INVITATION FOR BID (IFB)
The City of Kalamazoo, Michigan is soliciting sealed bids for:

Project Name: Water Main CIPP Lining – Stockbridge Ave. and Portage Creek

Bid Reference #: 91389-001.0

IFB ISSUE DATE: January 3, 2020

BID DUE/OPENING DATE: February 4, 2020 @ 3:00 p.m. Local Time
Facsimile Bids Will Not Be Accepted.

MAILING ADDRESS & INSTRUCTIONS
Mail to:
Purchasing Division
241 W. South Street
Kalamazoo, MI  49007

Questions about this IFB should be directed to:
Department Contact: Eric Sajtar, P.E.
sajtare@kalamazoocity.org.

Include on the Envelope the Project Name and Bid Reference Number. All Envelopes Must Be Sealed.

You are invited to submit a bid for this project. Specifications, terms, conditions and instructions for submitting bids are contained herein. This Invitation for Bid with all pages, documents and attachments contained herein, or subsequently added to and made a part hereof, submitted as a fully and properly executed bid shall constitute the contract between the City and the successful bidder when approved and accepted on behalf of the City by an authorized official or agent of the City. Please review the bid document as soon as possible and note the DEADLINE FOR QUESTIONS in the Instructions to Bidders.

All bidders shall complete and return the Bid and Award page(s) and submit all information requested herein in order for a bid to be responsive. The bid document shall be returned in its entirety, in a properly identified and sealed envelope to the Purchasing Division at the above address. BIDS MUST BE RECEIVED BEFORE THE DUE DATE - LATE BIDS WILL NOT BE CONSIDERED. The City reserves the right to postpone the bid opening for its own convenience.

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</table>
STATEMENT OF NO BID

NOTE: If you DO NOT intend to bid on this commodity or service, please complete and return this form immediately. Your response will assist us in evaluating all responses for this important project and to improve our bid solicitation process.

The Purchasing Division of the City of Kalamazoo wishes to keep its bidders list file up-to-date. If, for any reason you cannot supply the commodity/service noted in this bid solicitation, this form must be completed and returned to remain on the particular bid list for future projects of this type.

If you do not respond to this inquiry within the time set for the bid opening date and time noted, we will assume that you can no longer supply this commodity/service, and your name will be removed from this bid list.

_____ Specifications too "tight", i.e. geared toward one brand or manufacturer only (explain below).

_____ Specifications are unclear (explain below).

_____ We are unable to meet specifications.

_____ Insufficient time to respond to the Invitation for Bid.

_____ Our schedule would not permit us to perform.

_____ We are unable to meet bond requirements.

_____ We are unable to meet insurance requirements.

_____ We do not offer this product or service.

_____ Remove us from your bidders list for this commodity or service.

_____ Other (specify below).

REMARKS: ____________________________________________________________

_______________________________________________________________________

_________________________________  __________________________________
SIGNED: ___________________________  NAME: ___________________________

(Type or Print)

TITLE: ___________________________  DATE: ___________________________

FIRM NAME: ___________________________

(if any)

ADDRESS: __________________________________________________________

(Street address) (City) (State) (Zip)

PHONE: ___________________________  FAX: ___________________________

EMAIL: __________________________________________________________
SECTION I
INSTRUCTIONS TO BIDDERS

1. EXAMINATION OF BID DOCUMENT—Before submitting a bid, bidders shall carefully examine the specifications and shall fully inform themselves as to all existing conditions and limitations. The bidder shall indicate in the bid the sum to cover the cost of all items included on the bid form.

2. PREPARATION OF BID—The bid shall be legibly prepared in ink or typed. If a unit price or extension already entered by the bidder on the Bid and Award form is to be altered, it shall be crossed out and the new unit price or extension entered above or below and initialed by the bidder with ink. The bid shall be legally signed and the complete address of the bidder given thereon.

All bids shall be tightly sealed in an envelope plainly marked SEALED BID and identified by project name, bid opening date and time. Bids opened by mistake, due to improper identification, will be so documented and resealed. The Purchasing Division will maintain and guarantee confidentiality of the contents until the specified opening date and time. Bids submitted by Fax machine will not be accepted.

3. EXPLANATION TO BIDDERS—Any binding explanation desired by a bidder regarding the meaning or interpretation of the Invitation for Bid (IFB) and attachments must be requested in writing, at least 10 business days before the bid opening so a reply may reach all prospective bidders before the submission of bids. Any information given to a prospective bidder concerning the IFB will be furnished to all prospective bidders as an amendment or addendum to the IFB if such information would be prejudicial to uninformed bidders. Receipt of amendments or addenda by a bidder must be acknowledged in the bid by attachment, or by letter or fax received before the time set for opening of bids. Oral explanation or instructions given prior to the opening will not be binding.

4. CASH DISCOUNTS—Discount offered for payment of less than thirty (30) days will not be considered in evaluating bids for award. Offered discounts of less than thirty (30) days will be taken if payment is made within the discount period, even though not considered in evaluation of the bid.

5. WITHDRAWAL OF BIDS—Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the exact time set for receipt of bid. No bid may be withdrawn for at least ninety (90) days after bid opening.

6. ALTERNATE BIDS—Bidders are cautioned that any alternate bid, unless specifically requested or any changes, insertions or omissions to the terms and conditions, specifications or any other requirement of this IFB may be considered non-responsive, and at the option of the City, result in rejection of the alternate bid.

7. LATE BIDS—Any bid received at the office designated herein after the exact time specified for receipt will not be considered. (Note: The City reserves the right to consider bids that have been determined by the City to be received late due to mishandling by the City after receipt of the bid and no award has been made.)

8. UNIT PRICES—If there is a discrepancy between unit prices and their extension, unit prices shall prevail.
SECTION II
BID AND AWARD

The undersigned having become thoroughly familiar with all of the bid/contract documents incorporated herein, the project site and the location conditions affecting the work, hereby proposes to perform everything required to be performed in strict conformity with the requirements of these documents, and to provide and furnish all the equipment, labor and materials necessary to complete in a professional manner the furnishing and installing of all of the following, meeting or exceeding the specifications as set forth herein for the prices as stated below.

BID – WITH PREVAILING WAGES
This project will be awarded WITH Prevailing Wages.

WATER MAIN CIPP LINING – STOCKBRIDGE AVE. AND PORTAGE CREEK

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
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<td>Mobilization</td>
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<td>Excavation, Dig Boxes, and Cut Water Main</td>
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<td>3</td>
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<td>Seal Crack in Water Main and Install Expansion Joints</td>
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<td>6</td>
<td>Recommissioning</td>
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<td>7</td>
<td>Backfill and Surface Restoration</td>
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<td>Pits</td>
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<td>8</td>
<td>Dewatering</td>
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<tr>
<td>9</td>
<td>Polyethylene Encasement</td>
<td>50</td>
<td>Feet</td>
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TOTAL BID

PRODUCT SUBSTITUTION
(must conform with procedure outlined in SECTION V, GENERAL PROVISIONS, 26. PRODUCT/SYSTEM SUBSTITUTIONS):

CIPP Lining
( Substitute Submitted)

CIPP Lining
( Substitute Submitted)

CIPP Lining
( Substitute Submitted)
**ALTERNATE BID – WITHOUT PREVAILING WAGES**

To gather information on the cost of completing projects **WITHOUT** Prevailing Wages. This project will be awarded **WITH** Prevailing Wages.

