it will not be paid for separately.

The Contractor shall perform the work of this Contract while maintaining traffic in accordance with the Contract Documents as specified herein. No traffic shall be allowed on newly placed asphalt surfaces until rolling has been satisfactorily completed and the surface has cooled sufficiently to prevent damage from traffic. This is to be accomplished by flag persons and by relocating traffic control devices to prevent traffic from entering the work area until such time that it can be safely maintained without damaging the new construction. The Contractor shall provide traffic regulators in sufficient number to maintain traffic as described herein, and to keep traffic off sections being surfaced, and provide for safe travel at all times as directed by the Engineer. The work of traffic regulators shall be included in the bid price for the contract pay item "Minor Traffic Control, Maximum \$30,000."

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

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The Contractor shall furnish, erect, maintain, and upon completion of the work, remove any and all traffic control devices utilized on the project.

Each pressure distributor, paver and roller shall be equipped with at least one approved flasher light which shall be mounted on the equipment so as to give a warning signal ahead and behind.

Construction Influence Area (CIA) - The CIA shall include the proposed work areas within the right-of-way of the four proposed construction locations. The CIA shall include the affected portions of the driveways along and contiguous with these roadways.

In addition, the CIA shall include the rights-of-way of all roadway segments used for detours and all locations that contain advance warning and/or regulatory signs, pavement markings, plastic drums, traffic delineators, and all other project related traffic maintenance items.

Police and Fire - The Contractor shall notify local police, fire departments and emergency response units a minimum of three business days (72 hours) prior to the closure of any roads, or traffic shifts causing restricted movements of traffic or restricted access.

Work Performed by City of Ann Arbor Signs and Signals Unit - No additional or extra compensation will be paid for any delays caused by City of Ann Arbor Signs and Signals.

Signal Modifications

Signal timing and phasing modifications are not anticipated for construction at this time. This shall be evaluated and if the need arises, the Contractor shall coordinate work with the City ahead of any decided changes in the traffic control.

Sign Reinstallation

As necessary during construction, the Contractor shall be responsible for logging the legend and location of any signs that:

1. Must be removed to facilitate the construction process;
2. Are to be permanently removed, or;
3. Are to be permanently relocated.

City of Ann Arbor Signs and Signals will remove and store the signs. After construction is complete, but before opening any roadway to traffic, Signs and Signals will reinstall all signs in their proper, permanent location. To coordinate sign removal and installation/reinstallation, the Contractor shall notify the Signs and Signals Unit at least five (5) working days (Monday-Friday) in advance of when the sign work will need to be completed. It is the responsibility of the Contractor to ensure that City of Ann Arbor Signs and Signals Unit is scheduled, kept apprised of the progress of construction, and notified a second time immediately (4 working hours) prior to the need to complete the sign work. The removal and installation/reinstallation of all signs shall be completed by the City of Ann Arbor Signs and Signals Unit.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX \$60,000

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General

This item shall include all work described and required by the Drawings and specifications for which the item of work "General Conditions" is listed, as well as items of work not listed in the Bid Form including, but not limited to:

1. Scheduling and organization of all work, subcontractors, suppliers, testing, inspection, surveying, and staking.
2. Coordination of, and cooperation with, other contractors, agencies, departments, and utilities.
3. Protection and maintenance of utilities, including support, protection, capping, repair, replacement, connection or reconnection of existing pipelines, and utilities damaged by the Contractor's operations.
4. Placing, maintaining, and removing additional needed soil erosion and sedimentation controls that are not paid separately.
5. Maintaining drainage.
6. Maintaining driveways drive openings, sidewalks, bike paths, mail deliveries, and solid waste/recycle pick-ups. This includes the placement and maintenance of gravel in driveway openings as directed by the Engineer.
7. Using quantities of dust palliative, maintenance aggregate, and hot patching mixture for use as temporary base, surfacing, and dust control at utility crossings, side roads and driveways.
8. Storing all materials and equipment off lawn areas.
9. Site clean-up.
10. Coordination efforts to furnish various HMA mixtures as directed by the Engineer.
11. Coordination efforts to furnish and operate various-size vehicles/equipment as directed by the Engineer.
12. Dewatering and drainage of excavations as required to maintain a stable, open hole.
13. Disposing of excess excavated materials and debris (excluding debris material removed from cleaning operations).
14. Temporary fill as necessary for equipment access or protection of existing utilities during construction, including restoration to original grades.

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DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX \$60,000

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15. Temporary removal/relocation, storage, and re-installation/re-setting of existing street name, guide, and regulatory signs, mailboxes, fences, landscape areas, etc. which conflict with the proposed construction, including all fasteners, hardware, and materials required for re-installation/re-setting.
16. Furnishing and operating vacuum-type street cleaning equipment a minimum of once per week or as frequently as directed by the Engineer in order to remove mud, soil, rocks, debris, or any other deleterious materials from paved areas.
17. Furnishing and operating both vibratory plate and pneumatic-type ("pogo-stick") compactors.
18. Furnishing and operating a backhoe during all work activities.
19. Furnishing and operating a jackhammer and air compressor during all work activities.
20. Noise and dust control.
21. Mobilization(s) and demobilization(s).
22. Furnishing submittals and certifications for all materials and supplies.
23. Removal and disposal of shrubs, brush, stumps, and trees less than 6-inches in diameter as directed by the Engineer.
24. Trimming of trees to accommodate construction activities as directed by Engineer.
25. Disposing of excavated materials and debris.
26. Fencing to protect excavations over 1-foot in depth during non-work hours or as directed by the Engineer. The fencing must be a minimum of 36-inches high, be constructed of orange HDPE material, and reasonably secured to prevent access.
27. All miscellaneous and incidental items such as overhead, insurance, and permits.
28. Meeting all requirements relating to Debarment Certification, Davis Bacon Act, and Disadvantaged Business Enterprise, and providing the necessary documentation.

Measurement and Payment

This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total Contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be one Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

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DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX \$60,000

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The completed work as measured for this item of work will be paid for at the Contract unit price for the following Contract pay item:

Contract Item (Pay Item)

Pay Unit

General Conditions, Max. \$60,000 Lump Sum

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Contract Documents and as included in this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
AUDIO-VISUAL RECORDING

ST:JMB

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Description

This work shall include providing a recording of the physical, structural, and aesthetic conditions of the construction site and adjacent areas as provided herein.

The audio-visual recording shall be:

1. Of professional quality, providing a clear and accurate audio and visual record of existing conditions.
2. Prepared during the three (3) week period immediately prior to the Preconstruction Meeting.
3. Furnished to the Engineer a minimum of one (1) week prior to bringing any materials or equipment within the areas described in this Detailed Specification.
4. Carried out under the supervision of the Engineer.

The Contractor shall furnish two (2) copies of the completed recording to the Engineer at, or prior to, the Preconstruction Meeting. An index of the recording, which will enable any area of the project to be easily found on the recording, shall be included. This includes indexing the files according to street and Station number as applicable. The Contractor shall retain a third copy of the recording for their own use.

Any portion of the recording determined by the Engineer to be unacceptable for the documentation of existing conditions shall be recorded again, at the Contractor's sole expense, and submitted to the Engineer prior to mobilizing onto the site.

Production

The audio-visual recording shall be completed in accordance with the following minimum requirements:

1. DVD Format/No Editing

The audio-visual recording shall be performed using equipment that allows audio and visual information to be recorded simultaneously and in color. The recording shall be provided on compact discs in DVD format or on USB Drive. The quality of the recording shall be equal to or better than the standard in the industry. The recording shall not be edited.

2. Perspective/Speed/Pan/Zoom

To ensure proper perspective, the distance from the ground to the camera lens shall not be less than 12-feet and the recording must proceed in the general direction of travel at a speed not to exceed 30-feet per minute (0.34 miles per hour). Pan and zoom rates shall be controlled sufficiently so that playback will ensure quality of the object viewed.

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DETAILED SPECIFICATION
FOR
AUDIO-VISUAL RECORDING

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3. Display

The recording equipment shall have transparent time and date stamp and digital annotation capabilities. The final copies of the recording shall continuously and simultaneously display the time (hours/minutes/seconds) and the date (month/date/year) in the upper left-hand corner of the frame. Accurate project stationing shall be included in the lower half of the frame in standard station format (i.e. 1+00). Below the stationing, periodic information is to be shown, including project name, name of area shown, direction of travel, viewing direction, etc.

4. Audio Commentary/Visual Features

Locations relative to project limits and landmarks must be identified by both audio and video means at intervals no longer than 100-feet along the recording route. Additional audio commentary shall be provided as necessary during the recording to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.

5. Visibility/Ground Cover

The recording shall be performed during a time of good visibility. The recording shall not be performed during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being recorded.

Coverage

The audio-visual recording coverage shall include the following:

1. General Criteria

This general criteria shall apply to all recording and shall include all areas where construction activities will take place or where construction vehicles or equipment will be operated or parked, and/or where materials will be stored or through which they will be transported. The recording shall extend an additional 50-feet outside of all areas. The recording shall include all significant, existing man-made and natural features such as driveways, sidewalks, utility covers, utility markers, utility poles, other utility features, traffic signal structures and features, public signs, private signs, fences, landscaping, trees, shrubs, other vegetation, and other similar or significant features.

2. Other Areas

The Contractor shall record, at their sole expense, other areas where, in their opinion, the establishment of a record of existing conditions is warranted. The Contractor shall notify the Engineer in writing of such areas.

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DETAILED SPECIFICATION
FOR
AUDIO-VISUAL RECORDING

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The Engineer may direct the recording of other minor areas not specified herein at the Contractor's sole expense.

Audiovisual Filming Services

The following companies are known to be capable of providing the filming services required by this Detailed Specification and shall be utilized, unless the Contractor receives prior written approval from the Engineer to utilize another company of comparable or superior qualifications.

Construction Video Media
Midwest Company
Topo Video, Inc.
Video Media Corp.
Finishing Touch Photo & Video

Measurement and Payment

The completed work shall be paid for at the Contract unit price for the following Contract pay item:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Digital Audio-Visual Coverage	Lump Sum

Digital Audio-Visual Coverage shall include all labor, equipment, and materials required to perform the recording and to provide the finished recording the Engineer.

Payment will be made for Digital Audio-Visual Coverage following the review and acceptance of the recording by the Engineer. Within 21 days following the receipt of the recording, the Engineer will either accept it and authorize payment, or require that any discrepancies in the recording be addressed prior to making payment.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SUPERVISION, MAX \$40,000

ST:CJE

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Description

The Contractor shall designate a full-time Project Supervisor to act as the Contractor's agent/representative, and to be responsible for scheduling and coordination of all subcontractors, suppliers, other governmental agencies, and all public and private utility companies.

The Project Supervisor shall not be an active crew member of the Contractor, shall not be an active member or employee of any subcontractor's work force, and shall not perform general or specialized labor tasks.

The Project Supervisor shall work exclusively on this project and shall put forth his/her full effort into the organization and coordination of the work of this project.

Prior to the pre-construction meeting, the Contractor shall designate a proposed Project Supervisor by name, and shall furnish the City with a current, thorough, detailed summary of the proposed Project Supervisor's work history, outlining all previous supervisory experience on projects of a similar size and nature. The detailed work history shall include personal and professional references (names and phone numbers) of persons (previous Owners or agents) who can attest to the qualifications and work history of the proposed Project Supervisor. Proposed candidates for Project Supervisor shall have a demonstrated ability to work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature. The Supervising Professional will have the authority to reject a proposed Project Supervisor whom he/she considers unqualified.

The Project Supervisor shall be available 24 hours-per-day to provide proper supervision, coordination, and scheduling of the project for the duration of the Contract. The Contractor shall furnish the City with telephone numbers of the Project Supervisor in order to provide 24 hour-per-day access during business and non-business hours, including weekends and holidays.

The Project Supervisor shall be equipped by the Contractor with a mobile telephone to provide the City with 24 hours-per-day access to him/her during daily construction activities, during transit to and from the construction site, and during all non-business hours including weekends and holidays.

The Project Supervisor shall be equipped with assistants as necessary to provide project supervision as specified herein, and in accordance with the Contract.

Duties and Responsibilities

The Project Supervisor shall work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature.

The Project Supervisor shall have a thorough, detailed understanding and working knowledge of all construction practices and methods specified elsewhere herein, as well as the handling, placement, testing and inspection of aggregates, aggregate products, HMA concrete, and Portland cement concrete materials.

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DETAILED SPECIFICATION
FOR
PROJECT SUPERVISION, MAX \$40,000

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The Project Supervisor shall be responsible for all of the work of all of the Contractor's, subcontractors', and suppliers' work forces.

The Project Supervisor shall be responsible for proper and adequate maintenance (emissions, safety, and general operation) of all of the Contractor's, subcontractors' and suppliers' equipment and vehicles.

The Project Supervisor shall be responsible for the legal, proper, and safe parking/storage all the Contractor's, subcontractors' and suppliers' equipment, work vehicles, and employees' vehicles.

The Project Supervisor shall schedule and coordinate the work of all parties involved in the project, including utility companies, testing agencies, governmental agencies, all City departments (such as Utilities and Transportation), City Forester and City inspectors.

The Project Supervisor shall coordinate and schedule the work of any independent survey crews that may be retained by the City to witness and reset existing and new geographic/benchmark monuments. Failure to have existing monuments witnessed and reset may result in delays to the Contractor's work. Costs for such delays will be the Contractor's sole responsibility.

The Project Supervisor shall coordinate and schedule both testing inspectors and City inspectors in a timely manner, to assure proper and timely testing and inspection of the work.

The Project Supervisor shall review the Inspector's Daily Reports (IDRs) for accuracy and shall sign all IDRs on a daily basis as the representative of the Contractor. Items to be reviewed include descriptions, locations, and measurements of quantities of work performed, workforce, equipment, and weather. The Project Supervisor shall also be responsible for its subcontractors' review and initialing of IDRs containing work items performed by each respective subcontractor.

The Project Supervisor shall submit to the Engineer, an updated, detailed schedule of the proposed work on a weekly basis, and an update of all proposed changes on a daily basis, all in accordance with the Detailed Specification for Project Schedule contained elsewhere herein.

The Project Supervisor shall schedule and chair a weekly progress meeting with the Engineer and all subcontractors to discuss the work. Upon the completion of each meeting, the Project Supervisor shall prepare and distribute, to all present, a written summary of the meeting's minutes. Those in attendance shall review the minutes and, if necessary, comment on any deficiencies or errors prior to or at the next scheduled progress meeting.

Additional Performance Requirements

If, in the sole opinion of the Supervising Professional, the Project Supervisor is not adequately performing the duties as outlined in this Detailed Specification, the following system of notices will be given to the Contractor with the associated penalties:

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SUPERVISION, MAX \$40,000

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- First Notice

A warning will be issued in writing to the Contractor detailing the deficiencies in the Project Supervision. The Contractor must respond within seven (7) calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within seven (7) calendar days will result in the issuing of a second notice.

- Second Notice

A second warning will be issued in writing to the Contractor further detailing the deficiencies in the Project Supervision. The Contractor must respond within seven (7) calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within seven (7) calendar days will result in the issuing of a third notice. A deduction of 10% will be made from the original Project Supervision contract amount. At this time, the City reserves the right to meet with personnel with the necessary authority within the Contractor's organization to discuss the deficiencies in the Project Supervision.

- Third Notice

An additional deduction of 25% will be made from the original Project Supervision Contract amount, and the Project Supervisor shall be removed from the project and replaced immediately with another individual to be approved by the Supervising Professional.

Should, in the sole opinion of the Supervising Professional, the Project Supervisor fail to perform his/her duties and responsibilities as described herein to such a degree that the successful completion of the project is put in jeopardy, the above system of notices may be foregone, and the Contractor shall immediately replace the Project Supervisor upon receipt of written notice. Failure to provide adequate project supervision, as determined by the Engineer, shall be considered basis for the Supervising Professional to suspend work without extension of contract time or additional compensation.

Measurement and Payment

This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total Contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be one Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Project Supervision, Maximum \$40,000.....	Lump Sum

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SUPERVISION, MAX \$40,000

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The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the City Standard Specifications and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROTECTIVE FENCING

ST:CJE

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2/25/22

Description

This work shall consist of taking all reasonable measures to protect all existing trees and vegetation designated to remain and be protected within the project limits and the construction influence area, in accordance with Sections 201.03.A.2 and Section 808 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, except as specified herein. The work shall also consist of installing protective fencing at the limits of the construction area as shown on the plans or in areas directed by the Engineer.

Materials

Fabric shall be orange, vinyl, snow fence material, 4-feet tall. Posts shall be 6-foot long, T-shaped, metal posts or 2-inch square hardwood stakes.

Means and Methods of Protection

Install protective fence at the limits of the construction area as shown on the plans or as directed by the Engineer.

The Contractor shall not operate equipment within the tree protection fence of any existing tree without the approval of the Engineer.

Construction material, supplies, or equipment shall not be stockpiled or stored within the limits of the tree protection fence.

Vehicles and personnel are not permitted within the limits of the tree protection fence.

The Contractor shall not attach chains, cables, ropes, nails, or other articles to any tree at any time.

Tree roots exposed during construction that are 1½-inch or greater in diameter must be pruned. All pruning operations shall be reviewed and approved by the Engineer. All root pruning shall be performed with sharp tools and shall provide clean cuts that do not unnecessarily damage the remaining bark or root. The Contractor shall not perform any backfilling operations until all root maintenance has been performed.

Any damage to trees owned by the City of Ann Arbor or other trees designated to be protected due to the Contractor's activities or activities of the Contractor's subcontractors or suppliers shall be repaired under the direction of the City Forester by an approved forestry specialist. The costs of these repairs shall be the sole responsibility of the Contractor.

Should the Contractor's operations damage a plant's roots to the extent that it must be removed, the Contractor shall either replace the plant with a commensurate number of plants, 2½-inch caliper trees of the species as determined by the City, or compensate the City of Ann Arbor for the cash value of the plant or tree as determined by the City of Ann Arbor's Forester. The City of Ann Arbor shall be solely responsible for determining which compensation method is used.

The City Forester shall supervise the replacement of any trees at the sole expense of the Contractor.

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DETAILED SPECIFICATION
FOR
PROTECTIVE FENCING

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Remove tree protection fence when directed by the Engineer.

Measurement and Payment

The completed work shall be paid for at the contract unit price for the following Contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Protective Fence	Foot

Protective Fence will be measured in length, by feet of fence used, and will be paid for at the contract unit price which shall be payment in full for all labor, materials, and equipment needed to accomplish this work. No additional payment will be made for maintenance or reinstallation of fence during the construction period. No additional payment will be made for repair or replacement of vegetation as noted above.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TREE REMOVAL

ST:CJE

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Description

This work shall consist of removing existing trees that are 6-inch or larger in diameter where indicated on the Plans, and as directed by the Engineer. This work shall include cutting and removing trees, their stumps, and roots from the ground, and disposing of all removed materials. All materials needed to accomplish this work are included in this pay item. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, Section 202 of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction (2012 edition) and as directed by the Engineer.

Tree removal on private property within easements shall be performed by the Contractor. The limits of tree removal shall be as directed by the Engineer. The Contractor must clearly mark the trees for removal at least one (1) week prior to the date of their intended removal.

Following the marking of the trees, the Contractor shall schedule a walkthrough with the Engineer, City of Ann Arbor Urban Forestry Coordinator, City of Ann Arbor Forester, and City of Ann Arbor Natural Area Preservation Deputy Manager to review all proposed tree removals.

The removal and disposal of trees greater than 6-inches in diameter shall be paid for as indicated below. The cutting, removal, and disposal of trees less than 6-inches in diameter, bushes, brush, or the trimming of trees will not be paid for separately and shall be included in the item of work "General Conditions". Trees greater than 6-inches in diameter that are fallen across the work area and must be removed to permit work shall be paid for under the applicable "Tree Removal" pay item.

Unless otherwise approved by the Engineer, due to the potential existence of federally protected species, complete all tree removals identified as potential bat habitat between October 1 and March 31.

Construction Methods

The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications and MDOT Standard Specifications for Construction (2012 edition). As required, remove and dispose of trees with a diameter of at least 6 inches. Stumps shall be removed using a stump grinder to a depth of at least 8-inches below final grade. Prior to all tree removal, coordinate the required tree inspection walkthrough.

Where trees are identified for monitoring during the removal review walkthrough, do not remove the trees until adjacent sewer trenches are excavated and inspected by the City Forester for roots and health of tree. As determined by the Urban Forestry Coordinator, some trees indicated on the Plans for removal may be saved and left in place. Coordination with the Urban Forestry Coordinator, Forester and Engineer to determine if a tree is removed or not will not constitute an extension of time if the work is delayed. This work shall not be paid for separately and shall be included in the item of work "General Conditions".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TREE REMOVAL

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Removal

Cut and fell trees in a manner so as not to damage surrounding areas, fences, features, and adjacent trees designated to remain. Grub and remove stumps and roots. Backfill all resulting holes or excavations with Engineer approved material and dispose of all debris before ending the day's work.

Burning of any removed materials is strictly prohibited.

All trees removed as part of the work completed for this project shall be removed from the property unless otherwise requested by the City, or private property Owner. All wood requested by the City or the respective property Owner shall be cut into logs approximately 10-feet in length and placed at a location onsite as designated by the Engineer.

Measurement and Payment

This item shall be measured per tree removed and paid for on the basis of unit price each. The tree size will be determined by the average diameter of the tree trunk, measured to the nearest full inch, at a point 4.5-feet above the base of the tree at the ground line. Trees having major limbs lower than 4.5-feet from the ground shall be measured at the smallest diameter below such limbs. Where more than one (1) tree has grown from a common stump, each tree shall be measured as a separate tree. Dead trees fallen across the work area shall be paid for under the tree removal pay item based on their size. Trees found to be less than 6-inches in diameter shall be removed under the pay item "General Conditions".

The completed work as measured will be paid for at the contract unit prices for the following contract pay items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Tree Removal, 6-inch to 24-inch	Each

The items of work listed above shall be paid for by the number of trees actually removed. The unit price for these items of work shall include all labor, material, and equipment costs to perform the work as detailed herein.

The work must be conducted between October 1 and March 31 unless otherwise approved by the Engineer. If the work is not completed within this timeframe, and additional environmental evaluation is required, the Contractor may face penalties from paying any additional costs and being assessed liquidated damages.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MINOR TRAFFIC CONTROL, MAX \$30,000

ST:JMB

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2/25/22

Description

The work shall include, but is not limited to the following:

- The furnishing and operating of miscellaneous signs, warning devices, traffic regulators, flags, paddles, and cones;
- The operation of additional signs furnished by the City;
- Furnishing and installing meter bags;
- Coordinating with the City to have meter heads removed and reinstalled;
- Maintaining pedestrian traffic;
- Temporarily covering traffic controls;
- Temporarily covering existing signs as directed;
- Any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.

This work shall consist of protecting and maintaining vehicular and pedestrian traffic, in accordance with Sections 104.11 and 812 of the of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction; Part 6 of the 2011 Edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD); and the City of Ann Arbor Standard Specifications for Construction, except as modified herein.

Materials, Equipment, and Construction Methods

Materials and equipment shall meet the requirements specified in the above designated sections of the MDOT 2012 Standard Specifications for Construction.

The Contractor shall maintain traffic such that no vehicle shall be required to drive into active work areas. Patch areas which extend more than halfway across the roadway shall be removed and replaced so as to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor shall maintain pedestrian traffic at all times. For maintaining normal pedestrian traffic while performing sidewalk and driveway repair, Plastic Drum, High Intensity, Lighted, shall be placed by the Contractor as directed by the Engineer. The Contractor, when directed by the Engineer, shall place ADA compliant pedestrian barricades, "Sidewalk Closed" and/or "Cross Here" signs. The cost shall be included in this pay item and will not be paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MINOR TRAFFIC CONTROL, MAX \$30,000

ST:JMB

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2/25/22

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the Contract or City.

All existing signs, and signs erected by the City of Ann Arbor on this project shall be preserved, protected, and maintained by the Contractor. The City will repair any existing City owned signs, at the Contractor's expense, which are damaged by the Contractor during the work.

The Contractor shall obtain a Traffic Detour or Lane Closure Permit from the City's Project Management Services Unit, at least 48-hours in advance of any proposed lane or street closing.

