

CITY OF ANN ARBOR
INVITATION TO BID



Sanitary Manhole Rehabilitation

ITB No. 4537

Due Date: Wednesday, May 23, 2018 at 2:00 PM (Local Time)

Public Services Area/Engineering Unit

Issued By:

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

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- City of Ann Arbor Prevailing Wage Declaration Form*
- City of Ann Arbor Living Wage Forms*
- City of Ann Arbor Vendor Conflict of Interest Disclosure Form*
- City of Ann Arbor Non-Discrimination Ordinance Notice and Declaration Form*

NOTICE OF PRE-BID CONFERENCE

A **mandatory** pre-bid conference for this project will be held on **Thursday, May 10, 2018 at 2:00 PM in the 4th Floor Conference Room, Larcom City Hall, 301 E. Huron Street, Ann Arbor MI 48104. Failure to attend the meeting and sign the ITB No. 4537 sign-in sheet at the pre-bid meeting will automatically disqualify a bidder from submitting a valid bid.** Any bid submitted by a party not attending and signing the roster at the pre-bid meeting will not be opened or considered. Administrative and technical questions regarding this project will be answered at this time. The pre-bid meeting 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 bid will be affirmed in an addendum.

INSTRUCTIONS TO BIDDERS

General

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. All work to be done under this Contract is located in or near the City of Ann Arbor.

Any Bid which does not conform fully to these instructions may be rejected.

Preparation of Bids

Bids should be prepared providing a straight-forward, concise description of the Bidder's ability to meet the requirements of the ITB. Bids shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed and dated in ink by the person signing the Bid.

Bids must be submitted on the "Bid Forms" provided with each blank properly filled in. If forms are not fully completed it may disqualify the bid. No alternative bid will be considered unless alternative bids are specifically requested. If alternatives are requested, any deviation from the specification must be fully described, in detail on the "Alternate" section of Bid form.

Each person signing the Bid certifies that he/she is the person in the Bidder's firm/organization responsible for the decision as to the fees being offered in the Bid and has not and will not participated in any action contrary to the terms of this provision.

Questions or Clarifications / Designated City Contacts

All questions regarding this ITB shall be submitted via email. Emailed questions and inquires will be accepted from any and all prospective Bidders in accordance with the terms and conditions of the ITB.

All questions shall be due on or before **5:00 PM, Friday, May 11, 2018** and should be addressed as follows:

Specification/Scope of Work questions emailed to bslizewski@a2gov.org
Bid Process and Compliance questions emailed to cspencer@a2gov.org

Any error, omissions or discrepancies in the specification discovered by a prospective contractor and/or service provider shall be brought to the attention of Brian Slizewski at the above email address after discovery as possible. Further, the contractor and/or service provide shall not be allowed to take advantage of errors, omissions or discrepancies in the specifications.

Addenda

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

Each Bidder must in its Bid, to avoid any miscommunications, acknowledge all addenda which it has received, but 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 written

addenda.

Bid Submission

All Bids are due and must be delivered to the City of Ann Arbor Procurement Unit on or before **Wednesday, May 23, 2018 at 2:00 PM (Local Time)**. Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and ___ () Bid copies in a sealed envelope clearly marked: **ITB No. 4537 Sanitary Manhole Rehabilitation**.

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit,
c/o Customer Services, 1st Floor
301 East Huron Street
Ann Arbor, MI 48107

All Bids received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

The following forms provided within this ITB Document must be included in submitted bids.

- **City of Ann Arbor Prevailing Wage Declaration of Compliance**
- **City of Ann Arbor Living Wage Ordinance Declaration of Compliance**
- **Vendor Conflict of Interest Disclosure Form**
- **City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**

Bids that fail to provide these completed forms listed above upon bid opening will be rejected as non-responsive and will not be considered for award.

Hand delivered bids will be date/time stamped/signed by the Procurement Unit at the address above in order to be considered. Normal business hours are 9:00 a.m. to 3:00 p.m. Monday through Friday, excluding Holidays. The City will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time for submission of bids past the stated due date and time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines in its sole discretion that circumstances warrant it.

Award

The City intends to award a Contract(s) to the lowest responsible Bidder(s). On multi-divisional contracts, separate divisions may be awarded to separate Bidders. The City may also utilize alternatives offered in the Bid Forms, if any, to determine the lowest responsible Bidder on each division, and award multiple divisions to a single Bidder, so that the lowest total cost is achieved for the City. For unit price bids, the Contract will be awarded based upon the unit prices and the lump sum prices stated by the bidder for the work items specified in the bid documents, with consideration given to any alternates selected by the City. If the City determines that the unit price for any item is materially different for the work item bid than either other bidders or the general market, the City, in its sole discretion, in addition to any other right it may have, may reject the bid as not responsible or non-conforming.

The acceptability of major subcontractors will be considered in determining if a Bidder is responsible. In comparing Bids, the City will give consideration to alternate Bids for items listed in the bid forms. All key staff and subcontractors are subject to the approval by the City.

Official Documents

The City of Ann Arbor officially distributes bid documents from the Procurement Unit or through the Michigan Intergovernmental Trade Network (MITN). Copies of the bid documents obtained from any other source are not Official copies. Addenda and other bid information will only be posted to these official distribution sites. If you obtained City of Ann Arbor Bid documents from other sources, it is recommended that you register on www.MITN.info and obtain an official Bid. Bidders do not need to be shown on the plan holders list provided by MITN to be considered an official plan holder.

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.

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of ninety (90) days

Contract Time

Time is of the essence in the performance of the work under this Contract. The available time for work under this Contract is indicated on page C-1, Article III of the Contract. If these time requirements can not be met, the Bidder must stipulate on Bid Form Section 3 - Time Alternate its schedule for performance of the work. Consideration will be given to time in evaluating bids.

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.

Human Rights Information

All contractors 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 Section 5, beginning at page GC-2 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.

Wage Requirements

Section 4, beginning at page GC-1, outlines the requirements for payment of prevailing wages and for payment of a “living wage” to employees providing service to the City under this contract. The successful bidder and its subcontractors must comply with all applicable requirements and provide proof of compliance.

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 the Prevailing Wage Form provided in the Appendix section 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 bids 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 ITB the Construction Type of will apply.

Conflict Of Interest Disclosure

The City of Ann Arbor Purchasing Policy requires that prospective Vendors complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected Vendor 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 Vendor Conflict of Interest Disclosure Form is attached.

Major Subcontractors

The Bidder shall identify on Bid Form Section 4 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.

Debarment

Submission of a Bid in response to this ITB is certification that the Bidder 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.

Disclosures

After bids are opened, all information in a submitter’s bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) known as the “Freedom of Information Act.” The Freedom of Information Act also provides for the complete disclosure of contracts and attachments thereto except where specifically exempted.

Bid Protest

All Bid protests must be in writing and filed with the Purchasing Agent within five (5) business days of the award action. The bidder must clearly state the reasons for the protest. If a 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 Agent. The Purchasing Agent 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 Offeror to initiate contact with anyone other than the Designated City Contacts provided herein that the prospective Offeror 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.

Cost Liability

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the Bidder prior to the execution of a contract with the City. By submitting a bid, a bidder agrees to bear all costs incurred or related to the preparation, submission and selection process for the bid.

Reservation of Rights

The City of Ann Arbor reserves the right to accept any bid or alternative bid proposed in whole or in part, to reject any or all bids or alternatives bids in whole or in part and to waive irregularity and/or informalities in any bid and to make the award in any manner deemed in the best interest of the City.

Idlefree Ordinance

The City of Ann Arbor adopted an idling reduction Ordinance that goes 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.

INVITATION TO BID

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

Ladies and Gentlemen:

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

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

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

In accordance with these bid documents, and Addenda numbered _____, 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 _____, 201__.

Bidder's Name

Authorized Signature of Bidder

Official Address

(Print Name of Signer Above)

Telephone Number

Email Address for Award Notice

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** _____, 201__

(Print) Name _____ Title _____

Company: _____

Address: _____

Contact Phone () _____ Fax () _____

Email _____

BID FORM

Section 1 – Schedule of Prices

Company: _____

Project: Sanitary Manhole Rehabilitation

File #: 2015-039 ITB No.: 4537

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
201	General Conditions, Maximum \$10,000	Lump Sum	1	\$ _____	\$ _____
202	Project Supervision, Maximum \$10,000	Lump Sum	1	\$ _____	\$ _____
203	Certified Payroll Compliance and Reporting	Lump Sum	1	\$ _____	\$ _____
210	Replace Manhole Cover	Each	300	\$ _____	\$ _____
220	Replace Frame Case 1	Each	90	\$ _____	\$ _____
221	Replace Frame Case 2	Each	25	\$ _____	\$ _____
222	Replace Frame Case 3	Each	10	\$ _____	\$ _____
230	Internal Chimney Seal	Each	300	\$ _____	\$ _____
231	External Chimney Seal	Each	125	\$ _____	\$ _____
235	Reconstruct Flow Channel	Each	30	\$ _____	\$ _____
240	Chemical Grouting of Manholes	Gal	3000	\$ _____	\$ _____
245	Chemical Root Treatment	Each	10	\$ _____	\$ _____
250	Reconstruct Internal Drop Connection	Each	3	\$ _____	\$ _____
255	Manhole Cementitious Liner	Vert Ft	850	\$ _____	\$ _____
260	Epoxy Liner	Vert Ft	300	\$ _____	\$ _____
				Total Bid	\$ _____

BID FORM

Section 2 - Material and Equipment Alternates

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

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

<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
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If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

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

Signature of Authorized Representative of Bidder _____ Date _____

BID FORM

Section 3 - Time Alternate

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

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

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

Signature of Authorized Representative of Bidder _____ Date _____

BID FORM

Section 4 - Major Subcontractors

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

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

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

<u>Subcontractor (Name and Address)</u>	<u>Work</u>	<u>Amount</u>
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If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

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

Signature of Authorized Representative of Bidder _____ Date _____

BID FORM

Section 5 – References

Include a minimum of ___ reference from similar project completed within the past ____ years.

[Refer also to Instructions to Bidders for additional requirements, if any]

1) _____
Project Name Cost Date Constructed

Contact Name Phone Number

2) _____
Project Name Cost Date Constructed

Contact Name Phone Number

3) _____
Project Name Cost Date Constructed

Contact Name Phone Number

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:

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 201_, 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, which are incorporated as part of this Contract:

Non-discrimination and Living Wage
Declaration of Compliance Forms (if
applicable)
Vendor Conflict of Interest Form
Prevailing Wage Declaration of
Compliance Form (if applicable)
Bid Forms
Contract and Exhibits
Bonds

General Conditions
Standard Specifications
Detailed Specifications
Plans
Addenda

ARTICLE II - Definitions

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

Project means **ITB No. 4537 Sanitary Manhole Rehabilitation**

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 twenty (120) 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 \$250 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 agreement, 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 agreement.

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 harmless 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.

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

[signatures continue on next page]

By _____

Services Area Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

PERFORMANCE BOND

- (1) _____ (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 dated _____, 201_, for: _____ 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.

SIGNED AND SEALED this _____ day of _____, 201_.

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

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

Approved as to form:

Name and address of agent:

Stephen K. Postema, City Attorney

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, dated _____, 201_, for _____; 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.

SIGNED AND SEALED this _____ day of _____, 201_

(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:

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 Agreement 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 Agreement 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 13. 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 which may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the Contractor shall provide to the City, before the commencement of any work under this contract, certificates of insurance and other documentation satisfactory to the City demonstrating it has obtained the policies and endorsements required on behalf of itself, and when requested, any subcontractor(s). The certificates of insurance endorsements and/or copies of policy language shall document that the Contractor satisfies the following minimum requirements.

- (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 07 98 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 which 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 Job General Aggregate
\$1,000,000 Personal and Advertising Injury
\$2,000,000 Products and Completed Operations Aggregate

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 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 which 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.

- (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 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; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall 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) 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 admitted and 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-admitted 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 SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT**

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 herein, and all other requirements of the Contract Documents. The Contractor shall begin the work of this project on or before **August 1, 2018**, 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. This contract requires sanitary manhole rehabilitation work at various locations, most within road pavement. The contractor shall familiarize themselves with the differing locations, and take into account traffic control and work time restrictions in bidding and scheduling the work.

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.

The Contractor is expected to be furnished with two (2) copies of the Contract, for his/her execution, on or before **June 15, 2018**. 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 describes 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 **July 2, 2018**.

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, sanitary structures, and any adjacent properties, which are caused as a result of working in the rain. Most of the sanitary manholes are in flood prone areas. The contractor shall prevent rainwater inflow into manholes by use of sandbags or other acceptable dam method during construction operations.

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.

The contract work shall be completed in 120 consecutive calendar days.

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 completion date.

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. There shall be no additional compensation to the contractor for work extending into another 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.

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, Maximum, \$____"

**DETAILED SPECIFICATION
FOR
ITEM #201 – GENERAL CONDITIONS, MAXIMUM \$10,000**

DESCRIPTION

This item shall include all work described and required by the Plans and Specifications at each location for which no item of work is listed in the Bid Form, including but not limited to:

- Scheduling and organization of all work, subcontractors, suppliers, and inspection.
- Coordination of, and cooperation with, other contractors, agencies, departments, and utilities.
- Protection and maintenance of utilities.
- Placing, maintaining, and removing additional needed soil erosion and sedimentation controls.
- Storing all materials and equipment off lawn areas.
- Site clean-up.
- Coordination efforts to furnish all materials for the project.
- Furnishing and operating all equipment and vehicles required for the project, including vacuum-type street cleaning equipment as directed by the Engineer, vacuum-type utility structure cleaning equipment, vibratory plate and pneumatic-type (“pogo-stick”) compactors, backhoe, jackhammer and air compressor.
- Noise and dust control
- Mobilization(s) and demobilization(s).
- Furnishing submittals and certifications for materials and supplies
- Disposing of excavated materials and debris - The Contractor shall dispose of, at the Contractor’s expense, all excavated material. Costs for this work will not be paid for separately.
- All miscellaneous and incidental items such as overhead, insurance, and permits.
- 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 1.0 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:

PAY ITEM

General Conditions, Maximum \$10,000

PAY UNIT

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 Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #202 - PROJECT SUPERVISION, MAXIMUM \$10,000**

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 hour-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 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.

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 of all of the Contractor's, subcontractors' and suppliers' equipment, work vehicles, and employee's 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), and City inspectors.

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:

- First Notice – A warning will be issued in writing to the contractor detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 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 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 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 1.0 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:

PAY ITEM

PAY UNIT

Project Supervision, Maximum \$10,000

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 City Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #203 – CERTIFIED PAYROLL COMPLIANCE AND REPORTING**

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.

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:

PAY ITEM

PAY UNIT

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.

**DETAILED SPECIFICATION
FOR
ITEM #210 – REPLACE MANHOLE COVER**

a. DESCRIPTION. This work shall consist of replacing and covers only for utility sanitary structures as shown on the Plans and as directed by the Engineer.

b. MATERIALS.

This item shall consist of replacing covers as directed by the Engineer. All covers and/or castings shall conform to the model(s) specified, as follows:

Type of Casting	EJIW No. or Engineer Approve Equal
Manhole Flange and gasket seal Cover	1040 w/ Type A

All sanitary covers shall have City of Ann Arbor approved graphics and "SEWER" cast in the cover.

The Contractor shall verify frame diameter and cover size.

Covers shall have machined bearing surfaces. Covers shall have gasketed seal, without vent or bolt holes.

c. CONSTRUCTION. Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials on any lawn area.

The Contractor shall deliver all salvaged covers to the W.R. Wheeler Service Center.

d. MEASUREMENT AND PAYMENT. The completed work, as described, will be measured and paid for at the contract unit prices for the following pay items:

<u>Pay Item</u>	<u>Pay Unit</u>
Replace Manhole Cover	Each

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 and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #220 – REPLACE FRAME CASE 1**

a. DESCRIPTION

This work shall consist of replacing sanitary frame for structures located in pavement as detailed on the plans and as specified herein.

b. MATERIALS

Materials shall meet the requirements of sections 403 and 601 of the 2012 edition of the MDOT Standard Specifications, except that concrete shall be P-NC, 7-sack.

Cover and Frame Models	Diameter
1040 w/ Type A	26

c. CONSTRUCTION METHODS

General

Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials on any lawn area.

The City may direct the Contractor to adjust the structure(s) to grade. This final adjustment of castings of any type to their respective finished elevations, up or down a maximum of 15-inches will not be paid for separately, but is included in replacing frame.

Contractor shall use a skid-steer with attached hydraulically mechanical circular core saw system to saw pavement full depth and adjust the casting.

All concrete and masonry surfaces must be clean. Grease, organic matter, loose bricks, mortar, unsound concrete, roots and other materials must be completely removed, and the top 15 inches of the structure shall be replaced with new block and adjustment rings as directed by the Engineer. This work is included in the pay item, Replace Frame.

CONTRACTOR shall be responsible for excavation, backfill and compaction as needed for the replacement of manhole frames to the satisfaction of the Engineer.

All structure covers shall be adjusted such that their finished surface elevation is within ¼-inch of the finished surface sections, grades, slopes, and elevations, as directed by the Engineer. The work shall be verified by the use of a 10-foot straight-edge placed parallel with the pavement centerline. Structures not meeting the ¼-inch tolerance shall be readjusted and finish patched, as directed by the Engineer, at the Contractor's expense.

The Contractor is responsible to coordinate and arrange for the adjustment of all non-City utility manholes and valves (Edison, Gas, Cable, Ameritech, etc.) during this project. The

Contractor will not be given any additional compensation for delays due to other utilities work. The work of coordinating with other utilities shall be paid for under the Contract Item "General Conditions."

All structure covers shall be backfilled with MDOT P-NC-7 sack concrete from the depth of excavation necessary for adjustment, up to an elevation 2-inches below the top flange of the adjusted casting in asphalt pavement. Final paving shall be with 2-inches HMA. This concrete and HMA work shall be included in the item of work, and will not be paid for separately.

A wrap external seal shall be used to seal the entire chimney of all sanitary manholes included in this project. The seal and extension or extensions shall extend from the lower base flange of the frame down to the top of the cone.

. All covers and/or castings shall conform to the model(s) specified, as follows:

Type of Casting	EJIW No. or Engineer Approve Equal
Manhole Flange and gasket seal Cover	1040 w/ Type A

Covers shall have machined bearing surfaces. Covers shall have specified gasketed seal, no vent holes and no bolt down. Each cover shall have City of Ann Arbor graphics and "SEWER" cast in the surface.

The Contractor shall deliver all salvaged covers and castings to the Wheeler Center City Utilities Department yard at 4251 Stone School Road (Wheeler Center) within two days of their removal.

d. MEASUREMENT AND PAYMENT

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

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Replace Frame, Case 1	Each

The unit prices for these items of work shall include all labor, materials including the sawcutting, excavation, removal, and disposal/salvage of materials; new frame: adjustments, salvage and delivery of frame, concrete, HMA; and equipment needed to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #221 – REPLACE FRAME, CASE 2**

a. DESCRIPTION

This work shall consist of replacing sanitary frame for manhole structure located outside of the pavement as detailed on the plans and as specified herein.

b. MATERIALS

Materials shall meet MDOT Standard Specifications

Cover and Frame Models	Diameter
1040 w/ Type A	26

c. CONSTRUCTION METHODS

General

Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials on any lawn area.

The City may direct the Contractor to adjust the structure(s) to grade. This final adjustment of castings of any type to their respective finished elevations, up or down a maximum of 15-inches will not be paid for separately, but is included in replacing frame.

All concrete and masonry surfaces must be clean. Grease, organic matter, loose bricks, mortar, unsound concrete, roots and other materials must be completely removed, and the top 15 inches of the structure shall be replaced with new block and adjustment rings as directed by the Engineer. This work is included in the pay item, Replace Frame.

CONTRACTOR shall be responsible for excavation, backfill and compaction as needed for the replacement of manhole frames to the satisfaction of the Engineer.

All structure covers shall be adjusted such that their finished surface elevation is within ¼-inch of the finished surface sections, grades, slopes, and elevations, as directed by the Engineer.