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**WATER MAIN CIPP LINING – STOCKBRIDGE AVE. AND PORTAGE CREEK**

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**TOTAL BID**

Bidder shall provide all of the information as requested herein with their bid. **Failure to do so and/or failure to provide post-bid requested information may be cause for rejecting the bid as non-responsive.**

Work shall start within **20** working days after receipt of notification by Contractor of Notice to Proceed, and shall be completed by **June 1, 2020.**
Bidder/Contractor has examined and carefully studied the bidding documents and attachments, and acknowledges receipt of the following addenda:

Addendum No:  __________  __________  __________  __________  __________  __________
Dated:  __________  __________  __________  __________  __________  __________

By my signature below, I certify that the firm bidding on this contract, when making hiring decisions, does not use a past criminal conviction as a bar to or preclude a person with a criminal conviction from being considered for employment with the bidding firm unless otherwise precluded by federal or state law. I further certify that I have read and agree to be bound by the provisions of the City’s Non-Discrimination Clause found in Appendix A as updated by City Ordinance 1856.

Signed: __________________________________________  Name: ________________________________  
Title: __________________________________________
CITY OF KALAMAZOO EX-OFFENDER POLICY CHECKLIST

As part of the City’s commitment to reducing unacceptable poverty, encouraging rehabilitation, reducing recidivism and strengthening families in Kalamazoo, the City has updated its Purchasing Policy to ensure that firms with whom the City does business share in this commitment by utilizing hiring practices that do not unfairly deny people with arrest and conviction records gainful employment. (Important: This requirement also extends to any subcontractors the bidder intends to use to fulfill the contract for goods or services being sought from the City.)

Part I: Proof that the bidder does not inquire about an individual’s past arrest or criminal history on the bidder’s employment application form

☐ Attach a copy of the current application for employment being used by the bidder

Part II: Certification that the bidder does not use an individual’s past arrest or criminal history to unlawfully discriminate against them by checking one or more of the following:

☐ That pursuant to federal or state law bidder is precluded from hiring persons with certain criminal records from holding particular positions or engaging in certain occupations by providing a cite to the applicable statute or regulation; if checking this box, provide a citation to the applicable statute or rule upon which the bidder is relying: ________________

☐ That bidder conducts criminal history background checks only as necessary, and only after making a conditional offer of employment; that any withdrawal of an offer of employment to an individual because of a past criminal history is job-related and consistent with business necessity after the individual has been provided an individualized assessment opportunity to review and challenge or supplement the history of past criminal conduct being relied upon by the bidder;

☐ That the use by bidder of criminal history background checks complies with the U.S. Equal Employment Opportunity Commission’s Enforcement Guidance on the Consideration of Arrest and Conviction Records in Employment Decisions and that the bidder has not had a determination rendered against it in past 7 years that it discriminated against a person through the use of an individual’s arrest or criminal history

I CERTIFY THAT THE ABOVE STATEMENTS ARE TRUE.

______________________________
Date

______________________________
Signature

______________________________
Printed Name

______________________________
Position
CITY OF KALAMAZOO – INVITATION FOR BID

Water Main CIPP Lining – Stockbridge Ave. and Portage Creek

CITY OF KALAMAZOO

LOCAL PREFERENCE POLICY AND CERTIFICATION

The lowest responsive Kalamazoo County bidder whose bid is not low but falls within 2% of the lowest responsive bid is afforded the opportunity to become the successful bidder if it agrees to reduce its bid to match the lowest responsive bid. The City of Kalamazoo is the sole determiner whether a bidder is responsible, qualifies as a Kalamazoo County bidder, and if its bid is responsive to the City’s specifications, terms and conditions.

If the lowest Kalamazoo County bidder chooses not to match the lowest bid, the next lowest responsive Kalamazoo County bidder whose bid falls within 2% of the lowest bid, is given the opportunity to match the lowest responsive bid.

To qualify as a Kalamazoo County bidder, the bidder must meet both the following criteria:

1. Have a physical presence in Kalamazoo County by maintaining a permanent office, factory or other facility in Kalamazoo County with employees working in Kalamazoo County.

2. Have paid real or personal property taxes related to said business to the City of Kalamazoo, County of Kalamazoo or other municipal corporation within Kalamazoo County in the previous tax year, except that a non-profit entity need not meet this requirement.

This local preference policy applies only to purchases for materials, supplies, capital outlay, and services for maintenance, repair or operation of City facilities that are over $25,000. If more than 50% of the contract is subcontracted to firms located outside of Kalamazoo County that bid does not qualify for the local preference policy outlined above. The local preference policy will not apply if prohibited by law. The Purchasing Agent has the authority to finally determine if the bidder qualifies as a Kalamazoo County bidder as set forth herein. The Purchasing Agent may take into account the permanency of the business in Kalamazoo, and whether the business appears to be claiming to be a Kalamazoo County business solely or primarily to qualify as a Kalamazoo County business under this Resolution, and any other material factors.

CERTIFICATION

If you qualify as a Kalamazoo County bidder and wish to be considered for the local preference provisions as provided above please certify that fact by providing the information requested below and attesting to its accuracy.

Firm Name: __________________________________________________________

Street Address of Business: ____________________________________________

City, State, and Zip Code: ____________________________________________

Number of employees working in Kalamazoo County: ______________________

Name the City or township to which business real and/or personal property taxes are paid or provide non-profit status:

The above information is accurate:

Signature: ___________________________________________ Date: ______________

Title: __________________________________________________________

Revised April 2008
SUB-CONTRACTING INFORMATION

Using the table below provide information regarding the sub-contractors that will be working to fulfill the requirements of this contract. Submit as complete a list as possible at the time of your bid. You will have two business days after the bid opening to update the list as needed. The information provided will be used for evaluating your bid and to assist in determining if you qualify as a Kalamazoo County Bidder.

INSTRUCTIONS:
Nature of Contract - State a brief description of the work or product that will be provided.
BIDDER – Provide the percentage of services or construction activity that will be provided by your firm.
Subcontractors:
- Provide the Name and Address for each subcontractor providing services or construction activities for this contract.
- Indicate with YES or NO under the “Local?” box if they qualify as a “Kalamazoo County bidder” (see local preference certification page)
- Provide the percentage for the dollar amount of the contract work they will be performing.

If there are not enough lines in the table below make additional copies as needed.

<table>
<thead>
<tr>
<th>Nature of Contract:</th>
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<tbody>
<tr>
<td>Subcontractor Name/Address</td>
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Does this List of Subcontractors need to be updated after the bid opening? Yes ___ No ___
REFERENCE QUESTIONNAIRE

Please answer the following questions completely.