Traffic on major streets should not be impacted between the hours of 7:00 a.m. to 9:00 a.m. and from 3:30 p.m. to 6:00 p.m. without written permission from the Engineer or as specified on the Lane Closure Permit. All major changes in traffic control shall be made either between 9:00 a.m. and 3:30 p.m. or between 7:00 p.m. and 6:30 a.m. in order to minimize interference with rush hour traffic. All traffic controls must be in place and ready for traffic each day by 6:30 a.m. and 3:30 p.m.

The hours of work on all local streets are 7:00 a.m. to 8:00 p.m., Monday through Saturday, or as specified on the Lane Closure Permit.

The Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer.

The Contractor shall replace missing or damaged traffic control devices as directed by the Engineer. When traffic control devices have been damaged by, or due to, the negligence of the Contractor, its subcontractors or material suppliers, the traffic control devices shall be replaced at the Contractor's expense.

The work for Minor Traffic Control shall include: furnishing and operating of miscellaneous signs and warning devices; furnishing cones; operating additional signs furnished by the City throughout the life of the Contract; furnishing and operating pedestrian traffic control devices; maintaining a safe trench during all non-working hours; maintaining access to all drives; covering conflicting existing signs and removal of these covers; and any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.

The Contractor shall maintain vehicular and pedestrian traffic during the work by the use of traffic regulators, channelizing devices, and signs as necessary, as directed by the Engineer, and in accordance with 2011 Edition of the MMUTCD. Typical applications for maintaining pedestrian traffic in accordance with the 2011 Edition of the MMUTCD are included in this detailed specification.

In order to maintain areas of on-street parking available for residents, the Engineer may direct the contractor to cover and uncover temporary "No Parking" signs within the project limits multiple times throughout the course of the project. Such repeated covering and uncovering of signs shall be included in this item of work and shall not be paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MINOR TRAFFIC CONTROL, MAX \$30,000

ST:JMB

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Traffic control devices meeting current MDOT and MMUTCD specifications shall be used on this project.

Sufficient signs shall be placed by the contractor to ensure the safety of the workers and the general public in accordance with the current MMUTCD.

“Road Work Ahead” warning signs shall be placed, as indicated on the plans, or as directed by the Engineer, prior to the start of work, regardless of the nature, magnitude or duration of the work.

Measurement and Payment

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

Costs for transporting barricades and other temporary traffic control devices shall be included in the bid prices for the individual items of work.

Minor Traffic Control, Maximum \$30,000 will be paid for on a pro rata basis with each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum.

The completed work as measured for these items of work will be paid for at the Contract Unit Price for the following Contract (Pay) Items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Minor Traffic Control, Maximum \$30,000.....	Lump Sum

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the MDOT and City Standard Specifications for Construction, and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CERTIFIED PAYROLL COMPLIANCE AND REPORTING

ST:JMB

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2/25/22

Description

This specification covers all administrative requirements, payroll reporting procedures to be followed by Contractors performing work on City-sponsored public improvements projects, and all other miscellaneous and incidental costs associated with complying with the applicable sections of the City of Ann Arbor Code of Ordinances with regard to payment of prevailing wages and its Prevailing Wage Compliance policy.

This specification is not intended to include the actual labor costs associated with the payment of prevailing wages as required. Those costs should be properly incorporated in all other items of work bid.

General

The Contractor is expected to comply with all applicable sections of Federal and State prevailing wage laws, duly promulgated regulations, the City of Ann Arbor Code of Ordinances, and its Prevailing Wage Compliance Policy as defined within the Contract Documents. The Contractor shall provide the required certified payrolls, City-required declarations, and reports requested elsewhere in the Contract Documents within the timeline(s) stipulated therein.

The Contractor shall also provide corrected copies of any submitted documents that are found to contain errors, omissions, inconsistencies, or other defects that render the report invalid. The corrected copies shall be provided when requested by the Supervising Professional.

The Contractor shall also attend any required meetings as needed to fully discuss and ensure compliance with the Contract requirements regarding prevailing wage compliance. The Contractor shall require all employees engaged in on-site work to participate in, provide the requested information to the extent practicable, and cooperate in the interview process. The City of Ann Arbor will provide the needed language interpreters in order to perform wage rate interviews or other field investigations as needed.

Certified Payrolls may be submitted on City-provided forms or forms used by the Contractor, as long as the Contractor's forms contain all required payroll information. If the Contractor elects to provide their own forms, the forms shall be approved by the Supervising Professional prior to the beginning of on-site work.

Unbalanced Bidding

The City of Ann Arbor will examine the submitted cost for this item of work prior to Contract award. If the City determines, in its sole discretion, that the costs bid by the Contractor for complying with the Contract requirements are not reasonable, accurately reported, or may contain discrepancies, the City reserves the right to request additional documentation that fully supports and justifies the price as bid. Should the submitted information not be determined to be reasonable or justify the costs, the City reserves the right to pursue award of the Contract to the second low bidder without penalty or prejudice to any other remedies that it may have or may elect to exercise with respect to the original low-bidder.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CERTIFIED PAYROLL COMPLIANCE AND REPORTING

ST:JMB

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2/25/22

The Contract Completion date will not be extended as a result of the City's investigation of the as-bid amount for this item of work, even if the anticipated contract award date must be adjusted. The only exception will be if the Contractor adequately demonstrates that their costs were appropriate and justifiable. If so, the City will adjust the Contract completion date by the number of calendar days commensurate with the length of the investigation, if the published Notice to Proceed date of the work cannot be met. The Contract unit prices for all other items of work will not be adjusted regardless of an adjustment of the Contract completion date being made.

Measurement and Payment

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Certified Payroll Compliance and Reporting	Lump Sum

The unit price for this item of work shall include all supervisory, accounting, administrative, and equipment costs needed to monitor and perform all work related to maintaining compliance with the tasks specified in this Detailed Specification, the City of Ann Arbor Code of Ordinances, its Prevailing Wage Compliance policy and the applicable Federal and State laws.

Payment for this work will be made with each progress payment, on a pro-rata basis, based on the percentage of construction completed. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 times the Lump Sum bid amount. This amount will not be increased for any reason, including extensions of time, extra work, and/or adjustments to existing items of work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
NO PARKING SIGNS

ST:JMB

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2/25/22

Description

This work shall consist of installing, maintaining, and removing of "No Parking" signs and posts as outlined herein and as referenced on the plans. "No Parking" signs shall be installed in accordance with the Section 812 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction Standard Specifications and the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

Materials

The City will furnish "No Parking" signs to the Contractor at no cost. The Contractor shall furnish the sign support and mounting hardware materials, which materials shall be in accordance with those specified in Section 919 of the MDOT 2012 Standard Specifications for Construction.

Construction

Prior to the commencement of any construction activity, the Contractor shall place "No Parking" signs as directed by the Engineer. The Contractor shall obtain a permit for "Temporary Permission of Reserve Parking Lane for Work Related Purposes" from the City's Project Management Services Unit. This permit shall be obtained a minimum of five (5) business days prior to the posting of "No Parking" signs.

The Contractor shall securely bolt the signs to the sign supports as directed by the Engineer. The Contractor shall imbed the sign supports at least 2-feet into the ground, and there shall be a minimum of 6-feet and maximum of 7-feet of clearance maintained between the bottom of the sign and the ground. The signs are to be placed at intervals no more than 75-feet, and as necessary to eliminate parking in the construction area.

The installation of "No Parking" signs shall be in accordance with the permit. "No Parking" signs shall be installed by the Contractor, as directed by the Engineer, at least 48 hours prior to the proposed start-of-work/enforcement date. "No Parking" signs shall be covered by the Contractor, thereby allowing on-street parking, until between 48 and 24 hours prior to the start of the work. "No Parking" signs shall be covered by the Contractor whenever there is no work being performed for a period of time longer than 72 hours. "No Parking" signs shall be returned to the City upon the completion of work. The cost of unreturned signs will be back charged to the Contractor.

Measurement and Payment

The completed work, as described, will be measured, and paid for at the Contract unit price for the following pay item:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
No Parking Sign	Each

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
NO PARKING SIGNS

ST:JMB

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The item No Parking Sign will be measured as the maximum number of signs installed on the project at any one-time. The unit price includes the removal and return of "No Parking" signs to the City upon completion of the project. The Contractor shall be back charged for the replacement costs for damaged or unreturned signs.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TRAFFIC CONTROL SIGNS AND BARRICADES

ST:JMB

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2/25/22

Description

This work shall consist of protecting and maintaining vehicular and pedestrian traffic in accordance with Sections 140.11, 812, and 922 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction; Part 6 of the 2011 Edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD); and the City of Ann Arbor Standard Specifications for Construction, except as modified herein.

Materials, Equipment, and Construction Methods

Materials and equipment shall meet the requirements specified in the above designated sections of the MDOT 2012 Standard Specifications for Construction and be furnished and operated as directed by the Engineer.

The Contractor shall maintain traffic such that no vehicle shall be required to drive into active work areas. Patch areas which extend more than halfway across the roadway shall be removed and replaced to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor shall maintain pedestrian traffic at all times. For maintaining normal pedestrian traffic while performing sidewalk and driveway repair, Sidewalk Barricades shall be placed by the Contractor, as directed by the Engineer. "Sidewalk Closed" and/or "Cross Here" signs shall be placed, by the Contractor, when directed by the Engineer.

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace damaged or missing traffic control devices immediately, at no additional cost to the City.

All existing signs, and signs erected by the City of Ann Arbor on this project shall be preserved, protected, and maintained by the Contractor. Existing City owned signs which are damaged by the Contractor during the work will be repaired by the City at the Contractor's expense.

Parking violation citations issued to the Contractor, subcontractor, and material suppliers including each of their respective employees shall be enforced under appropriate City Code.

Pedestrian barricades shall extend the full width of the sidewalk; be orange or white in color, with orange and white reflective sheeting; and be fully ADA compliant.

Type I and Type III Barricades shall have standard orange-and-white stripes on both sides of the barricade. Lighted plastic drums shall be sufficiently ballasted to minimize tipping.

Sufficient signs shall be provided by the Contractor to ensure the safety of the workers and the general public in accordance with the 2011 Edition of the MMUTCD.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TRAFFIC CONTROL SIGNS AND BARRICADES

ST:JMB

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2/25/22

"Construction Ahead" warning signs shall be placed, as indicated on the Plans, or as directed by the Engineer, prior to the start of work, regardless of the nature, magnitude, or duration of the work.

Measurement and Payment

All temporary traffic control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

Costs for transporting barricades and other temporary traffic control devices shall be included in the bid prices for the individual items of work.

For Type III Barricades, Channelizing Devices, Plastic Drums, Portable Changeable Message Signs, and Sidewalk Barricades payment shall be for the maximum quantity used at each project location at any one time.

For Temporary Type B Signs, payment shall be for the quantity used at each project location.

The completed work as measured for these items of work will be paid for at the Contract Unit Price for the following Contract (Pay) Items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Portable Changeable Messaging Board, Furn & Oper	Each
Type III Lighted Barricade, Furn & Oper	Each
Plastic Drum, Lighted, Furn & Oper	Each
Temporary Type B Signs, Furn & Oper	Sq Ft
Arrow Board, Furn & Oper	Each
Pedestrian Type II Barricade, Furn & Oper	Each

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
**COORDINATION AND COOPERATION WITH OTHERS
AND
WORK BY OTHERS**

ST:JMB

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2/25/22

Description

The Contractor is reminded as to the requirements of Article 104.07 of the 2012 Edition of the MDOT Standard Specifications, "Cooperation by the Contractor".

The Contractor shall directly coordinate his/her work with individual City Departments/Divisions/Units.

No additional compensation will be paid to the Contractor, and no adjustments to Contract unit prices will be made, due to delays and/or the failure of others in the performance of their work, nor for delays due to the encountering of existing utilities that are, or are not, shown on the Plans.

The following utility Owners, and others not listed specifically, may have overhead and/or underground facilities located within the Right-of-Way/Public Easements:

- The City of Ann Arbor
- University of Michigan (UM)
- Michigan Department of Transportation (MDOT)
- AT&T
- Comcast
- DTE Energy - Detroit Edison Company (Edison)
- DTE Energy - Michigan Consolidated Gas Company (Michcon)
- Fiber Link Inc.
- Light Core (Century Tel)
- MCI Communications
- Windstream Communications

On all projects:

"Three (3) Working Days before you Dig - Call MISS DIG - Toll Free" Phone No. 800-482-7171.

The Owners of public or private utilities which will not interfere with the completed project and which do not present a hazard to the public or an extraordinary hazard to the Contractor's operations will not be required to move their facilities on or from the street right-of-way.

Stoppages created solely by the operations of the utility companies which delay utility revisions on any portion of this project may be considered as a basis of claim for an extension of time for project completion.

Costs for this work will not be paid for separately but shall be included in the bid price of the Contract Item "General Conditions, Max \$60,000".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
VACUUM TYPE STREET AND UTILITY CLEANING EQUIPMENT

ST:JMB

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2/25/22

Description

The Contractor shall furnish and operate throughout the construction period, vacuum type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, as directed by the Engineer for dust control, for dirt/debris control, and for street cleaning immediately prior to, and for street and utility structure cleaning after any and all paving. The cleaning equipment shall be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area.

Costs for this work will not be paid for separately but shall be included in the bid price of the Contract Item "General Conditions, Max \$60,000".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MATERIALS AND SUPPLIES CERTIFICATIONS

ST:CJE

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Description

The following materials and supplies shall be certified by the manufacturer or supplier as having been tested for compliance with the Specifications:

- HMA Materials
- Hot-Poured Joint Sealants
- Cements, Coatings, Admixtures and Curing Materials
- Sands and Aggregates
- Steel and Fabricated Metal
- Portland Cement Concrete Mixtures
- Reinforcing Steel for Concrete
- Reinforcing Fibers for Concrete
- Pre-Cast Concrete Products
- Sanitary Sewer Pipe
- Storm Sewer Pipe
- Water Main Pipe
- Corrugated Metal Pipe
- High Density Polyethylene Pipe
- Edge Drain and Underdrain Pipe
- Retaining Wall Materials
- Seed Mixes
- Geotextile Filter Fabric and Stabilization Fabric/Grids

The Contractor shall submit all certifications to the Engineer for review and approval a minimum of three business days prior to any scheduled delivery, installation, and/or construction of same.

Costs for this work will not be paid for separately but shall be included in the bid price of the Contract Item "General Conditions, Max \$60,000".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
QUANTITIES AND UNIT PRICES

ST:CJE

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Contract Drawings / Plans

Bidders shall carefully check and review all Drawings, plans, and specifications, and advise the Engineer of any errors or omissions discovered. The Drawings/Plans may be supplemented by such additional Drawings/Plans and sketches as may be necessary or desirable as the work progresses. The Contractor shall perform all work shown on any additional or supplemental Drawings/Plans issued by the Engineer.

Bidders shall carefully examine the Bid Form, preliminary layouts, specifications, and the work sites until the Bidder is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the contract.

Quantities and Unit Prices

Quantities as given are approximate and are estimated for bidding purposes. Quantities are not guaranteed and may vary by any amount. While it is the City's intent to complete the project substantially as drawn and specified herein, quantities may be changed or reduced to zero for cost savings or other reasons. **The City reserves the right to change the quantities, delete work, or add work, and no adjustment in unit price will be made for any change in any quantity.**

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SOIL BORING, PAVEMENT SECTION AND GEOTECHNICAL DATA

ST:JMB

1 of 1

2/25/22

Description

Data pertaining to existing soil borings and pavement sections which may be included in these Contract Documents are provided to help the Engineer and Contractor determine the soil conditions existing within the construction area. The City in no way guarantees existing conditions to be the same as shown in the data. The Contractor is solely responsible for any and all conclusions he/she may draw from the data.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WORKING IN THE RAIN OR IN THE DARK

ST:JMB

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2/25/22

Description

Working in the Rain

The Contractor shall not work in the rain unless authorized in writing by the Engineer. The Engineer may delay or stop the work due to threatening weather conditions.

The Contractor shall not be compensated for unused materials or downtime due to rain, or the threat of rain.

The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

Working in the Dark

The Contractor shall not work in the dark except as approved by the Engineer.

The Engineer may stop the work or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work.

The Contractor will not be compensated for unused materials or downtime when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons.

The Contractor is solely responsible for repairing all damages to the work and to the site including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the dark.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE REMOVAL

ST:CJE

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2/25/22

Description

This work shall consist of removing concrete curb, gutter, curb and gutter, integral curb, concrete pavement, sidewalk, sidewalk ramps, drive openings, and drive approach pavements as shown on the plans, as detailed in the Specifications, and as directed by the Engineer, in accordance with Section 204 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

Materials

Granular Material, Class II Section 902

Construction

The Contractor shall remove concrete curb, gutter, curb & gutter, integral curb, pavement, sidewalk, sidewalk ramps, drive openings, and drives, all regardless of the type and thickness, and all as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

The pay item for "Remove Concrete Sidewalk and Pavement - Any Thickness" will include removal of existing pavement regardless of pavement depth, type, or material. Also, included is bituminous overlay pavement on the concrete gutter without disturbing the curb and gutter remaining in place.

Prior to the start of work, the Engineer and Contractor together shall identify, and field measure all items to be removed. The Engineer shall approve of all removal limits prior to any removals being performed by the Contractor.

The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide MDOT Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches as shown on the Plans, as directed by the Engineer, and as marked for removal. The Contractor shall cut steel reinforcement bars as directed by the Engineer at all areas of removal. All saw cutting shall be performed under wet conditions to prevent excessive airborne dust. All resulting slurry and debris shall be cleaned up to the satisfaction of the Engineer.

The Contractor shall excavate, cut, remove stumps, remove brush, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact granular material as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots 2 inches or larger in size.

At various times throughout the work, the Engineer may direct the Contractor to use smaller

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE REMOVAL

ST:CJE

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2/25/22

and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

The Contractor shall shape, grade, and compact the existing roadbed materials to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer.

The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer. The use of each specific piece of equipment is subject to the approval of the Engineer.

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as the Item of Work: "Aggregate Base, 21AA – C.I.P.". Where the Engineer directs such materials to be removed, they will not be paid for separately, but shall be included in the appropriate concrete removal item.

Concrete removal outside the edge-of-metal shall be paid for as the appropriate item of either "Remove Concrete Curb or Curb & Gutter - Any Type", or "Remove Concrete Sidewalk and Pavement - Any Thickness".

Where existing concrete curb or curb & gutter is to be replaced on a street with a concrete (or brick) base, the Engineer may direct the Contractor to remove a 1-to-2-foot wide, full-depth section of pavement and pavement base from immediately in front of the curb & gutter. As part of this pavement/base removal, the Contractor shall perform additional (double) full-depth saw-cutting along the entire removal limits, and shall take sufficient care so as not to damage and/or disturb any adjacent pavement, pavement base, and/or any other site feature, all as directed by the Engineer. The removals shall be to a sufficient width and depth to allow for the placement and removal of the curb & gutter formwork. After the removal of the formwork, the Contractor shall replace the concrete base to its original thickness and elevation(s).

Excavated/removal areas shall be adequately protected with barricades and/or fencing at all times.

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

Subbase or subgrade materials removed without authorization by the Engineer shall be replaced and compacted by the Contractor at the Contractor's expense, with materials specified by the Engineer.

Sidewalk ramp removal shall be measured and paid for as "Remove Concrete Sidewalk and Pavement - Any Thickness".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE REMOVAL

ST:CJE

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2/25/22

Integral curb and gutter that is removed as part of “Remove Concrete Sidewalk and Pavement – Any Thickness” shall be measured and paid for by the square yard, along with the pavement removal quantity.

All sawcutting required for removals shall be included in the appropriate item of work, and will not be paid for separately. Payment for saw cutting to create or modify Type M openings and to allow for the partial removal of existing drives shall be included in the price of the item of work, “Remove Concrete Sidewalk and Pavement - Any Thickness” and will not be paid for separately.

Measurement and Payment

The completed work, as described, will be measured, and paid for at the respective Contract unit prices for the following respective pay items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Remove Concrete Curb or Curb and Gutter - Any Type	Foot
Remove Concrete Sidewalk and Pavement - Any Thickness.....	Square Yard

All saw cutting required for removals shall be included in the appropriate item of work and will not be paid for separately.

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

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DETAILED SPECIFICATION
FOR
HMA PAVEMENT REMOVAL

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Description

This work shall consist of furnishing all labor, tools, equipment, and material to remove, and dispose of off-site, any HMA pavement as shown on the plans, in accordance with Section 204 of the 2012 MDOT Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

Construction

The Contractor shall sawcut and remove pavement as shown on the Plans, as marked in the field, and as directed by the Engineer. The Engineer will measure the removal of HMA surface, any thickness, overlying a material designated for removal or that is required to remain in place, as Pavement Removal. The Engineer will measure the removal of the underlying material separately.

Prior to the start of removals, the Engineer and Contractor together shall field measure all removals.

If concrete or masonry pavements are encountered beneath the HMA surface being removed, the Engineer will measure each type of additionally encountered pavement at the unit price for the associated type of pavement removal.

Bricks/masonry units, if present, shall removed, salvaged, and neatly stacked/stockpiled by the Contractor, and later delivered by the Contractor to a City owned facility as directed by the Engineer.

The Contractor shall remove and properly dispose of all excavated material and debris, including all asphalt and concrete. The Contractor shall not stockpile excavated materials overnight on, or adjacent to, the site.

In areas where pavement removal is to be performed adjacent to existing pavement that is to remain in place, the pavement shall be sawcut prior to removal. Backhoe teeth, jackhammers equipped with spike points, milling machines, and backhoe mounted wheel cutters shall not be used.

Damage to adjacent pavement, pavement base, subbase, curb, curb and gutter, sidewalk, utility structures, or other site features, due to removal operations shall be repaired by the Contractor, at the Contractor's expense, as directed by the Engineer.

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as either the Item of Work: "21AA Limestone - C.I.P." or "Sand Subbase Course, CL II - C.I.P.". Where the Engineer directs such materials to be removed, it will be paid with "Subgrade Undercutting - Type II."

Excavated/removal areas shall be adequately protected with barricades or fencing at all times.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HMA PAVEMENT REMOVAL

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The Contractor shall remove the full depth of the pavement unless other shown on the plans or directed by the Engineer.

The Contractor shall construct butt-joints, and trim butt-joints just prior to HMA paving as shown on the Plans, and as directed by the Engineer.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Measurement and Payment

The completed work, as described, will be measured, and paid for at the respective Contract unit prices for the following respective pay items:

Contract Item (Pay Item)

Pay Unit

HMA Pavement Surface Removal, Any Thickness Square Yard

All saw cutting required for removals shall be included in the appropriate item of work and will not be paid for separately.

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MACHINE GRADING, MODIFIED

ST:CJE

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Description

This work shall consist of constructing earth grades by excavating, cutting, filling, trimming, and grading; general restoration, and sign removals in accordance with the Detailed Specifications elsewhere herein; and maintaining the work in a finished condition until such time that it is accepted by the Engineer. This work shall be done as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, and in accordance with Section 205 of the 2012 edition of the MDOT Standard Specification for Construction, except as specified herein.

Construction Method

The Contractor shall construct earth grades as required to develop the typical and/or detailed cross-section(s) as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer. This shall include, but not be limited to, the excavation of miscellaneous concrete and miscellaneous HMA pavement, soil, rocks of any size, stumps, trees less than 6-inches, logs, and bricks; the removal and proper disposal off-site of surplus excavated material; the scarifying, plowing, disking, moving and shaping of earth; the trimming, grading, compaction and proof-rolling of the prepared subgrade; the importing, furnishing, placement and compaction of embankment and/or fill materials; the full depth saw-cutting of pavement at the removal limits; the grading of sideslopes; general restoration in accordance with the Detailed Specifications elsewhere herein and the general items of the work as specified herein. Road subbase and base materials shall be paid for separately.

The Contractor shall remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as detailed in the Specifications and as directed by the Engineer, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

The Contractor shall remove, salvage, deliver to any location within the City limits, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall remove other surface features, including trees less than 6" diameter, located within the grading limits, and not otherwise identified, as directed by the Engineer. Signs in the grading limits shall be salvaged and provided to City as directed by the Engineer.

The Contractor shall move excavated and/or imported materials longitudinally and/or transversely where necessary, and as directed by Engineer.

The Contractor shall keep the work well graded and drained at all times.