The Contractor is responsible to coordinate and arrange for the adjustment of all non-City utility manholes and valves (Edison, Gas, Cable, Ameritech, etc.) during this project. The Contractor will not be given any additional compensation for delays due to other utilities work. The work of coordinating with other utilities shall be paid for under the Contract Item "General Conditions."

A wrap external seal shall be used to seal the entire chimney of all sanitary manholes included in this project. The seal and extension or extensions shall extend from the lower

base flange of the frame down to the top of the cone.

All structure covers shall be backfilled with Class II granular sand from the depth of excavation necessary for adjustment, up to an elevation 4-inches below the top of flange of the adjusted casting. The entire are shall be restored with 4-inches of topsoil, seed, fertilizer, and mulch blanket.

All covers and/or castings shall conform to the model(s) specified, as follows:

Type of Casting	EJIW No. or Engineer Approve Equal
Manhole Flange and gasket seal Cover	1040 w/ Type A

Covers shall have machined bearing surfaces. Covers shall have specified gasketed seal, no vent holes and no bolt down. Each cover shall have City of Ann Arbor graphics and "SEWER" cast in the surface.

The Contractor shall deliver all salvaged covers and castings to the Wheeler Center City Utilities Department yard at 4251 Stone School Road (Wheeler Center) within two days of their removal.

d. MEASUREMENT AND PAYMENT

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

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Replace Frame, Case 2	Each

The unit prices for these items of work shall include all labor, materials including the excavation, removal, and disposal/salvage of materials; brick, block, mortar; new frame; adjustments, salvage and delivery of frame, class II backfill, topsoil, seed, fertilizer, and mulch blanket; and equipment needed to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #222 – REPLACE FRAME, CASE 3**

a. DESCRIPTION

This work shall consist of replacing sanitary frame for manhole structure located outside of the road, in a sidewalk or driveway, as detailed on the plans and as specified herein.

b. MATERIALS

Materials shall meet MDOT Standard Specifications

Cover and Frame Models	Diameter
1040 w/ Type A	26 inch

c. CONSTRUCTION METHODS

General

Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials on any lawn area.

Concrete around the structure shall be sawcut and removed to the nearest joint, as needed to provide access to complete the work.

The City may direct the Contractor to adjust the structure(s) to grade. This final adjustment of castings of any type to their respective finished elevations, up or down a maximum of 15-inches will not be paid for separately, but is included in replacing frame.

All concrete and masonry surfaces must be clean. Grease, organic matter, loose bricks, mortar, unsound concrete, roots and other materials must be completely removed, and the top 15 inches of the structure shall be replaced with new block and adjustment rings as directed by the Engineer. This work is included in the pay item, Replace Frame.

Contractor shall be responsible for excavation, backfill and compaction as needed for the replacement of manhole frames to the satisfaction of the Engineer.

All structure covers shall be adjusted such that their finished surface elevation is within ¼-inch of the finished surface sections, grades, slopes, and elevations, as directed by the Engineer.

The Contractor is responsible to coordinate and arrange for the adjustment of all non-City utility manholes and valves (Edison, Gas, Cable, Ameritech, etc.) during this project. The Contractor will not be given any additional compensation for delays due to other utilities work. The work of coordinating with other utilities shall be paid for under the Contract Item "General Conditions."

A wrap external seal shall be used to seal the entire chimney of all sanitary manholes included in this project. The seal and extension or extensions shall extend from the lower base flange of the frame down to the top of the cone.

Excavation around the structure shall be backfilled with Class II granular sand up to a depth below the top of flange of the adjusted casting required for concrete paving of sidewalks and driveways.

Lawn or landscaped areas disturbed by the work shall be restored in kind.

All covers and/or castings shall conform to the model(s) specified, as follows:

Type of Casting	EJIW No. or Engineer Approve Equal
Manhole Flange and gasket seal Cover	1040 w/ Type A

Covers shall have machined bearing surfaces. Covers shall have specified gasketed seal, no vent holes and no bolt down. Each cover shall have City of Ann Arbor graphics and "SEWER" cast in the surface.

The Contractor shall deliver all salvaged covers and castings to the Wheeler Center City Utilities Department yard at 4251 Stone School Road (Wheeler Center) within two days of their removal.

d. MEASUREMENT AND PAYMENT

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

PAY ITEM

Replace Frame, Case 3

PAY UNIT

Each

The unit prices for these items of work shall include all labor, materials including the excavation, sawcutting, removal, and disposal/salvage of materials; brick, block, mortar; new frame; adjustments, salvage and delivery of frame, class II backfill, concrete, lawn restoration; and equipment needed to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM 230 – INTERNAL CHIMNEY SEAL**

a. DESCRIPTION

This specification includes the materials and procedures required for the internal sealing of the frame-chimney joint area of brick, block and precast manholes, as required in the contract documents.

A plural component, urethane internal manhole frame-chimney sealant, as specified herein shall be applied in all assigned manholes within the areas included in this project. If excavation is required to repair, rebuild, or replace a manhole; or if manhole linings or coatings are required, the sealant shall be applied after that work has been completed.

Design Requirements – The manhole frame-chimney sealant shall be designed to prevent leakage of water through the above-described portions of the manhole throughout its design life.

The manhole frame-chimney sealant shall remain flexible and bonded to the inside surfaces of the manhole frame and masonry throughout its design life.

MATERIALS

Manhole frame-chimney sealant consisting Cretex Easy Seal SG or engineer approved equal of a plural component, spray applied, quick setting urethane material conforming to the following requirements:

Viscosity

- a. Part A, 12,000-17,000 cps @ 25C, 20 RPM per ASTM D2393
- b. Part B, 300-510 cps @ 25C, 300 RPM per ASTM D4287

Weight

- a. Weight/Gallon Part A, 8.90-9.20 lb/gal per ASTM D1875
- b. Weight/Gallon Part B, 9.60-9.75 lb/gal per ASTM D1875
- c. Weight/Gallon Mixed, 9.25-9.48 lb/gal per ASTM D1875

Processing

- a. Mix Ratio By Weight, 100:107
- b. Mix Ratio by Volume, 100:100
- c. Cure Schedule, Hours, 4-5 hours @ 25C

Gel Time

Gel Time, Seconds, 0-15 seconds @ 25C, 100 grams per ASTM D3056

Cured Properties

- a. Hardness, Shore A, 95-100 per ASTM D2240
- b. Elongation, 379-473% per ASTM D638 or ASTM D412
- c. Tensile Strength, 2616-3216 psi per ASTM D638 or ASTM D412

d. Peel Strength, 30.8-46.8 PLI (AL to AL) PER ASTM D1876

b. CONSTRUCTION METHOD

All concrete and masonry surfaces must be clean. Grease, organic matter, roots must be completely removed.

The CONTRACTOR shall have the manufacturer's recommended plural cartridge dispensing tool and all other equipment/tools necessary to prepare the surfaces of the manhole and apply the manhole frame-chimney sealant.

All loose and protruding mortar and brick that would prevent proper application of the Seal, shall be removed and the appropriate areas of the manhole frame, chimney and or cone/corbel cleaned and prepared. All areas to be sealed shall be free of surface contaminates, be dry and free of any excessive voids or defects. If an adequate sealing surface does not exist on the masonry, repair materials such as *Cementitious grout* shall be used to fill voids and profile the chimney area of the manhole.

“CEMENTITIOUS GROUT Cementitious grout shall be a premixed, non metallic, high strength, non-shrink grout which meets the requirements of ASTM C-191 and C-827 as well as CRD-C-588 and C-621. When mixed to a mortar or "plastic" consistency, it shall have minimum one day and 28 day compressive strength of 6,000 and 9,000 psi, respectively.”

All surface preparation shall be completed in strict accordance with the frame-chimney sealant manufacturer's published instructions.

The internal frame-chimney sealant shall be applied to cover 24 vertical inches inside of the entire circumference of the chimney at a minimum thickness of one hundred (100) mils.

c. MEASUREMENT AND PAYMENT

This item shall be paid at the unit price bid per manhole and shall include the cost of furnishing and applying the frame-chimney sealant material along with the surface preparation work needed to facilitate proper application.

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>PAY ITEM</u>	<u>PAY UNIT</u>
Internal Chimney Seal	Ea.

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.

**DETAILED SPECIFICATION
FOR
ITEM 231 - External Chimney Seal**

a. DESCRIPTION

This work shall include complete installation of sanitary sewer manholes as detailed in the Specifications, and as directed by the Engineer.

All work shall comply with the City of Ann Arbor General Conditions and Standard Specifications for materials and construction, unless specified or modified by this Detailed Specification.

This specification includes the materials and procedures required for the wrap on external sealing of the entire chimney area of all sanitary manholes.

Manhole chimney shall be sealed in full from the exterior using a wrap seal. Contractor shall meet the Materials requirements of this specification and installed according to manufacturer's recommendations.

b. MATERIALS

Manhole wrap shall be WrapidSeal™ Manhole Encapsulation System, or Engineer approved equal.

c. CONSTRUCTION METHOD AND EXECUTION

All concrete and masonry surfaces must be clean. Grease, organic matter, roots must be completely removed.

Manholes shall be excavated, backfilled, and restored per the Detailed Specifications for Replace Frame and Covered, Case specified.

Surface Preparation: The manhole frame shall be clean, dry and free from surface rust and foreign objects. Abrade and/or prepare the surfaces strictly according to manufacturer's recommendations.

Ensure that the sleeve is in full contact with the substrate, there are no cracks or holes in the polyethylene backing and no voids are present below the sleeve. Also, ensure that the adhesive has flowed beyond the sleeve edges.

Wrap Seal shall be installed on the corbel and joint sections of the manhole. Wrap Seal shall be installed from the frame to 3-4" below the cone and lowest grade ring joint.

Manufacturer shall provide complete installation guides with clear illustrations enclosed in each factory carton of sleeves. Installer shall follow all manufacturer's procedures to ensure proper application.

Wrap Seal tightly around casting and adjustment rings. Must extend a minimum of 3" onto casting and 3" below top of cone section with a 6" overlap.

MEASUREMENT AND PAYMENT

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>PAY ITEM</u>	<u>PAY UNIT</u>
External Chimney Seal	Ea.

All costs for furnishing and installing an external wrap seal and where necessary, an extension or extensions shall be included in the unit price bid for sanitary manholes. The unit prices for these items of work shall include all labor, material, any pavement removal and placements of HMA or concrete, any driveway approach or sidewalk, any ground restorations, and equipment costs to perform all the work specified in the Standard Specifications.

**DETAILED SPECIFICATION
FOR
ITEM 235 - RECONSTRUCT FLOW CHANNEL**

a. DESCRIPTION

This work shall consist of reconstructing flow channel in accordance to what was described in Section 403 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, and as specified herein.

b. MATERIALS

Manhole bases and flow channel shall be formed of QUIKRETE Fast Setting Concrete Mix PRODUCT NO.1004-50 or Engineer approved equal. The use of PVC SDR-26 to establish and form the flow channel if and when applicable upon Engineer approval.

c. METHODS OF CONSTRUCTION

All concrete and masonry surfaces must be clean. Grease, organic matter, loose bricks, mortar, unsound concrete, roots and other materials must be completely removed.

Thoroughly clean existing flow channel and remove any accumulated sediment, debris, and broken or loose concrete. Properly dispose of all materials removed from the flow channel.

Where the process requires interruption of flow, the Contractor shall provide all necessary diversion or bypass pumping equipment to handle the flow for the duration of the flow channel rehabilitation, including curing times where applicable.

Form and place the concrete mix, meeting City of Ann Arbor Materials Standards, to create new flow channel up to the springline of the flow channel.
Install concrete flow channel up to springline of pipe with ¾" to 1" gap at pipe ends provided to maintain joint flexibility.

Changes in direction of the sewer and entering branch or branches shall be laid out in smooth curves of the longest possible radius which is targeted to the centerlines of adjoining pipelines. Regardless of differences in entrance and exit elevations, flow channels for all pipes are to be formed to present a smooth transition of flow and shall be subject to the approval of the ENGINEER.

Flow channels for sewer structures shall be finished in accordance with the city details. All flow channels shall be screeded and floated to a smooth, uniform surface and troweled to a hard surface finish.

The flow channel and surface surrounding it, shall be reformed and finished to provide flow channels. All such work shall be done with the proper tools and by careful workmen competent to do such work.

**DETAILED SPECIFICATION
FOR
ITEM 235 - RECONSTRUCT FLOW CHANNEL**

All necessary adjustments required to accommodate encountered field conditions for reconstructed flow channel including all necessary dewatering shall be included in the cost of the flow channel reconstruction and will not be paid for separately.

c. 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>
Reconstruct flow channel	Each

Payment for this item of work shall include all labor, materials and equipment needed to accomplish the work, regardless of depth or type of structure.

**DETAILED SPECIFICATION
FOR
ITEM 240 – CHEMICAL GROUTING OF MANHOLES**

a. DESCRIPTION

This work shall consist of governs all work, materials and testing required for the chemical grouting of manhole defects. The CONTRACTOR shall be responsible for furnishing all labor, supervision, materials, equipment, and testing required for the completion of chemical grouting of manhole defects.

Grouting to a manhole may include corbel, wall, pipe seals, manhole joints, well to flattop joint, and/or bench/trough. The Engineer will direct areas of the manhole designated to be grouted. If entire manhole is scheduled for grouting, grouting shall include corbel, wall, pipe seals, and bench/trough. Pipe seal grouting shall include all pipe seals in the specified manhole and grouting of the specified manhole including the bench/trough to the maximum height of 18 inches from the crown.

b. MATERIALS

Materials, additives, mixture ratios, and procedures utilized for the grouting process shall be in accordance with manufacturer’s recommendations or Engineer approved equal.

Manholes to be grouted are of brick, concrete, or fiberglass construction.

Chemical Sealing Material	Suggested Additive if Required
AV-100 Acrylamide Gel	Icoset AV-257
AV-118 Acrylic Gel	
AV-202 Multigrout Urethane Resin	
AV-219 Oil-Free Oakum	

The following properties shall be exhibited by the grout.

1. Documented service of satisfactory performance in similar usage.
2. Controllable reaction times and shrinkage through the use of chemicals supplied by the same manufacturer. The minimum set time shall be established so that adequate grout travel achieved.
3. Resistance to chemicals; to most organic solvents. Mild acids and alkali.
4. The chemical shall be essentially non-toxic in a cured form.
5. Sealing material shall not be rigid or brittle when subjected to dry atmosphere. The Material shall be able to withstand freeze/thaw and moving load conditions.
6. Acrylate grouts may not be used.

ADDITIVES

Grout conditions may be utilized for catalyzing the reaction, inhibiting the reaction,

**DETAILED SPECIFICATION
FOR
ITEM 240 – CHEMICAL GROUTING OF MANHOLES**

buffering the solution, lowering the freezing temperature of the solution, acting as filler, providing strength or for inhibition of root growth.

MATERIAL IDENTIFICATION The CONTRACTOR

shall completely identify the types of grout, mortar, sealant, and/or root control chemicals used and provide case histories of successful use or defend the choice of grouting materials based on chemical and physical properties, ease of application, and expected performance, to the satisfaction of the Engineer.

MIXING AND HANDLING

Mixing and handling of chemical grout, which may be toxic under certain conditions shall be in accordance with the recommendations of the manufacturer and in such a manner to minimize hazard to personnel. It is the responsibility of the CONTRACTOR to provide appropriate protective measures to ensure that authorized personnel handle chemicals or gels in the proper manner. All equipment shall be subjected to the approval of the Engineer. Only personnel thoroughly familiar with the handling of the grout material and additives shall perform the grouting operations.

d. CONSTRUCTION METHODS

Manhole grouting shall not be performed until the repair of the manhole frame and grade rings or any other structural manhole repairs are complete.

- A. The CONTRACTOR shall cut and trim all roots within the manhole.
- B. The CONTRACTOR shall seal all unsealed lifting holes, unsealed step holes, voids larger than approximately one-half (1/2) inch in thickness. All cracked or deteriorated material shall be removed from the area to be patched and replace with a waterproof quick setting mortar in accordance with manufacturer's specifications.
- C. The CONTRACTOR shall perform the Expanded Gasket Procedure (EGP) to control in flowing water in larger cracks, joints or pipe to manhole boots by soaking dry Oil Free Oakum (AV-219) with (AV-202) Multigrout and forcing the Oakum/Resin plug into opening until it sets. (See: Avanti EGP Manual for details.)
- D. The CONTRACTOR shall perform the EGP to seal intruding drop or lateral connections, slip line terminal seals and open joints in RCP manholes.
- E. The CONTRACTOR shall perform the EGP to seal between the corbel and grade rings, and between the manhole frame and grade rings, (See Avanti EGP Manuel for details.)
- F. Normal grouting operations shall be performed in accordance with manufacturer's recommendations.

**DETAILED SPECIFICATION
FOR
ITEM 240 – CHEMICAL GROUTING OF MANHOLES**

DRILLING AND INJECTION

- A. Injection holes shall be drilled through the manhole wall at locations as recommended by the manufacturer.
- B. Grout shall be injected through the holes under pressure with a suitable probe. Injection pressure shall not cause damage to the manhole structure or surrounding surface features.
Grout shall be injected through the lowest holes first. The procedure shall be repeated until the manhole is externally sealed with grout.
- C. Grouting from the ground surface shall not be allowed.
- D. Grout travel shall be verified by observation of grout to defects or adjacent injection holes. Provide additional injection holes, if necessary to ensure grout travel.
- E. Injection holes shall be cleaned with a drill and patched with a waterproof quick setting mortar for brick and concrete manholes.

TESTING OF REHABILITATED MANHOLES

If exfiltration or vacuum testing is used, usually 10 percent of the sealed manholes, as chosen by the inspector, are tested. Manholes that fail are reworked and retested by the CONTRACTOR. If more than 5 percent of the manholes tested fail the initial test, an additional 10 percent of the sealed manholes are tested. This process continues until the testing is satisfactory, or until all manholes have been tested.

Limitations and considerations include recognizing that exfiltration and vacuum testing may be impractical or cost-prohibitive for all manholes; therefore, the use of either method is subject to the following limitations and considerations.

- A. Complete Sealing: These methods are used only when the entire manhole has been sealed or rehabilitated. The lack of sealing or rehabilitation of some portions of the manhole may prevent passage of either of these tests. Spot repairs and partial sealing or rehabilitation are therefore subject to infiltration and visual testing only.
- B. Inlet and Outlet Sewers: Manholes built over a large diameter sewers may be impractical and uneconomical to test using either of these methods due to bypassing requirements, availability of plugs, and high forces that are generated on the plugs. Consideration must be given to these factors when determining the method of acceptance testing to be used.
- C. Structural Condition: The structural condition of some manholes may be such that testing with these methods is impractical and destructive. The Owner's Representative and CONTRACTOR shall therefore deem as structurally sound, prior to testing and using these methods, those manholes that have not been structurally lined.

**DETAILED SPECIFICATION
FOR
ITEM 240 – CHEMICAL GROUTING OF MANHOLES**

c. 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>
CHEMICAL GROUTING OF MANHOLES.....	Gallon

Payment for this item of work shall include all labor, materials and equipment needed to furnish the drainage structure cover.

**DETAILED SPECIFICATION
FOR
ITEM 245 – CHEMICAL ROOT TREATMENT**

a. DESCRIPTION This work shall consist of chemical root treatment is to kill tree roots in sanitary manholes where directed by the Engineer, and to inhibit root re-growth without damaging the trees, the environment, or the treatment plant.

The chemical root treatment material shall be EPA registered and labeled for use in manholes and acceptable to the state agencies having jurisdiction over its use. The Contractor shall submit a specimen product label of the material to be used in chemical root treatment to the Engineer.

All materials and mixing/application procedures for chemical root treatment shall be consistent with the latest standards, requirements, and recommendations of the manufacturer of the chemical root treatment material used.

b. MATERIALS.- The active ingredient for killing roots shall be a nonsystemic herbicide which will kill roots at low concentrations but which will not permanently affects parts of the plant distant from the treated roots. The active ingredient must be spontaneously detoxified by natural chemical/biochemical processes following its use. Manufacturer's maximum use guidelines should always be observed.