1. Firm name: _________________________________________________________________

2. Established: Year ________ Number of Employees: ________

3. Type of organization:
   a. Individual: ________  b. Partnership: ________
   c. Corporation: ________  d. Other: ________

4. Former firm name(s) if any, and year(s) in business:
   ____________________________________________________________
   ____________________________________________________________

5. Include at least 3 references of contracts for similar work performed over the last five (5) years. Include: owner, contact person and phone number and description of work performed.

   5.1 Company Name: _________________________________________________________
       Address: ________________________________________________________________
       Phone: __________________________________________________________________
       Contact: __________________________________________________________________
       Type of work or contract: ____________________________________________

   5.2 Company Name: _________________________________________________________
       Address: ________________________________________________________________
       Phone: __________________________________________________________________
       Contact: __________________________________________________________________
       Type of work or contract: ____________________________________________

   5.3 Company Name: _________________________________________________________
       Address: ________________________________________________________________
       Phone: __________________________________________________________________
       Contact: __________________________________________________________________
       Type of work or contract: ____________________________________________

I hereby certify that all of the information provided is true and answered to the best of my ability.

Signed: ___________________________________   Name: ____________________________
    (type or print)

Title: _____________________________________    Date: ______________________________
I hereby state that all of the information I have provided is true, accurate and complete. I hereby state that I have the authority to submit this bid which will become a binding contract if accepted by the City of Kalamazoo. I hereby state that I have not communicated with nor otherwise colluded with any other bidder, nor have I made any agreement with nor offered/accepted anything of value to/from an official or employee of the City of Kalamazoo that would tend to destroy or hinder free competition.

The firm’s identification information provided will be used by the City for purchase orders, payment and other contractual purposes. If the contractual relationship is with, or the payment made to, another firm please provide a complete explanation on your letterhead and attach to your bid. Please provide for accounts payable purposes:

Tax Identification Number (Federal ID): _______________________________

Remittance Address: ____________________________________________

I hereby state that I have read, understand and agree to be bound by all terms and conditions of this bid document.

SIGNED: __________________________ NAME: __________________________

(TYPE OR PRINT)

TITLE: ___________________________ DATE: ___________________________

FIRM NAME: ____________________________ (if any)

ADDRESS: ____________________________

(Street address) (City) (State) (Zip)

PHONE: ____________________________ FAX: ____________________________

EMAIL ADDRESS: ________________________________

FOR CITY USE ONLY - DO NOT WRITE BELOW
Contractor, or any of their subcontractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to the City of Kalamazoo within ten (10) days of the Notice of Award. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIR’s are the responsibility of the Contractor.

The Contractor shall procure and maintain the following insurance coverage:

Workers’ Compensation Insurance including Employers’ Liability Coverage, in accordance with all applicable statutes of the State of Michigan.

Commercial General Liability Insurance on an “Occurrence Basis” with limits of liability not less than $1,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included and (E) XCU coverage if the nature of the contract requires XC or U work.

Automobile Liability including Michigan No-Fault Coverages, with limits of liability not less than $1,000,000 per occurrence, combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

Additional Insured: Commercial General Liability and Automobile Liability, as described above, shall include an endorsement stating that the following shall be Additional Insureds: The City of Kalamazoo, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed that by naming the City of Kalamazoo as additional insured, coverage afforded is considered to be primary and any other insurance the City of Kalamazoo may have in effect shall be considered secondary and/or excess.

To the fullest extent permitted by law the Contractor agrees to defend, pay on behalf of, indemnify, and hold harmless the City of Kalamazoo, its elected and appointed officials, employees, agents and volunteers, and others working on behalf of the City of Kalamazoo against any and all claims, demands, suits, or loss, including all costs connected therewith, and for any damages which may be asserted, claimed, or recovered against or from the City of Kalamazoo, by reason of personal injury, including bodily injury or death and/or property damage, including loss of use thereof, which arises out of, or is in any way connected or associated with this contract.

Cancellation Notice: All policies, as described above, shall include an endorsement stating that it is understood and agreed that thirty (30) days, or ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: City of Kalamazoo, Purchasing Division, 241 W. South Street, Kalamazoo, MI 49007.

Proof of Insurance Coverage: The Contractor shall provide the City of Kalamazoo at the time that the contracts are returned by him/her for execution, or within 10 days of Notice of Award, whichever is earlier, a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned above shall be furnished, if so requested.
INDEMNITY AND INSURANCE

Continued

If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates and/or policies to City of Kalamazoo at least ten (10) days prior to the expiration date.

Scope of Coverage: The above requirements and conditions shall not be interpreted to limit the liability of the Contractor under this Contract, but shall be interpreted to provide the greatest benefit to the City and its officers and employees. The above listed coverages shall protect the Contractor, its employees, agents, representatives and subcontractors against claims arising out of the work performed. It shall be the Contractor’s responsibility to provide similar insurance for each subcontractor or to provide evidence that each subcontractor carries such insurance in like amount prior to the time such subcontractor proceeds to perform under the contract.
**SECTION IV**  
**SPECIAL REQUIREMENTS**

1. **BID BOND/GUARANTEE**

The bid must be accompanied by a bid bond which shall not be less than five (5%) percent of the total amount of the bid. No bid will be considered unless it is accompanied by the required guarantee. The bid guarantee shall ensure the execution of the bid and award, and the furnishing of a performance bond and a labor and material bond (A and B below) by the successful bidder. (Contractors Note: A cashier's or certified check in lieu of a bid bond is **NOT** acceptable.)

**A. PERFORMANCE BOND**

A performance bond shall be furnished in the full amount of the contract ensuring the City of faithful performance of all the provisions of the contract, and the satisfactory performance of any equipment required hereunder. The bond shall also ensure the City against defective workmanship and/or materials.

**B. LABOR AND MATERIAL (PAYMENT) BOND**

A labor and material (payment) bond shall be furnished for the period covered by the contract, in the full amount of the contract for the protection of labor and material suppliers and sub-contractors.

Bonds shall be secured by a guaranty or a surety company listed in the latest issue of the U.S. Treasury, circular 570, and licensed to do business in the State of Michigan, and written in favor of the City of Kalamazoo. The amount of such bonds shall be within the maximum amount specified for such company in said circular 570. The bonds shall be accompanied by a power of attorney showing authority of the bonding agent to sign such bonds on behalf of the guaranty or surety company. The cost of the bonds shall be borne by the Contractor.

Failure of the Contractor to supply the required bonds within ten (10) days after Notice of Award, or within such extended period as the Purchasing Agent may agree to, shall constitute a default and the City of Kalamazoo may either award this contract to the next lowest bidder or re-advertise for bids and may charge against the Contractor for the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid bond. If a more favorable bid is received by re-advertising, the defaulting bidder shall have no claim against the City of Kalamazoo for a refund.

2. **WAIVERS OF LIEN**

Upon completion of all work and request for final payment, the Contractor shall furnish a 100% waiver of lien from each supplier and sub-contractor covering all items of the work. Failure to supply waivers of lien for the entire job upon completion and final payment request will be considered grounds for withholding final payment.
3. **SUBCONTRACTORS**

   A. Contractors shall state on the Bid and Award page any and all subcontractors to be associated with their bid, including the type work to be performed. Any and all subcontractors shall be bound by all of the terms, conditions and requirements of the contract; however, the prime contractor shall be responsible for the performance of the total work requirements.