The Contractor shall not use rubber-tired equipment on the subgrade, when its use causes or may cause, in the opinion of the Engineer, damage to the subgrade. The Contractor shall conduct its operation(s), and provide all necessary equipment, to insure the satisfactory completion of the work without damaging the subgrade. This includes the transporting, stockpiling, re-handling, and movement of materials over additional distances, in-lieu-of driving on an unprotected, or partially

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MACHINE GRADING, MODIFIED

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unprotected, subgrade.

The Contractor is solely responsible for the maintenance and protection of the subgrade. Further, any damage to the subgrade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or its subcontractors' or suppliers' operation(s), shall be repaired by the Contractor at the Contractor's expense. This includes any additional earthwork and/or maintenance materials as directed by the Engineer, for the purposes of the Contractor's maintenance and protection of the subgrade. The Contractor shall not be entitled to any additional compensation for the implementation of these procedures.

The Contractor shall perform all rough and/or finish grading and compaction to the grades shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

The Contractor shall proof roll all graded and compacted surfaces in the presence of the Engineer as detailed in the Specifications. The Engineer will monitor the proof rolling operation to locate deleterious and/or uncompacted materials and will direct undercuts, as necessary.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

The Contractor shall take any and all steps necessary to avoid interruption in the mail delivery, and solid waste, recycling, and compostable pick-up within the project limits. This shall include the temporary relocation of mailboxes, where required by the Engineer, as well as moving of all solid waste/recycling/compost containers to the nearest cross street.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots 2-inches or larger in size.

Butt joints are included in the pay item "Machine Grading".

Topsoil, seeding and mulch shall be paid for as part of the item "Clean-Up & Restoration, Special".

Measurement and Payment

Measurement for payment for the item "Machine Grading" shall be area within the limits of the work at each location.

The completed work as measured for this item of work will be paid for at the Contract unit price for the following Contract (Pay) Item:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Machine Grading	Square Yard

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DETAILED SPECIFICATION
FOR
MACHINE GRADING, MODIFIED

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The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SUBGRADE UNDERCUTTING

ST:CJE

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Description

This work includes removal of unsuitable subgrade material(s) in the areas and limits identified by the Engineer, and backfill with Class II Granular Material in accordance with the City of Ann Arbor Standard Specifications for Construction and the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, except as herein specified.

Materials

Materials will be in accordance with those specified in Section 902 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction.

Construction

After the pavement has been removed, and/or after rough/finish grading, and/or at the time of proof rolling, the Engineer may inspect the grade to determine the need for, and the limits of, undercuts. After undercut areas are excavated to the depths as directed by the Engineer, the areas shall be trimmed, shaped, evenly graded and re-compacted to not less than 95% of the soils maximum unit weight as determined by the AASHTO T-180 test. The Contractor shall properly dispose of all excess materials.

Backfill areas of Subgrade Undercutting, Type II with Granular Material Class II or such other such material as directed by the Engineer. The backfill material shall be compacted to not less than 95% of its maximum unit weight as determined by the AASHTO T-180 test.

The Contractor shall remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Measurement and Payment

These items of work shall be measured for payment by calculating the volume of the undercut excavation prior to the placement of backfill. The completed work as measured for these items of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item::

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Subgrade Undercutting, Type II.....	Cubic Yard

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DETAILED SPECIFICATION
FOR
SUBGRADE UNDERCUTTING

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The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SUBBASE AND AGGREGATE BASE

ST:JMB

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Description

This work shall consist of constructing subbase and/or aggregate base courses, on either a prepared subgrade or subbase as indicated on the Plans or where directed by the Engineer. This work shall be performed in accordance with Sections 301, 302, and 307 of the 2012 MDOT Standard Specification for Construction except as specified herein.

Materials

The material used for this work shall meet the requirements of Sections 301, 302, 307, and 902 of MDOT 2012 Standard Specification for Construction, except that the aggregate base shall be either 21AA limestone (permanent and temporary applications) with a maximum loss by washing of 8% and any subbase shall be Class II Granular Material.

Construction Method

Subbase and aggregate base courses shall not be placed when there are indications that the mixture may become frozen before the maximum unit weight is obtained, and in no case shall they be placed on a frozen subbase or subgrade.

The subbase and subgrade shall be shaped to the crown and grade specified on the plans and maintained in a smooth condition. The top of the subbase shall be placed to within 1/2-inch below and 1/2-inch above plan grade. The top of the aggregate base shall be placed to within 1/2-inch below and 1/4-inch above plan grade. Variations within this tolerance shall be gradual. If in the opinion of the Engineer, the Contractor's equipment is causing or will cause any ruts in or damage to the subbase or subgrade, the equipment shall not be permitted on the subbase or subgrade.

Should the subgrade, subbase or aggregate base become damaged due to the Contractor's equipment or by local traffic, the subgrade, subbase, or aggregate base course shall be restored to the condition required by the Specifications without additional compensation to the Contractor.

No pavement course, concrete curb and gutter, or concrete driveway opening shall be placed until the subbase has been compacted to not less than 95%, and aggregate base course to not less than 98% of their respective maximum dry densities and until a "Permit to Place" has been issued by the Engineer.

Base course aggregate shall be handled and/or stockpiled on-site in a manner that minimizes segregation. Base course aggregate shall be deposited from trucks or through a spreader in a manner that will minimize segregation of material and that is approved by the Engineer. The re-handling of base course aggregate by the Contractor will not be considered sufficient cause to allow the material to become segregated. The Contractor may be required to wet the materials prior to and/or during placement to minimize segregation and to aid in compaction of the material should it be necessary.

Aggregate base courses shall be placed in uniform layers such that when compacted, they have the thicknesses shown on the Plans, or as directed by the Engineer. The loose measure of any layer shall not be more than 9-inches or less than 4-inches.

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DETAILED SPECIFICATION
FOR
SUBBASE AND AGGREGATE BASE

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All structures, including manholes, valve boxes, inlet structures and curbs shall be protected from damage and contamination by debris and construction materials. Structures shall be maintained clean of construction debris and properly covered at all times during the construction.

The Contractor may be charged for the cleaning by others of accumulated construction debris in the utility structures, and damages resulting from the uncleaned structures.

Measurement and Payment

Where granular materials are used as base, as subbase, or as fill for excavations in Machine Grading areas, items of work "21AA Aggregate Base Course - C.I.P." and "Sand Subbase Course, CL II - C.I.P." shall be measured and paid accordingly.

Where granular materials are used as fill for undercuts at locations other than Machine Grading areas, item of work shall be paid in accordance with "21AA Limestone - C.I.P".

The completed work as measured will be paid for at the contract unit prices for the following Contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Sand Subbase Course, Class II C.I.P.....	Cubic Yard
21 AA Limestone, C.I.P.....	Cubic Yard

"Aggregate Base Course, 21AA, Modified" will be measured by weight in tons by certified delivery tickets submitted at the time of delivery to the project site. The item of work will be paid for at the contract unit price, which shall be payment in full for all labor, material and equipment needed to accomplish this work.

The provisions of Section 306.04 regarding excess moisture content, moisture corrections, and pay weights shall apply to this item of work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
AGGREGATE SURFACE COURSE

ST:CJE

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Description

This work shall consist of placement of an aggregate surface course as shown on the plans. Except as otherwise specified herein, all work shall be performed in accordance with the City of Ann Arbor (City) Public Services Area Standard Specifications, Sections 306 and 902 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, as indicated on the Drawings, and as directed by the Engineer.

Materials

The aggregate used shall be 23A natural aggregate. Aggregate materials shall be provided in accordance with the 2012 edition of the MDOT Standard Specifications for Construction, as indicated on the Drawings, and as approved by the Engineer. Material shall be subject to the approval of the Engineer.

Construction Method

Subbase and aggregate base courses shall not be placed when there are indications that the mixture may become frozen before the maximum unit weight is obtained, and in no case shall they be placed on a frozen subbase or subgrade.

Aggregate pathway shall not be placed until underlying native material has been compacted to 90% maximum density in accordance with the City's Standard Detail for Utility Trench Type V.

Measurement and Payment

The completed work as measured will be paid for at the contract unit prices for the following Contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Aggregate Surface Course, 23A - C.I.P, 6-inch	Square Yard

“Aggregate Surface Course,23A – C.I.P. 6-inch”, will be measured by area in square yards. The contract pay items listed herein shall be payment in full for all labor, material, and equipment necessary to furnish and install the items of work listed above, and shall include, but is not limited to, moving materials to and throughout the installation location, geotextile separator, disposal, and all other items necessary to complete the work, whether specifically mentioned or implied.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HMA PAVING

ST:JMB

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Description

Hot Mix Asphalt (HMA) pavement base, leveling, and top courses shall be constructed in accordance with Section 501 of the 2012 Michigan Department of Transportation (MDOT) Standard Specifications for Construction, except as modified herein, and as directed by the Engineer.

Materials and Equipment

The HMA mixtures to be used for this work shall be as follows:

Item Description	HMA Mixture	MDOT Section
HMA, LVSP – Pavement Leveling or Top Course	LVSP	501
HMA, Approach	LVSP	501
HMA, Hand Patching	LVSP	501

Binders for Superpave mix LVSP shall be PG 58-28 in accordance with the HMA Application Table shown on the Plans, and shall meet the requirements specified in Section 904 of the 2012 MDOT Standard Specifications for Construction, and any current supplemental MDOT specifications.

The top course of HMA, Approach shall have a yield of 220 pounds per square yard with a PG 58-28 binder. The leveling course of HMA, Approach shall have a yield of 220 pounds per square yard with a PG 58-28 binder.

HMA, Hand Patching shall have a yield of 440 pounds per square yard with a PG 58-28 binder.

The Contractor shall have a 10-foot long straight-edge, backhoe, air-compressor, and jackhammer available during all paving operations.

The Aggregate Wear Index (AWI) number for this project is 260. This AWI number applies to all aggregates used in all top course mixtures. Blending aggregates to achieve this AWI requirement is permitted in accordance with current MDOT Standards, and Supplemental Specifications.

Reclaimed Asphalt Pavement (RAP) in HMA Mixtures

The use of Reclaimed Asphalt Pavement (RAP) in HMA mixtures shall be in accordance with Section 501.02.A.2 of the 2012 MDOT Standard Specifications for Construction, and the City of Ann Arbor Standard Specifications.

All equipment shall conform to Section 501.03.A of the 2012 MDOT Standard Specifications for Construction, except as modified herein.

The Contractor shall have a 10-foot long straight edge, rubber-tired backhoe (Case 580 type, or equivalent), air-compressor with the ability to develop a minimum pressure of 100 pounds per square inch and continuous rated capacity of 150 cubic feet per minute of air flow, and

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DETAILED SPECIFICATION
FOR
HMA PAVING

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jackhammer available during all paving operations. The Contractor shall be required to perform any miscellaneous cleaning, trimming, material removal, and other tasks as required by the Engineer in order to ensure the proper and orderly placement of all HMA materials on this project.

The Contractor shall provide sufficient rollers to achieve the specified asphalt densities.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas, including hauling units. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Each pressure distributor, paver and roller shall be equipped with at least one approved flasher light which shall be mounted on the equipment so as to give a warning signal ahead and behind.

Construction Methods

All concrete work shall be completed prior to placing HMA mixtures.

The Contractor shall place HMA wedges using the base, leveling, and top course mixtures specified herein, as directed by the Engineer, prior to placing the top course. Such wedging shall be measured and paid for at the respective unit price of the appropriate HMA Pavement item.

Cleaning and Bond Coat Application

Cleaning and bond coat application shall be performed in accordance with Sections 501.03.C and 501.03.D of the 2012 MDOT Standard Specifications for Construction, except as modified herein, and as directed by the Engineer.

The Contractor shall furnish and operate throughout the construction period, vacuum-type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, and when directed by the Engineer, for street cleaning immediately prior to, and for street and utility structure cleaning after any and all paving. The cleaning equipment shall be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area. The vac-all or similar equipment and shall be approved by the Engineer prior to beginning the work. The equipment used shall have an effective means for preventing any dust resulting from the operation from escaping into the air.

The bond coat shall be applied at a minimum rate of 0.05 gallons/yd². Before placing the bond coat, the existing pavement surface shall be thoroughly cleaned. The Contractor shall also thoroughly clean all joints, cracks, and edges to a minimum depth of 1-inch with compressed air, vac-all type equipment, or other approved mechanical or hand methods, to remove all dirt, debris, and all foreign material.

HMA Placement

Placement shall conform to Section 501.03.F of the 2012 MDOT Standard Specifications, except as modified herein, and as directed by the Engineer.

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DETAILED SPECIFICATION
FOR
HMA PAVING

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HMA placement shall not commence until a "Permit to Place" (no additional costs are required to obtain this permit) has been issued in writing by the Engineer. The Permit to Place shall be issued after the aggregate base course or the adjacent, underlying layer of pavement section has been approved by the Engineer.

The final structure adjustments must be approved by the Engineer prior to the issuance of the "Permit to Place" for the top course.

The top course shall be placed with a ¼-inch lip at the gutter edge of metal. All HMA thickness dimensions are compacted-in-place.

Paving Operation Scheduling

The Contractor shall schedule the paving operation to avoid longitudinal cold joints that would be required to be left "open" overnight.

In all cases, the Contractor shall pave the primary road's through-traffic lanes ("main line") first, from point-of-beginning to the point-of-ending. All other paving including, but not limited to; acceleration and deceleration lanes, intersection approaches, and center left-turn lanes shall be paved following completion of main line paving, unless authorized by the Engineer prior to the placement of any pavement.

Rate of Paver Operation

The rate of the paver's travel shall be maintained such that the paving operation will be continuous, resulting in no transverse cold joints, but shall never exceed the rate of 50-feet per minute.

The Contractor shall furnish and operate enough material, equipment, and hauling units so as to keep the paving machine(s) moving continuously at all times. Failure to do so shall be cause for the suspension of the paving operation until the Contractor can demonstrate to the satisfaction of the Engineer, that sufficient resources have been dedicated to perform the work in accordance with the project specifications.

Longitudinal and Transverse Joints

Longitudinal and transverse joints shall conform to Section 502.03.F of the 2012 MDOT Standard Specifications for Construction and as specified herein. For mainline HMA paving, the width of the mat for each pass of the paver shall be not less than 10.5-feet, nor greater than 15-feet, except as noted in the plans and as directed by the Engineer. The Engineer will direct the layout of all HMA longitudinal joints during construction.

Prior to placing the adjacent paving pass on the leveling and top courses of HMA, the Contractor shall cut and remove 6-inch to 8-inch of the previously placed pavement at the free edge of the pavement by means of a coultter wheel. The Engineer reserves the right to reject any method(s) for cutting the pavement that does not provide a vertical and satisfactory edge, free of tearing,

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DETAILED SPECIFICATION
FOR
HMA PAVING

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bending, or other deformations, as determined by the Engineer. Any method(s) employed by the Contractor shall be completely effective. The cut edge shall have a uniform bead of pavement joint adhesive applied to the full height of the joint. The removal of this HMA material and resulting edge must be approved by the Engineer prior to proceeding with the placement of the succeeding pass of HMA. The base course of HMA and its vertical edge will have bond coat applied in accordance with Section 501.03.D. All costs associated with complying with these requirements will not be paid for separately but shall be considered to be included in the HMA items of work.

Pavement joint adhesive shall be hot applied, meet, or exceed, the following properties, and be approved by the Engineer prior to performing HMA placement:

- Brookfield Viscosity, 400°F, ASTM D2669 – 4,000 to 10,000 cp
- Cone Penetration, 77°F, ASTM D5329 – 60 to 100
- Flow, 140°F, ASTM D5329 – 5mm maximum
- Resilience, 77°F, ASTM D5329 – 30% minimum
- Ductility, 77°F, ASTM D113 – 30 cm minimum
- Ductility, 39.2°F, ASTM D113 – 30 cm minimum
- Tensile Adhesion, 77°F, ASTM D5329 – 500% minimum
- Softening Point, ASTM D36 - 170°F minimum
- Asphalt Compatibility, ASTM D5329 – pass

Feather Joints

Feather joints shall be constructed so as to vary the thickness of the HMA from zero inches to the required paving thickness at the rate of approximately 1.5-inch over a distance of 10-feet, or as directed by the Engineer. The Contractor shall rake the larger pieces of aggregate out of feather joints prior to compaction.

Butt Joints

Construction of butt joints, where directed by the Engineer, shall conform to Sections 501.03.C.3 and 501.03.C.4 of the 2012 MDOT Standard Specifications for Construction, except as modified herein.

When a butt joint is specified or directed to be placed by the Engineer, remove the existing HMA surface to the thickness of the proposed overlay, or full depth, as directed by the Engineer, for the full width or length of the joint. The HMA material shall be sawcut to the directed depth along the pavement edge or removal line to prevent tearing of the pavement surface. Cut joints that will be exposed in the completed surface must be cut with a saw or a cold-milling machine or other methods approved by the Engineer. Joints that will be covered by HMA must be cut with a saw, a cold-milling machine, or other methods approved by the Engineer.

Rakers

The Contractor shall provide a minimum of two (2) rakers during the placement of all top and leveling courses.

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DETAILED SPECIFICATION
FOR
HMA PAVING

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Faulty Mixtures

The Contractor and Engineer shall carefully observe the paving operation for signs of faulty mixtures. Points of weakness in the surface shall be removed or corrected by the Contractor, at his/her sole expense, prior to paving subsequent lifts of HMA material. Such corrective action may include the removal and replacement of thin or contaminated sections of pavement, segregated HMA, and any sections that are weak or unstable. Once the Contractor or his representative is notified by the Engineer that the material being placed is out of allowable tolerances, or that there is a problem with the paving operation, the Contractor shall stop the paving operation at once, and shall not be permitted to continue placing HMA material until again authorized by the Engineer. Any costs associated with meeting the requirements specified herein shall not be paid for separately but shall be included in the item(s) of work being performed at the time the faulty mixture was discovered.

Measurement and Payment

Measurement of these HMA paving items shall be by the ton, in place. Unused HMA remaining in trucks after the work is completed shall be returned to the plant and re-weighed, and the corrected weight slip shall be provided to the Engineer. No payment will be made for the unused HMA material. All weight slips must include the type of mixture (codes are not acceptable), as well as vehicle number, gross weight, tare weight and net weight.

Corrective action shall be enforced as described at Division 5 of the 2012 MDOT Standard Specifications for Construction and will be based on the City's testing reports.

All costs for furnishing and operating vacuum-type street cleaning equipment, backhoes, jackhammers, and air compressors shall be included in the bid prices for these items of work or in the item of work "General Conditions, Max \$60,000".

All costs of meeting the requirements of this Detailed Specification shall be included in the bid prices for HMA items in the proposal and will not be paid for separately.

The completed work as measured for these items of work will be paid for at the Contract unit prices for the following Contract (pay) items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
HMA, LVSP – Pavement Leveling or Top Course	Ton
HMA, Hand Patching	Ton

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE DRIVES, SIDEWALK AND CURBS

ST:CJE

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Description

This work shall consist of constructing concrete items including curb, gutter, curb and gutter, sidewalks, drive approaches, and drive openings, all of any type and/or dimensions, all of either regular, fibermesh reinforced, and/or high-early concrete, in accordance with Sections 801, 802, and 803 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, except as specified herein, as shown on the Plans, as described in this Detailed Specification, and as directed by the Engineer.

The Contractor is responsible to construct all sidewalks, sidewalk ramps, curbs, and all other concrete items within ADAAG compliance. All sidewalks and curb ramps must be constructed in accordance with MDOT Standard Plan R-28-J or version of standard plan/detail in place at time of the bid letting if different.

In addition, all concrete items of work shall comply with the Detailed Specifications for Concrete Durability and Concrete Placement and Protection.

Materials

Concrete mixtures shall be as follows (or as directed by the Engineer), and concrete materials shall meet the requirements specified in the referenced sections of the MDOT Standard Specifications for Construction:

<u>Item Description</u>	<u>Concrete Mixture</u>	<u>MDOT Section</u>
All Items Except High Early	P1, 6 sack	601
All High Early Items	P-NC, 7 sack	601

Construction Method

General

Curb, gutter, curb and gutter, sidewalk, sidewalk ramps, drive openings, and drives shall be replaced the same day they are removed unless otherwise prohibited by the required construction.

Concrete items, including sidewalk, non-integral curb/gutter, drives, and structure adjustments shall be completed prior to the placement of pavement.

All subgrade work shall be completed prior to placing concrete items, unless directed or approved by the Engineer.

The subbase shall be trimmed to final elevation before placing curb. Curb shall not be placed on a pedestal or mound.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact Class II granular material and 21AA Aggregate material as needed to: construct new concrete

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items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

At locations where the subgrade, subbase or base becomes either disturbed, saturated or otherwise damaged, and where directed by the Engineer, the Contractor shall remove a minimum 6-inch thick layer of the subgrade, subbase or base, and replace it with approved 21AA Aggregate material, compacted in place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots.

The Contractor is responsible for any damage to concrete items, including but not limited to vandalism; vehicular, pedestrian and/or miscellaneous structural damage; surface texture damage; and rain damage.

The Contractor shall maintain on-site at all times a sufficient quantity of adequate materials to protect concrete items. The Engineer may suspend or defer concrete placement if rain protection is not available. The Contractor shall not be entitled to any additional compensation due to work suspension or deferral resulting from a lack of adequate rain protection.

The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide Type L and M drive openings, and including those necessary to provide for the partial removal of existing drive approaches, as shown on the Plans, as directed by the Engineer, and as marked for removal.

The subbase and adjacent concrete shall be sufficiently wet-down with water prior to placing concrete, to prevent water loss from the new concrete, and to form a better bond between old and new concrete. If a cold-joint becomes necessary, the existing concrete surface(s) shall be cleaned with compressed air to expose the aggregate in the concrete.

Where it is necessary to remove existing pavement to provide space for concrete formwork, a sufficient amount of the existing pavement shall be removed to allow for the use of a vibratory plate compactor in front of the curb.

Where concrete items are placed in areas adjacent to existing pavement that is beyond the general resurfacing (pavement removal and/or milling) limits, the adjacent pavement area shall be backfilled and permanently patched within 48-hours of the removal of concrete formwork. The backfill material shall be MDOT 21AA aggregate compacted in place to 95%, up to the elevation of the proposed bottom of pavement. The pavement patching material(s) shall be as specified and as directed by the Engineer.

Where concrete items are placed adjacent to existing pavement that is within areas scheduled for subsequent pavement removal and/or milling, the adjacent pavement area shall, within 48-hours of the removal of concrete formwork, be backfilled with MDOT 21AA aggregate compacted in place to 95% up to the elevation of the bottom of the adjacent pavement.

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Prior to compacting backfill in front of curb and gutter, the back of curb shall be backfilled with approved material and compacted by mechanical means to 95%.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. All restoration work and materials shall be in accordance with the City of Ann Arbor Standard Specifications for Construction.

Contraction Joints in Sidewalk

Contraction joints shall be placed at 5-foot intervals and may be tooled or sawed. The method of forming joints and spacing shall be approved by the Engineer prior to construction.

Expansion Joints in Sidewalks

$\frac{3}{4}$ -inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property lines, at all expansion joints in the abutting curb, gutter, and combination curb and gutter, and as directed by the Engineer. Transverse expansion joints shall be placed through the sidewalks at uniform intervals of not more than 300-feet.

$\frac{1}{2}$ -inch wide expansion joints shall be placed between the sidewalk and back of abutting curb or gutter, at the juncture of two sidewalks, between the sidewalk and buildings and other rigid structures, and as directed by the Engineer.

Expansion Joints in Curb and Gutter

$\frac{3}{4}$ -inch wide expansion joints shall be placed at all street returns, at all expansion joints in an abutting pavement, at each side of all driveways (at radius points), elsewhere at 300-foot maximum intervals, and as directed by the Engineer. Expansion joint material shall extend to the full depth of the joint. After installation, the top shall not be above the concrete nor be more than $\frac{1}{2}$ -inch below it. No reinforcing steel shall extend through expansion joints.

Plane of Weakness Joints in Curb and Gutter

Intermediate plane of weakness joints shall be placed to divide the structure into uniform sections, normally 10-feet in length, with a minimum being 8-feet in length, and shall be placed opposite all plane of weakness joints in the abutting concrete base course.