The active ingredient for inhibiting root regrowth in sanitary sewers shall inhibit root cell growth on contact but shall not be transported so as to damage other portions of the plant. The material shall form a persistent chemical barrier suppressing the growth of root tips. The material shall be sufficiently stable under conditions of use to provide protection for twelve months but shall be subject to decomposition in wastewater treatment plants without disturbing plant processes.

To improve transportation of the active ingredients into root tissues, the root treatment material shall contain emulsifiers to degrease root masses and remove fatty acids from root tissue and surfactants to convert an aqueous solution of the root treatment agent into a volatile foam when using the proper aeration equipment. This method insures root treatment material is held in line until chemical reaction is complete and roots are fully exposed to chemical.

c. PRECAUTIONS AND RESPONSIBILITY

The Contractor's attention is directed to the safety requirements and precautions associated with the use of the root treatment material.

The Contractor is required to be knowledgeable of and in compliance with federal and state requirements relative to the root treatment material and its use. Compliance with federal state law shall supersede compliance with the provisions of this contract.

Mixing and application of the root treatment material shall be done under the supervision of a state-certified pesticide (herbicide) applicators as required by law.

The Contractor shall use precautions for the protection of all persons, vegetation, animals, and property. The Contractor is responsible for damage to private property and vegetation.

d. CONSTRUCTION METHODS

Root tips are the principal growth areas and are the surfaces most effectively penetrated by root treatment chemicals. When the root tips are damaged or removed by high pressure jet cleaning, chemical treatment will be less effective. Consequently, no cleaning is recommended prior to chemical root treatment unless extensive grease, root masses, or debris preclude proper application of the material.

e. MIXING PROCEDURES

All materials shall be delivered to the site in undamaged, unopened containers bearing the manufacturer's original label. Mixing of the root treatment material shall be done at the time of application. The water used shall be clear and free of acid, alkali, oxidizing agents, oil, or other organic materials. Mixing water temperature shall be between 40 F and 80 F. Mixing of root treatment material with water must be accomplished immediately before injection of foam into manhole.

f. ROOT REMOVAL

Removal of roots is a part of the operation and it is included in as scope of root treatment.

Biological decomposition of dead root tissue occurs faster in septic conditions. Removal of dead roots, shall be postponed as long as possible after chemical root treatment to facilitate easier cleaning. Manhole cleaning shall be scheduled no less than six weeks after root treatment using high-velocity jet machines and mechanical sewer cleaning tools.

d. 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>
Root Treatment	Each

Payment for this item of work shall include all labor, materials and equipment needed to treat for roots in a manhole, regardless of depth; and root removal.

**DETAILED SPECIFICATION
FOR
ITEM 250 – RECONSTRUCT INTERNAL DROP CONNECTION**

a. GENERAL

The Work under this Section consists of providing all operations pertaining to furnishing and reconstructing internal drop connection sanitary sewer connections to manholes.

b. MATERIALS

Pipe and fittings used in the construction of drop connections for sanitary sewers shall conform to the requirements of SDR – 26 PVC Pipe, and the Standard Details of the City of Ann Arbor.

c. CONSTRUCTION

Thoroughly clean and remove existing internal drop connection and remove any accumulated sediment, roots, debris or broken unstable loose concrete or brick. Properly dispose of all materials removed from the flow channel.

The new drop connection should be connected, grouted and inserted a minimum of 3” in place to the existing inlet/outlet using a Tee fitting P.V.C pipe.

Securely attach P.V.C pipes to the manhole and structure walls using stainless steel pipe brackets and bolts every 4ft.

The new invert of the drop pipe elbow must be between 0.1 and 0.2 feet higher than invert of the out let pipe bench elevation at channel edge. Provide 3” min. concrete cover over elbow.

Nominal diameter of P.V.C drop section to match the influent pipe diameter.

Where the process requires interruption of flow, the Contractor shall provide all necessary diversion or bypass pumping equipment to handle the flow for the duration of the drop connection reconstruction, including curing times where applicable.

MEASUREMENT AND PAYMENT:

Drop sanitary sewer connections shall be measured as each, complete in place. The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>ITEM</u>	<u>UNIT</u>
Reconstruct Internal Drop Connection	Each

Payment for this item of work shall include all labor, materials and equipment needed to accomplish the work, regardless of depth or type of structure.

**DETAILED SPECIFICATION
FOR
ITEM 255 - MANHOLE CEMENTITIOUS LINER**

DESCRIPTION

Sanitary sewer manhole cementitious liner with spray applied or centrifugally cast light-weight structural reinforced concrete.

The Cementitious Liner shall be applied on the manhole base, bench, walls, corbel/cone, and chimney of brick, block, or precast manholes.

INSTALLER EXPERIENCE AND QUALIFICATIONS

Contractor must demonstrate a minimum of 3-years of an recent experience.

SUBMITTALS

Submit to the Owner for review and acceptance at least 14-days prior to starting manhole cementation for the following:

- Manufacturers' Certificate of Compliance certifying compliance with the applicable Specifications and Standards. The certifications shall list all materials furnished under this Section.
- Certified copies of factory tests required by the applicable Standards, the Manufacturer, and this Section.
- Manufacturer's handling, storage, and installation instructions and procedures.

MATERIALS

The materials used shall be designed, manufactured, and intended for sewer manhole rehabilitation and the specific application in which they are used.

The materials shall have a proven history of performance in sewer manhole rehabilitation. The materials shall be delivered to the job site in original unopened packages clearly labeled with the manufacturer's identification and printed instructions.

All materials shall be stored and handled in accordance with recommendations of the manufacturer.

All materials shall be mixed and applied in accordance with the manufacturer's written instructions.

The material applied to the surface of the manhole shall be a cementitious blend of calcium aluminate cement and manufactured calcium aluminate aggregates for constructing a liner that is impervious to the flow of water, is resistant to sulfide attack, and restores structural integrity to existing manhole walls.

A monolithic liner shall be formed which covers all interior manhole surfaces and

shall have the following minimum requirements at 28-days:

Compressive Strength (ASTM C-579B)	3,000-psi
Tensile Strength (ASTM C-496)	300-psi
Flexural Strength (ASTM C-293) (Modified)	600-psi
Shrinkage (ASTM C-596)	0% at 90% R.H.
Bond (ASTM C-321)	130-psi

PREPARATORY PROCEDURES

Contractor will perform preliminary cleaning of the structure with high-pressure water-blasting at a minimum of 4000psi and 4gpm to obtain the desired concrete surface profile (CSP) of 3 or greater. If the desired CSP is not achieved by high-pressure water-blasting other methods of obtaining the surface profile such as abrasive blasting and acid etching shall be used.

The Contractor shall remove all the existing manhole steps. The metal portion of all steps will be removed to within 1/2" of the manhole interior wall surface. The remaining protruding metal portion of the step shall be covered with a cementitious material to provide a smooth surface on and around the protrusion for the liner to bond.

All open joints, voids, holes, cracks, and missing bricks larger than 3 inches in diameter or equivalent shall be patched with a cementitious material to provide a smooth surface for the cementitious liner to bond.

All roots, loose, cracked or disintegrated material shall be removed from the area to be patched exposing a sound substrate. The cementitious patch material shall be allowed to cure according to the manufacturer's specifications before continuing with the cementitious Liner installation process.

Bench shall be sloped so that water will flow back into channel.

When the channel is required to be lined the Contractor shall plug the inlet pipe, inspect for infiltration leaks around the inlet and outlet pipes and in the channel. All leaks present shall be stopped by the use of chemical grout injection and/or by the use of fast-setting cement.

The final prepared surface shall have a concrete surface profile of 3 or greater and have a smooth uniform appearance.

FINISHED LINER

The finished Cementitious Liner shall be continuous over the entire length of the structure from the cover seat to the invert, including the channel. Liner shall be bonded to the structure, as required by design, and in such a way as to not allow any water to flow behind the liner and enter back into the waste stream.

The liner shall be visually inspect from inside the structure for any defects that may affect performance of the liner. All defects shall be fixed to conform with these specifications.

CLEANUP

Clean up the entire project area after the work is completed and all testing accepted. Remove and dispose of all excess material and debris not incorporated into the permanent installation.

MAINTENANCE

Any defects shall be repaired in accordance with the manufacturers' recommendations on an as needed basis.

WARRANTY

Manufacturer and Installer of the Liner system shall provide a 10 year warranty on materials and labor.

MEASUREMENT AND PAYMENT

Cementitious Liner shall be measured as units, complete in place. The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>ITEM</u>	<u>UNIT</u>
Cementitious Liner	Vf

Payment for this item of work shall include all labor, materials and equipment needed to accomplish the work, regardless of depth or type of structure.

**DETAILED SPECIFICATION
FOR
ITEM 260 - EPOXY LINER**

DESCRIPTION

Install a 100% solids epoxy monolithic coating to the walls, benches and inverts of manholes. This specification covers work, materials, equipment and tools including specially developed application equipment as required for installation of a field applied unique monolithic interior surfacing system.

The use of specialized equipment combined with rigorous surface preparation requirements shall be used to apply the products without the use of solvents. The equipment adds high heat and pressure the monolithic surfacing system resulting in a high build and quick set of the completed system.

Product application requirements and procedures described herein include surface preparation, mixing application, material handling and storage, qualification of the applicator and application quality control.

The minimum coating thickness shall be 250 mils.

The following standards are hereby incorporated into these specifications by reference:

1. ASTM D638 – Tensile Properties of Plastics
2. ASTM D790 – Flexural Properties of Unreinforced and Reinforced Plastics
3. ASTM D695 – Compressive Strength of Rigid Plastics
4. ASTM D4541 – Pulloff Strength of Coatings Using a Portable Adhesion Tester
5. ASTM D2584 – Volatile Matter Content
6. ASTM D2240 – Durometer Hardness, Type D
7. ASTM D1653 – Water Vapor Transmission of Organic Coating Films
8. ASTM D543 – Resistance of Plastics to Chemical Reagents
9. ASTM C297 – Flatwise Tensile Strength of Sandwich Constructions.
10. ASTM – The published standards of the American Society for Testing and Materials
11. NACE – The published standards of the National Association of Corrosion Engineers (NACE International), Houston, TX.

SUBMITTALS

The Contractor shall submit the following information to the Engineer for approval prior to beginning the installation of the protective coating.

- Manufactures data sheets for the coating materials
- Third party test results verifying the physical properties of the coating materials meet or exceed the requirements of these specifications.
- Applicator's procedures for preparing the surface of the structure and installing the coating system.

- Documentation that the Applicator of the coating has been trained and certified by the Manufacturer and meets the experience requirements of these specifications.

PRODUCTS

The coating system shall be a spray-applied 100% solids epoxy monolithic surfacing system for use in coating new manholes, wetwells, liftstations, treatment plants, and other structures. All products to be used on this project must be pre-approved by the Engineer prior to the bid date. The following products have been pre-approved for use on this project.

- A. S301 by Warren Environmental, Inc
- B. ARC S1HB by A. W. Chesterton Company

In order to be considered as an equal, a product must have the following minimum physical characteristics as measured by the applicable ASTM Standards referenced herein.

- A. Minimum Compressive Strength 12,000 psi
- B. Minimum Tensile Strength 7,000 psi
- C. Minimum Flexural Strength 11,000 psi
- D. Minimum Bond Strength 500 psi
- E. Minimum corrosion resistance suitable for environments pH of 0.5 or higher.

Other manufacture or products seeking per-approval must submit the following documentation to the Engineer a minimum of two weeks prior to bid date. This period allows the Engineer ample time to determine if the proposed product is an acceptable alternative.

- A. Documentation that the proposed product meets the above minimum physical characteristics including results of testing performed by a bonded, third party testing company.
- B. An affidavit attesting to the successful use of the product as a protective coating for concrete or masonry structures for a minimum continuous period of five (5) years in wastewater conditions recognized as corrosive or otherwise detrimental to concrete and masonry.
- C. A verifiable list of references that document the successful installation and use of the product in a minimum of 750,000 square feet of sanitary sewer structures.

All additional products that are pre-approved by the Engineer shall be identified in an addendum issued prior to the bid date.

EXECUTION

INSTALLER QUALIFICATIONS

- A. All products must be installed by an Installer that has been trained and certified by the manufacturer.
- B. The Installer must provide verifiable documentation of the above certification and the successful installation of 250,000 square feet of the product in sanitary sewer structures

QUALITY ASSURANCE

- A. Applicator shall initiate and enforce quality control procedures consistent with applicable ASTM standards.
- B. Applicator shall use an adequate number of skilled workers who are thoroughly trained and experienced in the necessary crafts. These workmen shall be completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- C. Applicator shall use approved specialty equipment adequate in size, capacity and number sufficient to accomplish the work of this Section in a timely manner.

SAFETY

- A. Applicator shall perform his work in a manner to protect the health and safety of all workers and the public.
- B. All work shall be in accordance with standard industry safety practices.
- C. All work, including entry into confined spaces shall be performed in strict compliance with current OSHA regulations.

PRE-COAT INSPECTION

- A. The applicator's vehicles and equipment must be able to access the structures to be coated under their own power.
- B. Active flows shall be dammed, plugged or diverted as required to ensure that the liquid flow is maintained below the surfaces to be coated.
- C. Installation of the protective coating shall not commence on any surfaces containing freshly poured concrete until the concrete substrate has properly cured and in no case less than 28 days.

SURFACE PREPARATION

- A. Applicator shall inspect all surfaces specified to receive the monolithic surfacing system prior to surface preparation. Applicator shall promptly notify Owner of any noticeable disparity in the surfaces that may interfere with the proper preparation or application of the monolithic surfacing system.
- B. All concrete that is not sound or has been damaged by chemical exposure shall be restored to a sound concrete surface. All contaminants including all oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, roots or other contaminants shall be removed.
- C. Surfaces to receive protective coating shall be cleaned to produce a sound concrete or masonry surface with adequate profile and porosity to provide a strong bond between the monolithic surfacing system and the substrate. Surface preparation methods shall be based upon the conditions of the substrate and the requirements of the monolithic surfacing system to be applied, but as a minimum, shall be in accordance with the procedures listed below.
 - 1. Clean all surfaces with high pressure water to remove all loose or contaminated debris. Other equipment and methods may be required to remove all unsound material.

2. When all loose, contaminated, and unsound debris has been removed, the surface shall be etched with a solution of 20% muriatic acid to clean and open the pores of the substrate.
3. The surface shall be washed again and the wash water shall contain a dilute solution of chlorine to diminish microbiological bacteria growth and to kill any bacteria residing on the surface.
4. The surface shall be tested with litmus paper at various points throughout the structure to ensure that the pH is within acceptable limits (not to exceed 8.5). If the surface does not meet the pH requirements, the above steps shall be repeated until the surface pH is within acceptable limits. All test results will be retained for review by the Engineer.
5. Active water infiltration shall be stopped by using a cementitious water plug that is compatible and suitable for top coating with the specified monolithic surfacing system.
6. If pre installation inspection reveals infiltration (define as visible and consistent movement of water) through the wall of the structure, a collapse in an area of the wall, a bench needs to be rebuilt/repared, a necessity for sandblasting (if necessary after surface preparation as described in specification) or anything that will require more than typical preparation of the structure, the contractor will advise the Owner's representative.
Such extra work will be approved in writing between the Owner and the contractor prior to the commencement of the work and shall be considered as a separate pay item.

APPLICATION

The interior surfacing system shall be applied to the chimney, walls, bench, and invert of all manholes and to the specified surfaces of all other structures.

The interior surfacing system shall be continuously bonded to all brick, mortar, concrete, chemical sealant, grout, pipe and other surfaces inside the manhole according to ASTM C882 testing and therefore shall be designed for hydrostatic loading.

The cured surfacing shall be monolithic with proper sealing connections to all unsurfaced areas and shall be placed and cured in conformance with the recommendations of the monolithic surfacing system manufacturer.

When cured, the system shall form a continuous, tightfitting; hard, impermeable surfacing that is suitable for sewer system service and chemically resistant to any chemicals, bacteria or vapors normally found in domestic sewage.

The system shall effectively seal the interior surfaces of the manhole and prevent any penetration or leakage of groundwater infiltration.

The system shall be compatible with the thermal conditions of the existing sewer manhole surfaces.

Heated, plural component, specially designed equipment for use in the spray or spin-cast application of the specified system approved for use by the monolithic surfacing system manufacturer.

Application procedures shall conform to the recommendations of the interior surfacing system manufacturer, including material handling, mixing, and environmental controls during application, safety, and equipment.

The equipment shall be specially designated to accurately ratio and apply the specified materials and shall be regularly maintained and in proper working order.

An approved installer of the monolithic surfacing system must apply the specified materials.

The walls, bench, and invert of the structure shall be lined with the monolithic surfacing system to provide a thickness as previously specified based on the condition of the existing structure. The cured surfacing shall be monolithic with proper sealing connections to all un surfaced areas and shall be placed and cured in accordance with the recommendations of the monolithic surfacing system manufacturer.

Specially designed spray and/or spincast application equipment shall be used to apply each coat of the system.

QUALITY ASSURANCE

1. Applicator shall initiate and enforce quality control procedures consistent with applicable ASTM standards.
2. Applicator shall use an adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts. These workmen shall be completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
3. Applicator shall use approved specialty equipment adequate in size, capacity and number sufficient to accomplish the work of this Section in a timely manner.

TESTING AND INSPECTION

1. During application a wet film thickness gage, such as those available through Paul N. Gardner Company, Inc. meeting ASTM D4414 – Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used to ensure a monolithic coating and uniform thickness during application.
2. The Engineer and Applicator shall make a final visual inspection. Any deficiencies in the finished system shall be marked and repaired according to the procedures set forth herein by Applicator.

WARRANTY

TEN-YEAR WARRANTY

A. All approved products must provide a ten-year performance limited warranty that the installed product will:

1. Stop deterioration of the lined surfaces by sewer gas induced corrosion.
2. Prevent infiltration of ground water into the collection system through the lined surfaces.
3. Stop root intrusion through the lined surfaces.

CLEANUP

Clean up the entire project, area after the work is completed and all testing accepted. Remove and dispose of all excess material and debris not incorporated into the permanent installation.

MAINTENANCE

Any defects shall be repaired in accordance with the manufacturers' recommendations on an as needed basis.

MEASUREMENT AND PAYMENT

Measurement for new and rehabilitated manholes shall be per vertical foot for any diameter and shall be measured from the invert to the top of the frame. The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

ITEM
Epoxy Liner

UNIT
VF

Payment for this item of work shall include all labor, materials and equipment needed to accomplish the work, regardless of depth or type of structure.

**DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC**

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.

A lane-closure permit shall be obtained by the Contractor from the Project Management Services Unit, at least 48 hours in advance of any proposed lane or street closing. No lane closures shall be permitted on holiday weekends, or on University of Michigan home football Saturdays.

The hours of work are 7:00 a.m. to 8:00 p.m. on Local Streets, and 9:00 a.m. to 3:00 p.m. on Major Streets, 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 the above referenced times. 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. 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 Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer.

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

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 control devices and traffic regulator control shall not be paid separately, be included in the payment for the individual items of work.

**DETAILED SPECIFICATION
FOR
MINOR TRAFFIC CONTROL**

DESCRIPTION

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

- The furnishing and operating of miscellaneous signs, warning devices, barricades, traffic regulators, flags, paddles, and cones;
- The operation of additional signs furnished by the City;
- Install NO PARKING signs, supplied by the City
- Coordinating with the City to have meter bags installed;
- 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 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 work for Minor Traffic Control shall include: furnishing and operating of miscellaneous signs, barricades, 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. Minor traffic control shall not be paid separately, but shall be included in payment for the individual items of work.

The Contractor shall maintain two-way traffic on major streets, access for local traffic on local streets, and keep all intersections open to traffic at all times, unless specifically authorized in writing 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 so as to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor shall keep all driveways open at all times, unless specifically authorized in writing by the Engineer.