   B. The Contractor shall cooperate with the City of Kalamazoo in meeting its commitments and goals with regard to maximum utilization of minority and women business enterprise, and shall use its best efforts to ensure that minority and women business enterprises have maximum practicable opportunity to compete for subcontract work under this agreement.

4. **PREVAILING WAGES**

   The successful bidder will be required to comply with Section 2-125 of the Code of Ordinances of the City of Kalamazoo regarding prevailing wages and Appendix B attached, incorporated herein by reference. Special note: This project requires prevailing wages.

   The City's requirements as it relates to prevailing wages includes a meeting with the City's Purchasing Division prior to work and payroll and work monitoring during the duration of the contract. Please contact Purchasing at (269) 337-8020 if you have any questions regarding Davis-Bacon provisions.
SECTION V
GENERAL PROVISIONS

1. INTENT

It is the intent of these specifications to provide a contractor who shall provide all labor, materials, tools, and equipment necessary to line approximately 160 feet of eight-inch diameter cast iron water main using Aqua-Pipe® cured-in-place-pipe (CIPP), or a pre-approved CIPP product substitute, and associated tasks to the City of Kalamazoo as described in the specifications and bid document.

2. SCOPE OF WORK

This contract includes, but is not limited to: all labor, materials, tools, and equipment required to complete the work detailed in the attached specifications (Attachment A).

3. QUANTITIES

The quantities shown or indicated on the plans are only estimated. Payment will be made based upon unit pricing of quantities and tasks that are actually completed.

4. UNIT PRICING

The unit price, including its pro-rata share of overhead, multiplied by the quantity shown shall represent the total bid and shall be held firm for the life of this contract. Any bid not conforming to this requirement may be rejected as non-responsive.

5. INSPECTION OF WORK

The City may maintain inspectors on the job who shall at all times have access to work.

6. INSPECTION OF SITE

Each bidder shall visit the site of the proposed work and fully acquaint himself/herself with the existing conditions relating to construction and labor, and shall fully inform himself/herself as to the facilities involved and the difficulties and restrictions attending the performance of this contract. The bidder shall thoroughly examine and become familiar with the drawings, specifications and all other bid/contract documents. The Contractor, by the execution of this contract, shall in no way be relieved of any obligation under it due to his/her failure to receive or examine any form or legal instrument, or to visit the site and acquaint himself/herself with the conditions there existing. No allowance shall be made subsequently in this connection on behalf of the Contractor for any negligence of his/her part. For inspection call the Public Services Department, Water Resources Division.

7. INSPECTION AND TESTING

The Contractor shall give the City’s Project Manager timely notice of readiness of the work for all required inspections, tests or approvals, and shall cooperate with inspections and testing personnel to facilitate required inspections or tests. The City will provide for materials and construction testing including but not limited to water sample collection and analysis. The cost of said testing shall be borne by the City. Verification that testing required by the contract has been completed on one phase of the project prior to proceeding to the next phase is the responsibility of the Contractor. In the event that the project has proceeded without required testing, the Contractor shall insure that the required testing is obtained retroactively and shall provide access for testing as necessary at his/her sole expense.
8. MATERIALS INSPECTION AND RESPONSIBILITY

8.1 The Project Manager shall have the right to inspect any materials to be used in carrying out the terms of the contract.

8.2 The City does not assume any responsibility for the contracted quality and standard of all materials, equipment, components or completed work furnished under this contract.

8.3 Any materials, equipment, components or completed work which does not comply with contract specifications, MDOT, or State codes may be rejected by the City, and shall be replaced by the Contractor at no cost to the City.

8.4 Any materials, equipment or components rejected shall be removed within a reasonable period of time from the premises of the City at the entire expense of the Contractor after notice has been given by the City to the Contractor that such materials, equipment or components have been rejected.

9. LAYING OUT WORK

Before submitting a bid the Contractor shall verify all measurements and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of differences between actual dimensions and the measurements indicated on the drawings. Any difference that may be found shall be submitted to the City Engineer for consideration before proceeding.

10. SUPERVISION

The Contractor shall employ an experienced superintendent or foreperson on the job at all times.

11. TEMPORARY UTILITIES

11.1 Temporary or construction water is available near the Site. The Contractor must provide drinking water, water hose(s), water tank(s), and pump(s) as necessary.

11.2 Temporary toilets: To be supplied by the Contractor as may be necessary.

12. SITE SECURITY

The Contractor shall be responsible for job site security of all materials and tools provided by him/her and no claim for loss or damage will be considered by the City.

13. TARDINESS

Construction delays resulting from tardiness on the part of the Contractor will be reviewed by the City in the event of any request for contract extension by the Contractor.
14. **PROGRESS SCHEDULE**

14.1 After receipt of Notice to Proceed, work shall start within 20 days unless otherwise agreed to by the Project Manager.

14.2 **Project shall have a final completion date of June 1, 2020.**

14.3 Work of a similar nature may be added to this contract if agreed to by the City and the Contractor. In the event that work is added, the progress schedule for the work will remain unchanged. Any contract time added for additional work will be applied to that additional work only, and cannot be added to items in the original contract. Any work done on the items in the original contract past the number of working days stated herein will be subject to liquidated damages regardless of any work that may be added at a later date.

14.4 The Contractor will be required to meet with the Public Services representatives to work out detailed progress schedule. The schedule for this meeting will be within two weeks after contract award has been made.

14.5 The named sub-contractor(s) for all items shall also be present at the scheduled meeting and they will be required to sign the Progress Schedule to indicate their approval of the scheduled dates of work set forth in the Progress Schedule.

14.6 The Progress Schedule shall include, as a minimum, the starting and completion dates for major items, as well as the final project completion date specified in the bid documents. The Progress Schedule shall be coordinated with all aspects of the work occurring at the site.

14.7 Failure on the part of the Contractor to carry out the provisions of the Progress Schedule as established may be considered sufficient cause to prevent bidding future projects until a satisfactory rate of progress is again established.

14.8 The starting date and the contract time to the completion date for this project may be adjusted by Public Services without imposing liquidated damages upon the receipt of satisfactory documented evidence that unforeseen delayed delivery of critical materials will prevent the orderly prosecution of the work.

15. **CONSTRUCTION SCHEDULE AND COORDINATION**

15.1 The Contractor shall supply the City with an agreeable construction schedule before commencing work on this contract. This schedule shall detail beginning and completion dates for each major component of the project.

15.2 The Contractor shall coordinate and cooperate with all other contractors who may be working on the site in order to allow for the orderly progress of work being done.

15.3 The Contractor is required to keep the Project Manager fully informed of any proposed work which will tend to interfere with the existing operations at the site.