Plane of weakness joints shall be formed by narrow divider plates, which shall extend 3-inches into the exposed surfaces of the curb or curb and gutter. Plates shall be notched, if necessary, to permit the steel reinforcement to be continuous through the joint.

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Measurement and Payment

All concrete pavement repair, including that which is installed with integral curb and gutter, will be measured and paid for by the area actually placed in square yards (SY).

No additional compensation will be paid for the construction of concrete items adjacent to existing concrete curb, gutter, pavement, or any other pavement or surface feature(s).

A deduction in length for catch basins and inlet castings will be made to measurements of Curb and Gutter. Curb, gutter, and curb and gutter shall be paid as "Concrete Curb or Curb & Gutter – All Types".

Restoration work, including backfilling, compacting, HMA patching adjacent to concrete items, topsoiling and seeding will not be paid for separately, but shall be included in the appropriate associated items of work.

Payment for saw cutting for Type L and M openings and for partial removal of existing drives shall be included in the price for the item of work, "Remove Concrete Sidewalk and Pavement - Any Thickness", and will not be paid for separately.

Payment for the removal of HMA pavement and aggregate base to provide space for concrete formwork and vibratory plate compactor shall be included in the price for the item of work, "Remove Concrete Curb or Curb and Gutter - Any Type", and will not be paid for separately.

The completed work as measured will be paid for at the contract unit prices for the following Contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Concrete Curb or Curb and Gutter - All Types	Foot
Concrete Type M Opening	Foot
4-Inch Concrete Sidewalk	Square Foot
6-Inch Concrete Sidewalk or Sidewalk Ramp	Square Foot
6-Inch Concrete Drive	Square Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

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Description

The Contractor shall furnish a Portland cement concrete mixture for this project that has been tested under this specification and shown to be resistant to excessive expansion caused by alkali-silica reactivity (ASR) and provides adequate air entrainment for freeze thaw durability. The Contractor shall construct the project with practices outlined in this specification.

Materials

The materials provided for use on this project shall conform to the following requirements:

Portland Cement	ASTM C-150
Fine Aggregate	ASTM C-33*
Coarse Aggregate	ASTM C-33*
Fly Ash, Class F	ASTM C-618
Slag Cement, Grade 100, 120	ASTM C-989
Silica Fume	ASTM C-1240
Blended Cements	ASTM C-595
Air Entraining Admixtures	ASTM C-260
Chemical Admixtures	ASTM C-494
White Membrane Cure	ASTM C-309 Type 2

*Fine and coarse aggregates shall consist of natural aggregates as defined in the Michigan Department of Transportation 2012 Standard Specifications for Construction Section 902.02.A.1.

The Contractor shall provide documentation that all materials to be incorporated into proposed mixed designs meet the requirements of this section.

Alkali-Silica Reactivity

The Contractor shall supply to the Engineer preliminary concrete mix designs including a list and location of all suppliers of concrete materials. The Contractor shall evaluate the mixtures for the potential for excessive expansion caused by ASR and provide documentation to the Engineer. The Contractor's evaluation shall include a review of any previous testing of the material sources intended to be used for both the fine and coarse aggregates for the concrete mixtures. The previous testing may be from other projects or records provided by the material suppliers.

Aggregates shall be tested under ASTM C-1260. If the expansion of the mortar bars is less than 0.10%, at 14 days, the aggregates shall be considered innocuous and there are no restrictions for ASR mitigation required with this material.

Previous aggregate test data may be used. If no previous test data is available, for the concrete mix, that shows that it is resistant to ASR, a concrete mixture that will mitigate the potential for ASR must be designed using either Method 1 or 2 as described below.

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Method 1

Substitution of a portion of the cement with Class F Fly Ash, Slag Cement Grade 100 or 120, or a ternary mix (blended cement) containing a blend of Portland cement and slag cement, or Class F fly ash, or silica fume.

The maximum substitution of cement with the fly ash permitted shall be 25% by weight of total cementitious material (cement plus fly ash). Additional requirements for the Fly Ash, Class F are that the Calcium Oxide (CaO) percent shall be less than 10% and the available alkalis shall not exceed a maximum of 1.5%. A copy of the most recent mill test report shall be submitted to verify. Note: a Class C fly ash with a minimum total oxide (SiO₂ + Al₂O₃ + Fe₂O₃) of 66% and a minimum SiO₂ of 38% maybe used in lieu of Type F fly ash.

The maximum substitution of cement with the Slag Cement permitted shall be 40% by weight of total cementitious material (cement plus Slag Cement). The minimum replacement rate with Slag Cement shall be 25%.

For a ternary blend, the total replacement of supplementary cementitious materials is 40% with a blend consisting of a maximum of 15% Type F fly ash, and/or 8% silica fume and/or slag cement.

For Method 1, the effectiveness of the proposed mix combination to resist the potential for excessive expansion caused by ASR shall be demonstrated using current or historic data. To demonstrate the effectiveness of the proposed mix the Contractor shall construct and test mortar bars per ASTM C1567 (14-day test) using both the fine and coarse aggregate along with the proposed cementitious material for the concrete mixture. If a mortar bar constructed of these materials produces an expansion of less than 0.10%, concrete mixture will be considered to be resistant to excessive expansion due to ASR.

If a mortar bar constructed of these materials produces an expansion of 0.10% or greater, concrete mixtures containing these materials shall not be considered resistant to the potential for excessive expansion due to ASR and shall be rejected. Additional testing, including alternate proportions or different materials will be required.

Method 2

Use low alkali cement and maintain the total alkali content from the cementitious at no more than 3.0 lbs/cyd (Na₂O_{eq}). The total alkali contribution is calculated by the quantity contained in the Portland cement only.

Requirements for Low Alkali Cement are that the alkali content does not exceed 0.60% expressed as Na₂O equivalent. Equivalent sodium oxide is calculated as: (percent Na₂O + 0.658 x percent K₂O).

For either Method 1 or 2, if the Contractor intends to change any component material supplied after the mix design has been approved all concrete work will be suspended with no cost to the project or extensions of time, unless approved, until evaluation of the new mixtures and testing of the

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new materials demonstrates that it is resistant to excessive expansion due to ASR.

The Engineer and Contractor shall monitor the concrete that is delivered to the project site so as to insure that the approved mix design is being followed. The supplier shall include on the delivery ticket for each batch of concrete delivered to the job, the identification and proportions of each material batched.

When concrete is placed during cold weather, defined for the purposes of this Detailed Specification to be, air temperatures below 40°F, the use of accelerators, heated aggregates, silica fume and/or additional forms of cold weather protection will be required. Cold weather will not eliminate the requirement for furnishing and placing a concrete mix that is considered resistant to ASR attack.

Prior to cool weather placement, defined for the purposes of this detailed specification to be, air temperatures between 40°F and 60°F, the set time of the proposed mix shall be verified under anticipated field conditions. This information shall be used when scheduling pours and saw crews.

Air Entrainment

Air entrainment shall be accomplished by addition of an approved air entraining agent. Air content as determined by ASTM C 231 or ASTM C 173, shall be determined on each day of production as early and as frequently as necessary until the air content is consistently acceptable. If during the period of time while adjustments are being made to the concrete to create a mixture that is consistently acceptable, concrete is produced that does not meet the requirements of this Detailed Specification, the Engineer may reject the material and direct it to be removed from the jobsite. Any rejected material shall be removed from the jobsite at the Contractor's sole expense. Quality Control testing performed by the Contractor to ensure compliance with the project specifications shall be performed on the grade ahead of the placement operation.

Paver Placement

During production, the plastic concrete material shall be tested for acceptance at a point ahead of the paver. The air content of the concrete mixture that the Contractor shall provide shall be known as the Acceptance Air Content (AAC). The Contractor shall also provide additional entrained air in the concrete mixture to account for the air loss which occurs in the concrete mixture experienced during transportation, consolidation, and placement of the concrete. The "air loss" shall be added to the air content of the concrete mixture as established on the approved concrete mix design. The AAC for the project will be 6.0% plus an amount equal to the air loss.

For up to the first four loads, the air content measured on-site prior to placement shall be at least 8.0% and no more than 12.0%. To establish the initial AAC on the first day of paving, the air content of the first load shall be tested at the plant. After initial testing at the plant the Contractor shall provide at least two (2) sample sets to determine the actual air loss during placement. A sample set shall consist of two (2) samples of concrete from the same batch, one (1) taken at the point of discharge and the other from the in-place concrete behind the paver. The air loss from the two (2) sample sets shall be averaged and added to 6.0% to establish the AAC (rounded to the next

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higher 0.5%). After the testing and adjustment procedure(s) have been completed, the project acceptance air tests shall be taken prior to placement. The Contractor shall provide concrete to the jobsite that has an air content of plus 2.0%, or minus 1.0%, of the AAC.

After the AAC has been established, it shall be verified and/or adjusted through daily checks of the air loss through the paver. The Contractor shall check the air loss through the paver a minimum of two times a day. A Revised AAC shall be required to be established by the Contractor if the average air loss from two (2) consecutive tests deviates by more than 0.5% from the current accepted air loss. The testing operations performed by the Contractor to establish a revised AAC shall be performed to the satisfaction of the Engineer. The Contractor shall be solely responsible for any delays and/or costs that occur to the project while establishing revised AACs.

Construction Methods

Aggregate Control

Gradation Control

The supplier shall provide a detailed stockpile management plan, describing their process control procedure for shipping, handling, and stockpiling of each aggregate including workforce training.

Moisture Control

All aggregate materials must be conditioned to a moisture content of not less than saturated surface dry (SSD) prior to batching. A watering process using an effective sprinkler system designed and operated by the Contractor shall be required on all coarse aggregate material stockpiles.

The Contractor shall provide verification that these processes have been performed by the supplier. The Engineer reserves the right to independently verify that the supplier has complied with these standards.

Mixing

Central Mix Plants

The total volume of the batch shall not exceed the designated size of the mixer or the rated capacity as shown on the manufacturer's rating plate.

Drum Mix Plants

After all solid materials are assembled in the mixer drum; the mixing time shall be a minimum of 60 seconds and a maximum of five (5) minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall start after the mixer is

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fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer throughout the charging cycle. Any additional slump water required shall be added to the mixing chamber by the end of the first 25% of the specified mixing time. Mixers shall not be used if the drum is not clean or if the mixing blades are damaged or badly worn.

Ribbon Mixers

After all solid materials are assembled in the mixer; the mixing time shall be a minimum of 30 seconds and a maximum of 2.5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall be indicated by an accurate timing device which is automatically started when the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer throughout the charging cycle. After any additional slump water is added to the mixing chamber the mixing shall continue for a minimum of 10 seconds. Mixers shall not be used if the mixer is not clean or if the mixing blades are damaged or badly worn.

Truck Mixers

The capacities and mixing capabilities shall be as defined in ASTM C 94, and each unit shall have an attached plate containing the information described therein. The plate may be issued by the Truck Mixer Manufacturer. The mixer capacity shall not be exceeded, and the mixing speeds shall be within the designated limits. Truck mixers shall be equipped with a reliable reset revolution counter. If truck mixers are used for mixing while in transit, the revolution counter shall register the number of revolutions at mixing speed.

An authorized representative of the concrete producer shall certify that the interior of the mixer drum is clean and reasonably free of hardened concrete, that the fins or paddles are not broken or worn excessively, that the other parts are in proper working order, and that the unit has been checked by the representative within the previous **30 calendar day period** to substantiate this certification. The current, signed certification shall be with the unit at all times.

The required mixing shall be between 70 and 90 revolutions. The mixing shall be at the rate designated by the manufacturer and shall produce uniform, thoroughly mixed concrete.

The Engineer may inspect mixer units at any time to assure compliance with certification requirements, and removal of inspection ports may be required. Should the Engineer question the quality of mixing, the Engineer may check the slump variation within the batch. Should the slump variation between two (2) samples taken, one (1) after approximately 20% discharge and one (1) after approximately 90% discharge of the batch, show a variation greater than $\frac{3}{4}$ -inch (20 mm) or 25% of the average of the two, whichever is greater, the Engineer may require the mixing to be increased, the batch size reduced, the charging procedure be modified or the unit removed from the work.

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The practice of adding water on the site shall be discouraged. After the slump of the concrete in the first round of trucks has been adjusted on-site, the amount of water added at the plant shall be adjusted accordingly for that day's work. All additions of water on site shall be approved by the Engineer.

Curing

Apply liquid curing compound in a fine atomized spray to form a continuous, uniform film on the horizontal surface, vertical edges, curbs and back of curbs immediately after the surface moisture has disappeared, but no later than 30 minutes after concrete placement. With approval of the Engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties.

The cure system shall be on site and tested prior to concrete placement.

Apply a curing compound at a rate of application not less than 2-gallons per 25-square yards. The Contractor shall keep the material thoroughly mixed per the Manufacturer's recommendations. The curing compound shall not be diluted.

The finished product shall appear as a uniformly painted solid white surface. Areas exhibiting a blotchy or spotty appearance shall be recoated immediately.

Compliance with Standards

The Engineer will review and approve all material test reports and mix designs supplied by the Contractor before any placement of concrete. The Engineer will visually inspect the placed concrete and review the concrete test reports prior to final acceptance.

Acceptance sampling and testing will be performed using the sampling method and testing option selected by the Engineer. Acceptance testing will be performed at the frequency specified by the Engineer. Quality control measures to insure job control are the responsibility of the Contractor. The Engineer's testing and/or test results will not relieve the Contractor from his/her responsibilities to produce, deliver, and place concrete that meets all project requirements. The Engineer's test results are for acceptance purposes only.

If the results of the testing are not in compliance with the project specifications, the Engineer shall determine appropriate corrective action(s). Time extensions will not be granted to the Contractor during the time that the Engineer is determining the necessary corrective actions.

If, in the Engineer's judgment, the rejected material must be replaced, the material in question will be removed and replaced at the Contractor's sole expense. The removal costs will be deemed to include all relevant and associated costs including, but not limited to; re-mobilization, traffic control, re-grading the aggregate base course, if required, placement of material meeting the project specifications, and all other expenses. Time extensions will not be granted to the Contractor for any required repair work to meet the requirements of this specification.

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If the Engineer decides that the material in question can remain in place, an adjustment to the contract unit price(s) may be made of up to 100% of the bid price(s) for the affected items of work.

Measurement and Payment

The cost associated with complying with the requirements as described herein, including any required remedial action(s), shall be included in the cost of other items of work and shall not be paid for separately.

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Description

This work shall consist of furnishing all labor, material, and equipment needed to furnish, place, and protect all concrete material in accordance with the requirements of this special provision.

Materials

The concrete shall meet the requirements of Sections 601 and 701 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction.

The Contractor shall propose specific concrete mix designs for the intended project purpose in accordance with the requirements of this special provision and other applicable special provisions and/or project requirements. The Engineer's acceptance of a mix design shall not relieve the Contractor of their responsibility for the manufacture of the concrete mixture(s), its placement, or performance.

Construction

The Contractor shall perform all concrete placement operations in weather that is suitable for the successful placement and curing of the concrete materials. Concrete shall not be placed during periods of active precipitation.

The Contractor shall complete all needed formwork, base and/or sub-base preparation, and any other related items that are deemed necessary for the proper completion of the work. The Contractor shall not commence the placement of concrete until they receive all needed approvals from the Engineer for placement. The Engineer's approval of the Contractor to place concrete shall not relieve the Contractor of their responsibility for the proper placement and protection of the concrete materials or its long-term performance.

During periods when precipitation is threatening, provide durable, plastic sheeting, approved by the Engineer, in sufficient quantity to cover and protect all freshly placed concrete such that precipitation does not come into contact with the concrete. The Contractor shall arrange the placement of the plastic sheeting such that the surface of any freshly placed concrete is not marred by contact with the plastic; any seams in the plastic sheeting shall be watertight. The Contractor shall place adequate supports along and over the freshly placed concrete to prevent contact of the plastic and concrete. The Contractor shall ensure that sufficient dams or barriers are placed along the edges of the freshly placed concrete to prevent erosion of the underlying materials or damage to the edges of the freshly placed concrete. All measures shall be effective.

Any concrete damaged by precipitation shall be removed and replaced at the Contractor's expense. The Engineer shall decide if the concrete has been damaged and the limits of removal and replacement.

Concrete shall only be placed when the rate of surface evaporation at the site is less than 0.20 pounds per square foot per hour, according to Figure 706-1 of the MDOT 2012.

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Standard Specifications for Construction. The Contractor shall provide approved equipment for determining the relative humidity and wind velocity at the site.

Water shall not be added to the placed concrete in order to aid finishing. Any water added to the concrete for slump adjustments shall be done by adding water to the mixing unit and thoroughly re-mixing the concrete for 30 revolutions of the mixing unit at mixing speed. Water shall not be added such that the design water-to-cement ratio of the concrete mixture or the design slump of the concrete mix is exceeded.

Concrete curing shall be performed in accordance with Subsection 602.03.M of the MDOT 2012 Standard Specifications for Construction. Curing operations shall take precedence over texturing operations and continued concrete placement. All curing compound applied shall provide uniform coverage over the entire surface being protected. The placement of curing compound shall be free of spots, blotches, or uncovered or non-uniformly covered areas. Should any areas be determined to exist by the Engineer, the curing compound shall be immediately re-applied by the Contractor at no additional cost to the project.

The Contractor shall take all precautions when placing concrete to protect it from damage due to the elements. Concrete shall not be placed during precipitation events.

Concrete shall be protected from weather and temperature according to the requirements of Subsection 602.03.T MDOT 2012 Standard Specifications for Construction. Concrete shall not be placed when the temperature of the plastic concrete mixture itself is greater than 90°F. In conditions where low temperature protection is required, the Contractor shall cover the concrete with insulated blankets, or other means as approved by the Engineer, to protect the concrete from damage. The concrete shall remain protected until it has reached a compressive strength of at least 1,000 psi, or as directed by the Engineer.

Measurement and Payment

All costs associated with the conformance to the requirements as described herein will not be paid for separately but shall be considered to be included in the respective items of work.

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Description

This work shall consist of furnishing and installing cast in place detectable warning units in compliance with the Americans with Disability Act (ADA). All work shall be in accordance with MDOT Standard Detail R-28-J (or version in place at time of the bid letting).

Materials

The detectable warning tiles shall be colored as Federal Number 22144 (variously referred to as "Clay Red" or "Brick Red"). The detectable warning tiles shall meet the following material properties, dimensions, and tolerances using the most current test methods:

1. Water Absorption: Not to exceed 0.35% when tested in accordance with ASTM-D570.
2. Slip Resistance: 0.80 minimum combined wet/dry static coefficient of friction on top domes and field area, when tested in accordance with ASTM C1028.
3. Compressive Strength: 18,000 psi minimum, when tested in accordance with ASTM D695.
4. Tensile Strength: 10,000 psi minimum, when tested in accordance with ASTM D638.
5. Flexural Strength: 24,000 psi minimum, when tested in accordance with ASTM D790.
6. Chemical Stain Resistance: No reaction to 1% hydrochloric acid, urine, chewing gum, soap solution, motor oil, bleach, calcium chloride, when tested in accordance with ASTM D543 or D1308.
7. Wear Depth: 300 minimum, when tested in accordance with ASTM C501.
8. Flame Spread: 25 maximum, when tested in accordance with ASTM E84.
9. Gardner Impact: 50 in.-lbs. minimum, when tested in accordance with Geometry "GE" of ASTM D5420.
10. Accelerated Weathering of Tile when tested by ASTM-G155 or ASTM G151 shall exhibit the following result- $\Delta E < 6.0$ as well as no deterioration, fading or chalking of surface when exposed to 3000 hours minimum exposure.
11. Wheel Loading: The cast in place tile shall be mounted on a concrete platform with a ½" airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8,000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs using AASHTO-HB17 single sheet HS20-44 loading "Standard Specifications for Highways and Bridges."

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12. Salt and Spray Performance of Tile and Adhesive System when tested to ASTM-B117 not to show any deterioration or other defects after 100 hours of exposure.

Construction Methods

Installer's Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for this Project.

The contractor shall follow manufacturer specifications for installation, except where they conflict with MDOT Standard Detail R-28-J (or version in place at the time of bidding), or other project requirements.

Measurement and Payment

The completed work, as described, will be measured, and paid for at the Contract unit price for the following pay item:

Contract Item (Pay Item)

Pay Unit

Detectable Warning, Cast in Place..... Square Foot

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PAVEMENT MARKING

ST:JMB

1 of 1

2/25/22

Description

This work consists of providing and placing permanent pavement markings in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMTUTCD), latest version published at time of advertisement. Provide pavement markings that conform to the Plans, the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, MDOT Pavement Marking Standard Plans, City of Ann Arbor Special Details, and as specified herein.

Materials

Provide materials in accordance with Sections 811 and 920 of the MDOT 2012 Standard Specifications for Construction. Provide the Material Safety Data Sheets to the Engineer for required materials and supplies. Dispose of unused material and containers in accordance with the Federal Resource Conservation Recovery Act (RCRA) of 1976 as amended, and 1994 PA 451, Part 111 Hazardous Waste Management. Provide samples of permanent marking materials upon request.

Construction Methods

The preparation and placement of permanent markings shall conform to Section 811 of the MDOT 2012 Standard Specifications, the Plans, and as specified herein.

Measurement and Payment

Completed work, as described, will be measured, and paid for at Contract unit prices for the following Contract (pay) items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Pavt Mrkg, Polyurea, 4-inch, Yellow	Foot
Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	Foot
Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the MDOT 2012 Standard Specifications for Construction and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SEWER ABANDONMENT

ST:JMB

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2/25/22

Description

This work shall include abandoning existing sewers and structures of various size and depth as required by the Plans. All work shall be done in accordance with Section 203 of the 2012 Michigan Department of Transportation Standard Specifications for Construction, as directed by the Engineer, and as described herein.

Materials

Granular Material Class II Section 902

Methods of Construction

Sewers and structures (e.g. manholes, wells, inlets, catch basins, cisterns) shall be removed and disposed of off-site, in such a manner as not to damage any new work, or work or material which is to remain in-place. The hole or trench resulting from the removal of the sewers and structures shall be backfilled with Granular Material, CI II, in maximum lifts of 12-inches, and be compacted to 95% of its maximum unit weight, if located within the public rights-of-way, railroad rights-of-way, or within the influence paved surfaces or structures. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its maximum unit weight, in lifts of 12-inches or less, unless otherwise noted on the plans. The resulting hole left in a structure from a sewer to be removed shall be bulkheaded with bricks and mortar to provide a watertight seal and constructed such that the remaining flow in the manhole is not impeded.

Where structures are identified for abandonment in place, the structure shall be removed to a minimum depth of 48-inches below grade. The pipe connections shall be bulkheaded with bricks and mortar to provide a watertight seal and the remaining structure shall be backfilled with Granular Material, CI II, in maximum lifts of 12-inches, and be compacted to 95% of its maximum unit weight, if located within the public rights-of-way, railroad rights-of-way, or within the influence paved surfaces or structures. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its maximum unit weight, in lifts of 12-inches or less, unless otherwise noted on the plans.

As directed by the Engineer and within two (2) days of their removal, the Contractor shall deliver the existing structure covers to the City of Ann Arbor Public Works Unit located at the W.R. Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108.

Provide flowable fill material, as directed by the Engineer, meeting one (1) the following mixes:

1. Portland cement, fly ash, and water.
2. Portland cement, granular material, fly ash, and water.
3. Fly ash, granular material, and water.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
SEWER ABANDONMENT

ST:JMB

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Provide materials in accordance with the following requirements:

		⁽³⁾ <u>Specific Gravity</u>
Portland Cement	MDOT Section 901	3.15
Fly Ash	⁽¹⁾ ASTM C 618(I)	2.40
Granular Material, CI II	⁽²⁾ MDOT Section 902	2.60
Water	MDOT Section 911	1.00

Note: Reference to MDOT relates to applicable Sections of the Michigan Department of Transportation 2012 Standard Specifications for Construction.

- (1) Except there is no limit on the loss of ignition.
- (2) Except that 100% shall pass 3/4-inch sieve.
- (3) Specific gravity values used for mix proportions given. If material used differs from these values make appropriate adjustments as required to achieve an acceptable mixture.