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 individual items of work and will not be paid for separately.

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. 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.

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

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

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.

Where there is metered parking, the Contractor shall either rent and install meter bags, or, with the Engineer's authorization, coordinate with the City Field Services to have meter heads removed and reinstalled.

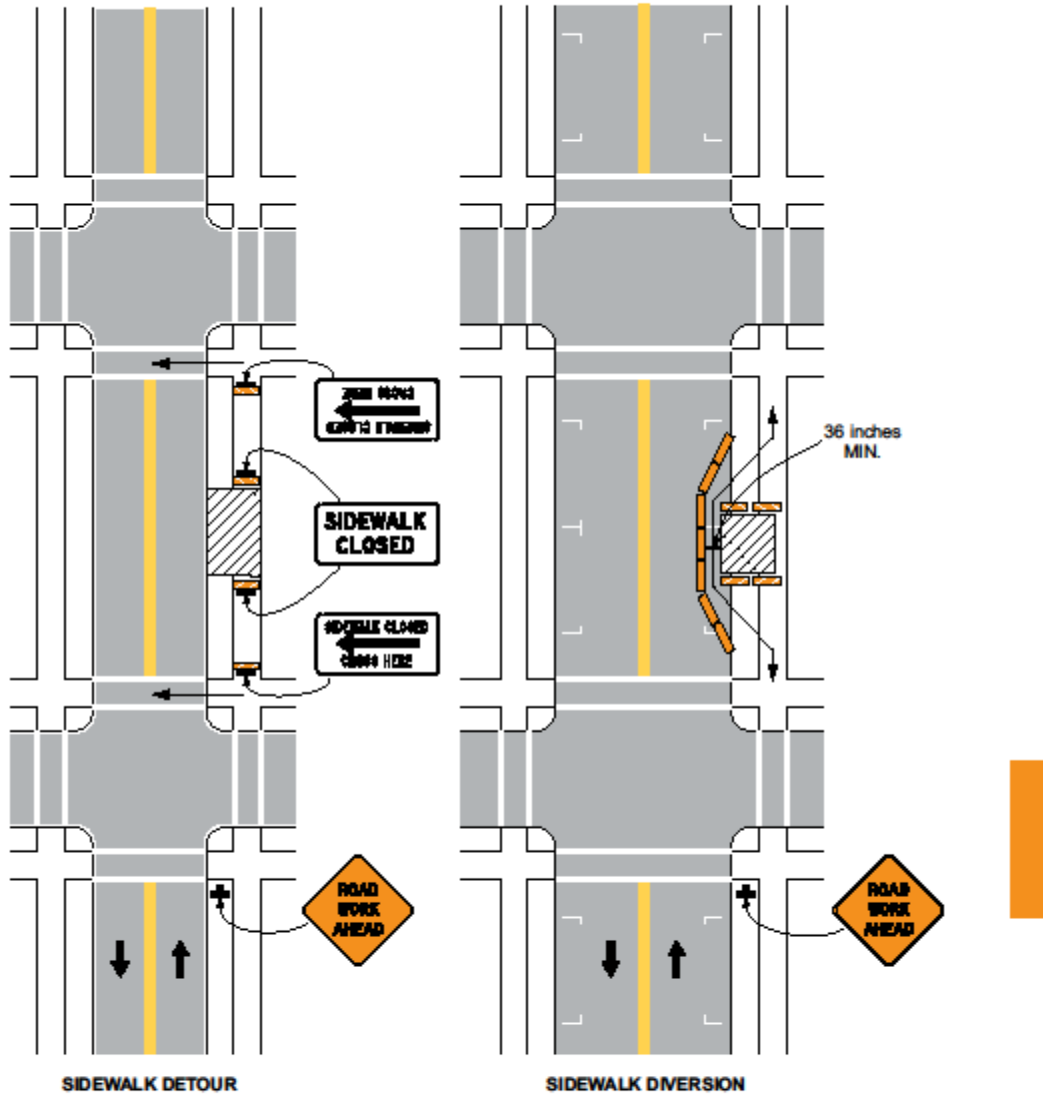
The Contractor shall maintain vehicular and pedestrian traffic during the work by the use of traffic regulators, channelizing devices and signs as necessary, as directed by the Engineer, and in accordance with 2011 Edition of the MMUTCD. Typical applications for maintaining pedestrian traffic in accordance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

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.



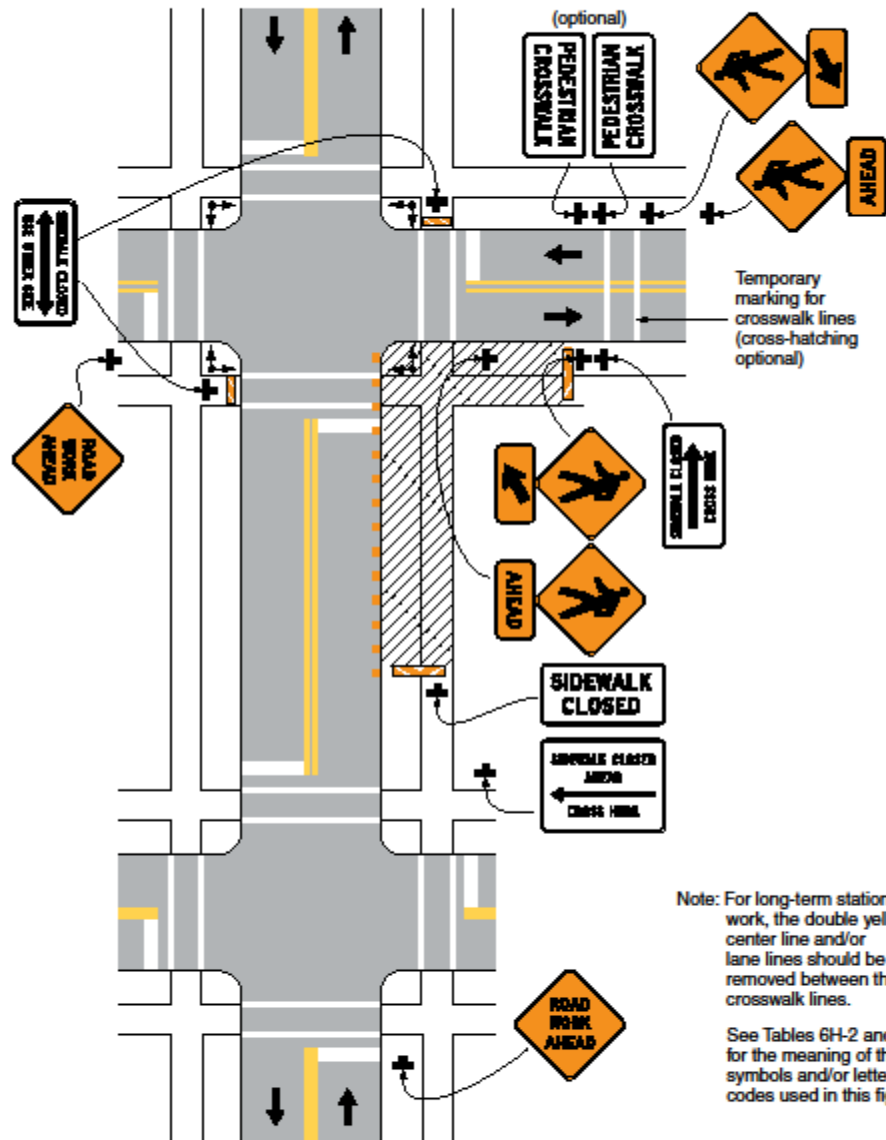
Figure 6H-28. Sidewalk Detour or Diversion (TA-28)



Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)



Typical Application 29

**DETAILED SPECIFICATION
FOR
CLEAN-UP & RESTORATION**

DESCRIPTION

This item of work shall conform to Division IX, Section II, Item No. 891, 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 hardscaped, landscaped and lawn areas; replacement of furniture, fixtures, fences, and similar features disturbed by the work; Basketball court coating; sweeping/cleaning road surfaces, culverts, drives, and sidewalks disturbed by the work. This work includes placing topsoil, fertilizer, seeding, and furnishing and installing mulch blankets on all disturbed areas 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.
- 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.
- 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 blankets shall be High Velocity Straw Mulch Blankets as specified in Section 917.15.B.1b.

CONSTRUCTION, MAINTENANCE, AND ACCEPTANCE

Perform restoration and establish turf in accordance Section 816.03 of MDOT 2012 Standard Specifications for Construction.

It is the responsibility of the Contractor to establish a dense lawn of permanent grasses, 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 reseeded 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 lawn areas until they have been accepted by the Engineer. Lawn maintenance shall begin immediately after the grass seed is in place and continue until final acceptance with the following requirements:

Lawns 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. 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.

Clean-Up & Restoration will not be paid separately, but shall be included in payment for the individual items of work.

**DETAILED SPECIFICATION
FOR
PAVEMENT REMOVAL, ANY THICKNESS**

DESCRIPTION

This work includes removal of pavement accordance with Section 204 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications, except as modified herein, and as directed by the Engineer.

CONSTRUCTION METHOD

Pavement includes roads, sidewalk, curb, and driveway of any thickness and material.

The Contractor shall sawcut and remove pavement as marked in the field, and as directed by the Engineer. Pavement removal shall be full depth unless otherwise 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.

Pavement Removal will not be paid separately, but shall be included in payment for the individual items of work.

**DETAILED SPECIFICATION
FOR
HMA PATCHING**

DESCRIPTION

This work shall consist of patching existing HMA and concrete pavements as specified in Division 5 of the 2012 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS

The HMA mixtures to be used for this work shall be MDOT No. LVSP, 13A or 36A.

Asphalt Binders shall be grade PG 58-28, and shall meet the requirements specified in Section 904 of the 2012 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

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.

CONSTRUCTION METHODS

Once pavement has been removed, the Contractor shall have a maximum of seven (7) days to complete final patching of the area. The area shall be temporarily filled with cold patch asphalt or 21AA crushed limestone aggregate, as directed by the engineer, and maintained by the contractor until it is permanently patched with HMA.

The Contractor shall provide a 10-foot long straight-edge during all paving operations.

The aggregate base and/or subgrade of all patch areas which are, or become, damp or wet, shall be dried by aerating, or by other methods approved by the Engineer.

The aggregate base and/or subgrade of each patch shall be evenly graded and trimmed, and shall be compacted by the use of a vibratory plate compactor or other approved method(s) to not less than 98% of its maximum unit weight.

Prior to placing HMA patching material, all patch areas shall be cleaned with compressed air, and/or vacuum type street cleaning equipment (Vac-all), to remove dirt and loose material. Compressed air shall be from a source which provides a minimum of 90 psi and 150 cubic feet per minute of air at the nozzle.

All asphalt and concrete surfaces within all patch areas shall be covered with MDOT SS-1h bond coat, applied at a rate of 0.10 gallons/square yard. The bond coat shall be applied with a power distributor hand sprayer.

The Contractor shall not place HMA materials on adjacent pavement surfaces.

HMA mixtures shall be placed in lifts not exceeding 2.25-inches. Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula. HMA mixtures shall be compacted by the use of an approved vibratory roller. At small patches, an approved vibratory plate compactor shall be used.

All specified HMA thickness dimensions are compacted-in-place.

Spot Wedging, Spot Leveling, and Finish Patching shall be performed in accordance with this Detailed Specification and as directed by the Engineer, using the HMA mixture(s) directed by the Engineer.

The completed work of patching, spot wedging, spot leveling and finished patching shall provide a smooth riding surface, to the satisfaction 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.

HMA patching will not be paid separately, but shall be included in payment for the individual items of work.

**DETAILED SPECIFICATION
FOR
CONCRETE REPLACEMENT**

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 with 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 P-NC, 7-sack; and concrete materials shall meet the requirements specified in section 610 of the MDOT Standard Specifications for Construction:

CONSTRUCTION METHODS

General

Curb, gutter, curb and gutter, sidewalk, sidewalk ramps, drive openings, and drives shall be replaced the same day they are removed.

Curbs shall be per MDOT F-4 standard detail.

Sidewalks adjacent to residential driveways shall be 6-inched thick, and adjacent to commercial driveways shall be 8-inch thick fibermesh reinforced. Other sidewalks shall be 4-inches thick.

Commercial driveways shall be 8-inch thick fibermesh reinforced. Residential driveways shall be 6-inches thick.

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

All subgrade work shall be completed prior to placing concrete items.

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 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 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.

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.

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 ½-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.

Concrete replacement will not be paid separately, but shall be included in payment for the individual items of work.

**DETAILED SPECIFICATION
FOR
COORDINATION AND COOPERATION WITH OTHERS
AND
WORK BY OTHERS**

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.

The Contractor is hereby notified that the City of Ann Arbor Field Services Unit may be installing traffic control conduits, traffic signal sensors, and the like, at various locations.

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:

"3 Working Days before you Dig - Call MISS DIG - Toll Free" Phone No. 1-800-482-7171.

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, Maximum, \$_____".

**DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES**

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 or where directed by the Engineer.
 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, 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.
-

**DETAILED SPECIFICATION
FOR
DISPOSING OF EXCAVATED MATERIAL**

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, Modified, Maximum, \$_____".

**DETAILED SPECIFICATION
FOR
SOIL EROSION AND SEDIMENTATION CONTROL MEASURES**

The Contractor shall furnish, place, maintain and remove soil erosion and sedimentation control measures, 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 required to maintain compliance.

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

**DETAILED SPECIFICATION
FOR
PROTECTION OF UTILITIES**

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 activities and debris.

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

**DETAILED SPECIFICATION
FOR
VACUUM TYPE STREET AND UTILITY STRUCTURE CLEANING EQUIPMENT**

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 and when 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, \$_____".

**DETAILED SPECIFICATION
FOR
MATERIALS AND SUPPLIES CERTIFICATIONS**

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
- Liners, epoxies, manhole rehabilitation 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
- Timber for retaining walls
- Modular Concrete Block for retaining walls
- Edge Drain and Underdrain Pipe
- 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, \$_____".

**DETAILED SPECIFICATION
FOR
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.

**DETAILED SPECIFICATION
FOR
WORKING IN THE RAIN OR IN THE DARK**

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.

**DETAILED SPECIFICATION
FOR
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.**

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

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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.

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.

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

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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 oxides ($\text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$) of 66% and a minimum SiO_2 of 38% may be 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 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 ($\text{Na}_2\text{O}_{\text{eq}}$). 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 Na_2O equivalent. Equivalent sodium oxide is calculated as: (percent Na_2O + 0.658 x percent K_2O).

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 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° 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.

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

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Prior to cool weather placement, defined for the purposes of this detailed specification to be, air temperatures between 40° 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 sample sets to determine the actual air loss during placement. A sample set shall consist of two samples of concrete from the same batch, one taken at the point of discharge and the other from the in-place concrete behind the paver. The air loss from the two sample sets shall be averaged and added to 6.0% to establish the AAC (rounded to the next 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 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.

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

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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 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 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 through out 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 through out 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.

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

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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 samples taken, one after approximately 20% discharge and one after approximately 90% discharge of the batch, show a variation greater than 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.

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.

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

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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.

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.