15.4 The Contractor shall schedule all work to accommodate the City's schedule. In the event Contractor's schedule falls on weekends, nights or overtime work is required, no additional compensation will be allowed. All work shall be part of this contract without regard to when it is done.
16. **CONTRACTOR COORDINATION**

16.1 The Contractor shall make every effort to coordinate every aspect of his work with that of other contractors on the site to assure an efficiently managed and proper installation.

16.2 Consideration shall be given to timing of construction, maintaining adequate construction access, and construction staging. Any costs associated with this coordination shall be included in the contract.

17. **COORDINATING CLAUSE**

The Contractor's attention is called to Article 104.07 of the MDOT 2003 Standard Specifications for Construction entitled "Cooperation by Contractor."

18. **ADDITIONS**

18.1 Any modification to the contract shall be subject to prior approval by the Purchasing Agent. City Commission approval may also be required.

18.2 Prices for additional work required are not requested in the itemized listing contained herein for the base project. Should additional work be authorized, compensation shall be made on the basis of price or prices to be mutually agreed upon. Such additional work shall not begin until approved.

19. **MAINTAINING TRAFFIC**

19.1 This work shall be in accordance with the requirements of Section 812 of the MDOT Standard Specifications for Construction and as specified herein. The Contractor is advised that the current Michigan Manual of Uniform Traffic Control Devices is hereby established as governing all work in connection with traffic control devices, barricade lighting, etc. required on this project.

19.2 The Owner will furnish, erect, and remove and the Contractor shall maintain all traffic control devices and barricade lights within the project and around the perimeter of the project for the safety and protection of through and local traffic. This includes, but is not limited to: Advance, regulatory and warning signs; barricades and channeling devices at intersecting streets on which traffic is to be maintained; barricades at the ends of the project and at right-of-way lines for intersecting streets which are to be closed with the first usable street on each side of the project. Traffic regulators, where required by the Engineer, are included.

19.3 Where the existing pavement or partial widths of new pavement are to be utilized for the maintenance of through and local traffic, drum type barricades will be required at 50' intervals or as directed by the Engineer for channeling and directing traffic through the construction area.

19.4 Through traffic shall be maintained utilizing sidewalk closures with detours and traffic shifts per MDOT traffic and safety details.

19.5 Protection of all pedestrian traffic shall be maintained at all times.
MAINTAINING TRAFFIC (cont.)

19.6 Payment for the traffic control devices shall be based on the quantity used and the contract unit prices.

19.7 Under Article 812.04.D "Operated Pay Items" the term ‘Relocating’ shall include the relocating of the item from any street covered by the contract to any other street covered by the contract.

**Special Restrictions:** Access to frontage properties shall be maintained as much as practical. Emergency access shall be maintained at all times.

20. LIQUIDATED DAMAGES

20.1 Liquidated damages, if applicable, shall be $500.00 a day regardless of contract size.

20.2 The provisions of Article 108.11B of the MDOT 2003 Standard Specifications for Construction for reducing liquidated damages of 50 percent of the amount indicated in Table 108-1 of article 108.11C for projects where traffic is maintained during construction will not apply.

21. REMOVAL OF RUBBISH

The Contractor shall daily remove all rubbish and accumulated materials due to his/her construction.

22. SITE ACCESS

The City will provide fair and reasonable access to the job site within the working schedules of both parties. Work hours shall be limited to 7:00 AM to 7:00 PM, Monday through Friday.

23. GUARANTEE

The Contractor shall guarantee all of his/her work for a period of two (2) years following the date of final acceptance of the completed work and shall repair, replace or make good any materials or work which fail to function or perform or be found defective, without cost to the City.

24. SAFETY

The Contractor shall comply with all applicable OSHA and MIOSHA regulations.

25. PAY ESTIMATES

The Contractor shall be responsible for the generation of invoices for payment. Payment will be generated by the City based upon an approved invoice. Recommended frequency of payment is monthly, however, frequency of payment will not exceed bi-weekly.
26. PRODUCT/SYSTEM SUBSTITUTIONS

Submit a written request, to be received not later than 10 days prior to scheduled bid opening, for Substitution of any Product not named. If no substitutions are submitted, it will be reasonably concluded by the Owner and Engineer that the specified product will be incorporated into the Work and the Bidder will be committed to supplying the specified product.

26.1 Describe in detail any variance to the Product specified. All proposed substitution for specified items shall be substantially the same size (height, length, width, diameter, etc.), type, color, construction quality and shall meet the design intent to be considered for substitution for the Product specified.

26.2 Document each request with complete data substantiating compliance of proposed Substitution with Product specified including written certification that Product conforms to or exceeds all requirements of the Product specified.

26.3 Document all coordination information, including a list of changes or modifications needed to the Contract Documents or other parts of the Work and to construction performed by the Owner and Separate Contractors that will become necessary to accommodate the proposed substitution.

26.4 Provide name, address and telephone number of manufacturer’s authorized representative.

26.5 Submit three copies of all documents for each request for Substitution for consideration.

26.6 Approval of the Substitution request, if given, will be in the form of an addendum issued prior to scheduled opening date and hour at local time.

27. SAMPLES AND DEMONSTRATIONS

Evidence in the form of samples may be requested. Such samples are to be furnished after the date of bid opening only upon request of the City unless otherwise stated in the bid proposal. If samples should be requested, such samples must be received by the City no later than seven (7) days after formal request is made. When required, the City may request full demonstrations of any unit(s) bid prior to the award of any contract. Samples, when requested, must be furnished free of expense to the City and if not used in testing or destroyed, will upon request within thirty (30) days of bid award be returned at the bidder’s request.

28. ACCEPTANCE OF MATERIAL

The material delivered under this proposal shall remain the property of the seller until a physical inspection and actual usage of the material and/or services is made and thereafter accepted to the satisfaction of the City and must comply with the terms herein, and be full in accord with specifications and of the highest quality. In the event the material and/or service supplied to the City is found to be defective or does not conform to specifications, the City reserves the right to cancel the order upon written notice to the seller and return the product to seller at the seller's expense.

29. VARIATIONS TO SPECIFICATIONS

For purposes of evaluation, the bidder MUST indicate any variances from our specifications, terms and/or conditions, no matter how slight. If variations are not stated in the proposal, it will be assumed that the product or service fully complies with our specifications, terms and conditions.
30. **SAFETY STANDARDS**

The bidder warrants that the products supplied to the City conform in all respects to the standards set forth in the Occupational Safety and Health Act of 1970 and its amendments and the failure to comply with this condition will be considered a breach of contract.

31. **MANUFACTURER'S CERTIFICATION**

The City reserves the right to request from bidders separate manufacturer certification of all statements made in the bid.

32. **PROTECTION OF WORK**

The Contractor shall maintain adequate protection of all his/her work from damage and shall protect all public and private abutting property from injury or loss arising in connection with this contract.

33. **PROTECTION OF PROPERTY**

33.1 The Contractor shall confine his/her equipment and operations to those areas of the work site necessary for the completion of the work, or as authorized by the Project Manager. The Contractor shall protect and preserve from damage any facilities, utilities or features including trees, shrubs and turf which are not required to be disturbed by the requirements of the work.