Acceptable mixtures for flowable fill are as follows:

1. FF Mix Number One
 Cement Stabilized Fly Ash Mixture (Class F Fly Ash)

Portland Cement	100 lbs/cyd
Fly Ash (Class F)	2,000 lbs/cyd
Water	Sufficient amounts to produce the desired flowability (approx. 80 gal/cyd)

2. FF Mix Number Two
 Controlled Density Fill Mixture (Class F Fly Ash)

Portland Cement	50 lbs/cyd
Fly Ash (Class F)	500 lbs/cyd
Granular Material	2,600 lbs/cyd
Water	Sufficient amounts to produce the desired flowability (approx. 50 gal/cyd)

3. FF Mix Number Three
 Controlled Density Fill Mixture (Class C Fly Ash)

Fly Ash (Class C)	300 lbs/cyd
Granular Material	2,600 lbs/cyd
Water	Sufficient amounts to produce the desired flowability (approx. 50 gal/cyd)

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SEWER ABANDONMENT

ST:JMB

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Measurement and Payment

The completed work shall be paid for at the Contract unit price for the following Contract items:

<u>Contact Item (Pay Item)</u>	<u>Pay Unit</u>
Sewer, Any Size or Depth, Abandon, In Place.....	Foot
Sewer, Any Size or Depth, Abandon, Flowable Fill.....	Foot
Sewer, Any Size or Depth, Remove.....	Foot
Structure, Any Size or Depth, Abandon	Each
Structure, Any Size or Depth, Remove	Each

Payment for the above items shall include all labor, material, and equipment to complete the work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
6-INCH WRAPPED UNDERDRAIN

ST:JMB

1 of 2

2/25/22

Description

This work shall consist of furnishing and installing 6-inch diameter geotextile-wrapped, perforated or slotted underdrain pipe, using MDOT 2NS, as directed by the Engineer, for all backfill material.

Materials

The materials shall meet the requirements referenced in Section 404 of the 2012 edition of the MDOT Standard Specifications, except as specified herein.

The Geotextile Filter Fabric for encasing the underdrain pipe shall be an approved material such as nylon, polypropylene, fiberglass, or polyester, and shall be either woven, heat bonded, knitted, or of continuous fibers. The geotextile shall completely cover and be secured to the pipe. In an un-stretched condition, knitted polyester fabrics shall weigh at least 3.0 ounces per square yard, and all other geotextiles shall weigh at least 3.5 ounces per square yard. The fabric shall be strong and tough and have a porosity such that the fabric will retain soil particles larger than 0.106 mm (no. 140 sieve) and shall pass aggregate particles finer than 0.025 mm. Geotextiles shall be stored and handled carefully and in accordance with the both the manufacturer's recommendations and the Engineer's direction, and shall not be exposed to heat or direct sunlight. Torn or punctured geotextiles shall not be used.

Construction Methods

Geotextile wrapped underdrain shall be installed as shown on the Plans or as directed by the Engineer and in accordance with Section 404 of the 2012 edition of the MDOT Standard Specifications, except as specified herein.

The installation of underdrain shall precede all other construction activities including but not limited to pavement milling, pavement pulverization, pavement removal, pavement patching, and curb repair.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact MDOT 2NS fine aggregate to construct underdrain as specified on the Plans, and as directed by the Engineer.

The trench shall be constructed to have a minimum width of 18-inches and shall be typically excavated to the depth specified in the Plans or directed by the Engineer.

The underdrain shall be installed at the line, grade, and depth specified on the Plans or as directed by the Engineer. The minimum percent grade shall be 0.5%, and the minimum cover from top-of-pipe to finished top-of-curb grade shall be 4-feet. The Contractor shall maintain line and grade by means of a laser. The Engineer will not provide line, grade or staking.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
6-INCH WRAPPED UNDERDRAIN

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Upgrade ends of the pipe shall be closed with suitable plugs to prevent entrance of trench backfill material. All couplings, tees, plugs, and other fittings shall be manufactured and installed so as to prevent any infiltration of trench backfill material.

The Contractor shall tap at least one end of the underdrain into a storm sewer structure, as directed by the Engineer.

During the construction of underdrain runs, the Engineer may direct the Contractor to terminate or modify underdrain construction due to conflicts with buried obstructions or if the minimum 4-foot cover cannot be maintained. There will be no adjustment to the Contract Unit Price due to changes in quantity.

The first lift (bedding) of backfill shall be MDOT 2NS material to a maximum thickness of 3-inches. Subsequent lifts shall be MDOT 2NS material to a maximum thickness of 12-inches.

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

All structures, inlets and manholes shall be maintained free of accumulations of silt, debris, and other foreign matter throughout construction, until the time of final acceptance.

Measurement and Payment

Connecting (tapping) underdrain(s) into drainage structure(s) will not be paid for separately but shall be included in the bid price for this item of work.

Underdrain will be measured in-place by length in lineal feet.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<u>CONTRACT (PAY) ITEM</u>	<u>PAY UNIT</u>
6-Inch Wrapped Underdrain	Foot

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WATER MAIN ABANDONMENT

ST:CJE

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2/25/22

Description

This work shall include abandoning or removing existing water mains, valves, valve wells, valve boxes, and fire hydrant assemblies of various sizes as required by the Plans. All work shall be performed in accordance with the project plans, as detailed in this specification, and as directed by the Engineer.

Materials

All materials shall meet the requirements specified in Division 7 and 9 of the MDOT 2012 Standard Specifications for Construction.

Construction

The Contractor shall abandon water mains where shown on the Plans and as directed by the Engineer. This includes, but is not limited to, cutting the main at each end, plugging the live main at the end(s) with push-on joint plug(s) and thrust block(s), plugging the abandoned main at its end(s) with brick and mortar, concrete, or mechanical joint plug, breaking down any manholes (remove manhole ring and cover and the top 4' of manhole structure, breaking out the manhole base, and backfilling as specified herein) in the abandoned line, removing and salvaging any valves and fittings, plugging the pipe in manholes with brick and mortar, concrete, or mechanical joint plugs.

In locations as shown on the Plans or where abandoned water main, valves or valve wells are within 30 inches of the proposed subgrade, the pipe, valves or valve wells shall be removed completely. The resulting hole or trench shall be backfilled with Granular Material, Class II, in maximum lifts of 12 inches, and be compacted to 95% of its maximum dry density, if located within the public rights-of-way, railroad rights-of-way, or within the influence of paved surfaces or structures. Applicable road pavement cross-section, per plans, shall be installed per plans and as directed by the Engineer. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its maximum dry density, in lifts of 12 inches or less, unless otherwise noted on the plans.

Abandoned (salvaged) valve operating nuts, fire hydrant assemblies and structure covers shall be delivered to the City of Ann Arbor Public Works Unit located at the W.R. Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108 within two days of their removal. Valve boxes should be disposed of at the contractor's sole expense.

Measurement and Payment

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Water Main, Abandon.....	Foot
Water Main, Remove.....	Foot

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DETAILED SPECIFICATION
FOR
WATER MAIN ABANDONMENT

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Fire Hydrant, Remove Each

The unit price for the pay items Water Main, Abandon and Water Main, Remove shall be paid for on a linear foot (LF) basis and includes all labor, material and equipment costs necessary to abandon or remove the pipe including, but not limited to, excavation, cutting of pipe, push-on joint plugs, caps and thrust blocks, brick and mortar bulkheads, grouting, the furnishing, placement, and compaction of approved granular backfill material, as required, and the removal and proper disposal off-site of excess materials. In addition, this pay item includes the removal and salvage of valves, valve boxes, and manhole rings and covers, the removal of the top 4 feet of valve wells, and breaking out the valve well base.

The unit price for the pay item Fire Hydrant, Remove includes all labor, material and equipment costs associated with the complete removal of the existing fire hydrant assembly, as specified herein, including but not limited to, excavation MDOT CL II Backfill and compaction; pipe cutting; thrust block removal; pipe plug; thrust block; salvaging of fire hydrant, valve and valve box and delivery of fire hydrant, valve and valve box to the City of Ann Arbor Public Works Unit located at the W.R. Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WATER MAIN INSTALLATION AND TESTING

ST:CJE

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2/25/22

Description

This Detailed Specification is intended to supplement the current City of Ann Arbor Standard Specifications for Construction regarding water main installation and hydrologic and bacteriologic testing. It is also intended to establish minimum requirements for the work that the Contractor is responsible to follow.

Materials

All ductile iron pipe and fittings shall have an asphaltic seal coat on their cement-mortar linings. The coatings shall meet the requirements of ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, and be approved for contact with drinking water.

Construction Methods

During the delivery, handling, installation, and testing of the water main, the Contractor shall comply with the following requirements:

1. The Contractor shall dig-up and expose utility crossings 60-feet in advance of laying any water main pipe in their vicinity. This will allow the Engineer to adjust the grade of the water main, if possible, to avoid the existing utilities. The costs of the advance excavations, and related costs, shall be included in the respective items of work listed in the Bid Form. Some dig-ups may need to occur out of Phase.
2. Keep all pipes clean and neatly stacked a minimum of 6-inches off of the ground at all times. Ends of pipe shall be covered to prevent entry of dust, dirt, small animals, and any other objectionable matter at all times. During installation of the water main and all appurtenances no dirt, soil, or non-potable water shall be allowed to enter the pipe. If dirt, soil, or non-potable water does enter the pipe, the Contractor shall completely remove it prior to installing the next segment of pipe. Segments of pipe that have visible signs of contamination including, but not limited to; soil, dirt, mud, oil, grease, solvents, animal droppings, etc. shall have all visible traces of the offending substance completely removed by the Contractor in a manner acceptable to the Engineer. Sections of pipe or fittings that have been marked by the Engineer for cleaning shall not be approved for installation until such time as the Engineer has again approved them for use on the project. Acceptable methods of cleaning include flushing and/or power washing, compressed air, or other methods that the Engineer may approve. Approval by the Engineer of a cleaning method shall not be construed by the Contractor to include acceptance of the water main for the purposes of placing it into service. Water main pipe and fittings that have been placed shall remain covered on the advancing end until the next segment of pipe is connected. The Contractor may uncover no more than three segments of pipe in advance of placement. Water main pipe and fittings that have been laid out further in advance of the installation operation must remain covered.
3. Gasket lubricant shall only be applied immediately before connection to the next segment of pipe. Pipe with lubricant applied shall not come in contact with the ground. If the lubricated portion of the pipe end contacts the ground, it shall be thoroughly cleaned to

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
WATER MAIN INSTALLATION AND TESTING

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the satisfaction of the Engineer, prior to its installation.

4. All water mains shall be swabbed in accordance with the requirements of Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standards. During swabbing of the water main, the swab shall be flushed through the pipe in accordance with the manufacturer's recommendations and in a manner that is acceptable to the Engineer. The Contractor shall submit the product data of the swab from the manufacturer, for review and approval by the Engineer, at or before the pre-construction meeting.
5. Swabbing of the water main shall be followed immediately by flushing of the pipe so that any disturbed particles are washed out before they can resettle. The pipe shall be flushed in accordance with Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standard Specifications. The pipe shall be flushed until the water runs clear for a minimum of fifteen minutes or until two (2) full pipe volumes have been flushed (whichever is longer). Flushing from the existing water main that is to be replaced shall not be allowed.
6. During the chlorination process, the proper level of chlorination must be achieved throughout the entire length pipe. Chlorine levels shall be checked at intermediate locations as directed by the Engineer and the Contractor shall add chlorine until such time as the required levels are achieved at all points. The "plug method" of chlorinating the pipe shall not be allowed. The Contractor shall chlorinate the proposed water main to a minimum residual concentration of 100 parts per million with commercial liquid chlorine solution. The chlorine concentrate shall be a minimum of 10% chlorine (sodium hypochlorite) by volume. Solid chlorine "pellets" or powder shall not be allowed. Any chlorine containing compound used on the project shall be approved by the Engineer. The minimum recommended dosage of chlorine (sodium hypochlorite) is as follows (based on 10% available chlorine):

Recommended Minimum Chlorine Dosage to Disinfect 100 L.F. of Pipe

<u>Pipe Diameter</u>	<u>10% Chlorine Solution (gallons)</u>
6	0.306
8	0.544
10	0.852
12	1.226
16	2.180
20	3.406
24	4.904

7. Bacteriological testing shall be performed by the City with the Contractor present. The Engineer shall determine the number, location, and type of testing points for each section of water main being tested. Bacteriological samples shall only be drawn from copper or brass sampling points. The use of galvanized steel blow-offs or sampling points are strictly prohibited. Obtaining bacteriological samples from fire hydrants will not be allowed.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WATER MAIN INSTALLATION AND TESTING

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8. If a new water main fails two consecutive sets of bacteriological tests, the Engineer may require the Contractor to re-swab the water main in accordance with Section 3H, Flushing and Swabbing, as described above. Additional flushing, prior to subsequent bacteriological sampling will also be required. The required additional swabbing and flushing of the water main by the Contractor shall be performed at no additional cost to the City of Ann Arbor.

Measurement and Payment

Payment for all labor, materials, and equipment that is required to comply with this Detailed Specification shall be considered as part of the unit price as bid for each respective water main pipe and fitting and will not be paid for separately.

Payment for all water main pipes shall be as follows:

The Contractor shall be paid for 50% of the water main pipe installed upon satisfactory completion of the installation and backfilling of the water main pipe. The remaining 50% shall be paid upon successful completion of all required bacteriological testing, the water main has been placed into service, and all water service leads have been connected and are in service.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
FIRE HYDRANT ASSEMBLY

ST:CJE

1 of 1

2/25/22

Description

This Detailed Specification is intended to supplement the current City of Ann Arbor Standard Specifications for Construction regarding Fire Hydrant Assembly.

Materials

Fire hydrants shall be either the East Jordan Model Watermaster 5BR250 with traffic flange, or the Waterous Pacer Model WB67-250 with traffic flange. All fire hydrants shall have the following features: a 6-inch push-on tyton joint connection, ANSI/AWWA C111/A21.11; one (1) 5-inch storz connection; one (1) 3-3/8-inch threaded Ann Arbor Standard pumper connection with 7-1/2 threads per inch and 4.05 inch O.D.; 1-3/8-inch pentagon operating and cap nuts (1-3/8-inch point-to-flat at top; 1-7/16-inch point-to-flat at base); open left; breakable flange construction; no barrel drain; and a painted red finish. Depth of bury (bottom of pipe to ground surface) is generally 6-feet but may vary depending on specific site conditions. The pumper nozzles must be 21-inch ± 3-inch above finished grade, and the breakable traffic flange must be between finished grade and 8-inch above finished grade. Fire hydrant extensions for Waterous hydrants shall be Waterous Part #K562. Extensions for East Jordan hydrants shall be hydrant model 5BR250 extension kits. All fire hydrants must be certified by Underwriters Laboratory (UL) or the National Sanitation Foundation (NSF) for use in a potable water system.

Measurement and Payment

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

Contract Item (Pay Item)

Pay Unit

Fire Hydrant Assembly Each

Fire hydrant assemblies shall be measured per unit constructed and paid for on the basis of unit price each. The unit price for fire hydrant assemblies shall include a 6-inch gate valve in box, 3-lineal feet of 6-inch pipe, an approved hydrant with traffic flange, and a thrust block. Any required extensions to meet the grades as shown on the drawings will be incidental to the fire hydrant assembly.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
COORDINATION WITH EXISTING WATER SUPPLY SYSTEM

ST:CJE

1 of 1

2/25/22

Description

The Contractor may not operate City water main valves. For valve operation, contact the City of Ann Arbor Public Services Area. It is recommended that the Contractor request that the existing valves, which will need to be operated in order to perform the water main work, are checked in advance of the work to ensure that they operate properly.

Several items of work on this project require coordination with the City of Ann Arbor Public Services Area (The City). The Contractor shall notify the City three (3) full working days in advance of any items requiring coordination with the City.

The Contractor shall complete the water main work in a manner which minimizes the disruption of water service. Water quality issues arise and treatment costs increase when the well field system is taken off line. No shut downs at the well field shall occur on Saturdays or Sundays. Shut downs shall not be for longer than 8.0 hours for any given shutdown event. Liquidated damages as detailed and described on page C-2 of these documents shall apply to any shut downs that occur on Saturday or Sunday or for a period of time longer than 8.0 hours in any given 24 hour period.

The Contractor shall be responsible for coordination with the City of Ann Arbor Public Services Area for the installation of 1-inch corporations in the gate wells to be used for testing and filling of new main. The Contractor shall pay the City of Ann Arbor's Public Works Unit all costs associated with installing the corporations.

The Contractor must have all materials, fittings, pumps and other miscellaneous equipment, and personnel on site before the City of Ann Arbor Public Services Area personnel will prepare and shutdown an existing main.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SACRIFICIAL ANODE

ST:CJE

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2/25/22

Description

The work shall consist of anode installation on existing water mains as directed by the Engineer at connections to existing water mains, or where existing water mains are exposed during the course of construction.

Materials

Anodes shall be high potential magnesium anode ingots with packaged backfill. Anode ingot shall meet or exceed ASTM B843, GRADE M1C for high-potential magnesium anodes. Anodes shall be supplied in the size/weight as identified in the specifications, or larger.

Anode shall come furnished with minimum 10 feet of coiled #12 AWG solid copper lead wire with TW, THHN or THWN insulation, firmly attached to the galvanized steel core of the anode. The core cavity shall be filled with electrical sealing compound to assure a fully insulated and protected connection. Magnesium anode and backfill shall be pre-packaged into a single unit in a permeable cloth bag.

Connection of anode lead wire to cast iron or ductile iron pipe or fittings shall be made by the thermite weld method. Thermite weld materials shall consist of wire sleeves, weld mold and weld cartridges according to the weld manufacturer's recommendations for the specific wire and pipe sizes and materials. Weld materials from different manufacturers shall not be interchanged. Weld molds shall be graphite molds. Ceramic "one-shot" molds will not be acceptable.

Measurement and Payment

Completed work, as described, will be measured, and paid for at Contract unit prices for the following Contract (pay) items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Sacrificial Anode, 17 lb	Each
Sacrificial Anode, 32 lb	Each

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PRECAST MODULAR BLOCK GRAVITY RETAINING WALL

ST:JMB

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Description

This Section includes furnishing all materials and labor required for the design and construction of a precast concrete modular block (PMB) retaining wall without geosynthetic reinforcement. Precast modular block gravity retaining wall blocks under this section shall be cast utilizing a wet-cast concrete mix and exhibit a final handling weight of more than 1,000 pounds (450 kg) per unit.

The work shall consist of furnishing materials, labor, equipment, and supervision for the construction of a precast modular block (PMB) retaining wall structure in accordance with the requirements of this section and in acceptable conformity with the lines, grades, design and dimensions shown in the project site plans.

Materials

The precast modular block retaining wall shall be provided by manufacturers of Redi-Rock Retaining Wall Systems as licensed by Redi-Rock International, LLC, or approved equal.

The precast modular block design, except as noted herein, shall be based upon AASHTO Load and Resistance Factor Design (LRFD) methodology, current edition, or NCMA, Design of Segmental Retaining Walls, current edition. Design of the precast modular block retaining wall shall satisfy the requirements of this section. Where local design or building code requirements exceed these specifications, the local requirements shall also be satisfied.

Soil Shear Parameters: The Retaining Wall Design Engineer shall prepare the shop drawings based upon soil shear strength parameters from the available project data.

Seismic Stability: Seismic loading shall be evaluated in accordance with AASHTO Load and Resistance Factor Design (LRFD) methodology, current edition.

Design Requirements

All block wall units shall be wet-cast precast modular retaining wall units conforming to ASTM C1776.

All units for the project shall be obtained from the same manufacturer. The manufacturer shall be licensed and authorized to produce the retaining wall units by the precast modular block system patent holder/licensor and shall document compliance with the published quality control standards of the proprietary precast modular block system licensor for the previous three (3) years, or the total time the manufacturer has been licensed, whichever is less.

Concrete used in the production of the precast modular block units shall be first-purpose, fresh concrete. It shall not consist of returned, reconstituted, surplus or waste concrete. It shall be an original production mix meeting the requirements of ASTM C94 with a minimum 28-day compressive strength of 4,000 psi.

Each concrete block shall be cast in a single continuous pour without cold joints. Except for half-block units, corner units and other special application units, the precast modular block units shall

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
PRECAST MODULAR BLOCK GRAVITY RETAINING WALL

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conform to the nominal dimensions listed in the table below and be produced to the dimensional tolerances shown in the table below.

Block Type	Dimension	Nominal Value	Tolerance
28" (710 mm) Block	Height	18" (457 mm)	+/- 3/16" (5 mm)
	Length	46-1/8" (1172 mm)	+/- 1/2" (13 mm)
	Width*	28" (710 mm)	+/- 1/2" (13 mm)

Individual block units shall have a nominal height of 18 inches (457 mm).

With the exception of half-block units, corner units and other special application units, the precast modular block units shall have two (2), circular dome shear knobs that are 10 inches (254 mm), 7.5 inches (190 mm), or 6.75 inches (171 mm) in diameter and 4 inches (102 mm) or 2 inches (51 mm) in height.

The shear knobs shall fully index into a continuous semi-cylindrical shear channel in the bottom of the block course above. The peak interlock shear between any two (2) vertically stacked precast modular block units, with 10 inch (254 mm) diameter shear knobs, measured in accordance with ASTM D6916 shall exceed 6,500 lb/ft (95 kN/m) at a minimum normal load of 500 lb/ft (7kN/m). as well as an ultimate peak interface shear capacity in excess of 11,000 lb/ft (160 kN/m).

The peak interlock shear between any two (2) vertically stacked precast modular block units, with 7.5 inch (190 mm) or 6.75 inch (171 mm) diameter shear knobs, measured in accordance with ASTM D6916 shall exceed 1,850 lb/ft (27 kN/m) at a minimum normal load of 500 lb/ft (7kN/m) as well as an ultimate peak interface shear capacity in excess of 10,000 lb/ft (146 kN/m).

Test specimen blocks tested under ASTM D6916 shall be actual, full-scale production blocks of known compressive strength. The interface shear capacity reported shall be corrected for a 4,000 psi (27.6 MPa) concrete compressive strength. Regardless of precast modular block configuration, interface shear testing shall be completed without the inclusion of unit core infill aggregate.

The 28" (710 mm) and 41" (1030 mm) precast modular block units may be cast with a 13" (330 mm) wide, continuous vertical core slot completely through the block, or solid concrete.

Without field cutting or special modification, the precast modular block units shall be capable of achieving a minimum radius of 14 ft 6 in (4.42 m).

The precast modular block units shall be manufactured with an integrally cast shear knobs that establishes a standard horizontal set-back for subsequent block courses. The precast modular block system shall be available in the four (4) standard horizontal set-back facing batter options listed below:

Horizontal Set-Back / Block Course	Max Facing Batter
3/8" (10mm)	1.2 degrees

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PRECAST MODULAR BLOCK GRAVITY RETAINING WALL

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1-5/8" (41mm)	5.2 degrees
9-3/8" (238mm)	27.5 degrees
16-5/8" (422mm)	42.7 degrees

The precast modular block units shall be furnished with the required shear knobs that provide the facing batter required in the construction shop drawings.

The precast modular block unit face texture and color shall be selected by the OWNER from the available range of textures available from the precast modular block manufacturer. Each textured block facing unit shall be a minimum of 5.76 square feet (0.54 square meters) with a unique texture pattern that repeats with a maximum frequency of once in any 15 square feet (1.4 square meters) of wall face.

All precast modular block units shall be sound and free of cracks or other defects that would interfere with the proper installation of the unit, impair the strength or performance of the constructed wall. PMB units to be used in exposed wall construction shall not exhibit chips or cracks in the exposed face or faces of the unit that are not otherwise permitted. Chips smaller than 1.5" (38 mm) in its largest dimension and cracks not wider than 0.012" (0.3 mm) and not longer than 25% of the nominal height of the PMB unit shall be permitted. PMB units with bug holes in the exposed architectural face smaller than 0.75" (19 mm) in its largest dimension shall be permitted. Bug holes, water marks, and color variation on non-architectural faces are acceptable. PMB units that exhibit cracks that are continuous through any solid element of the PMB unit shall not be incorporated in the work regardless of the width or length of the crack.

Construction

Prior to construction, the Contractor shall examine the areas in which the retaining wall will be constructed to evaluate compliance with the requirements for installation tolerances, worker safety and any site conditions affecting performance of the completed structure. Installation shall proceed only after unsatisfactory conditions have been corrected.