APPENDIX 1 - List of Manhole Rehabilitation Locations

ITB 4357 - Manhole Rehabilitation Locations

FACILITYID	Street	Location_Details	Replace Cover	Replace Frame	External Chimney Seal	Internal Chimney Seal	Reconstruct flow channel	Grout	Root Treatment	Drop Connection	Cement. Liner	Epoxy Liner
71-073106	N ASHLEY ST	534 N ASHLEY ST	1	0	0	1	0	0				
71-61439	MILLER AVE	303 MILLER AVE	1	0	0	1	0	26			13.13	
71-61332	N 7TH	401 N 7TH	1	0	0	1	0	28			10.69	
71-61373	SEQUOIA PKWY WEST BOUND	EAST OF KUEHNLE ST	1	0	0	1	0	0				
71-61374	SEQUOIA PKWY WEST BOUND	WEST OF DELLWOOD DR	1	0	0	1	0	0				
71-61375	SEQUOIA PKWY WEST BOUND	DELLWOOD DR	1	0	0	1	0	0			11.17	
71-61376	SEQUOIA PWY EAST BOUND	784 KUEHNLE AVE	1	0	0	1	0	31		1		
71-61377	SEQUOIA PWY EAST BOUND	2901 SEQUOIA PWY	1	0	0	1	0	0				
71-61440	W LIBERTY	EAST OF TRACKS	1	0	0	1	0	0				
71-62230	PACKARD ST	1423 STADIUM BLVD	1	0	0	1	1	0				
71-62242	E STADIUM BLVD	1414 STADIUM BLVD	1	0	0	1	0	0				
71-62376	BROCKMAN BLVD	2506 BROCKMAN BLVD	1	0	0	1	0	34			12.71	
71-62377	BROCKMAN BLVD	FRIEZE AVE	1	0	0	1	0	0				
71-62378	FRIEZE AVE	2115 FRIEZE AVE	1	0	0	1	0	0				
71-63129	E STADIUM BLVD	WESTMINSTER PLACE	1	0	0	1	0	0				
71-63130	HENRY ST	1103 HENRY ST	1	0	0	1	0	0				
71-63131	HENRY ST	WESTMINSTER PL	1	0	0	1	0	18			7.52	
71-63137	WESTMINSTER PLACE	GARDNER AVE	1	0	0	1	0	0				
71-63138	WESTMINSTER PL	1601 WESTMINSTER PL	1	0	0	1	0	0				
71-63139	WESTMINSTER PL	1611 WESTMINSTER PL	1	0	0	1	0	0			6.63	
71-63526	COLIN CIRCLE	440 COLIN CIRCLE	1	0	0	1	0	0				
71-63323	E STADIUM BLVD	FERNDAL PLACE	1	0	0	1	0	0				
71-63327	HENRY ST	FERNDAL PLACE	1	0	0	1	0	0			7.26	
71-63328	E STADIUM BLVD	IROQUOIS	1	0	0	1	0	0				
71-63351	E STADIUM BLVD	1406 STADIUM BLVD	1	0	0	1	0	0				
71-63361	E STADIUM BLVD	MONTCLAIR PLACE	1	0	0	1	0	0				
71-63367	E STADIUM BLVD	1308 STADIUM BLVD	1	0	0	1	0	0				
71-073118	N 7TH	WEST PARK	1	0	0	1	1	0				
71-64602	E STADIUM BLVD	GOLDEN AVE	1	0	0	1	0	0				
71-64609	GOLDEN AVE	HENRY ST	1	0	0	1	0	39				
71-64612	GOLDEN AVE	ROSE AVE	1	1	1	0	0	34				
71-64615	GOLDEN AVE	BROOKLYN AVE	1	0	0	1	0	39			14.83	
71-64642	HENRY ST	WEST OF GOLDEN AVE	1	0	0	1	1	0				2.61
71-64643	HENRY ST	WEST OF GOLDEN AVE	1	1	1	0	0	0				
71-64644	GOLDEN AVE	HENRY ST	1	0	0	1	0	31				
71-64652	GOLDEN AVE	1424 GOLDEN AVE	1	0	0	1	0	0				
71-64653	GOLDEN AVE	1414 GOLDEN AVE	1	0	0	1	0	0				
71-64732	COLIN CIRCLE	468 COLIN CIRCLE	1	0	0	1	0	0				
71-64733	COLIN CIRCLE	484 COLIN CIRCLE	1	0	0	1	0	0				
71-66872	N 7TH	121 N 7TH	1	0	0	1	0	0				
71-66873	N 7TH	121 N 7TH	1	0	0	1	0	0			9.52	
71-67249	DOTY AVE	203 DOTY AVE	1	0	0	1	0	0				12.69
71-67251	WESTWOOD AVE	205 WESTWOOD AVE	1	0	0	1	0	0				11.48
71-67379	WESTWOOD AVE	285 WESTWOOD AVE	1	0	0	1	0	0			9.21	
71-67397	WILDWOOD AVE	SOUTH OF LINWOOD AVE	1	0	0	1	0	0				
71-67398	WILDWOOD AVE	SOUTH OF LINWOOD AVE	1	0	0	1	0	0				
71-67511	MAPLE RIDGE ST	403 MAPLE RIDGE ST	1	0	0	1	0	0				16.07
71-67512	MAPLE RIDGE ST	500 MAPLE RIDGE ST	1	0	0	1	0	0				11.66
71-67514	N 7TH	WEST PARK	1	1	1	0	1	0				13.8
71-67516	N 7TH	407 N 7TH	1	0	0	1	0	0				12.47
71-67521	MAPLE RIDGE ST	500 MAPLE RIDGE ST	1	0	0	1	1	0	1		17.6	
71-67523	N 7TH	401 N 7TH	1	0	0	1	0	0			8.84	
71-67533	ARBORVIEW BLVD	PAUL ST	1	0	0	1	0	16				
71-67542	ARBORVIEW BLVD	ARBANA DR	1	0	0	1	0	0				
71-67551	ARBORVIEW BLVD	1007 ARBORVIEW BLVD	1	0	0	1	0	0				7.89
71-67936	N MAIN ST	940 N MAIN ST	1	0	0	1	0	0				
71-67937	N MAIN ST	940 N MAIN ST	1	0	0	1	0	0				
71-68276	DELLWOOD DR	2835 SEQUOIA PWY	1	0	0	1	0	37			14	
71-68277	SEQUOIA PWY EAST BOUND	DELLWOOD DR	1	0	0	1	0	31				
71-68279	ARCHWOOD DR	774 ARCHWOOD DR	1	0	0	1	0	0			9.47	
71-68280	SEQUOIA PWY EAST BOUND	ARCHWOOD DR	1	0	0	1	0	0				
71-68281	SEQUOIA PKWY WEST BOUND	CENTER DR	1	0	0	1	0	0		1	11.37	
71-68282	CENTER DR	2701 SEQUOIA PKWY	1	0	0	1	0	0				
71-68283	SEQUOIA PKWY WEST BOUND	ARCHWOOD DR	1	0	0	1	0	0			11.43	
71-68320	SEQUOIA PKWY WEST BOUND	KUEHNLE ST	1	0	0	1	0	0				
71-68321	SEQUOIA PWY EAST BOUND	KUEHNLE AVE	1	0	0	1	0	0				
71-68331	RAVENWOOD ST	SEQUOIA PWY	1	0	0	1	0	0			13.79	
71-68332	SEQUOIA PKWY WEST BOUND	EAST OF RAVENWOOD ST	1	0	0	1	0	0				
71-68336	RAVENWOOD ST	SEQUOIA PWY	1	0	0	1	0	0				
71-68337	SEQUOIA PKWY WEST BOUND	WEST OF KUEHNLE ST	1	0	0	1	0	0				
71-68654	LONGSHORE	ARGO PARK	1	0	0	1	0	0				
71-68979	PENINSULA CT	725 PENINSULA CT	1	0	0	1	0	17				
71-69111	E STADIUM BLVD	1423 STADIUM BLVD	1	0	0	1	0	0				
71-69135	SHADFORD RD	1612 SHADFORD RD	1	0	0	1	0	0				
71-69136	SHADFORD RD	FERDON RD	1	0	0	1	0	0				
71-69138	E STADIUM BLVD	FERDON RD	1	0	0	1	1	0				
71-69139	E STADIUM BLVD	1646 STADIUM BLVD	0	0	0	1	0	0				
71-69141	E STADIUM BLVD	1622 STADIUM BLVD	0	0	0	1	0	0				
71-69142	E STADIUM BLVD	BALDWIN AVE	1	0	0	1	0	0				
71-69143	E STADIUM BLVD	1509 STADIUM BLVD	1	0	0	1	0	0				
71-69144	E STADIUM BLVD	1510 STADIUM BLVD	1	0	0	1	1	0				
71-69146	E STADIUM BLVD	1510 STADIUM BLVD	1	0	0	1	0	0				
71-69394	HILL ST	2330 HILL ST	1	0	0	1	0	0				
71-69399	HILL ST	2206 HILL ST	1	0	0	1	0	0				
71-69400	HILL ST	703 BERKSHIRE RD	1	0	0	1	0	0				
71-69409	HILL ST	ONONDAGA ST	1	0	0	1	0	59				22.19
71-69500	BROCKMAN BLVD	2500 BROCKMAN BLVD	1	0	0	1	0	0				
71-69875	SHADFORD RD	1706 SHADFORD RD	1	0	0	1	0	0				
71-69878	E STADIUM BLVD	1801 STADIUM BLVD	1	0	0	1	0	0				
71-69879	E STADIUM BLVD	1712 STADIUM BLVD	1	0	0	1	0	0				
71-70106	HURON PKY		1	0	0	1	0	21				
71-70130	HURON PKY		1	1	1	0	0	32				
71-70170	GRANGER AVE	1121 GRANGER AVE	1	0	0	1	0	15			5.87	
71-70171	GRANGER AVE	1135 GRANGER AVE	1	0	0	1	0	0			7.59	
71-70452	W WILLIAM ST	EAST OF TRACKS	1	0	0	1	0	0				
71-70454	S ASHLEY ST	201 W WILLIAM ST	1	0	0	1	0	0				
71-70460	W WILLIAM ST	EAST OF TRACKS	1	0	0	1	1	0				
71-70461	W WILLIAM ST	EAST OF TRACKS	1	0	0	1	1	0				
71-70464	S 1ST ST	SOUTH OF W LIBERTY	1	0	0	1	0	0				
71-70465	S 1ST ST	W LIBERTY	0	0	0	1	0	0				
71-70466	S 1ST ST	200 1ST ST	1	0	0	1	0	63				23.95
71-70467	S 1ST ST	W WASHINGTON ST	1	0	0	1	0	67			25.337	
71-70469	W ANN ST	WEST OF 1ST ST	1	0	0	1	0	42				15.87
71-70478	S 1ST ST	NORTH OF TRACKS	1	0	0	1	0	41			15.53	
71-70480	S 1ST ST	W WILLIAM ST	1	0	0	1	0	49				
71-70489	W WILLIAM ST	3RD ST	1	0	0	1	0	0				

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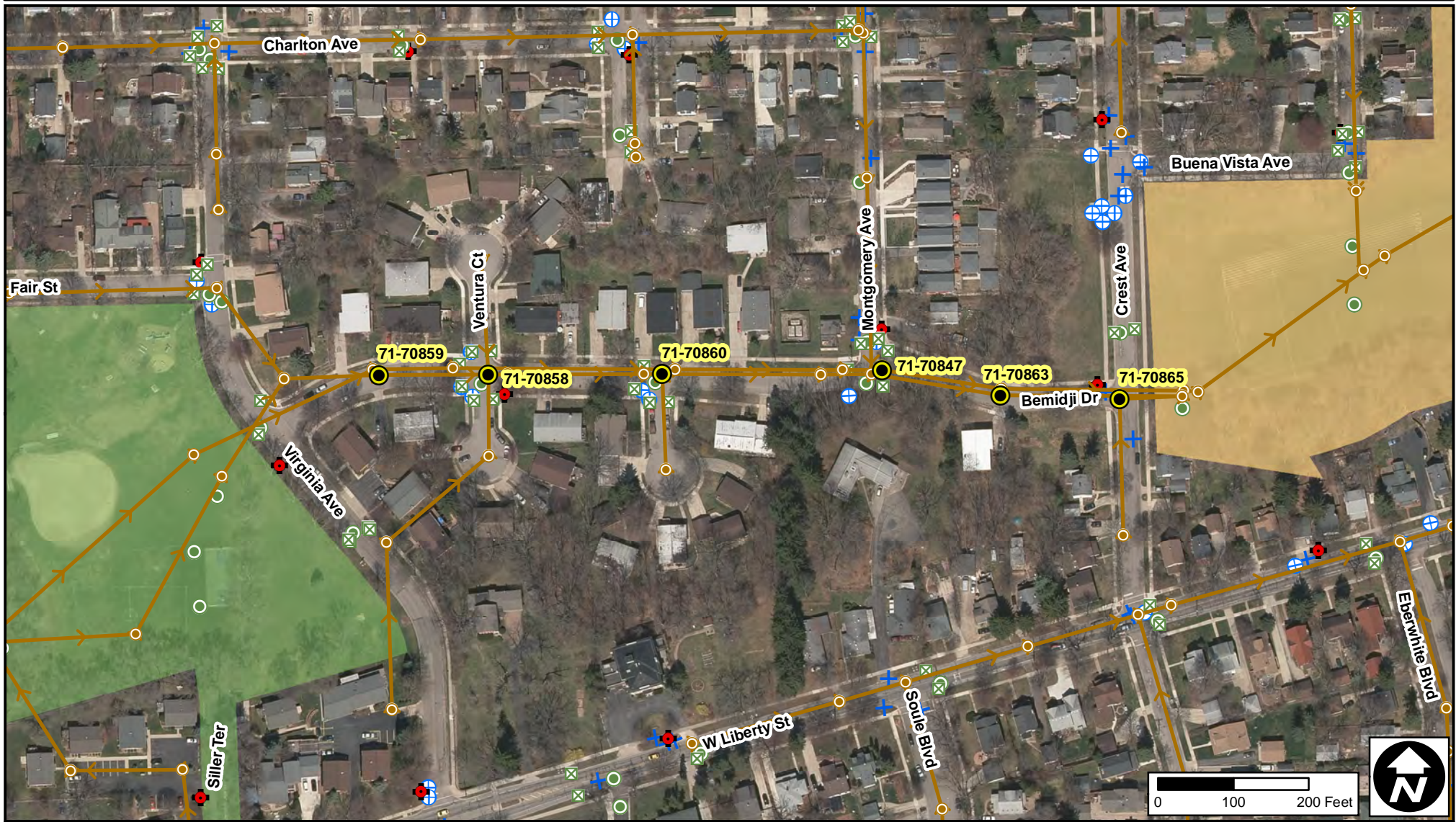
FACILITYID	Street	Location_Details	Replace Cover	Replace Frame	External Chimney Seal	Internal Chimney Seal	Reconstruct flow channel	Grout	Root Treatment	Drop Connection	Cement. Liner	Epoxy Liner
71-70491	3RD ST	337 3RD ST	1	0	0	1	0	0				
71-70516	MULHOLLAND ST	307 MULHOLLAND ST	1	1	1	0	0	13				
71-70517	MULHOLLAND ST	283 MULHOLLAND ST	1	1	1	0	0	0				4.72
71-70519	MURRAY AVE	209 MURRAY AVE	1	0	0	1	0	0				
71-70520	W WASHINGTON ST	400 W WASHINGTON ST	1	0	0	1	1	0				
71-70522	W WASHINGTON ST	3RD ST	1	0	0	1	0	0				
71-70527	W WASHINGTON ST	EAST OF TRACKS	1	0	0	1	0	41				15.63
71-70528	W HURON ST	401 W HURON ST	1	0	0	1	0	0				
71-70529	W HURON ST	315 W HURON ST	1	0	0	1	0	46			17.6	
71-70531	N 7TH ST	EAST OF N 7TH	1	0	0	1	0	28				
71-70535	CHAPIN ST	WEST PARK	1	1	1	0	0	0				
71-70536	S 1ST AVE	MILLER AVE	1	0	0	1	0	0				
71-70539	MILLER AVE	423 MILLER AVE	1	1	1	0	0	0	1			
71-70544	MILLER AVE	423 MILLER AVE	1	1	1	0	1	0	1			
71-70545	MILLER AVE	417 MILLER AVE	1	1	1	0	1	0			4.92	
71-70546	MILLER AVE	423 MILLER AVE	1	1	1	0	0	0	1			
71-70833	S 1ST ST	426 S 1ST ST	1	0	0	1	0	0				
71-70847	BEMIDJI DR	MONTGOMERY	0	0	0	1	0	0				
71-70549	WEST PARK	EAST OF AMPITHEATER	1	1	1	0	0	0				5.7
71-70550	WEST PARK	BEHIND AMPITHEATER	1	1	1	0	0	0				7.74
71-70551	W WASHINGTON ST	400 W WASHINGTON ST	1	0	0	1	0	0				
71-70554	W WASHINGTON ST	400 W WASHINGTON ST	1	0	0	1	0	0				
71-70570	MULHOLLAND ST	283 MULHOLLAND ST	1	1	1	0	0	0				5.06
71-70571	MULHOLLAND ST	241 MULHOLLAND ST	1	1	1	0	0	0			3.31	
71-70581	W WASHINGTON ST	610 W WASHINGTON ST	1	0	0	1	0	36				
71-70588	W WASHINGTON ST	3RD ST	1	0	0	1	0	28				
71-70593	W HURON ST	3RD ST	1	0	0	1	0	0				
71-70596	CHAPIN ST	112 CHAPIN ST	1	0	0	1	0	20				
71-70602	SPRING ST	409 SPRING ST	1	1	1	0	0	0				
71-70604	MILLER AVE	AT TRAIN TRACKS	1	0	0	1	0	0				
71-70605	S 1ST AVE	MILLER AVE	1	0	0	1	0	0				
71-70608	N 7TH	NORTH OF W HURON ST	1	1	1	0	0	0				
71-70611	WEST PARK	SOUTH OF BALL FIELD	1	1	1	0	0	14			5.19	
71-70614	WEST PARK	EAST OF AMPITHEATER	1	1	1	0	0	12			5.25	
71-70622	CHAPIN ST	202 CHAPIN ST	1	0	0	1	0	0				
71-70623	MILLER AVE	433 MILLER AVE	1	0	0	1	0	0				
71-70624	CHAPIN ST	202 CHAPIN ST	1	0	0	1	0	0				
71-70625	W HURON ST	NEXT TO FIRESIDE	1	1	1	0	0	0				
71-70628	S 7TH ST	320 S 7TH ST	0	0	0	1	0	0				
71-70636	WEST PARK	WEST OF AMPITHEATER	1	0	0	1	0	0				6.85
71-70640	CHAPIN ST	218 CHAPIN ST	1	0	0	1	0	0			4.19	
71-70641	CHAPIN ST	204 CHAPIN ST	1	0	0	1	0	0				
71-70644	MILLER AVE	AT TRAIN TRACKS	1	0	0	1	0	0				
71-70645	MILLER AVE	423 MILLER AVE	1	0	0	1	0	0	1			
71-70647	S 1ST ST	W WILLIAM ST	1	0	0	1	0	50				15.18
71-70675	S ASHLEY ST	416 S ASHLEY ST	1	0	0	1	0	0				
71-70677	S ASHLEY ST	441 S ASHLEY ST	1	0	0	1	1	0				
71-70680	E MADISON ST	S ASHLEY ST	1	0	0	1	0	40			17.39	
71-70681	S ASHLEY ST	535 S ASHLEY ST	1	0	0	1	0	43				16.18
71-70702	S ASHLEY ST	W JEFFERSON ST	1	0	0	1	0	35				
71-70703	W JEFFERSON ST	S ASHLEY ST	1	0	0	1	0	0				
71-70858	BEMIDJI DR	VENTURA CT	1	0	0	1	0	32				
71-70859	BEMIDJI DR	1482 BEMIDJI DR	1	0	0	1	0	45				
71-70860	BEMIDJI DR	BEMIDJI CT	1	0	0	1	0	23				
71-70863	BEMIDJI DR	1383 BEMIDJI DR	1	0	0	1	0	0				
71-70865	CREST AVE	BEMIDJI DR	1	0	0	1	0	0				
71-70914	8TH ST	WATERWORKS PARK	1	0	0	1	0	30				
71-70915	8TH ST	WATERWORKS PARK	1	0	0	1	0	11				
71-70916	8TH ST	WATERWORKS PARK	1	1	1	0	0	27			10.05	
71-70934	W WASHINGTON ST	1012 W WASHINGTON ST	1	0	0	1	0	0				
71-70980	8TH ST	218 8TH ST	1	0	0	1	0	18			6.97	
71-70991	SPRING ST	308 SPRING ST	1	0	0	1	0	0				
71-71001	8TH ST	WATERWORKS PARK	1	0	0	1	0	24			9.22	
71-71002	8TH ST	WATERWORKS PARK	1	1	1	0	0	0			10.71	
71-71090	FULLER	600 FULLER	1	1	1	0	1	0				
71-71149	N 5TH AVE	300 N 5TH AVE	1	0	0	1	0	0				
71-71150	DETROIT ST	303 DETROIT ST	1	0	0	1	0	0				
71-71151	DETROIT ST	FARMERS MARKET	1	0	0	1	0	27			10.35	
71-71152	N 5TH AVE	DETROIT ST	1	0	0	1	0	0				
71-71153	DETROIT ST	N 5TH AVE	1	0	0	1	0	0			9.72	
71-71155	DETROIT ST	516 DETROIT ST	1	0	0	1	0	0				
71-71159	N 5TH AVE	E KINGSLEY ST	1	0	0	1	0	0				
71-71167	N MAIN ST	W KINGSLEY ST	1	0	0	1	1	22			8.26	
71-71168	N MAIN ST	W KINGSLEY ST	1	0	0	1	1	22			8.48	
71-71171	W KINGSLEY ST	427 N MAIN ST	1	0	0	1	0	0				
71-71210	DETROIT ST	E KINGSLEY ST	1	0	0	1	0	0				
71-71327	N ASHLEY ST	W KINGSLEY ST	1	0	0	1	0	0				
71-71329	N ASHLEY ST	W KINGSLEY ST	1	0	0	1	0	0				
71-71330	N ASHLEY ST	419 N ASHLEY ST	1	0	0	1	0	0				
71-71331	FULLER	1018 FULLER	1	1	1	0	0	0				
71-71360	HILL ST	S DIVISION	1	0	0	1	0	30			9.84	
71-71361	HILL ST	S 5TH AVE	1	0	0	1	0	39			14.62	
71-71362	HILL ST	S 5TH AVE	1	0	0	1	0	28			14.29	
71-71363	S 5TH AVE	214 E MADISON ST	1	0	0	1	0	29			9.73	
71-71364	E MADISON ST	601 S MAIN	1	0	0	1	0	40			15.02	
71-71365	E MADISON ST	S 4TH AVE	1	0	0	1	0	0				
71-71366	S 5TH AVE	214 E MADISON ST	1	0	0	1	0	44			14.63	
71-71367	E MADISON ST	S 5TH AVE	1	0	0	1	0	38			14.42	
71-71372	E MADISON ST	S 5TH AVE	1	0	0	1	0	0				
71-71373	S 4TH AVE	536 S 4TH AVE	1	0	0	1	0	0				
71-71375	E MADISON ST	S 4TH AVE	1	0	0	1	0	0				
71-71377	S 5TH AVE	617 S 5TH AVE	1	0	0	1	1	0				
71-71379	JOHN ST	338 JOHN ST	1	1	1	0	1	0				
71-71381	S 5TH AVE	617 S 5TH AVE	1	0	0	1	0	0			4.18	
71-71383	S DIVISION ST	CROSS ST	1	0	0	1	0	19			7.02	
71-71384	CROSS ST	423 CROSS ST	1	0	0	1	0	0			7.2	
71-71392	HILL ST	S DIVISION	1	0	0	1	1	16			6.18	
71-71396	HILL ST	135 HILL ST	1	0	0	1	0	0			5.86	
71-71397	HILL ST	GREENE ST	1	0	0	1	0	0			5.92	
71-71398	HILL ST	WEST OF TRACKS	1	0	0	1	0	0			5.01	
71-71400	ADAMS AVE	127 ADAMS AVE	1	0	0	1	0	0				4.16
71-71401	ADAMS AVE	131 ADAMS AVE	1	0	0	1	0	0			5.98	
71-71406	E MADISON ST	WEST OF TRACKS	1	0	0	1	0	0				10.87
71-71412	JOHN ST	324 JOHN ST	1	0	0	1	0	0				
71-71414	E MADISON ST	211 E MADISON ST	1	0	0	1	0	0				
71-71419	STATE ST	ARCH ST	1	0	0	1	0	36			12.98	