33.2 The Contractor shall be responsible to determine the location of and to protect from damage any utilities or other improvements.

34. **QUESTIONS**

Bidders shall address questions regarding the specifications to Eric Sajtar, P.E. at sajtare@kalamazoocity.org. (This does not relieve the requirements of Page 1, Item 3.) Questions regarding terms, conditions and other related bid requirements may be addressed to Craig Hull, Buyer at (269) 337-8444.
SECTION VI
TERMS AND CONDITIONS

1. AWARD OF CONTRACT

   A. This contract will be awarded to that responsible bidder whose bid, conforming to this solicitation, will be most advantageous to the City, price and other factors considered. The City reserves the right to accept or reject any or all bids and waive informalities and minor irregularities in bids received. Other factors include, as an example but not limited to, delivery time, conformance to specifications, incidental costs such as demurrage and deposits, etc.

   Notification of award will be in writing by the Purchasing Agent. Upon notification, the Contractor shall submit to the Purchasing Division all required insurance certificates (if required) and such other documentation as may be requested or required hereunder. Upon their receipt and subsequent approval by the City, the Purchasing Agent will forward to the Contractor a written NOTICE TO PROCEED. Work shall NOT be started until such NOTICE TO PROCEED is received by the Contractor.

   B. Unilateral changes in bid prices by the bidder shall not be allowed. However, the City, at its sole option, reserves the right to negotiate with bidders in the event of, but not limited to:

   1) No bids received;
   2) A single bid being received; or
   3) Prices quoted are over budget and/or unreasonable.

2. COMPLETE CONTRACT

   This bid document together with its addenda, amendments, attachments and modifications, when executed, becomes the complete contract between the parties hereto, and no verbal or oral promises or representations made in conjunction with the negotiation of this contract shall be binding on either party.

3. SUBCONTRACTORS - NON ASSIGNMENT

   Bidders shall state in writing any and all sub-contractors to be associated with this bid, including the type of work to be performed. The Contractor shall cooperate with the City of Kalamazoo in meeting its commitments and goals with regard to maximum utilization of minority and women-owned business enterprises.

   The Contractor hereby agrees and understands that the contract resulting from this solicitation shall not be transferred, assigned or sublet without prior written consent of the City of Kalamazoo.

4. TAXES

   The City of Kalamazoo is exempt from all federal excise tax and state sales and use taxes. However, depending upon the situation, the vendor or contractor may not be exempt from said taxes and the City of Kalamazoo is making no representation as to any such exemption.
5. **INVOICING**

All original invoice(s) will be sent to the Finance Division, 241 W. South Street, Kalamazoo, MI 49007 or via email at apinvoice@kalamazoocity.org. Fax copy of invoice(s) will not be accepted, unless it is to replace an original invoice that was lost in the mail. The Finance Division processes payments after receipt of an original invoice from the Contractor and approval by the department.

The City of Kalamazoo policy is to pay invoice(s) within 30 days from the receipt of the original invoice, if the services or supplies are satisfactory and the proper paperwork and procedures have been followed. In order to guarantee payment to the vendor on a timely basis, the vendor needs to receive a purchase order number before supplying the City of Kalamazoo with goods or services. All original, and copies of original invoice(s), will clearly state which purchase order they are being billed against.

*The City of Kalamazoo is a government municipality and therefore is tax exempt from all sales tax. Our tax exempt number is 38-6004627.*

The vendor is responsible for supplying the Finance Division with a copy of their W-9 if they are providing a service to the City of Kalamazoo.

6. **PAYMENTS**

Upon issuance of certificates of Payment by the Architect/Engineer for labor and material incorporated in the work and the materials suitably stored at the site payment shall be made up to ninety (90%) percent of the value thereof.

When the cumulative total of payment is equal to fifty (50%) percent of the contract sum, subsequent payments will be made in the full amount for labor and material certified by the Architect/Engineer.

The amount retained shall be held until final acceptance of the work, receipt of all payrolls, releases, and waiver of liens.

7. **CHANGES AND/OR CONTRACT MODIFICATIONS**

The City reserves the right to increase or decrease quantities, service or requirements, or make any changes necessary at any time during the term of this contract, or any negotiated extension thereof. Price adjustments due to any of the foregoing changes shall be negotiated and mutually agreed upon by the Contractor and the City.

Changes of any nature after contract award which reflect an increase or decrease in requirements or costs shall not be permitted without prior approval by the Purchasing Agent. City Commission approval may also be required. *SUCH CHANGES, IF PERFORMED IN ADVANCE OF PURCHASING AGENT APPROVAL, MAY BE SUBJECT TO DENIAL AND NON-PAYMENT.*
8. **LAWS, ORDINANCES AND REGULATIONS**

The Contractor shall keep himself/herself fully informed of all local, state and federal laws, ordinances and regulations in any manner affecting those engaged or employed in the work and the equipment used. Contractor and/or employees shall, at all times, serve and comply with such laws, ordinances and regulations.

Any permits, licenses, certificates or fees required for the performance of the work shall be obtained and paid for by the Contractor, unless stated otherwise.

This contract shall be governed by the laws of the State of Michigan.

9. **RIGHT TO AUDIT**

The City or its designee shall be entitled to audit all of the Contractor's records, and shall be allowed to interview any of the Contractor's employees, throughout the term of this contract and for a period of three years after final payment or longer if required by law to the extent necessary to adequately permit evaluation and verification of:

A. Contractor compliance with contract requirements,
B. Compliance with provisions for pricing change orders, invoices or claims submitted by the Contractor or any of his payees.

10. **HOLD HARMLESS**

If the acts or omissions of the Contractor/Vendor or its employees, agents or officers, cause injury to person or property, the Contractor/Vendor shall defend, indemnify and save harmless the City of Kalamazoo, their agents, officials, and employees against all claims, judgments, losses, damages, demands, and payments of any kind to persons or property to the extent occasioned from any claim or demand arising therefrom.

11. **DEFAULT**

The City may at any time, by written notice to the Contractor, terminate this contract and the Contractor's right to proceed with the work, for just cause, which shall include, but is not limited to the following:

A. Failure to provide insurance and bonds (when called for), in the exact amounts and within the time specified or any extension thereof.
B. Failure to make delivery of the supplies, or to perform the services within the time specified herein, or any extension thereof.
C. The unauthorized substitution of articles for those bid and specified.
D. Failure to make progress if such failure endangers performance of the contract in accordance with its terms.
E. Failure to perform in compliance with any provision of the contract.
F. **Standard of Performance** - Contractor guarantees the performance of the commodities, goods or services rendered herein in accordance with the accepted standards of the industry or industries concerned herein, except that if this specification calls for higher standards, then such higher standards shall be provided.

Upon notice by the City of Contractor's failure to comply with such standards or to otherwise be in default of this contract in any manner following the Notice to Proceed, Contractor shall immediately remedy said defective performance in a manner acceptable to the City. Should Contractor fail to immediately correct said defective performance, said failure shall be considered a breach of this contract and grounds for termination of the same by the City.