Fill Soil: The Contractor shall verify that retained backfill material placed within a horizontal distance of one (1.0) times the wall height behind the wall blocks and any fill soil installed in the foundation and retained soil zones of the retaining wall satisfies the criteria of this section.

Foundation Preparation: The Contractor shall verify that the shear strength of the in-situ soil assumed by the Retaining Wall Design Engineer is appropriate. The Contractor shall immediately stop work and notify the Owner if the in-situ shear strength is found to be inconsistent with the retaining wall design assumptions. The Contractor shall verify that the foundation soil exhibits sufficient ultimate bearing capacity to satisfy the requirements indicated on the retaining wall construction shop drawings.

Leveling Pad: The leveling pad shall be constructed to provide a level, hard surface on which to place the first course of precast modular block units. The leveling pad shall be placed in the dimensions shown on the retaining wall construction drawings and extend to the limits indicated. Crushed Stone Leveling Pad. Crushed stone shall be placed in uniform maximum lifts of 6" (150 mm). The crushed stone shall be compacted per the retaining wall manufacturer's requirements.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PRECAST MODULAR BLOCK GRAVITY RETAINING WALL

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Installation

The precast modular block structure shall be constructed in accordance with the construction drawings, these specifications, and the recommendations of the retaining wall system component manufacturer.

Construction Tolerance: Allowable construction tolerance of the retaining wall shall be as follows:

1. Deviation from the design batter and horizontal alignment, when measured along a 10' (3 m) straight wall section, shall not exceed 3/4" (19 mm).
2. Deviation from the overall design batter shall not exceed 1/2"(13 mm) per 10' (3 m) of wall height.
3. The maximum allowable offset (horizontal bulge) of the face in any precast modular block joint shall be 1/2" (13 mm).
4. The base of the precast modular block wall excavation shall be within 2" (50 mm) of the staked elevations, unless otherwise approved by the Inspection Engineer.
5. Differential vertical settlement of the face shall not exceed 1' (300 mm) along any 200' (61 m) of wall length.
6. The maximum allowable vertical displacement of the face in any precast modular block joint shall be 1/2"(13 mm).
7. The wall face shall be placed within 2" (50 mm) of the horizontal location staked.

The Contractor shall place wall infill and backfill per the manufacturer's requirements.

The Contractor shall grade the surface of the last lift of the granular wall infill in accordance with the construction drawings with a minimum of a 3% ± 1% slope away from the precast modular block wall face and compact it.

Heavy equipment should not be operated within 3' (0.9 m) of the back of the precast modular blocks.

Measurement and Payment

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Precast Modular Gravity Retaining Wall	Square Foot

The unit price for this item of work shall include all supervisory, accounting, administrative, and equipment costs needed to monitor and perform all work related to maintaining compliance with the tasks specified in this Detailed Specification, the City of Ann Arbor Code of Ordinances, its Prevailing Wage Compliance policy and the applicable Federal and State laws.

All drainage, aggregate, and geotextile fabric required for the retaining wall detail shall be incidental to the retaining wall pay item.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
STRUCTURE COVERS

ST:CJE

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Description

This work shall consist of furnishing structure covers as detailed on the plans and as specified herein.

<u>Type of Casting</u>	<u>MDOT Designation</u>	<u>Approx. Weight (lb)</u>	<u>East Jordan Iron Works Casting No.</u>	<u>Neenah Foundry Casting No.</u>
Manhole Flange and Cover	B	400 LB	1040 w/1040A cover*	R-1642 w/Type C cover*
Manhole Flange and Cover, Sanitary	Q	400 LB	1040 w/1040AGS gasketed cover*	R-1642 w/Type C gasketed cover*
Barrier Curb Round Flange	K	500 LB	7045 w/Type M2 grate	R-3031-B w/Type S grate
Barrier Curb Double Inlet Round Flange	K	500 LB	7045 w/Type M2 grate	R-3031-B w/Type S grate
Gutter Inlet Round Flange	R	500 LB	7076 w/Type M1 grate	R-3594 w/Type S grate
Gutter Double Inlet	R	N/A	N/A	N/A
Yard Drain (Beehive)	G	200 LB	1040, Type 02 grate	R-2560-E1
Operating Nut Access Frame and Cover	1-A	200 LB	1570Z, 2965A Cover	Equivalent (as approved)

*Frames and covers shall have machined bearing surfaces and City of Ann Arbor custom logo. Each cover shall have the word "SANITARY", "STORM", "WATER", or a raised letter "W" cast in the surface, whichever is applicable.

Materials

The materials used for this work shall conform to Section 908.05 of the Michigan Department of Transportation 2012 Standard Specifications for Construction except as specified herein.

Construction Methods

This work shall be in accordance with Section 402 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, design specifications, plans, and as specified in the related items of work for which the structure covers are provided, and except as modified herein. This work includes the removal, salvaging and transporting the existing casting and/or cover to the City Yard; and backfilling to grade per design specifications, plans, and as directed by the Engineer.

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DETAILED SPECIFICATION
FOR
STRUCTURE COVERS

ST:CJE

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Measurement and Payment

The completed work as measured shall be paid at the Contract unit price for the following Contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Structure Covers	Pounds

Payment for this item of work shall include all labor, materials and equipment needed to furnish and install the structure cover.

Covers for Nyloplast drainage inlets will not be paid for under the Structure Covers Pay Item, but shall be incidental to the inlet pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES

ST:JMB

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Description

The following notes pertain to all Plan sheets issued as part of this Contract, and these notes shall be considered part of each Plan Sheet or Detailed Information Sheet.

1. All work shall conform to latest revision of the City Standard Specifications.
2. The Contractor shall maintain access to all drives throughout the course of construction. Drives shall never be closed during non-working hours, unless otherwise authorized in writing by the Engineer.
3. The Contractor shall completely restore all existing site features to better than, or equal to, their existing condition.
4. The Contractor shall be aware that there are above-ground and below-ground utilities existing in and on these streets which include, but are not limited to: gas mains and service leads; water mains and service leads; storm sewer mains and service leads; sanitary sewer mains and service leads; telephone poles, wires, cables and conduits; electrical poles, wires, cables and conduits; cable television wires, cables and conduits, and other various utilities. The Contractor shall conduct all of its work so as not to damage or alter in any way, any existing utility, except where specified on the Plans or where directed by the Engineer. The City has videotaped and cleaned all sanitary and storm sewers, including storm sewer inlet leads, and has found all of these facilities to be in good condition, with the exception of those shown on the Plans for repairs or replacement.
5. The Contractor is solely responsible for any delays, damages, costs and/or charges incurred due to and/or by reason of any utility, structure, feature and/or site condition, whether shown on the Plans or not, and the Contractor shall repair and/or replace, at its sole expense, to as good or better condition, any and all utilities, structures, features and/or site conditions which are impacted by reason of the work, or injured by its operations, or injured during the operations of its subcontractors or suppliers.
6. No extra payments or adjustments to unit prices will be made for damages, delays, costs and/or charges due to existing utilities, structures, features and/or site conditions not shown or being incorrectly shown or represented on the Plans.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
DISPOSING OF EXCAVATED MATERIAL

ST:JMB

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Description

The Contractor shall dispose of, at the Contractor's expense, all excavated material. Costs for this work will not be paid for separately but shall be included in the bid price of the Contract Item "General Conditions, Max \$100,000".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROTECTION OF UTILITIES

ST:JMB

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Description

Damages to utilities by the Contractor's operations shall be repaired by the utility owner at the Contractor's expense.

Delays to the work due to utility repairs are the sole responsibility of the Contractor.

The Contractor shall keep construction debris out of utilities at all times. The Contractor shall be back charged an amount of \$50.00 per day for each manhole/inlet/utility pipe that contains construction debris caused as a result of the Contractor's (including subcontractors and suppliers) work.

The Contractor is solely responsible for any damages to the utilities or abutting properties due to construction debris.

Certain sanitary and storm sewers within the influence of construction may have been cleaned and videotaped prior to construction. The City may also choose to videotape utility line(s) during or after the work of this Contract to inspect them for damages and/or construction debris. If such inspection shows damage and/or debris, then all costs of such inspection, cleaning, repairs, etc., shall be the Contractor's sole responsibility. If such inspection is negative, the City will be responsible for the costs of such inspection.

Costs for this work will not be paid for separately but shall be included in the bid price of the Contract Item "General Conditions, Max \$60,000".

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SOIL EROSION CONTROL

ST:CJE

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The Contractor shall furnish, place, maintain and remove soil erosion and sedimentation control measures, including but not limited to, silt fence and fabric filters at all drainage structures, all in accordance with all applicable City (and other governmental agencies) codes and standards, as directed by the Engineer, as detailed in the Standard Specifications, and as shown on the Plans.

Description

This work consists of installing and maintaining inlet filters and silt fence in accordance with Section 208 of the 2012 Michigan Department of Transportation Standard Specifications for Construction and as shown on the plans. Filters in existing and proposed inlets, as well as silt fence downstream of construction area, shall be installed in order to minimize the erosion of soil and the sedimentation of water courses. The related work includes the installation, maintenance, and removal of the filters and fence, cleaning as required during the performance of the project work, removing and disposing of accumulated sediment, and replacement of filters if required by the Engineer so as to provide a properly working inlet filter and a well-drained site.

Materials

The inlet filters shall be in accordance with the REGULAR FLOW SILTSACK® manufactured by ACF Environmental (800) 448-3636; FLEXSTORM® Style FX manufactured by Advanced Drainage Systems, Inc. (800) 821-6710; CATCH-ALL® manufactured by Price & Company (866) 960-4300, or Engineer approved equal.

Methods of Construction

The Contractor shall install, maintain, clean, and re-install and/or replace inlet filters and silt fence in accordance with the manufacturer's specifications and as directed by the Engineer at no additional cost. The Contractor shall dispose of debris off-site.

Costs for this work will not be paid for separately but shall be included in the bid price of the Contract Item "General Conditions, Max \$60,000".

Measurement and Payment

The completed work of Soil Erosion Control will be paid for at the Contract unit price for the following Contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Erosion Control, Inlet Filter	Each
Erosion Control, Silt Fence	Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TREES AND PLANTINGS

ST:JMB

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Description

This work shall consist of planting trees or shrubs, and placement of shredded bark mulch at the locations shown on the plans or as directed by the Engineer. Work shall be in accordance with Sections 815, 816 and 917 of the 2012 Michigan Department of Transportation Standard Specifications for Construction with the following amendments or additions.

Watering, removing weeds, and completing all necessary tasks to maintain a healthy stand of plants, and Balled and Burlapped (B&B) Trees shall be included in this work.. Extent of work shall include a two year warranty and maintenance period, including but not limited to the following:

1. Watering
2. Weed Control
3. Mulching
4. Disease and Insect Control
5. Pruning
6. Fertilizer Application
7. Removal of Tree Support and Tags

The Contractor shall attend a site walkthrough to review final plantings within the project area.

Tree drip irrigation bags are in addition to planting specifications 815, 816 and 917 of the 2012 Michigan Department of Transportation Standard Specifications.

Materials

All planting methods and materials shall conform to Sections 815, 816 and 917 and the planting details shown on the plans. In addition, tree planting shall include and Tree Drip Irrigation Bags and Watering and Cultivating. Tree and plant types and sizes shall be as shown on the Drawings or as directed by the Engineer.

Tree Drip Irrigation Bags shall be Treegator Original 20-gallon slow release watering bags, or approved substitution.

Fertilizer shall be slow release, at minimum 50% derived from a natural, organic source, 12-0-6 or approved substitution.

The Contractor shall submit a minimum size sample of ½-gallon sized container of structural soil and topsoil for approval prior to installation.

The Contractor shall submit to the ENGINEER sources for all plant material.

Construction Methods

The construction methods shall be in accordance with the 2012 Michigan Department of Transportation Standard Specifications for Construction Section 815.03 unless otherwise stated

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DETAILED SPECIFICATION
FOR
TREES AND PLANTINGS

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in this special provision.

All open tree pits shall be excavated to the full extent of their dimensions as shown in the details.

Watering and Cultivating shall follow the schedule in the 2012 Michigan Department of Transportation Standard Specifications for construction Section 815 with the adjustment of filling the tree drip irrigation bags with water and using the fertilizer as dictated in this special provision. For each watering and cultivating visit, verification in the form of a report of maintenance activities and certified payroll covering visits, shall be provided to the OWNER by the end of each month that the visits have taken place.

Measurement and Payment

The completed work as measured shall be paid for at the Contract unit price for the following Contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Hackberry (<i>Celtis occidentalis</i>), 2.5 inch caliper.....	Each
Honeylocust (<i>Gleditsia Triacanthos</i>), 2.5 inch caliper	Each
Eastern Redbud (<i>Cercis Canadensis</i>), 2.5 inch caliper	Each
Red Maple, (<i>Acer rubrum</i>), 4 inch caliper	Each

Measurement and payment for the item Trees and Plantings shall include excavation, backfill, topsoil, shredded bark mulch, tree drip irrigation bags, water, and all other equipment necessary, and as described herein, for a complete installation. Warranty and maintenance for two seasons shall also be included in the prices provided under this allowance.

The final inspection of all planting work under the Contract will be made by the Contractor and Engineer at the end of the maintenance and establishment periods. Before final acceptance is given, the terms of the establishment shall be met and the site shall be cleared of all debris, soil and containers.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CLEAN-UP & RESTORATION, SPECIAL

ST:CJE

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Description

This item of work shall conform to Division IX, Section II, "Clean-Up & Restoration" of the Public Services Area Standard Specifications, and Section 816 of Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, except as specified herein.

This work shall include the removal of all surplus materials from the site including, but not limited to, tools, dirt, rubbish, construction debris, and excess excavated material; the restoration of all woodland, hardscaped, landscaped and lawn areas; replacement of furniture, fixtures, fences, and similar features disturbed by the work; restoration and sweeping/cleaning of road surfaces, removal of temporary fill, culverts, drives, and sidewalks disturbed by the work. This work includes placing fertilizer and installing mulch blankets on all disturbed areas that have been seeded as approved by the Engineer. Mulch blankets are required on all seeded areas.

Materials

The materials shall meet the requirements specified in Sections 816.02 and 917 the Michigan Department of Transportation (MDOT) 2012 Standard Specifications as designated, as specified herein, and as approved by the Engineer:

- Topsoil – 4-inches in depth. See Section 917.07.
- Turf Grass seed mixture shall be THM. See Table 8 16-1 for description and rate of application, and Table 917-1 for purity, germination, and proportions.
- Mesic Woodland Garden seed mixture used for restoration of the Dicken Woods Natural Area shall be the Mesic Woodland Seed Mix by Native Connections of Kalamazoo, Michigan, or Engineer approved equal. Seeding rate shall be per the supplier's recommendations, with a minimum application rate of 31 lbs per acre.
- Pollinator Garden seed mixture used for restoration of the proposed Pollinator Garden in the Dicken Woods Natural Area shall be the Dry-Mesic Pollinator Mix Seed Mix by Native Connections of Kalamazoo, Michigan, or Engineer approved equal. Seeding rate shall be per the supplier's recommendations, with a minimum application rate of 31 lbs per acre.
- Fertilizers shall be a Class A. See Section 816.03.B for rate of application, and Section 917.10.B.1 for composition requirements.
- Water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances.
- Mulch - Mulch seeded areas with the appropriate materials for the site conditions to promote germination and growth of seed and to mitigate soil erosion and sedimentation. Mulch shall be High Velocity Straw Mulch Blankets as specified in Section 917.15.B.1b.

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DETAILED SPECIFICATION
FOR
CLEAN-UP & RESTORATION, SPECIAL

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Construction, Maintenance, and Acceptance

Perform project cleanup as an ongoing operation within the right-of-way, permanent and temporary easement areas, and any other areas impacted by the project work operations.

Perform restoration and establish turf in accordance Section 816.03 of MDOT 2012 Standard Specifications for Construction. Woodland seed mix shall be established as recommended by the seed supplier.

It is the responsibility of the Contractor to establish a dense area of permanent grasses, sedges, rushes and forbs, free from mounds and depressions prior to final acceptance and payment of this project. Any portion of a seeded area that fails to show a uniform germination shall be reseeded. Such reseeding shall be at the Contractor's expense and shall continue until a dense lawn is established. The Contractor is responsible for restoring all areas disturbed by his construction.

The Contractor shall maintain all seeded areas until they have been accepted by the Engineer. Maintenance shall begin immediately after the seed is in place and continue until final acceptance with the following requirements:

Seeded areas shall be protected and maintained by watering, mowing, and reseeding as necessary, until the period of time when the final acceptance and payment is made by the Engineer for the project, to establish a uniform, weed-free, stand of the specified grasses, sedges, rushes and forbs. Maintenance includes furnishing and installing additional topsoil and reseeding all as may be required to correct all settlement and erosion until the date of final acceptance.

Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over three (3) percent of the area nor greater than 6"x 6" in size.

When the above requirements have been fulfilled, the Engineer will accept the seeded areas.

Cleanup and Restoration must be performed upon the completion of each sub-phase of work (as described in the Detailed Specification for Project Schedule), and not as one single operation at the completion of the entire project.

Measurement and Payment

Measurement and payment for this item of work shall conform to Division IX, Section 2, Item No. 891, Clean-Up & Restoration of the Public Services Area Standard Specifications except as modified herein.

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Clean-Up & Restoration, Special	Lump Sum
Topsoil Surface, 4-inch	Square Yard
Seed, Turf Grass	Pound
Seed, Mesic Woodland.....	Pound

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CLEAN-UP & RESTORATION, SPECIAL

ST:CJE

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Seed, Pollinator Mix.....Pound
Split Rail Fence Foot
Woodchip Path, 4 inch.....Square Feet

The completed work for “Clean-Up & Restoration, Special” will be paid for on a lump sum (LS) basis. Prior to final acceptance of the project, the Engineer will inspect the restored area to ensure that the end product is well established; weed free, and in a growing and vibrant condition. If the Engineer determines that the restored areas do not meet the project requirements, the Contractor will continue with any and all measures necessary to meet the project requirements. All costs associated with the remedial measures shall be borne entirely by the Contractor

"Topsoil Surface, _-inch" will be measured by area in square yards and shall include the installation of subsequent fertilizer and mulch blankets following seeding. "Seed, _____" will be measured in Lb based on seeding rate as indicated herein. Both contract pay items will be paid for at the contract unit prices which shall be payment in full for all labor, materials, and equipment needed to accomplish this work as detailed herein.

After initial placement of the topsoil and seed mixture(s), 50 percent of the total quantity placed for each item will be certified for payment. The remaining 50 percent of the total quantities will be held by the Engineer until such time as all seeded areas have been established and accepted by the Engineer.

APPENDIX



GEOTECHNICAL REPORT

CITY OF ANN ARBOR 2022 MISCELLANEOUS UTILITIES
ANN ARBOR, MICHIGAN

Prepared For:

STANTEC
Ann Arbor, Michigan

Prepared By:

MATERIALS TESTING CONSULTANTS, INC.
Ann Arbor, Michigan

May 2021
MTC Project No. 201769



May 17, 2021
Project No. 201769

Stantec
3754 Ranchero Drive
Ann Arbor, MI 48108

Attention: Chris Elenbaas, P.E.
Project Manager

Reference: Report of Geotechnical Investigation
City of Ann Arbor 2022 Miscellaneous Utilities
Ann Arbor, Michigan

Dear Mr. Elenbaas:

We have completed a geotechnical investigation for the above-referenced project. The purpose of this investigation has been to identify the general subsurface soil conditions in the vicinity of the proposed construction, analyze the conditions relative to the planned utility installation construction and to provide geotechnical considerations for utility installation. This work has been performed as described in our proposal dated March 19, 2021.

Presented herein are descriptions of our understanding of the design considerations, the geotechnical investigation, encountered conditions and construction considerations. The Appendix contains the report limitations and data collected during this investigation.

DESIGN CONSIDERATIONS

Available Information

We have been provided the following documents and information for use in this investigation:

- Maps showing the soil boring locations, depths and description of the proposed construction, received from Mr. Chris Elenbaas, P.E. of Stantec on March 18, 2021.
- Telephone conversations with Mr. Chris Elenbaas, P.E. of Stantec regarding the geotechnical investigation and the utility installation methods.



Project Location and Information

The areas of the proposed utility work are shown on Figure Nos. 1 to 4. The locations and project information are as follows:

Eighth Street and Jefferson Court (Borings B-1 and B-2) – Approximately 500 ft of new water main installed by trenchless methods, approximately 5 to 7 ft depth running north-south from Eighth Street south of West Liberty Avenue to the west end of Jefferson Court.

South Maple Road and Dicken Drive (Borings B-3 and B-4) – Approximately 400 ft of new water main installed by trenchless methods, approximately 5 ft depth running east-west from South Maple Road north of Breckenridge Drive to the north end of Dicken Drive.

Sunrise Court (Boring B-5) – Water main replacement, installation by open cut methods, approximately 5 ft depth.

Hiscock Street (Boring B-6) – Storm sewer realignment, installation by open cut methods, approximately 10 ft depth.

We should be informed of any changes between the actual project information and those described herein as this information may affect the construction considerations.

INVESTIGATION METHODOLOGY

Conventional soil test borings and sampling along with field engineering reconnaissance were used to investigate the subsurface conditions. Boring locations are shown on Figure Nos. 1 to 4. Six borings were drilled with depths ranging from 10 ft to 25 ft below the ground surface. Boring B-6 was originally planned to be drilled to 15 ft depth but was extended to 25 ft depth after consultation with the client due to encountered clay with organics at the planned termination depth.

Investigation procedures, soil classification information and boring logs are provided in the Appendix. Borings were drilled and other sampling was conducted solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.

Laboratory

Soil samples were reviewed by one of our engineers and technically classified according to the methods of ASTM D 2488 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)". Calibrated penetrometer tests were performed on cohesive samples to obtain an indication of unconfined compressive strength values.



Selected samples were subjected to various laboratory tests, including:

- ASTM D 2216 "Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass"
- ASTM D 2974 "Test Methods for Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils"

Results of the laboratory tests are provided in the Appendix.

INVESTIGATION RESULTS

Regional Geology

The *Map of the Surface Formations of the Southern Peninsula of Michigan*, published by the State of Michigan, indicates the site is generally in an area of moraines. Soil conditions typically are found to range from clay and silt to sand and gravel with possible cobbles and boulders in this type of geologic area.

The *Map of Bedrock Topography of the Southern Peninsula of Michigan* indicates bedrock to be at approximately el 650 ft, on the order of 200 to 300 ft below site elevations.

Site Conditions

Descriptions of the site conditions at each of the work areas are as follows:

Eighth Street and Jefferson Court (Borings B-1 and B-2) – The asphalt pavement on both roads was generally in poor condition with widespread alligator cracking. Ground surface elevations on Eighth Street generally ranged from approximately 860 ft at the north of the road to 850 ft at the south of the road. Ground surface elevations on Jefferson Court generally ranged from approximately 864 ft at the west end to 860 ft at the east end.

South Maple Road and Dicken Drive (Borings B-3 and B-4) – The concrete pavement on South Maple Road was generally in fair condition with occasional transverse cracking. The asphalt pavement on Dicken Drive appeared to have been recently installed and was generally in good condition. The ground surface elevations generally decreased from west to east, with elevations of approximately 988 ft near Boring B-4 on South Maple Road and 970 ft near Boring B-3 on Dicken Drive.

Sunrise Court (Boring B-5) – The asphalt pavement on Sunrise Court generally ranged from fair to poor condition, with occasional to frequent alligator cracking. The ground surface elevations ranged from approximately 918 ft at the south end of Sunrise Court to 931 ft at the north end of Sunrise Court.



Hiscock Street (Boring B-6) – The asphalt pavement on Hiscock Street appeared to have been recently installed and was generally in good condition. Ground surface elevations along Hiscock Street generally decreased from west to east, with elevations of approximately 840 ft near Spring Street to 804 ft near West Summit Street.

Subsurface Conditions

General descriptions of the subsurface conditions at each site are as follows:

Eighth Street and Jefferson Court (Borings B-1 and B-2)

Boring B-1, located on Jefferson Court, encountered 2 inches of asphalt at the surface underlain by medium dense brown poorly graded sand with silt (SP-SM) fill to a depth of 3.5 ft (el 858.4 ft) and loose to medium dense brown poorly graded sand (SP) to the explored depth of 12.5 ft (el 849.4 ft).