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FACILITYID	Street	Location_Details	Replace Cover	Replace Frame	External Chimney Seal	Internal Chimney Seal	Reconstruct flow channel	Grout	Root Treatment	Drop Connection	Cement. Liner	Epoxy Liner
71-71420	E HOOVER ST	EAST OF TRACKS	0	0	0	1	0	33			10.83	
71-71421	E HOOVER ST	EAST OF TRACKS	1	0	0	1	0	42			16	
71-71422	E HOOVER ST	S DIVISION ST	0	0	0	1	0	0				
71-71432	STATE ST	ARCH ST	1	0	0	1	0	0			5.26	
71-71456	SYBIL ST	920 SYBIL ST	1	0	0	1	0	0			6.11	
71-71457	MARY ST	934 MARY ST	1	0	0	1	1	0			5.45	
71-71458	MARY ST	930 MARY ST	1	0	0	1	0	0				
71-71460	MARY ST	903 MARY ST	1	0	0	1	0	17			8.74	
71-71461	SYBIL ST	BENJAMIN ST	1	0	0	1	0	0			6.11	
71-71470	S DIVISION ST	BENJAMIN ST	0	0	0	1	0	0			6.02	
71-71479	WHITE ST	722 DEWEY AVE	1	0	0	1	0	24				
71-71480	DEWEY AVE	803 DEWEY AVE	1	0	0	1	0	53			17.16	
71-71481	DEWEY AVE	SHEEHAN AVE	1	0	0	1	0	47			17.91	
71-71482	WHITE ST	SYLVAN AVE	1	0	0	1	0	37			16.2	
71-71504	SYLVAN AVE	927 SYLVAN AVE	1	0	0	1	1	0				
71-71534	SHEEHAN AVE	900 WOODLAWN	1	0	0	1	0	49			18.61	
71-71483	WHITE ST	1232 WHITE ST	1	0	0	1	0	0			6.88	
71-71485	WHITE ST	BROOKWOOD PL	1	0	0	1	0	41				
71-71491	WHITE ST	ARCH ST	1	0	0	1	0	46				
71-71494	SHEEHAN AVE	1320 SHEEHAN AVE	1	0	0	1	0	19			8.44	
71-71497	DEWEY AVE	901 DEWEY AVE	1	0	0	1	0	0				
71-71500	DEWEY AVE	WHITE ST	1	0	0	1	0	0			6.11	
71-71501	SYLVAN AVE	821 SYLVAN AVE	1	0	0	1	0	0				4.27
71-71502	SYLVAN AVE	903 SYLVAN AVE	1	0	0	1	0	0				4.61
71-71503	SYLVAN AVE	921 SYLVAN AVE	1	0	0	1	0	0			4.91	
71-71549	MARY CT	608 MARY CT	0	1	1	0	0	0				
71-71628	HILL ST PARKING LOT		1	0	0	1	0	0				
71-71709	BEAKES ST	617 DETROIT ST	1	0	0	1	0	41			15.55	
71-71711	FULLER	401 FULLER	1	0	0	1	0	0				
71-71713	DEPOT ST	WEST OF BRIDGE	1	0	0	1	0	69				
71-71715	N 4TH AVE	E SUMMIT ST	1	0	0	1	0	38				
71-71716	DEPOT ST	N 5TH AVE	1	0	0	1	1	0				
71-71719	DEPOT ST	N 4TH AVE	1	0	0	1	1	0				
71-71723	N MAIN ST	907 N MAIN ST	1	0	0	1	0	0				
71-71770	FELCH ST	538 FELCH ST	1	0	0	1	0	0				
71-71785	GRANGER AVE	907 GRANGER AVE	1	0	0	1	1	0				
71-71789	GRANGER AVE	SHEEHAN AVE	1	0	0	1	0	21			8.5	
71-71790	GRANGER AVE	907 GRANGER AVE	1	0	0	1	0	0				
71-71791	GRANGER AVE	1015 GRANGER AVE	1	0	0	1	0	0			6	
71-71792	GRANGER AVE	1027 GRANGER AVE	1	0	0	1	0	0				
71-71793	GRANGER AVE	SHEEHAN AVE	1	0	0	1	0	0				
71-71794	SHEEHAN AVE	901 GRANGER AVE	1	1	1	0	0	45			17	
71-71795	GOLDEN AVE	1401 GOLDEN AVE	1	1	1	0	0	43			14.12	
71-71814	FULLER	GLEN CT	1	1	1	0	1	0				
71-71687	FULLER	STATE ST	1	1	1	0	0	0			18.28	
71-70646	S 1ST ST	320 MILLER AVE	1	0	0	1	0	58				
71-72255	S 1ST ST	320 MILLER AVE	1	0	0	1	0	47				
71-72257	S 1ST ST	208 1ST ST	1	0	0	1	1	0				
71-70471	S 1ST ST	W LIBERTY	1	0	0	1	0	27			11.72	
71-70472	S 1ST AVE	208 S 1ST AVE	1	0	0	1	1	0				
71-073144	W ANN ST	NORTH OF BUILDING	1	0	0	1	0	0	1			
71-70585	W WASHINGTON ST	520 W WASHINGTON ST	1	0	0	1	0	39				
71-70586	W WASHINGTON ST	520 W WASHINGTON ST	1	0	0	1	0	39				
71-70553	W WASHINGTON ST	400 W WASHINGTON ST	1	0	0	1	0	0				
71-70615	WEST PARK	EAST OF AMPITHEATER	1	1	1	0	0	0				
71-67507	N 7TH	401 N 7TH	1	0	0	1	0	24			10.42	
71-71748	DEPOT ST	WEST OF BRIDGE	1	0	0	1	0	0				
71-71680	W JEFFERSON ST	EAST OF TRACKS	1	0	0	1	1	0				
71-67518	MAPLE RIDGE ST	510 MAPLE RIDGE ST	1	0	0	1	0	23				
71-71812	FULLER	GLEN CT	1	0	0	1	0	0				
71-71813	FULLER	GLEN CT	1	0	0	1	1	0				
71-64988	BROADWAY	BATES	1	1	1	0	0	0				10
Base			265	32	32	242	29	2702	6	2	790	262
Estimated Field Determination			35	93	93	58	11	298	4	1	60	38
Estimated Quantity			300	125	125	300	40	3000	10	3	850	300

APPENDIX 2 – Maps of Manhole Rehabilitation Locations

Sanitary Manhole Infiltration Project



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|--|-------------------------------|--|------------------------|--|-----------|
| | Sanitary Manholes - For Rehab | | Storm Catch Basin | | City Park |
| | Other Sanitary Manholes | | Storm Manhole | | Schools |
| | Sanitary Main | | Hydrants | | |
| | Sanitary Force Main | | Water Valve in Manhole | | |
| | | | Water Valve in Box | | |





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Sanitary Manhole Infiltration Project

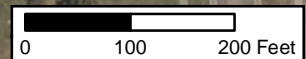


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	Other Sanitary Manholes		Storm Manhole		Schools
	Sanitary Main		Hydrants		
	Sanitary Force Main		Water Valve in Manhole		
			Water Valve in Box		

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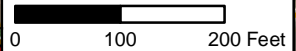


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| | Sanitary Manholes - For Rehab | | Storm Catch Basin | | City Park |
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Sanitary Manhole Infiltration Project

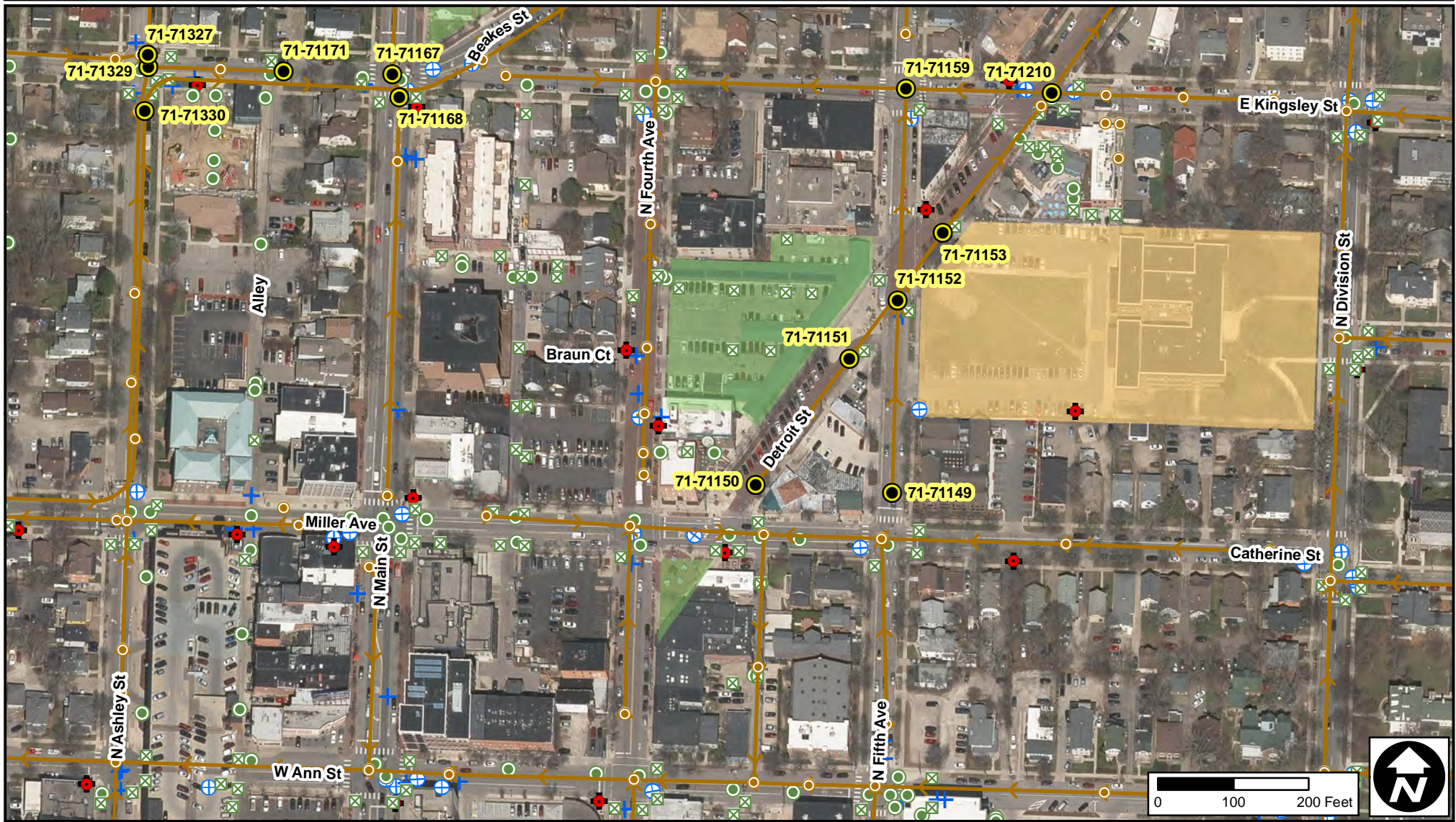


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| | Sanitary Manholes - For Rehab | | Storm Catch Basin | | City Park |
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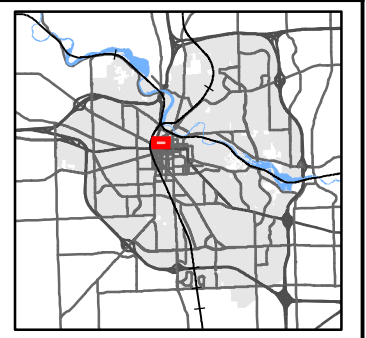
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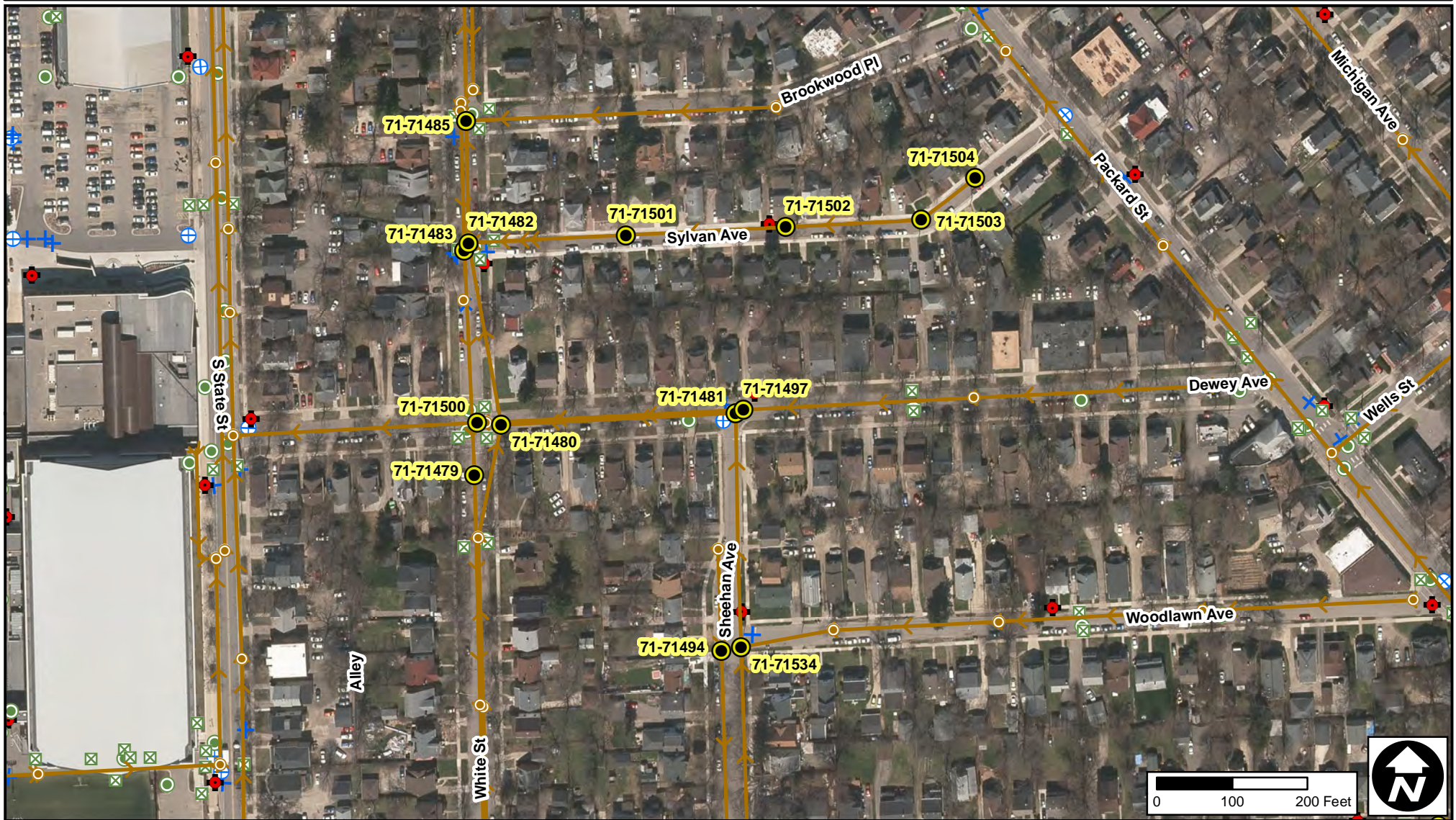
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	Other Sanitary Manholes		Storm Manhole		Schools
	Sanitary Main		Hydrants		
	Sanitary Force Main		Water Valve in Manhole		
			Water Valve in Box		



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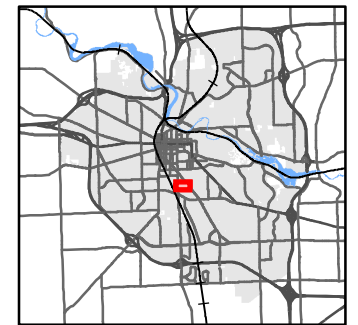
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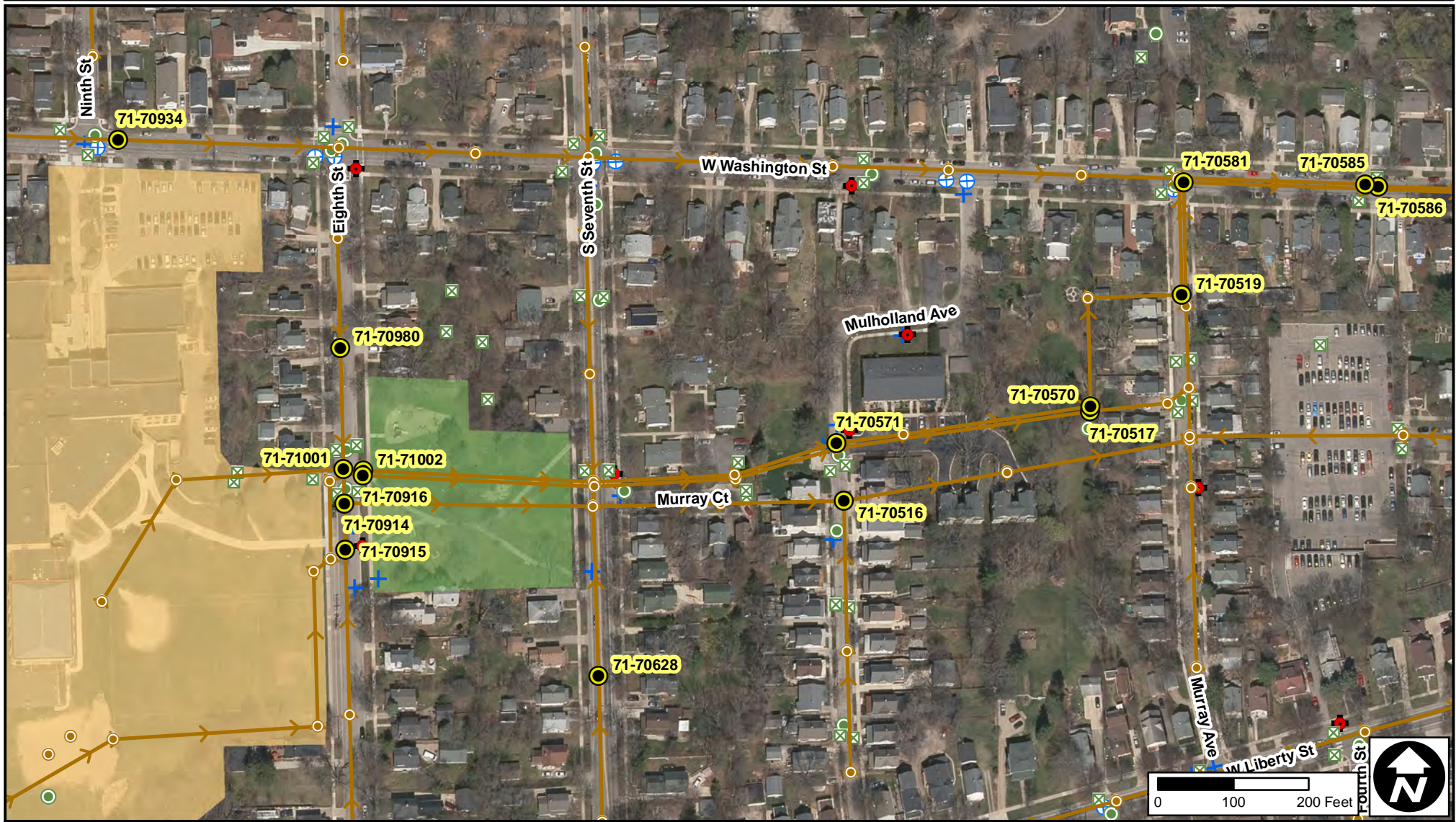
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Sanitary Manhole Infiltration Project



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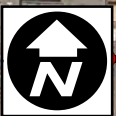
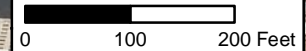


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Sanitary Manhole Infiltration Project