In the event of any breach of this contract by Contractor, Contractor shall pay any cost to the City caused by said breach including but not limited to the replacement cost of such goods or services with another Contractor.

The City reserves the right to withhold any or all payments until any defects in performance have been satisfactorily corrected.

In the event the Contractor is in breach of this contract in any manner, and such breach has not been satisfactorily corrected, the City may bar the Contractor from being awarded any future City contracts.

G. All remedies available to the City herein are cumulative and the election of one remedy by the City shall not be a waiver of any other remedy available to the City.

12. **TERMINATION OF CONTRACT**

The City may, at any time and without cause, suspend the work of this contract for a period of not more than ninety days after providing notice in writing to the Contractor. The Contractor shall be allowed an adjustment in the contract price or an extension of the contract times, or both, directly attributable to the suspension if Contractor makes an approved claim.

The City may, without prejudice to any other right or remedy of the City, and with or without cause, terminate the contract by giving seven days written notice to the Contractor. In such case the Contractor shall be paid, without duplication, for the following items:

A. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such work;

B. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the contract documents in connection with uncompleted work, plus fair and reasonable sums for overhead and profit on such expenses;

C. All documented claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and

D. Reasonable expenses directly attributable to termination.

The Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.
13. **INDEPENDENT CONTRACTOR**

   At all times, the Contractor, any of his/her employees, or his/her sub-contractors and their subsequent employees shall be considered independent contractors and not as City employees. The Contractor shall exercise all supervisory control and general control over all workers’ duties, payment of wages to Contractor's employees and the right to hire, fire and discipline their employees and workers. As an independent contractor, payment under this contract shall not be subject to any withholding for tax, social security or other purposes, nor shall the Contractor or his/her employees be entitled to sick leave, pension benefit, vacation, medical benefits, life insurance or workers' unemployment compensation or the like.

14. **PROJECT SUPERVISOR**

   The Contractor shall employ an individual to act as Project Supervisor. The Project Supervisor shall be available to the Contractor's workers and the Project Manager at all times by use of a beeper or other reliable means. The Project Supervisor shall prepare daily work plans for the employees, monitor employee performance, attendance and punctuality; and work closely with the City's Project Manager in assuring contract compliance.

15. **MEETINGS**

   The Contractor and/or Project Supervisor shall be available to meet with the City’s Project Manager at a mutually agreeable time to discuss problems, issues or concerns relative to the contract. Either party may call a meeting at any time. When such a request for a meeting is made, the meeting date shall, in no case exceed five (5) working days after the request; and, if in the sole opinion of the Project Manager, the severity of the circumstance warrants, no more than one (1) working day.
APPENDIX A
NON-DISCRIMINATION CLAUSE FOR ALL CITY OF KALAMAZOO CONTRACTS


1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability, family status, sexual orientation or gender identity that is unrelated to the individual’s ability to perform the duties of the particular job or position. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination; rates of pay or other forms of compensations; and selection for training, including apprenticeship.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability family status, sexual orientation or gender identity that is unrelated to the individual’s ability to perform the duties of the particular job or position.

3. If requested by the City, the Contractor shall furnish information regarding practices, policies and programs and employment statistics for the Contractor and subcontractors. The Contractor and subcontractors shall permit access to all books, records and accounts regarding employment practices by agents and representatives of the City duly charged with investigative duties to assure compliance with this clause.

4. Breach of the covenants herein may be regarded as a material breach of the contract or purchasing agreement as provided in the Elliott-Larsen Civil Rights Act and City Ordinance 1856.

5. The Contractor will include or incorporate by reference the provisions of the foregoing paragraphs 1 through 4 in every subcontract or purchase order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission* and will provide in every subcontract or purchase order that said provision will be binding upon each subcontractor or seller.

6. The Contractor will not preclude a person with a criminal conviction from being considered for employment unless otherwise precluded by federal or state law. (for contracts over $25,000)

The Elliott-Larson Civil Rights Act, Sec. 202 of Act. No. 453 of 1976 reads in part as follows:

Sec. 202. (1) An employer shall not:

(a) Fail or refuse to hire, or recruit, or discharge or otherwise discriminate against an individual with respect to employment, compensation, or a term condition or privilege of employment because of religion, race, color, national origin, age, sex, height, weight or marital status.

(b) Limit, segregate or classify an employee or applicant for employment in a way which deprives or tends to deprive the employee or applicant of an employment opportunity or otherwise adversely affects the status of an employee or applicant because of religion, race, color, national origin, age, sex, height, weight or marital status.

(c) Segregate, classify or otherwise discriminate against a person on the basis of sex with respect to a term, condition or privilege of employment, including a benefit plan or system.

* Except for contracts entered into with parties employing less than three employees.

1-2010
APPENDIX B - PREVAILING WAGES

Prevailing wages are applicable to this contract, therefore, rates will apply as follows:

(XX) Project is funded by City of Kalamazoo monies and is estimated to be in excess of $100,000.00. The applicable prevailing wage rates are attached.

Specifications for projects in which the City of Kalamazoo is party for construction, alterations and/or repair including painting and decorating of public buildings or public works in or for the City of Kalamazoo and which requires or involves the employment of mechanics and/or laborers shall contain the following provisions stating the minimum wages to be paid the various classes of laborers and mechanics for the project. Prevailing wage rates determined by the U.S. Department of Labor under Davis Bacon and related acts will be used for City of Kalamazoo construction projects.

By the incorporation of prevailing wage rates within this specification, the City of Kalamazoo stipulates that:

✓ Contractor or his/her subcontractor shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less than once a week and without subsequent deduction or rebate on any account the full amount, accrued at the time of payment, computed at wage rates as incorporated herein regardless of any contractual relationship which may be alleged to exist between the contractor or subcontractor and such laborers and mechanics;

✓ The scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;

✓ The Prime Contractor and all subcontractors shall submit weekly certified payrolls documenting the hours worked and wages paid by work classification. NOTE: Contractor shall not include Social Security numbers of employees on certified payrolls.

✓ There may be withheld from the contractor's accrued payments the amount considered necessary by the City's Contracting Official to pay to laborers and mechanics employed by the contractor or any subcontractor on the work for the difference between the rates of wages required by the contract and the rates of wages received by such laborers and mechanics except those amounts properly deducted or refunded pursuant to the terms of the Davis-Bacon Act (USC, Title 40, Sec. 276a) and interpretations thereof.

Special Note: The City's requirements as it relates to prevailing wages includes a meeting with the City's Purchasing Agent prior to starting work and the submission of weekly certified payrolls by prime contractors and all subcontractors. The City will monitor certified payrolls, work progress, and conduct interviews with the mechanics and labors employed directly upon the site during the duration of the contract. Please contact the Purchasing Department at (269) 337-8020 if you have any questions regarding prevailing wage provision.

The overtime pay to which a laborer or mechanic is entitled under this contract shall be that overtime pay to which he/she is entitled by any agreement made with the contractor or subcontractor or by any applicable provision of law; but in no event shall such amount be less than the prevailing wage in the Kalamazoo community for such overtime.