Boring B-2, located on Eighth Street, encountered 3 inches of asphalt over 4 inches of asphalt millings underlain by medium dense brown clayey sand (SC) or poorly graded sand (SP) to the explored depth of 10.0 ft (el 848.3 ft).

Each boring encountered indications of possible coarse gravel or cobble at depths of up to 10 ft (el 848.3 ft). Boulder may be present where cobble is noted.

Groundwater was not encountered in Borings B-1 and B-2.

South Maple Road and Dicken Drive (Borings B-3 and B-4)

Boring B-3, located within the Dicken Drive right-of-way, encountered 1 inch of clayey topsoil at the surface underlain by hard brown lean clay with sand (CL) to the explored depth of 10 ft (el 960.3 ft).

Boring B-4, located on South Maple Road, encountered 6 inches of concrete over 6 inches of sand base underlain by loose brown clayey sand (SC) fill to a depth of 3.0 ft (el 987.9 ft) and stiff to hard brown or gray lean clay with sand (CL) to the explored depth of 10.0 ft (el 977.9 ft). Indications of possible coarse gravel or cobble were encountered at depths of up to 7.0 ft (el 980.9 ft). Boulder may be present where cobble is noted.

Groundwater was not encountered in Borings B-3 and B-4.



Sunrise Court (Boring B-5)

Boring B-5, located on Sunrise Court, encountered 7 inches of asphalt over 3 inches of natural aggregate base underlain by medium dense clayey sand (SC) that was classified as fill to a depth of 3.0 ft (el 922.6) and possible fill to a depth of 5.5 ft (el 920.1 ft). Beneath the clayey sand, Boring B-5 encountered very stiff brown lean clay with sand (CL) and lean clay (CL) to the explored depth of 10.0 ft (el 915.6 ft). Groundwater was not encountered in Boring B-5.

Hiscock Street (Boring B-6)

Boring B-6, located on Hiscock Street, encountered 4 inches of asphalt underlain by loose to medium dense brown clayey sand (SC) fill to a depth of 5.5 ft (el 798.3 ft), loose brown poorly graded sand with silt (SP-SM) and dark brown clayey sand (SC) to a depth of 10.5 ft (el 793.3 ft), stiff dark brown sandy lean clay (CL) with occasional shells to a depth of 17.0 ft (el 786.8 ft), very stiff gray sandy lean clay to a depth of 22.0 ft (el 781.8 ft) and medium dense gray poorly graded sand to the explored depth of 25.0 ft (el 778.8 ft).

Laboratory testing for organic content and moisture content was performed on samples of dark brown sandy lean clay (CL) obtained at depths of 12.5 and 15.0 ft (el 791.3 and 788.8 ft). Organic contents ranged from 3.6 to 4.9 percent and moisture contents ranged from 21.5 to 24.2 percent.

Seepage groundwater from saturated sand seams was encountered at a depth of 17.0 ft (el 786.8 ft).

The relative density of granular soil is based on recorded SPT N-values while the consistency of cohesive soil is based on both recorded SPT N-values and on estimates of the unconfined compressive strength obtained with a calibrated penetrometer.

Groundwater levels may fluctuate due to seasonal variations such as precipitation, snowmelt, nearby river or lake levels and other factors that may not be evident at the time of measurement. Groundwater levels may be different at the time of construction.

This section has provided a generalized description of the encountered subsurface soil conditions. The boring logs located in the Appendix should be reviewed for detailed soil descriptions. Some variation between boring locations may be expected.



GEOTECHNICAL CONSIDERATIONS

Key geotechnical challenges associated with this project are expected to include, but not necessarily be limited to, the following:

- Trenchless sewer installations at two locations (Eighth Street/Jefferson Court and South Maple Road/Dicken Drive), with particular concern related to the presence of possible obstructions, including, but not necessarily limited to, coarse gravel, cobble and boulder.
- A stiff clay with organic content ranging from 3.6 to 4.9 percent encountered below the anticipated pipe invert depth in Boring B-6 on Hiscock Street and the possible presence of unsuitable subgrade material requiring overexcavation and replacement. Based on elevated organic contents, corrosion of pipe may be a concern for this project and should be evaluated by the design engineer. Corrosivity testing was not included in our scope of work; however, such testing can be performed if requested.

Provided herein are geotechnical considerations for this project.

Trenchless Installations

Based on the provided project information and the subsurface conditions encountered, horizontal directional drilling methods are expected to be feasible for the proposed trenchless installations for experienced, qualified contractors.

As with any trenchless installation method, there is some risk of settlement associated with excess soil removal; however, this risk can be controlled through the selection of an experienced contractor, appropriate installation procedures and implementation of a detailed monitoring plan including full-time observation and documentation of the work and continuous settlement monitoring during the operation.

A settlement monitoring program should be developed by the contractor and sent to the engineer for approval a minimum of 2 weeks prior to the start of construction. Appropriate alert and work stoppage levels should be developed to allow for evaluation of the root cause of settlement and alternative installation methods and stabilization measures as necessary.

The specific means and methods of construction including, but not limited to, selection of drilling equipment and tooling, drilling pressures and operational parameters and monitoring of the operation should be selected by the contractor to complete the installation in a safe manner while protecting the integrity of the ground surface and while complying with any City of Ann Arbor permit requirements.

The project should be completed in continuous 24 hour per day shifts once the trenchless installation operation is started unless directed otherwise by the engineer. Entry and exit pits will be the responsibility of the contractor to design, install and maintain.



Obstructions may be encountered during the trenchless installation. Underground voided areas may develop along the installation route as obstructions (especially boulder size) are cleared outside the installation path. The contractor must keep track of the station where these obstructions are removed so that grouting from the ground surface into the potentially voided zone can be completed as needed.

One of the key geotechnical aspects of the trenchless installations is expected to be possible coarse gravel, cobble or boulder obstructions. Soil conditions along the trenchless installations can generally be summarized as follows:

- *Eighth Street and Jefferson Court (Borings B-1 and B-2)* – Primarily granular soil with possible coarse gravel, cobble or boulder near the installation elevations.
- *South Maple Road and Dicken Drive (Borings B-3 and B-4)* – Primarily cohesive soil with possible coarse gravel, cobble or boulder near the installation elevations.

The contractor should be prepared to perform excavation and removal of obstructions where encountered during trenchless water main installation.

Additional soil borings should be obtained as needed by the contractor for construction. All adjacent utilities should be identified within the installation alignment.

Open Cut Excavation Considerations

The following comments are offered related to open cut utility installation:

- Coarse gravel, cobbles, boulders and miscellaneous fill debris may be encountered. Abandoned utilities and other obstructions may also likely be present. The contractor should be prepared to excavate and remove obstructions as required.
- Groundwater was encountered as seepage in Boring B-6 on Hiscock Road at a depth of 17.0 ft (el 786.8 ft), and the control of groundwater is not expected to be of significant concern on these projects.
- The contractor should be prepared to support utilities and structures and provide a safe work environment in accord with all safety standards, as discussed in the following section.
- Management of storm sewer flows during construction must be provided. Sequencing of construction activities should consider conflicts between existing and proposed utilities.

Temporary Slopes and Excavation Support

Excavations on the order of 10 to 15 ft in depth are anticipated for this project. The contractor should be fully responsible for determining suitable excavation slope angles, excavation and soil support methods and assessing the need for lateral earth retention to protect the integrity of all existing structures and to maintain traffic as specified in the contract documents. OSHA



and other applicable State, Federal and local agency and code requirements must be adhered to during construction.

The support and protection of all soil, structures and utilities outside of the right-of-way/contract limits and existing utilities and structures within the right-of-way limits are the responsibility of the contractor including during completion of services and other connections to adjacent buildings. All excavation and earth retention methods selected by the contractor must consider protection of existing structures.

The use of a trench box (temporary shoring within the excavation trench limits) is expected to be feasible given the anticipated work locations and excavation depths.

The contractor shall be responsible for designing, constructing and maintaining any temporary support systems in a safe manner and monitoring the system's performance throughout construction. All temporary earth retention system design should be submitted to the design engineer at least two weeks before the start of construction. Considering the possible presence of older residential structures near the construction that are likely supported on shallow foundations, precautions shall be taken against excessive ground vibrations during construction by the contractor. We recommend the prohibition of vibratory earth retention such as, but not limited to, steel sheet pile.

The contractor should be aware that slope height, slope inclination, and excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, or federal safety regulations; e.g. OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations. The angle of repose and the design of the necessary supporting system for an excavation shall be determined by the contractor. Factors to consider include, but may not be limited to: depth of excavation and type of soil; variation in water content in the material while the excavation is open; anticipated changes in the material due to air, sun, water or freezing affects; load imposed by structures, equipment, overlying material, or stored material; and vibration from traffic, equipment, or construction activity.

The overburden soil encountered in our exploratory program is a combination of cohesive and granular soil. We anticipate that OSHA will classify these materials as Types A and C, respectively. OSHA recommends a maximum slope inclination of $\frac{3}{4}H:1V$ for Type A and $1\frac{1}{2}H:1V$ for Type C soil under ideal conditions.

We recommend a pre-construction survey be performed for all structures and right-of-way located within 50 ft of the utility alignment. However, due to the potential sensitivity of nearby residences to the proposed construction it may be prudent to include all residential structures adjacent to the alignment in the survey.



The preconstruction survey should be performed by the contractor's professional videographer and include an assessment of the existing structural condition and photo or video-documentation of existing cracks and structural defects. Crack monitors capable of measuring crack displacement and rotation to the nearest 1 mm and settlement monitoring points should be set prior to construction and monitored throughout construction. We recommend the contractor install crack monitors and settlement markers at locations agreed upon by the Project Engineer after the performance of the preconstruction survey. Crack monitor and settlement marker readings should be obtained one week before construction, and every 2 hours during construction within 100 ft of the marker by optical or laser level to the nearest 0.01 ft. Results of the monitoring program shall be submitted to the Project Engineer daily for review. The construction should be stopped, reviewed and a revised action plan be evaluated should any movement be observed.

Foundation Considerations

The test borings generally encountered soil conditions suitable for support of the new underground utilities at the proposed bearing elevations, with the exception of Boring B-6 on Hiscock Road where stiff clay with organic material was encountered beneath the anticipated pipe invert depth, to a depth of 17.0 ft (el 786.8 ft). This material may present a risk of settlement and instability and should be evaluated at the time of construction.

The foundation subgrade should be inspected by qualified geotechnical personnel. Any isolated areas of unsuitable miscellaneous fill, highly organic soil or unacceptably weak subgrade should be removed to an approved subgrade or improved by soil compaction. Any overexcavated areas should be backfilled with MDOT Class II engineered fill.

Bedding and Backfill

Bedding for the proposed sewer should consist of MDOT Class II sand except that 100 percent of the materials should pass a 3/8-inch sieve. General backfill material should consist of MDOT Class II sand. Sand bedding and backfill should be compacted to 95 percent of its maximum dry density (ASTM D1557). In general, soil encountered in the borings with USCS group symbols of SP or SP-SM may meet sand bedding or backfill requirements but should be evaluated through the performance of gradation testing prior to placement. Due to the highly variable soil conditions encountered, it should be considered that most, if not all, bedding and backfill will have to be imported.



CLOSURE

In this report, descriptions of the geotechnical investigation, encountered conditions and geotechnical considerations for the proposed project have been presented. The limitations of this study are described in the Appendix.

Considerations presented in this report are based upon a limited number of subsurface samples obtained from various sampling locations. The samples may not fully indicate the nature and extent of the variations that actually exist between sampling locations. For that reason, among others, we strongly recommend that a qualified geotechnical firm be retained to observe earthwork construction. If variations or other latent conditions become evident during construction, it will be necessary for us to review these conditions and our recommendations as appropriate.

We appreciate the opportunity to provide this service to you on this project. Should you have any questions or require further assistance, please contact our office.

Sincerely,

MATERIALS TESTING CONSULTANTS, INC.

Robert J. Warren, P.E.
Project Manager

Todd D. Munger, P.E.
Geoenvironmental Department Manager
Attachments: Figure Nos. 1 to 4 - Boring Location Plan
Appendix
- Limitations
- Test Drilling and Sampling Procedures
- Boring Log Terminology and Classification Outline
- Boring Logs
- Summary of Laboratory Test Data



LEGEND

 BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR 2022 MISCELLANEOUS UTILITIES

SCALE: NS

DATE: 05/06/2021

PROJECT NO.: 201769

FIG. NO.: 1

DR. BY: KLV

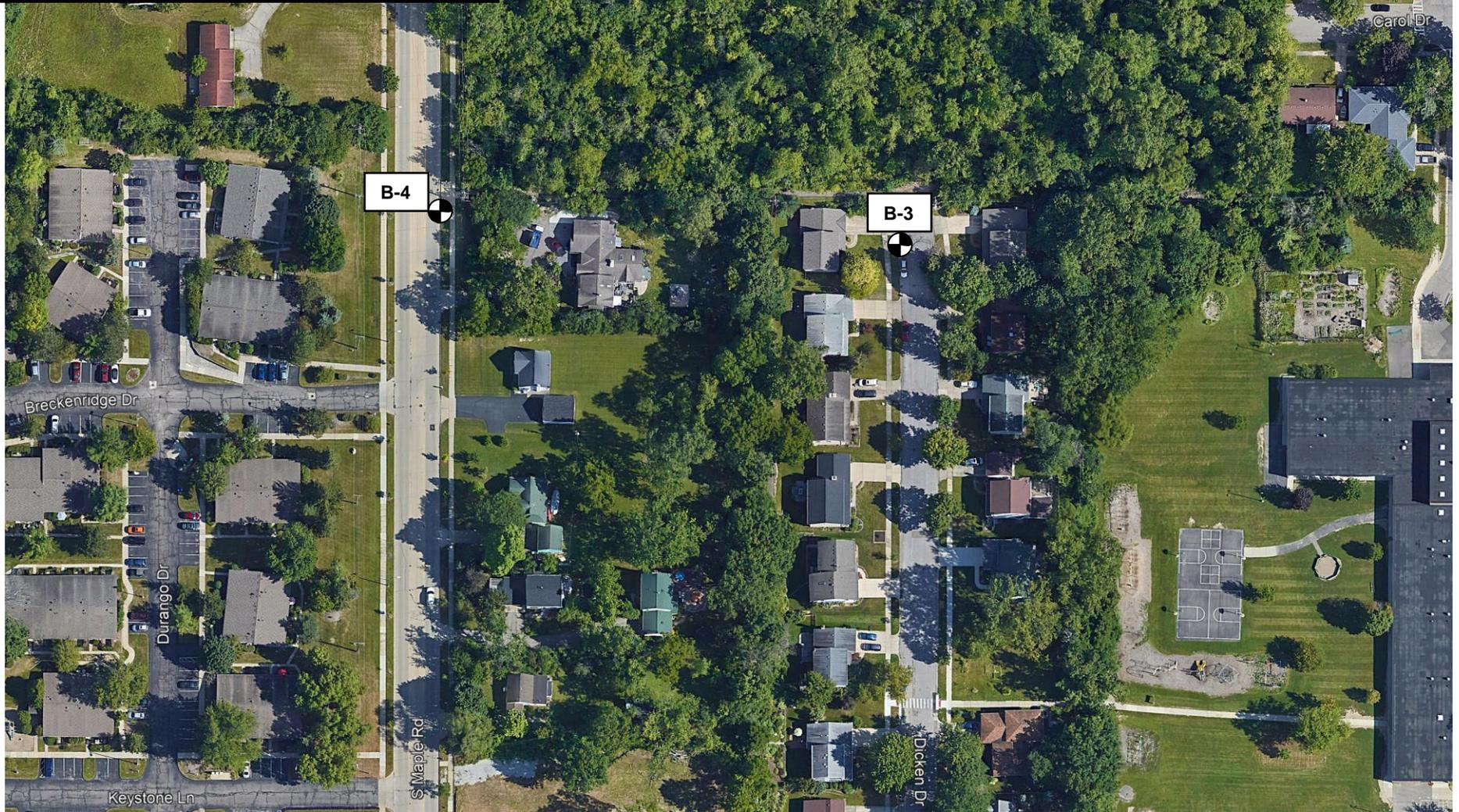
REV. BY: RW



LEGEND

 BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR 2022 MISCELLANEOUS UTILITIES

SCALE: NS

DATE: 05/06/2021

PROJECT NO.: 201769

FIG. NO.: 2

DR. BY: KLV

REV. BY: RW



LEGEND

 BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR 2022 MISCELLANEOUS UTILITIES

SCALE: NS

DATE: 05/06/2021

PROJECT NO.: 201769

FIG. NO.: 3

DR. BY: KLV

REV. BY: RW



LEGEND

 BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR 2022 MISCELLANEOUS UTILITIES

SCALE: NS

DATE: 05/06/2021

PROJECT NO.: 201769

FIG. NO.: 4

DR. BY: KLV

REV. BY: RW





APPENDIX

- Limitations
- Test Drilling and Sampling Procedures
- Boring Log Terminology and Classification Outline
- Boring Logs
- Summary of Laboratory Test Data



LIMITATIONS

Soil Variations

The recommendations in this report are based upon the data obtained from the soil borings. This report does not reflect variations which may occur between these borings, and which would not become evident until construction. If variations then become evident, it would be necessary for a re-evaluation of recommendations of this report, after performing on-site observations.

Warranties

We have prepared this report in accordance with generally accepted soil and foundation engineering practices. We make no other warranties, either expressed or implied, as to the professional advice provided under the terms of our agreement and included in this report. This report is prepared exclusively for our client and may not be relied upon by other parties without written consent from our office.

Boring Logs

In the process of obtaining and testing samples and preparing this report, we follow reasonable and accepted practice in the field of soil engineering. Field logs maintained during drilling describe field occurrences, sampling locations, and other information. The samples obtained in the field are subjected to additional testing in the laboratory and differences may exist between the field logs and the final logs. The engineer reviews the field logs and laboratory test data, and then prepares the final boring logs. Our recommendations are based on the contents of the final logs.

Review of Design Plans and Specifications

In the event that any changes in the design of the building or the location, however slight, are planned, our recommendations shall not be considered valid unless modified or approved in writing by our office. We recommend that we be provided the opportunity to review the final design and specifications in order to determine whether changes in the original concept may have affected the validity of our recommendations, and whether our recommendations have, in fact, been implemented in the design and specifications.



TEST DRILLING AND SAMPLING PROCEDURES

Test Drilling Methods:

- Hollow stem auger, ASTM D6151
- Mud rotary, ASTM D5783
- Casing advancer, ASTM D5872
- Rock coring, ASTM D2113
- Cone Penetration Testing, ASTM D5778

Note: Cone penetration test data can be used to interpret subsurface stratigraphy and can provide data on engineering properties of soils. The ASTM procedure does not include a procedure for determining soil classification from CPT testing. Soil classifications shown on CPT logs are based on published procedures and are not based on physical ASTM soil classification tests.

Sampling Methods:

- SPT, ASTM D1586, CME Auto hammer (140 lb., 30" drop, 2" OD split spoon sampler)
- Thin-walled tube sampler (Shelby), ASTM D1587

Note: The number of hammer blows required to drive the SPT sampler 12 inches, after seating 6 inches, is termed the soil N-value and provides an indication of the soil's relative density and strength parameters at the sample location. SPT blow counts in 6 inch increments are recorded on the boring logs.

Drill Rig:

- CME 45
- CME 750 Rubber tired (ATV)
- CME 95 Truck
- Geoprobe Direct Push
- Geoprobe Rotary Sonic

Boreholes Backfilled With:

- Excavated soil
- Cement bentonite grout
- Piezometer or Monitoring Well (see notes on logs)
- Concrete or asphalt patch where appropriate

Sample Handling and Disposition:

- SPT samples labeled, placed in jars, returned to MTC Laboratory
- Discard after 60 days



BORING LOG TERMINOLOGY AND ASTM D 2488 CLASSIFICATION OUTLINE

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 5
Loose	15 to 35 %	5 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

Per ASTM D2487, the following conditions must be met based on laboratory testing to justify the label 'well graded' in a soil description.

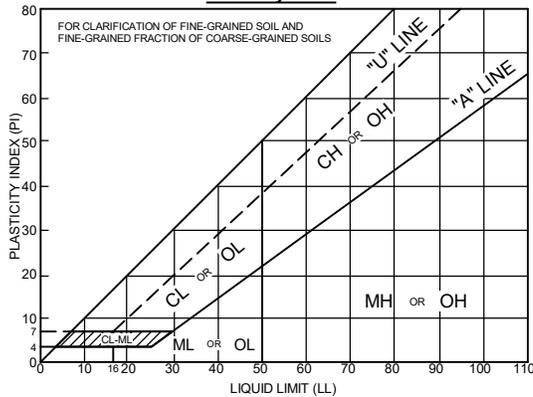
Gravel: $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

Sand: $C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Descriptive Terms	Unconfined Compressive Strength TSF	SPT Blow Count
Very soft	< 0.25	< 2
Soft	0.25 to 0.5	2 to 4
Medium stiff	0.5 to 1.0	4 to 8
Stiff	1.0 to 2.0	8 to 15
Very stiff	2.0 to 4.0	15 to 30
Hard	> 4.0	> 30

Plasticity Chart



MAJOR DIVISIONS				TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 15% FINES	GW	WELL-GRADED GRAVELS WITH OR WITHOUT SAND
			GP	POORLY-GRADED GRAVELS WITH OR WITHOUT SAND
		GRAVELS WITH 15% OR MORE FINES	GM	SILTY GRAVELS WITH OR WITHOUT SAND
			GC	CLAYEY GRAVELS WITH OR WITHOUT SAND
	SANDS MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 15% FINES	SW	WELL-GRADED SANDS WITH OR WITHOUT GRAVEL
			SP	POORLY-GRADED SANDS WITH OR WITHOUT GRAVEL
		SANDS WITH 15% OR MORE FINES	SP-SM	POORLY-GRADED SANDS WITH SILT WITH OR WITHOUT GRAVEL
			SM	SILTY SANDS WITH OR WITHOUT GRAVEL
			SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL
		FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS	ML
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL			
OL	ORGANIC SILTS OR CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL			
SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%	MH		INORGANIC SILTS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL	
	CH		INORGANIC CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL	
	OH		ORGANIC SILTS OR CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL	
HIGHLY ORGANIC SOILS		PT/OL	PEAT AND OTHER HIGHLY ORGANIC SOILS	

GENERAL NOTES

- Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
- "Grades with" or "Grades without" may be used to describe soil when characteristics vary within a stratum.
- Preserved soil samples will be discarded after 60 days unless alternate arrangements have been made.

GROUNDWATER OBSERVATIONS:

During - indicates water level encountered during the boring
End - indicates water level immediately after drilling
Date and Depth - Measurements at indicated date

SAMPLE TYPES AND NUMBERING

S	SPT, split barrel sample, ASTM D1586
U	Shelby tube sample, ASTM D1587
R	Rock core run
*S	Other than 2" split barrel sample
L	SPT with liner, ASTM D1586
A	Auger cuttings
G	Geoprobe liner

MINOR COMPONENT QUANTIFYING TERMS

Less than 5%	TRACE
5 to 10%	FEW
15 to 25%	LITTLE
30 to 40%	SOME
50 to 100%	MOSTLY

GRAIN SIZE

BOULDER	>12"
COBBLE	12" to 3"
COARSE GRAVEL	3" to 0.75"
FINE GRAVEL	0.75" to No. 4
COARSE SAND	No. 4 to No. 10
MEDIUM SAND	No. 10 to No. 40
FINE SAND	No. 40 to No. 200



LOG OF BORING

Project No.: 201769

Boring No.: B-1

Sheet: 1 of 1

Project: City of Ann Arbor 2022 Miscellaneous Utilities
 Client: Stantec
 Location: Ann Arbor, Michigan
 Drill Type: CME 45
 Crew Chief: ZM Field Eng.: JS Rev. By: RW
 Coordinates: N=283247.9 E=13287701.2 (MI South 1ft)
 Elevation: 861.9 ft Datum: NAVD 88 (GPS Observation)
 Notes:
 Plugging Record: Backfilled with grout and asphalt cold patch.