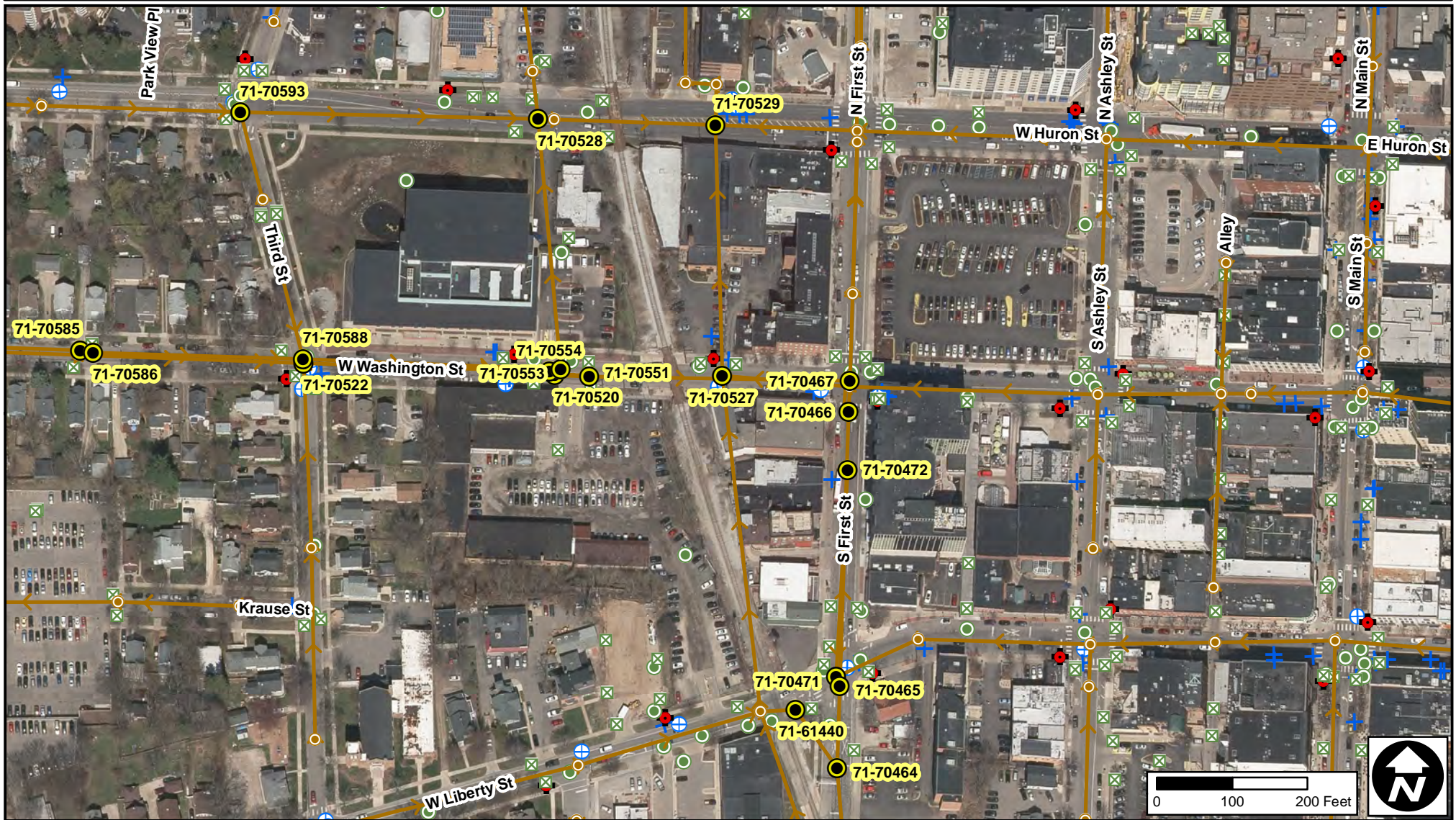
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Sanitary Manhole Infiltration Project

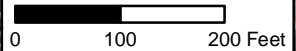
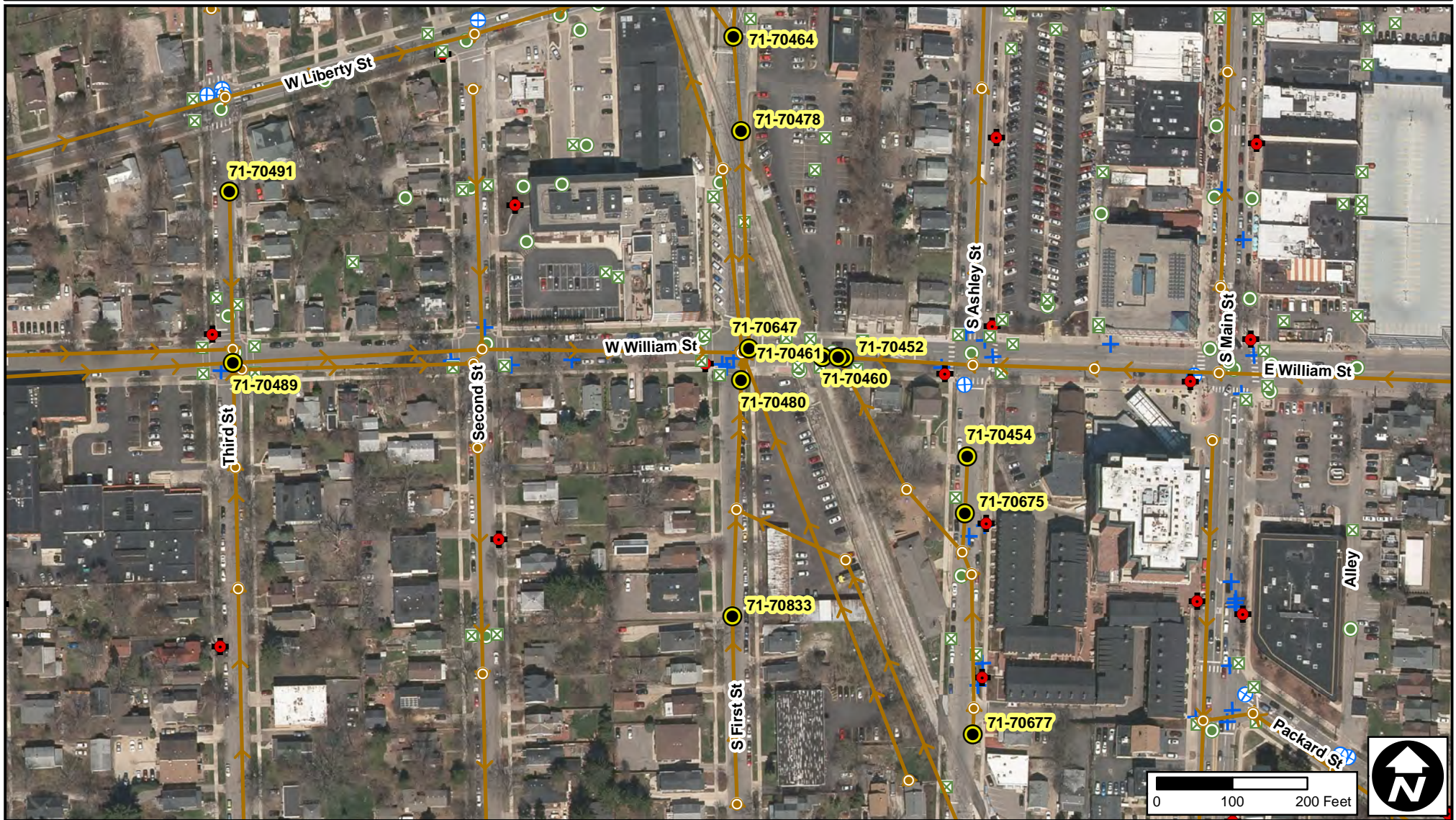


	Sanitary Manholes - For Rehab		Storm Catch Basin		City Park
	Other Sanitary Manholes		Storm Manhole		Schools
	Sanitary Main		Hydrants		Water Valve in Manhole
	Sanitary Force Main		Water Valve in Box		

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Sanitary Manhole Infiltration Project

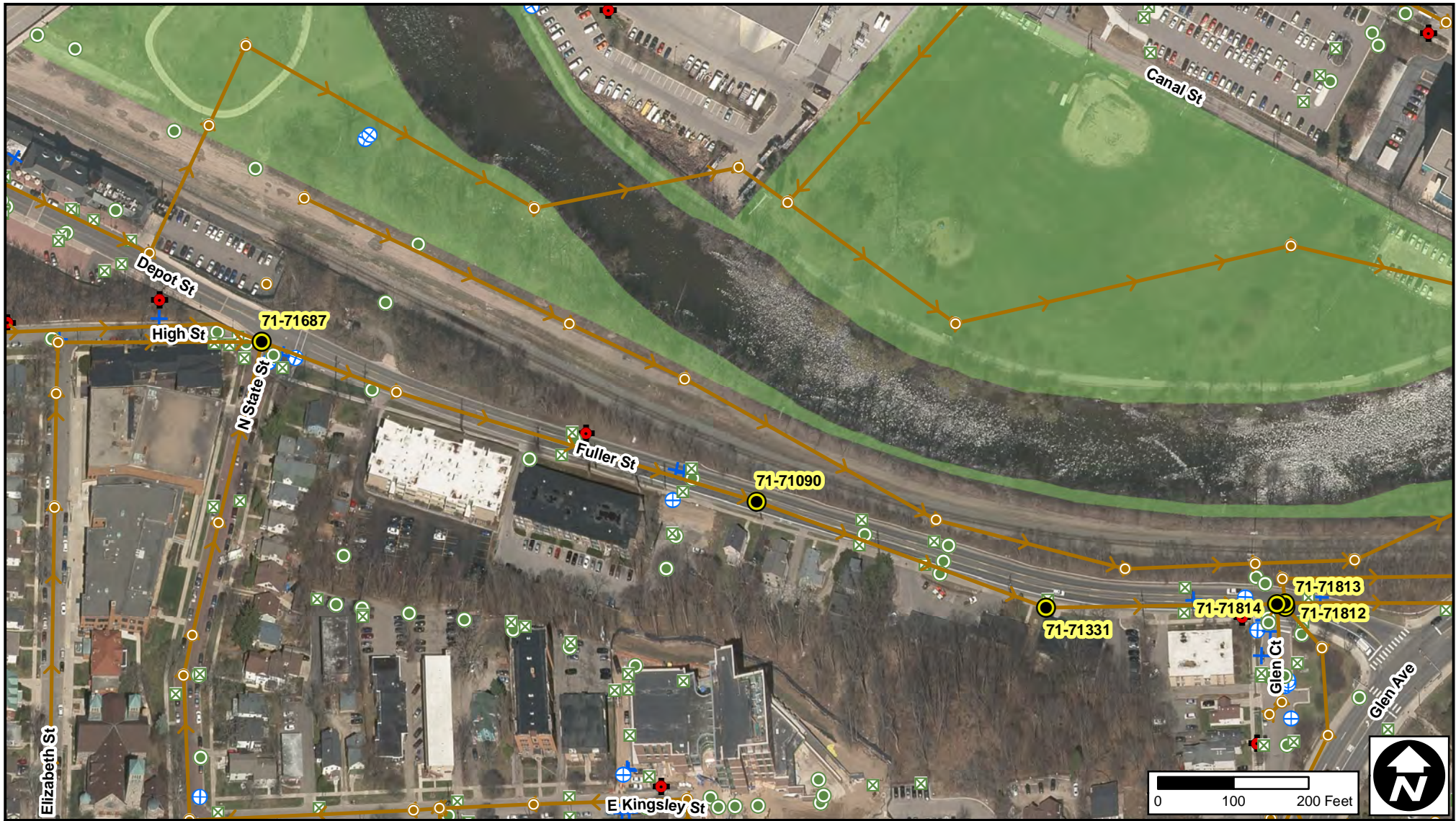


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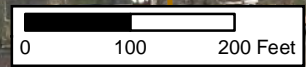
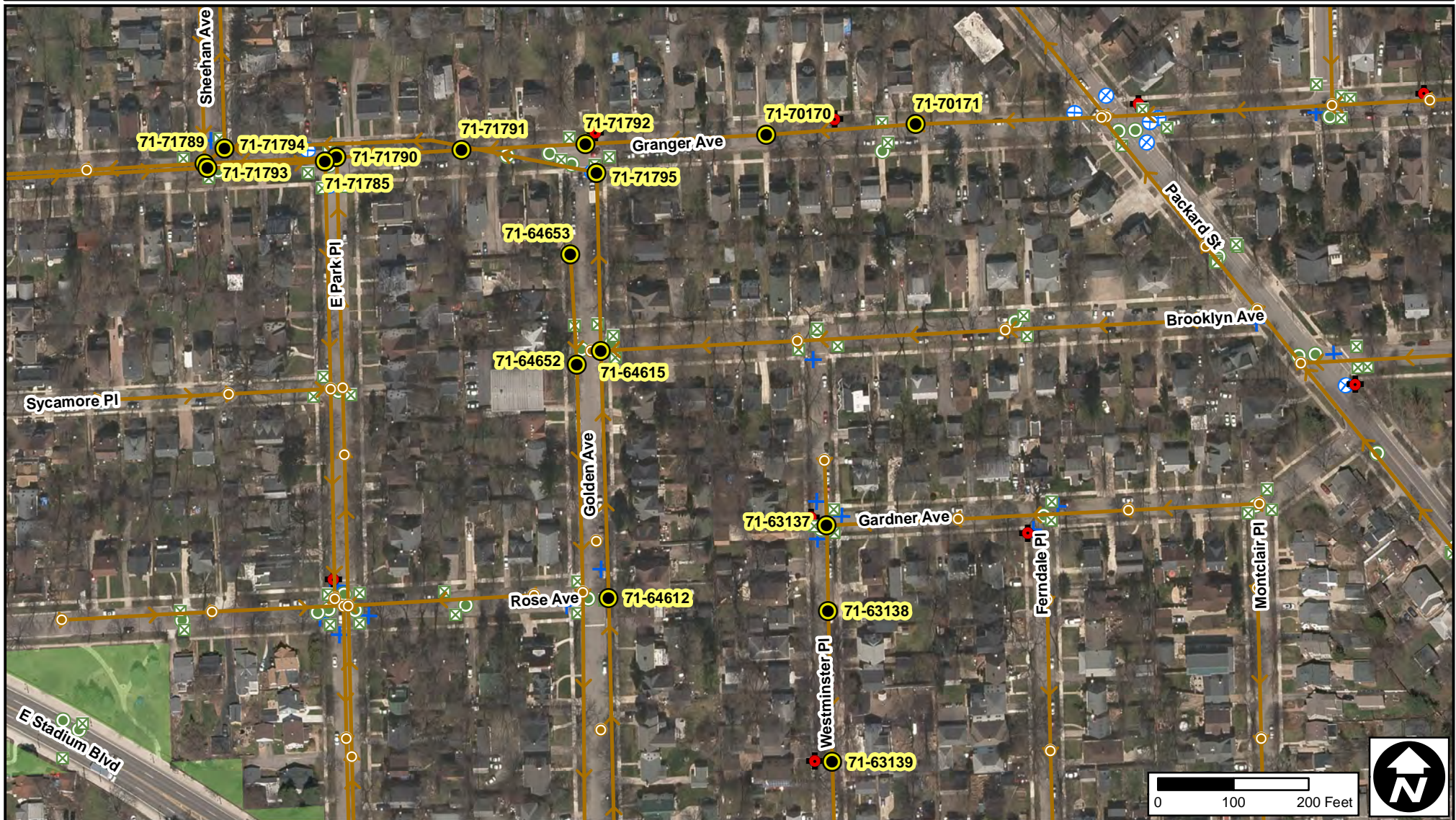


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	Other Sanitary Manholes		Storm Manhole		Schools
	Sanitary Main		Hydrants		
	Sanitary Force Main		Water Valve in Manhole		
			Water Valve in Box		

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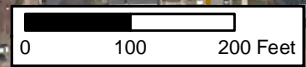
Sanitary Manhole Infiltration Project



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	Sanitary Main		Hydrants		
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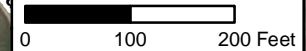
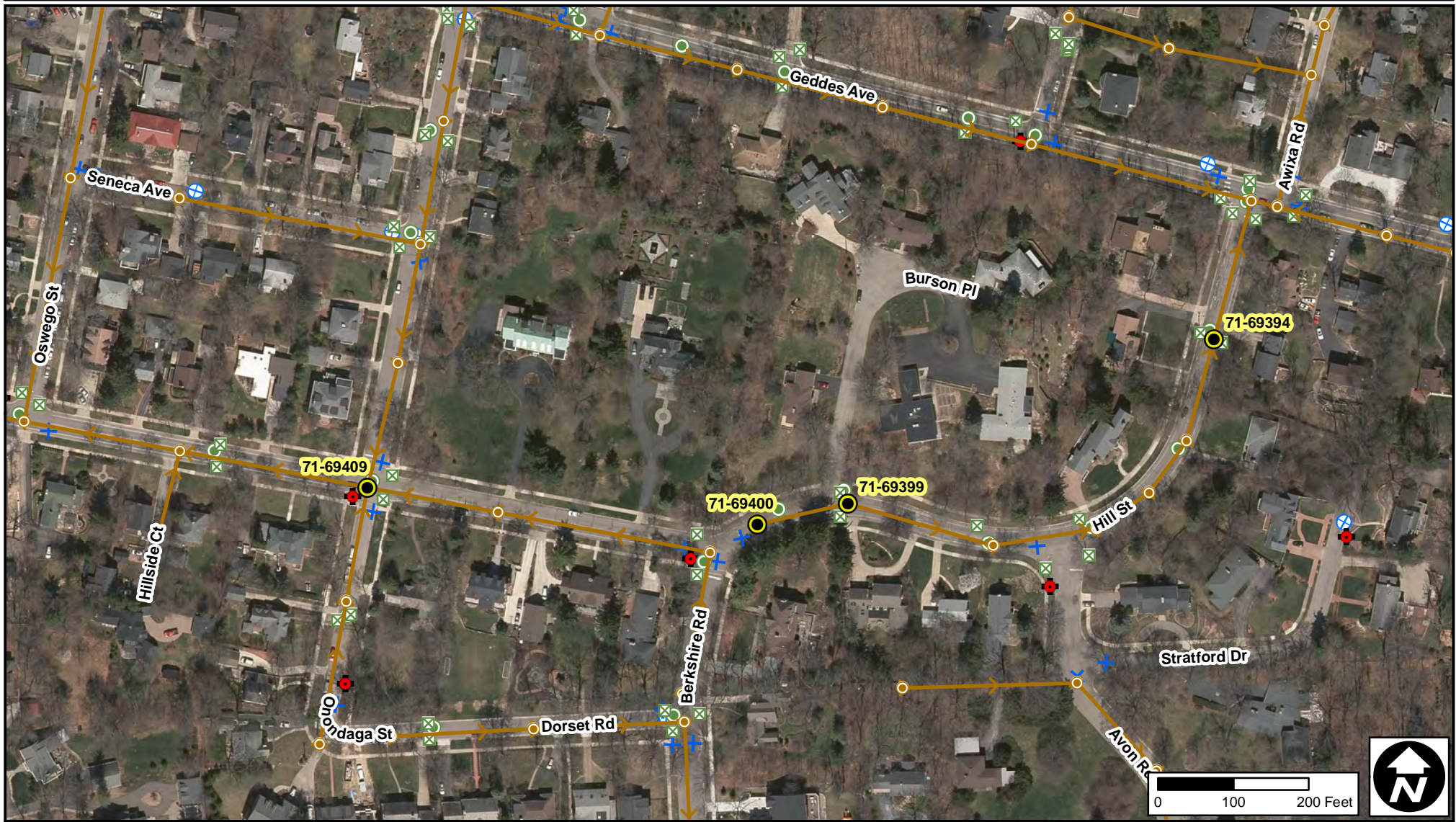
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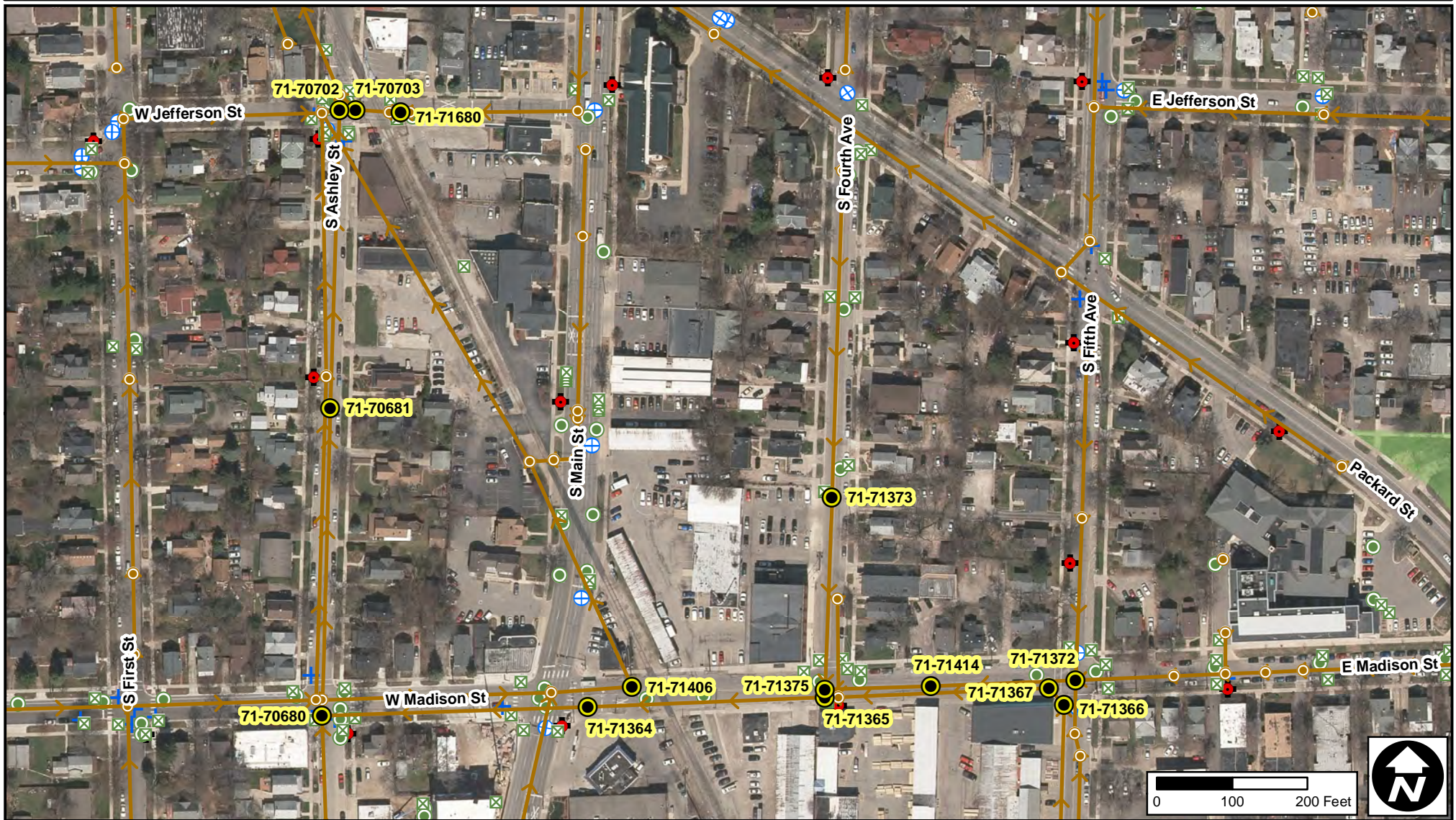