Date Begin: 04/15/2021 Date End: 04/15/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 12.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTMD 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
860.9	1	S-1	1.5	6-5-5 N=10	SP-SM	2" HMA				Fill: 0' to 3.5'
859.9	2									
858.9	3	S-2	0.5	3-3-2 N=5	SP	Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, trace silty fines, moist				S-2: Poor recovery; possible coarse gravel / COBBLE
857.9	4									
856.9	5	S-3	1.5	6-7-8 N=15	SP					
855.9	6									
854.9	7	S-4	1.5	5-7-8 N=15	SP					
853.9	8									
852.9	9	S-5	1.5	8-8-10 N=18	SP					
851.9	10									
850.9	11									
849.9	12									

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 201769

Boring No.: B-2

Sheet: 1 of 1

Project: City of Ann Arbor 2022 Miscellaneous Utilities

Client: Stantec

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=283856.6 E=13287686.5 (MI South 1ft)

Elevation: 858.3 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Plugging Record: Backfilled with grout and asphalt cold patch.

Date Begin: 04/15/2021

Date End: 04/15/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTMD 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
857.3	1	S-1	1.5	9-4-6 N=10	SC	3" HMA, 4" HMA Millings	0.6	22.8		Driller noted possible coarse gravel / COBBLE at 3.5'
856.3	2					Brown clayey SAND; mostly coarse to fine sand, little clayey fines, moist	3.0			
855.3	3									
854.3	4	S-2	1.5	9-14-10 N=24	SP	Brown poorly graded SAND; mostly coarse to fine sand, few silty fines, few coarse to fine gravel, trace silty fines, moist	8.5			
853.3	5									
852.3	6	S-3	1.5	12-13-14 N=27	SP	Brown poorly graded SAND with gravel; mostly coarse to fine sand, little coarse to fine gravel, moist	10.0			
851.3	7									
850.3	8	S-4	0.5	17-21-17 N=38	SP	Brown poorly graded SAND with gravel; mostly coarse to fine sand, little coarse to fine gravel, moist	10.0			
849.3	9									
848.3	10									
End of Boring										

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 201769

Boring No.: B-3

Sheet: 1 of 1

Project: City of Ann Arbor 2022 Miscellaneous Utilities
 Client: Stantec
 Location: Ann Arbor, Michigan
 Drill Type: CME 45
 Crew Chief: ZM Field Eng.: JS Rev. By: RW
 Coordinates: N=278830.0 E=13282656.3 (MI South 1ft)
 Elevation: 970.3 ft Datum: NAVD 88 (GPS Observation)
 Notes:
 Plugging Record: Backfilled with grout and asphalt cold patch.

Date Begin: 04/15/2021 Date End: 04/15/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTMD 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
969.3	1	S-1	1.5	3-4-5 N=9	CL	1" Clayey Topsoil	0.1	4.5+	14.2	
968.3	2					Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, moist				
967.3	3									
966.3	4	S-2	1.5	8-7-9 N=16	CL	Grades with sand seams	4.5+	11.2		
965.3	5									
964.3	6	S-3	1.5	10-12-17 N=29	CL		4.5+	13.1		
963.3	7									
962.3	8	S-4	1.5	7-11-17 N=28	CL		4.5+	13.6		
961.3	9									
960.3	10					End of Boring	10.0			

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 201769

Boring No.: B-4

Sheet: 1 of 1

Project: City of Ann Arbor 2022 Miscellaneous Utilities

Client: Stantec

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM Field Eng.: JS Rev. By: RW

Coordinates: N=278846.7 E=13282260.7 (MI South 1ft)

Elevation: 987.9 ft Datum: NAVD 88 (GPS Observation)

Notes:

Plugging Record: Backfilled with grout and asphalt cold patch.

Date Begin: 04/16/2021

Date End: 04/16/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
986.9	1					6" Concrete, 6" Sand Base	1.0			Fill: 0' to 3.0' S-3: SPT refusal; possible coarse gravel / COBBLE Driller noted possible COBBLE at 7.0'
985.9	2	S-1	1.5	5-4-4 N=8	SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill with clay lens	3.0			
984.9	3									
983.9	4	S-2	1.5	6-6-8 N=14	CL	Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, moist	4.5	11.7		
982.9	5									
981.9	6	S-3	0.8	3-2-50/1"	CL	Grades gray	1.25	19.6		
980.9	7									
979.9	8									
978.9	9	S-4	1.5	5-6-5 N=11		Grades with silt lenses	1.5	20.2		
977.9	10									

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 201769

Boring No.: B-5

Sheet: 1 of 1

Project: City of Ann Arbor 2022 Miscellaneous Utilities

Client: Stantec

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=288269.4 E=13284127.5 (MI South 1ft)

Elevation: 925.6 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 04/15/2021

Date End: 04/15/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
924.6	1					7" HMA, 3" Natural Aggregate Base	0.8			Fill: 0' to 3.0'
923.6	2	S-1	1.5	8-8-8 N=16	SC	Brown clayey SAND with gravel; mostly coarse to fine sand, little clayey fines, little coarse to fine gravel, moist, Fill	3.0		10.6	Possible Fill: 3.0' to 5.5'
922.6	3									
921.6	4	S-2	1.5	5-5-5 N=10	SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Possible Fill	5.5		12.5	
920.6	5									
919.6	6	S-3	1.5	4-4-6 N=10	CL	Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, moist	3.5	18.5		
918.6	7									
917.6	8	S-4	1.5	4-5-6 N=11	CL	Brown lean CLAY; mostly clayey fines, moist	8.0		24.6	
916.6	9									
915.6	10						10.0			

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 201769

Boring No.: B-6

Sheet: 1 of 1

Project: City of Ann Arbor 2022 Miscellaneous Utilities

Client: Stantec

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=287734.9 E=13290080.0 (MI South 1ft)

Elevation: 803.8 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 04/16/2021

Date End: 04/16/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	17.0
Sampler	SPT	2"	End	NA
Core			Seepage	17.0
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 2.0 ft.

Depth Drilled: 25.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
802.8	1					4" HMA				Fill: 0' to 5.5'
801.8	2	S-1	1.5	10-8-10 N=18	SC	Brown clayey SAND; mostly coarse to fine sand, little clayey fines, few coarse to fine gravel, moist, Fill		9.8		Driller noted possible coarse gravel from 2.0' to 3.0'
800.8	3									
799.8	4	S-2	1.5	4-4-3 N=7	SC			8.7		
798.8	5									
797.8	6									
796.8	7	S-3	1.5	3-2-1 N=3	SP-SM	Brown poorly graded SAND with silt; mostly medium to fine sand, few silty fines, moist				
795.8	8									
794.8	9									
793.8	10	S-4	1.5	3-2-1 N=3	SC	Dark brown clayey SAND; mostly medium to fine sand, little clayey fines, moist		17.6		
792.8	11									
791.8	12	S-5	1.5	3-3-3 N=6	CL	Dark brown sandy lean CLAY; mostly clayey fines, some medium to fine sand, moist with occasional shells	1.25	21.5		S-5: Organic content = 3.6%
790.8	13									
789.8	14									
788.8	15	S-6	0.8	5-5-5 N=10	CL		1.25	24.2		S-6: Organic content = 4.9%
787.8	16									S-6: Poor recovery; possible coarse gravel / COBBLE
786.8	17									
785.8	18									
784.8	19									
783.8	20	S-7	1.5	4-4-4 N=8	CL	Gray sandy lean CLAY; mostly clayey fines, some coarse to fine sand, moist with wet sand seams	2.5	16.5		
782.8	21									
781.8	22									
780.8	23									
779.8	24									
778.8	25	S-8	1.5	7-8-11 N=19	SP-SM	Gray poorly graded SAND with silt; mostly medium to fine sand, few silty fines, wet				

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



SUMMARY OF LABORATORY TEST DATA

Boring Number	Sample No.*	Sample Depth (ft)	Sample Description (USCS Symbol)	Natural Moisture Content (%)	Organic Content (%)
B-2	S-1	0.5-2.0	SC	22.8	
B-3	S-1	0-1.5	CL	14.2	
B-3	S-2	3.5-5	CL	11.2	
B-3	S-3	6.0-7.5	CL	13.1	
B-3	S-4	8.5-10	CL	13.6	
B-4	S-2	3.5-5	CL	11.7	
B-4	S-3	6.0-7.5	CL	19.6	
B-4	S-4	8.5-10	CL	20.2	
B-5	S-1	0.8-2.3	SC	10.6	
B-5	S-2	3.5-5	SC	12.5	
B-5	S-3	6.0-7.5	CL	18.5	
B-5	S-4	8.5-10	CL	24.6	
B-6	S-1	0.5-2.0	SC	9.8	
B-6	S-2	3.5-5	SC	8.7	
B-6	S-4	8.5-10	SC	17.6	
B-6	S-5	11-12.5	CL	21.5	3.6
B-6	S-6	13.5-15	CL	24.2	4.9
B-6	S-7	18.5-20	CL	16.5	

* S – Split Spoon Sample (ASTM D 1586)

PROJECT NO.: 201769

PAGE: 1 OF 1



GEOTECHNICAL DATA SUBMITTAL

519 EIGHTH STREET
ANN ARBOR, MICHIGAN

Prepared For:

STANTEC
Ann Arbor, Michigan

Prepared By:

MATERIALS TESTING CONSULTANTS, INC.

October 11, 2021
MTC Project No. 201769.1

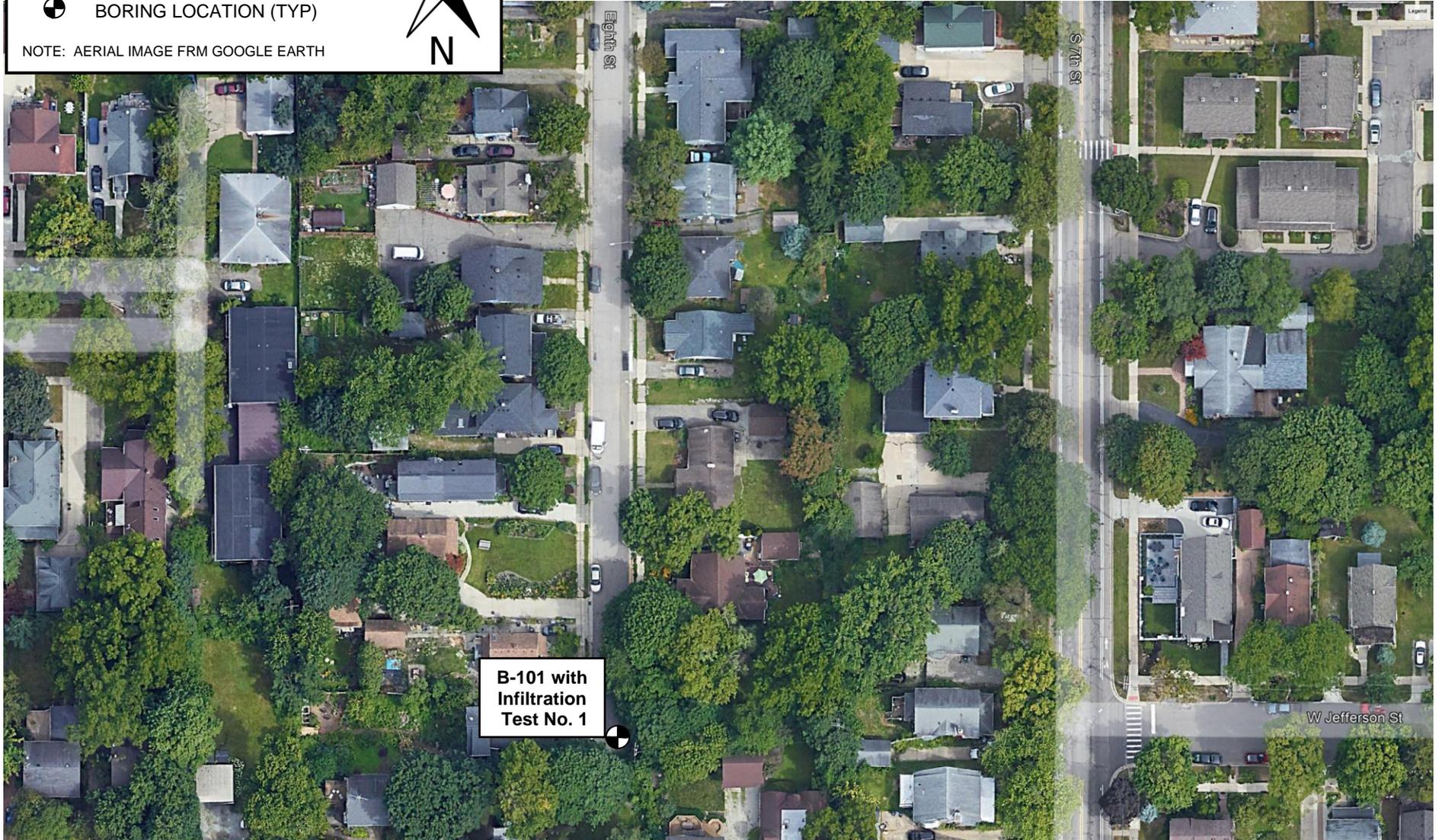
Contents:

Figure No. 1- Boring Location Plan
Test Drilling and Sampling Procedures
Boring Log Terminology and Classification Outline
Boring Log
Infiltration Test Log

LEGEND

 BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FRM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: 519 EIGHTH STREET

SCALE: NS

DATE: 10/11/2021

PROJECT NO.: 201769.1

FIG. NO.: 1

DR. BY: KLV

REV. BY: RW





TEST DRILLING AND SAMPLING PROCEDURES

Test Drilling Methods:

- Hollow stem auger, ASTM D6151
- Mud rotary, ASTM D5783
- Casing advancer, ASTM D5872
- Rock coring, ASTM D2113
- Cone Penetration Testing, ASTM D5778

Note: Cone penetration test data can be used to interpret subsurface stratigraphy and can provide data on engineering properties of soils. The ASTM procedure does not include a procedure for determining soil classification from CPT testing. Soil classifications shown on CPT logs are based on published procedures and are not based on physical ASTM soil classification tests.

Sampling Methods:

- SPT, ASTM D1586, CME Auto hammer (140 lb., 30" drop, 2" OD split spoon sampler)
- Thin-walled tube sampler (Shelby), ASTM D1587

Note: The number of hammer blows required to drive the SPT sampler 12 inches, after seating 6 inches, is termed the soil N-value and provides an indication of the soil's relative density and strength parameters at the sample location. SPT blow counts in 6 inch increments are recorded on the boring logs.

Drill Rig:

- CME 45
- CME 750 Rubber tired (ATV)
- CME 95 Truck
- Geoprobe Direct Push
- Geoprobe Rotary Sonic

Boreholes Backfilled With:

- Excavated soil
- Cement bentonite grout
- Piezometer or Monitoring Well (see notes on logs)
- Concrete or asphalt patch where appropriate

Sample Handling and Disposition:

- SPT samples labeled, placed in jars, returned to MTC Laboratory
- Discard after 60 days



BORING LOG TERMINOLOGY AND ASTM D 2488 CLASSIFICATION OUTLINE

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 5
Loose	15 to 35 %	5 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

Per ASTM D2487, the following conditions must be met based on laboratory testing to justify the label 'well graded' in a soil description.

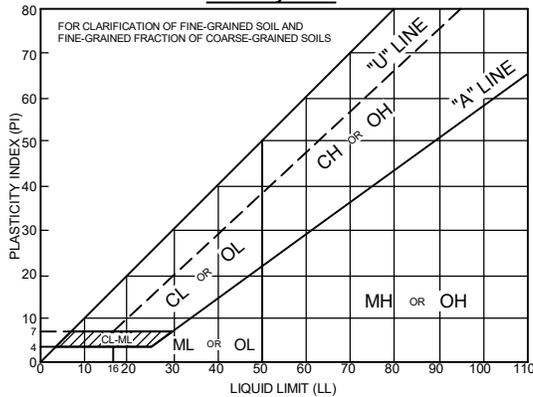
Gravel: $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

Sand: $C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Descriptive Terms	Unconfined Compressive Strength TSF	SPT Blow Count
Very soft	< 0.25	< 2
Soft	0.25 to 0.5	2 to 4
Medium stiff	0.5 to 1.0	4 to 8
Stiff	1.0 to 2.0	8 to 15
Very stiff	2.0 to 4.0	15 to 30
Hard	> 4.0	> 30

Plasticity Chart



MAJOR DIVISIONS				TYPICAL NAMES		
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 15% FINES	GW		WELL-GRADED GRAVELS WITH OR WITHOUT SAND	
		GRAVELS WITH 15% OR MORE FINES	GP		POORLY-GRADED GRAVELS WITH OR WITHOUT SAND	
			GM		SILTY GRAVELS WITH OR WITHOUT SAND	
		SANDS MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 15% FINES	GC		CLAYEY GRAVELS WITH OR WITHOUT SAND
	SW				WELL-GRADED SANDS WITH OR WITHOUT GRAVEL	
	FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SANDS WITH 15% OR MORE FINES	SANDS WITH LESS THAN 15% FINES	SP		POORLY-GRADED SANDS WITH OR WITHOUT GRAVEL
				SP-SM		POORLY-GRADED SANDS WITH SILT WITH OR WITHOUT GRAVEL
			SM		SILTY SANDS WITH OR WITHOUT GRAVEL	
		SILTS AND CLAYS LIQUID LIMIT 50% OR LESS	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%	SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
				ML		INORGANIC SILTS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
CL					INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL	
OL				ORGANIC SILTS OR CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL		
HIGHLY ORGANIC SOILS	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%	MH		INORGANIC SILTS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL		
		CH		INORGANIC CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL		
		OH		ORGANIC SILTS OR CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL		
HIGHLY ORGANIC SOILS			PT/OL		PEAT AND OTHER HIGHLY ORGANIC SOILS	

GENERAL NOTES

- Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
- "Grades with" or "Grades without" may be used to describe soil when characteristics vary within a stratum.
- Preserved soil samples will be discarded after 60 days unless alternate arrangements have been made.

GROUNDWATER OBSERVATIONS:

- During - indicates water level encountered during the boring
- End- indicates water level immediately after drilling
- Date and Depth - Measurements at indicated date

SAMPLE TYPES AND NUMBERING

S	SPT, split barrel sample, ASTM D1586
U	Shelby tube sample, ASTM D1587
R	Rock core run
*S	Other than 2" split barrel sample
L	SPT with liner, ASTM D1586
A	Auger cuttings
G	Geoprobe liner

MINOR COMPONENT QUANTIFYING TERMS

Less than 5%	TRACE
5 to 10%	FEW
15 to 25%	LITTLE
30 to 40%	SOME
50 to 100%	MOSTLY

GRAIN SIZE

BOULDER	>12"
COBBLE	12" to 3"
COARSE GRAVEL	3" to 0.75"
FINE GRAVEL	0.75" to No. 4
COARSE SAND	No. 4 to No. 10
MEDIUM SAND	No. 10 to No. 40
FINE SAND	No. 40 to No. 200



LOG OF BORING

Project No.: 201769.1

Boring No.: B-101

Sheet: 1 of 1

Project: 519 Eighth Street
 Client: Stantec
 Location: Ann Arbor, Michigan
 Drill Type: CME 45

Date Begin: 09/27/2021 Date End: 09/27/2021

Crew Chief: ZM Field Eng.: JV Rev. By: RW
 Coordinates: N=283358.3 E=13287699.2 (MI South 1ft)
 Elevation: 850.8 ft Datum: NAVD 88 (GPS Observation)

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	6.3
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 4.0 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
849.8	1	S-1	1.2	5-4-2 N=6	SP-SC	4" HMA, 6" Natural Aggregate Base	0.8	4.5		Fill: 0' to 4.8' S-1: Poor recovery; possible coarse gravel / COBBLE Possible COBBLE from 1.5' to 5.0'
848.8	2					Brown poorly graded SAND with clay; mostly coarse to fine sand, few clayey fines, few coarse to fine gravel, moist, Fill with asphalt fragments				
847.8	3									
846.8	4									
845.8	5	S-2	1.5	3-6-3 N=9	SC	Dark brown clayey SAND; mostly coarse to fine sand, little clayey fines, few coarse to fine gravel, moist	4.8			
844.8	6					Grades light brown, wet at 6.3'				
843.8	7	S-3	1.5	5-4-5 N=9	SC		8.0			
842.8	8									
841.8	9	S-4	1.5	4-4-4 N=8	CL	Gray lean CLAY; mostly clayey fines, few coarse to fine sand, moist	10.0			
840.8	10									

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



Double Ring Infiltration Test

Client:

 Stantec Consulting
 3754 Ranchero Drive
 Ann Arbor, MI 48108

Project:

 201769.1
 519 Eighth Street, Ann Arbor
 519 Eighth Street

Activity Information

Weather: Sunny

Low / High Temp, °F: 59 / 81

Activity Date: 09/27/2021

Tested By: VanZalen, Jake

Test No.: 1

DOUBLE RING INFILTRATION TEST - SEMCOG METHOD

Pre-Test Soaking Duration (min): 60

Ground Surface Elev. (ft): 850.8

Water Level Drop in Last 30 Minutes of Presoak (in): 48.5

Test Elev. (ft): 847.8

Inner Diameter (in): 4

Groundwater Elev. (ft): 844.8

Outer Diameter (in): 6

Soil Description: Brown poorly graded SAND with clay

Test Data

Time (min:sec)	Water Drop (in)	Time Interval (min)	Infiltration Rate (inches per hour)
10:00	7	10	42
20:00	6 3/4	10	40 1/2
30:00	6 1/2	10	39
40:00	6 1/2	10	39
50:00	6 1/2	10	39

Note: This test method provides a measure of infiltration rate, not hydraulic conductivity. Although the units of infiltration rate, and hydraulic conductivity are similar, there is a distinct difference between these two quantities. They cannot be directly related unless the hydraulic boundary conditions, such as hydraulic gradient and the extent of lateral flow of water are known or can be reliably estimated. Test results apply only to the specific test location, depth/elevation, and in-situ moisture content and density at time of test. An appropriate factor of safety should be applied to these results.

Remarks: Initial Head: 48.5 in.

ATTACHMENT B
GENERAL DECLARATIONS

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, General Information, 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 _____, 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 _____ DAY OF _____, 202_.

Bidder's Name

Authorized Signature of Bidder

Official Address

(Print Name of Signer Above)

Telephone Number

Email Address for Award Notice

ATTACHMENT C
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 _____, for whom _____, bearing the office title of _____, 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: _____
(initial here)

Authorized Official

_____ **Date** _____, 202_

(Print) Name _____ Title _____

Company:

Address:

Contact Phone () _____ Fax () _____

Email _____

ATTACHMENT E
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

Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits

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.

 Company Name

 Street Address

 Signature of Authorized Representative

 Date

 City, State, Zip

 Print Name and Title

 Phone/Email address

Attachment F

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**



ATTACHEMENT G

Vendor Conflict of Interest Disclosure Form
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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 style="border: 0; border-top: 1px solid black;"/> <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:		
Vendor Name	Vendor Phone Number	
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, procurement@a2gov.org

ATTACHMENT I

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.

MICHIGAN DEPARTMENT OF TRANSPORTATION CERTIFIED PAYROLL

COMPLETION OF CERTIFIED PAYROLL FORM FULFILLS THE MINIMUM MDOT PREVAILING WAGE REQUIREMENTS

(1) NAME OF CONTRACTOR / SUBCONTRACTOR (CIRCLE ONE) (2) ADDRESS

(3) PAYROLL NO. (4) FOR WEEK ENDING (5) PROJECT AND LOCATION (6) CONTRACT ID

(a)	(b)	(c)	(d) DAY AND DATE							(e)	(f)	(g)	(h)	(i)	(j) DEDUCTIONS						(k)		
															TOTAL HOURS ON PROJECT	PROJECT RATE OF PAY	PROJECT RATE OF FRINGE PAY	GROSS PROJECT EARNED	GROSS WEEKLY EARNED	TOTAL WEEKLY HOURS WORKED ALL JOBS		FICA	FEDERAL
EMPLOYEE INFORMATION	WORK CLASSIFICATION	Hour Type	HOURS WORKED ON PROJECT																				
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0												\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0												\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0												\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0												\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0												\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0												\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0												\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00

Date _____

I, _____ (Name of Signatory Party) _____ (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the _____ (Contractor or Subcontractor)
 _____; that during the payroll period commencing on the _____ (Building or Work)
 _____ day of _____, _____, and ending the _____ day of _____, _____,
 all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said

_____ from the full _____ (Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.