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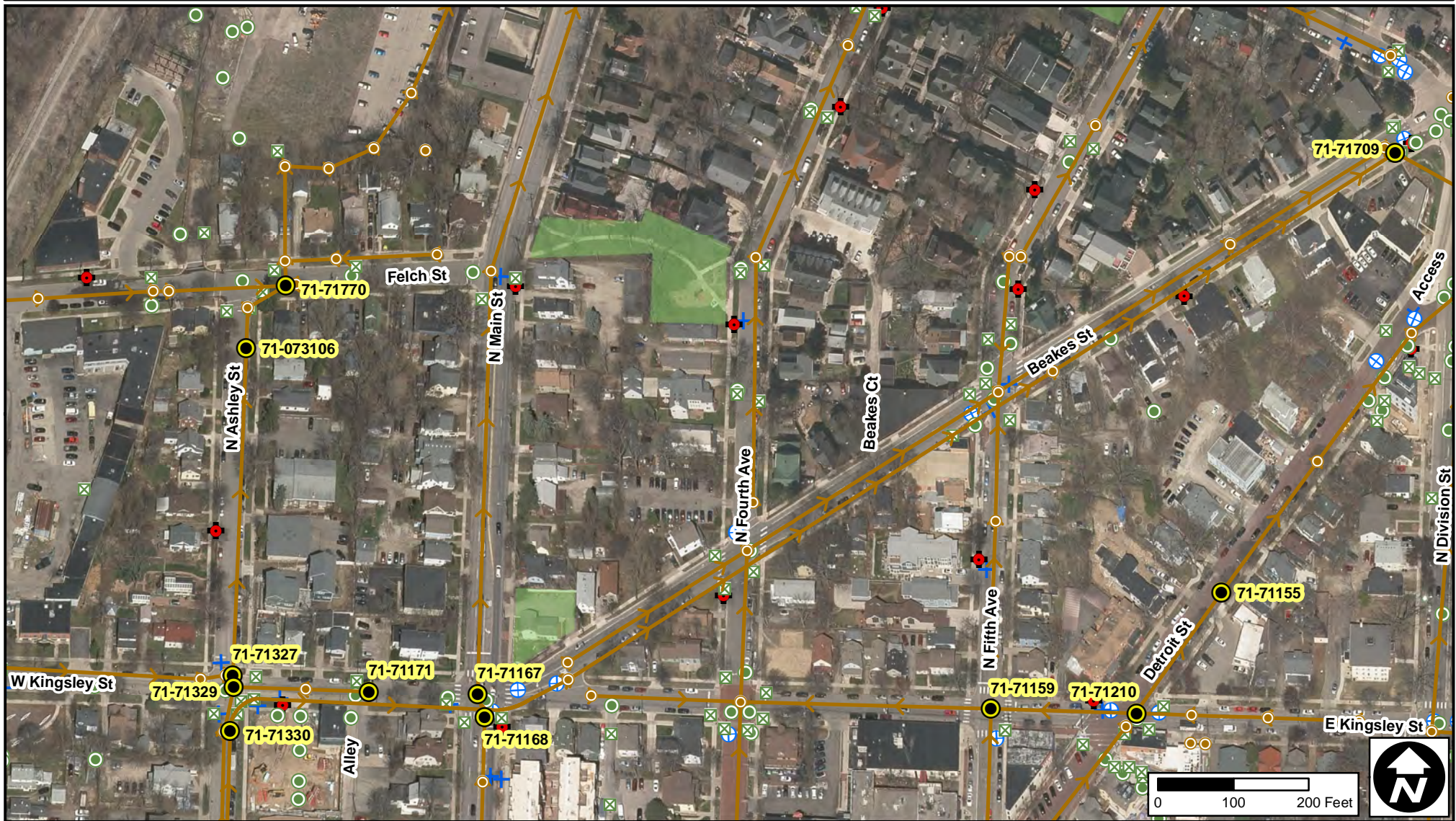
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	Other Sanitary Manholes		Storm Manhole		Schools
	Sanitary Main		Hydrants		
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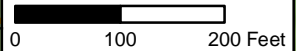
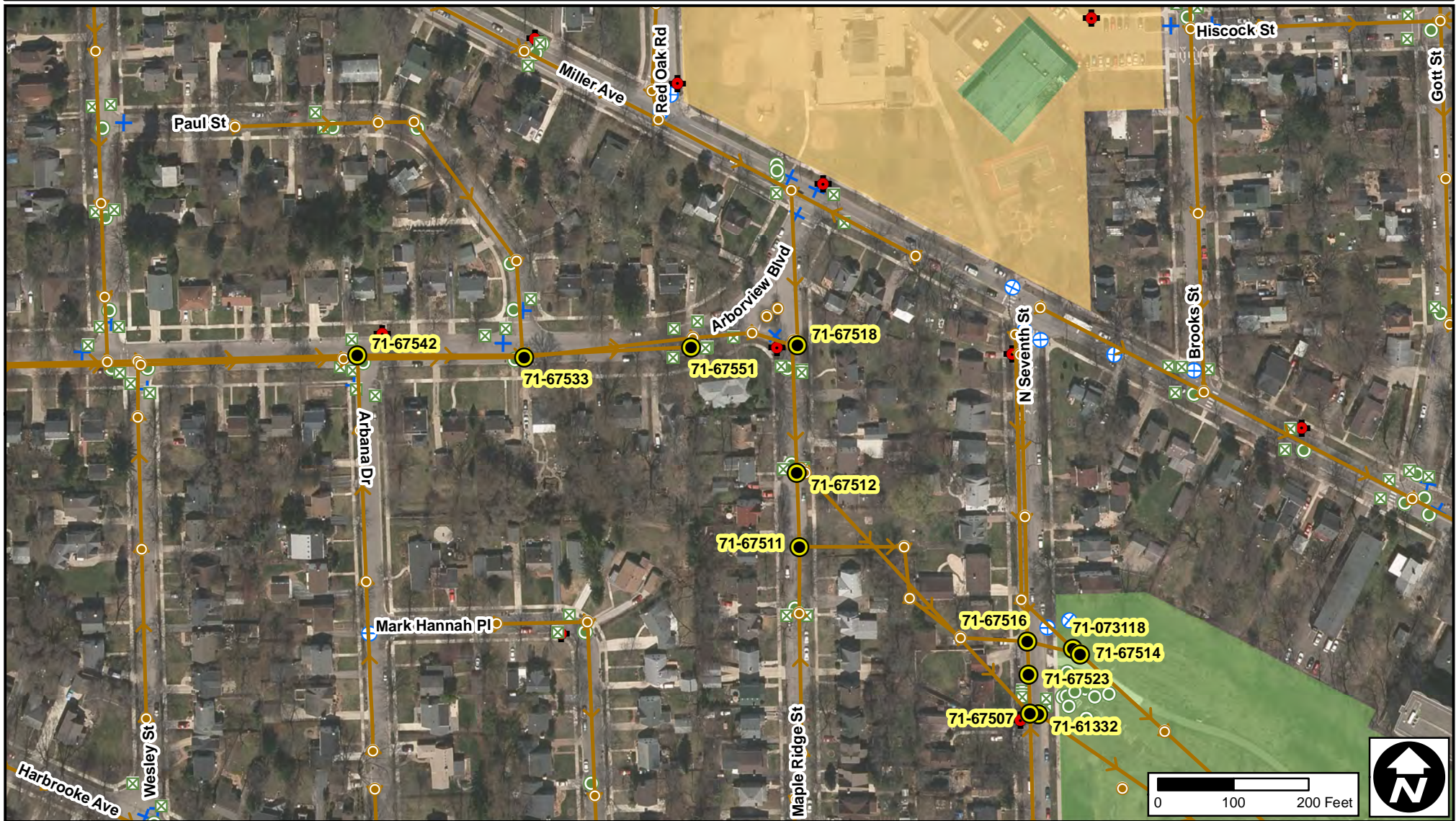


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	Sanitary Main		Hydrants		Water Valve in Manhole
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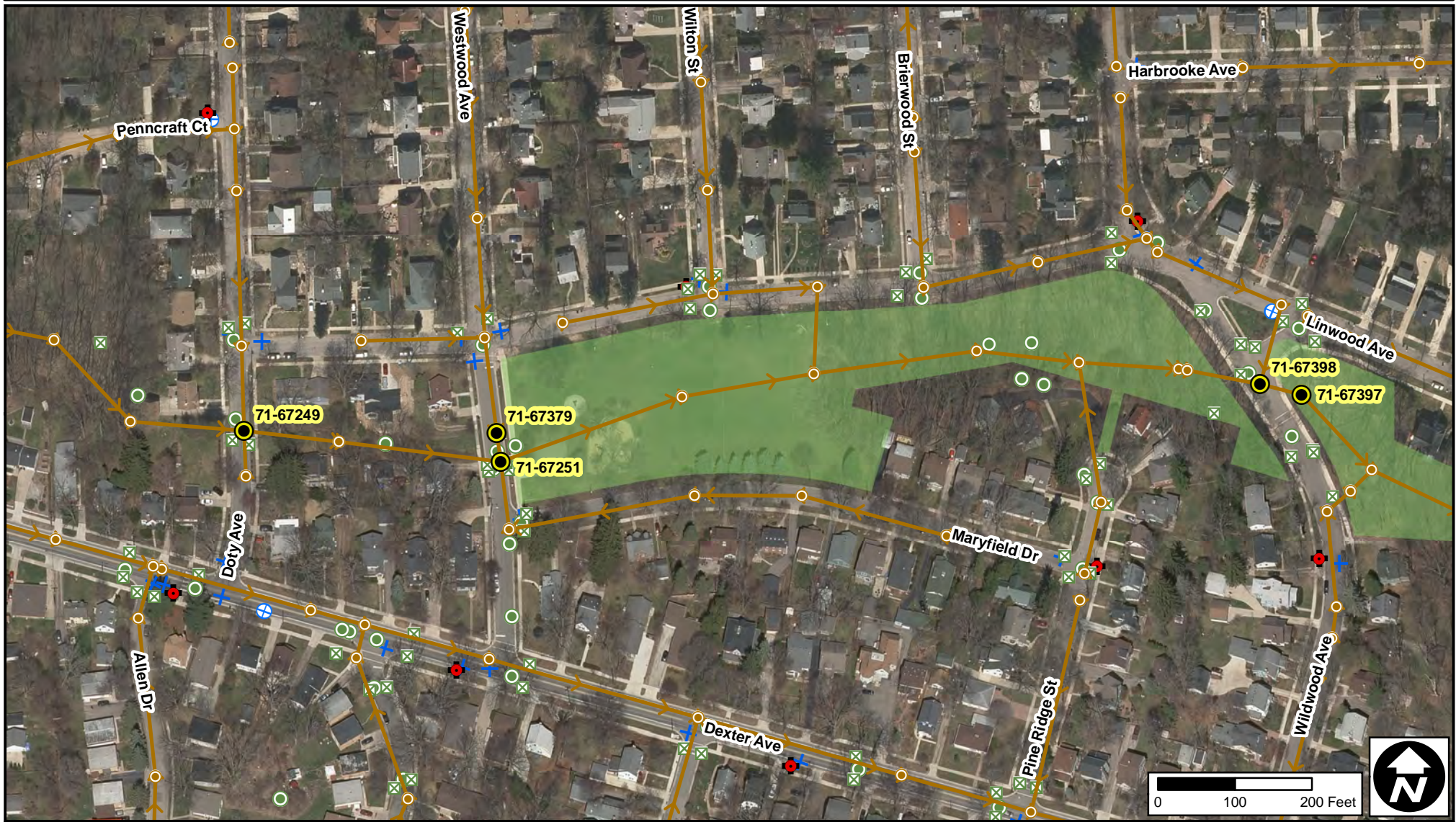


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| | Other Sanitary Manholes | | Storm Manhole | | Schools |
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Sanitary Manhole Infiltration Project














	Sanitary Manholes - For Rehab		Storm Catch Basin		City Park
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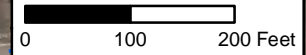
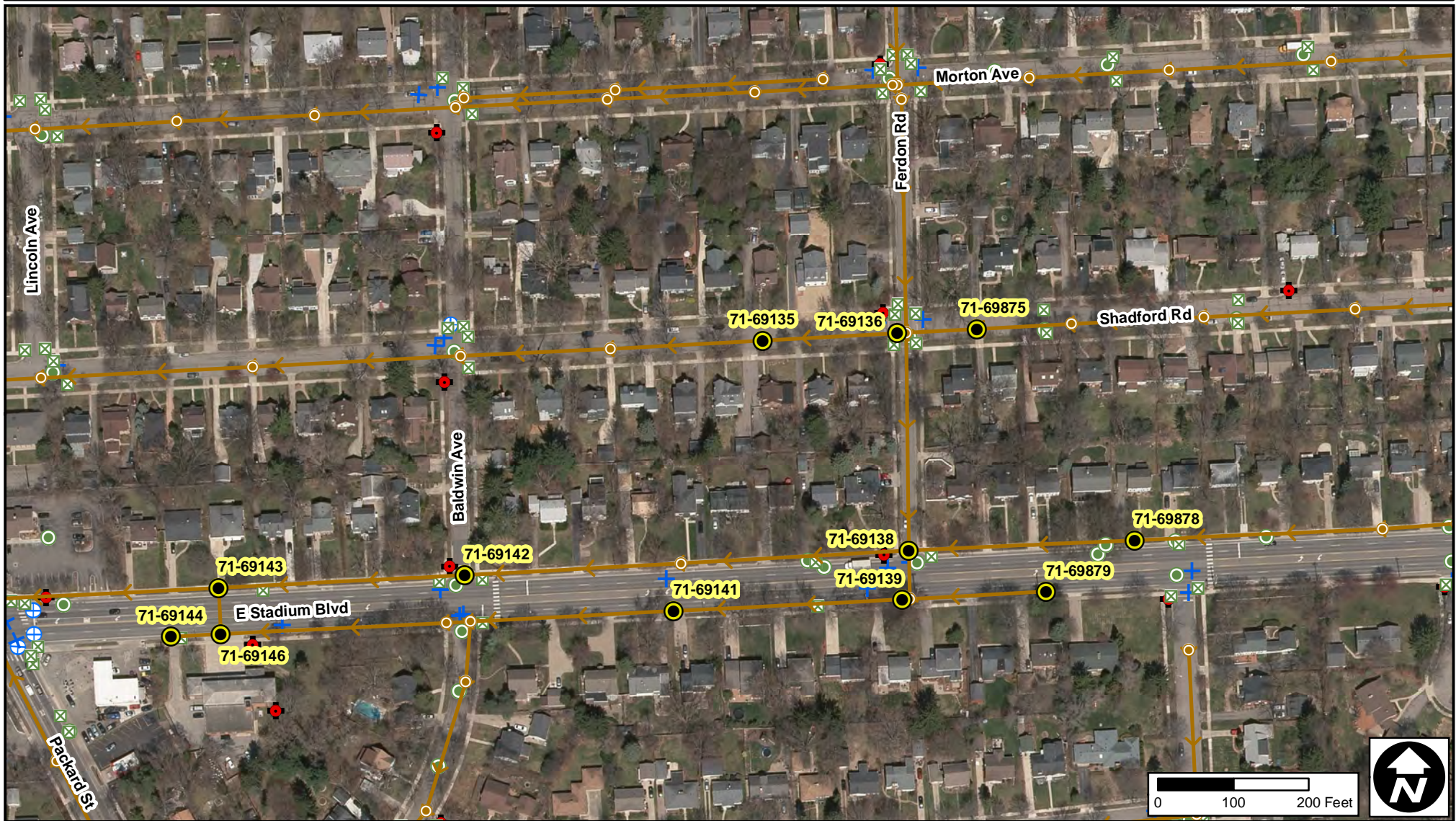


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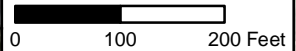


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CITY OF ANN ARBOR
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

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

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

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$13.22/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 \$14.75/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

- (a) 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.
- (b) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (c) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (d) 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

CITY OF ANN ARBOR LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2018 - ENDING APRIL 29, 2019

\$13.22 per hour

If the employer provides health care benefits*

\$14.75 per hour

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

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

ENFORCEMENT

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

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

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

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

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



Vendor Conflict of Interest Disclosure Form

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

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

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

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr 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

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)		
			HOURS WORKED ON PROJECT												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								0			\$0.00									\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0			\$0.00									\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0			\$0.00									\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0			\$0.00									\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0			\$0.00									\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0			\$0.00									\$0.00	\$0.00
NAME:										0			\$0.00									\$0.00	\$0.00
ETH#GEN: ID #:	GROUP/CLASS #:	S								0			\$0.00									\$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.