Revised 4-08
PREVAILING WAGES

Water Main CIPP Lining – Stockbridge Ave. and Portage Creek

Bid Reference #: 91389-001.0

January 2020
"General Decision Number: MI20190061 12/27/2019

Superseded General Decision Number: MI20180061

State: Michigan

Construction Type: Heavy

County: Kalamazoo County in Michigan.

Heavy, Includes Water, Sewer Lines and Excavation (Excludes Hazardous Waste Removal; Coal, Oil, Gas, Duct and other similar Pipeline Construction)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to
the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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CARP0525-006 06/01/2019

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<tr>
<td>$ 23.66</td>
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ELEC0131-006 05/27/2019

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<td>$ 34.36</td>
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* ENGI0325-009 09/01/2019

POWER EQUIPMENT OPERATORS: Underground Construction (Including Sewer)

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
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</table>
POWER EQUIPMENT OPERATOR

GROUP 1........................ $ 32.92 24.35
GROUP 2........................ $ 28.03 24.35
GROUP 3........................ $ 27.53 24.35
GROUP 4........................ $ 27.25 24.35

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backhoe/ Excavator, Boring Machine, Bulldozer,
Crane, Grader/ Blade, Loader, Roller, Scaper, Trencher
(over 8 ft. digging capacity)

GROUP 2: Trencher (0-ft digging capacity and smaller)

GROUP 3: Boom Truck (non-swinging, non-powered type boom)

GROUP 4: Broom/ Sweeper, Fork Truck, Tractor, Bobcat/ Skid
Steer /Skid Loader

--------------------------------------------------------------------------------

ENGI0326-025 06/01/2019

EXCLUDES UNDERGROUND CONSTRUCTION

<table>
<thead>
<tr>
<th>Rates</th>
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<tr>
<td>OPERATOR: Power Equipment</td>
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<tr>
<td>GROUP 1........................ $ 39.50 24.35</td>
<td></td>
</tr>
<tr>
<td>GROUP 2........................ $ 36.28 24.35</td>
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<tr>
<td>GROUP 3........................ $ 33.63 24.35</td>
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<tr>
<td>GROUP 4........................ $ 31.92 24.35</td>
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<tr>
<td>GROUP 5........................ $ 31.92 24.35</td>
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<td>GROUP 6........................ $ 26.06 24.35</td>
<td></td>
</tr>
<tr>
<td>GROUP 7........................ $ 23.58 24.35</td>
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</tbody>
</table>

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane operator with main boom and jib 400', 300', or 220' or longer.

GROUP 2: Crane operator with main boom and jib 140' or longer, tower crane, gantry crane, whirley derrick

GROUP 3: Backhoe/Excavator; Boring Machine; Bulldozer; Crane; Grader/Blade; Loader; Roller; Scraper; Tractor; Trencher

GROUP 4: Bobcat/Skid Loader; Broom/Sweeper; Fork Truck (over 20' lift)

GROUP 5: Boom truck (non-swinging)

GROUP 6: Fork Truck (20' lift and under for masonry work)

GROUP 7: Oiler

FOOTNOTES:
Crane operator with main boom and jib 300' or longer: $1.50 per hour above the group 1 rate.

Crane operator with main boom and jib 400' or longer: $3.00 per hour above the group 1 rate.

IRON0340-004 06/19/2017

Rates Fringes

IRONWORKER, STRUCTURAL AND
REINFORCING ........................ $ 24.43 24.67

LAB00334-011 09/01/2018

SCOPE OF WORK:
OPEN CUT CONSTRUCTION: Excavation of earth and sewer, utilities, and improvements, including underground piping/conduit (including inspection, cleaning, restoration, and relining)

<table>
<thead>
<tr>
<th>Rates</th>
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<tr>
<td>LABORER</td>
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<tr>
<td>(1) Common or General........ $ 20.97</td>
<td>12.85</td>
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<td>(2) Mason Tender - Cement/Concrete......... $ 21.10</td>
<td>12.85</td>
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<tr>
<td>(4) Grade Checker........ $ 21.28</td>
<td>12.85</td>
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<tr>
<td>(5) Pipelayer........ $ 21.40</td>
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LAB00355-010 06/01/2018

EXCLUDES OPEN CUT CONSTRUCTION

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<td>12.85</td>
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<td>Pipelayer........ $ 20.34</td>
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PAIN0312-014 06/12/2014

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<td></td>
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<tr>
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<td>-------</td>
</tr>
<tr>
<td>Brush &amp; Roller</td>
<td>$21.75</td>
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<tr>
<td>Spray</td>
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<tr>
<td>CEMENT MASON/CONCRETE FINISHER</td>
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<td>PLUM0333-026 06/01/2019</td>
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<td>Fort Custer</td>
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<td>PLUMBER</td>
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<td>Excluding Fort Custer</td>
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<tr>
<td>PLUMBER</td>
<td>$33.70</td>
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<td>TEAM0007-011 06/01/2019</td>
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<tr>
<td>TRUCK DRIVER</td>
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<tr>
<td>Lowboy/Semi-Trailer Truck</td>
<td>$27.30</td>
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<td>Tractor Haul Truck</td>
<td>$27.05</td>
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<td>FOOTNOTE:</td>
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<tr>
<td>a. $446.70 per week.</td>
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<td>b. $67.00 daily.</td>
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SUMI2010-059 11/09/2010

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<tr>
<td>LABORER: Landscape</td>
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<td>TRUCK DRIVER: Dump Truck</td>
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<td>6.43</td>
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<td>TRUCK DRIVER: Off the Road</td>
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<tr>
<td>Truck</td>
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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers
Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.
WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:
Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION"
ATTACHMENT A

SPECIAL PROVISIONS, SPECIFICATIONS and DRAWINGS/PLANS

Water Main CIPP Lining – Stockbridge Ave. and Portage Creek

Bid Reference #: 91389-001.0

January 2020
Project Specifications

Project Title: Water Main CIPP Lining – Stockbridge Ave. and Portage Creek

Owner: City of Kalamazoo

Engineer: Eric Sajtar, Steve Skalski, or Anna Crandall

Project Summary

The intent of this project is to line approximately 160 lineal feet of eight-inch diameter cast iron water main with Aqua-Pipe® cured-in-place-pipe (CIPP) that is NSF-61 certified using an Aqua-Pipe® licensee. The subject water main is located at the intersection of E. Stockbridge Avenue and Portage Creek in Kalamazoo, Michigan. The section of water main to be lined is suspended beneath a bridge and extends beneath railroad tracks that are located east of Portage Creek. The water main was installed in the 1930s. During the winter of 2019, the exposed section of water main (beneath the bridge) froze which resulted in a lateral crack along the water main. In response, the City closed an existing gate valve located approximately 43 feet west of the bridge and installed a new gate valve east of Portage Creek and the adjoining railroad tracks (approximately 160 feet east of the existing valve). The new valve was installed just west of the closest service connection to the railroad tracks which allowed the section of water main to be taken out of service without long term impacts to service connections (no service connections are present in the project area). Both valves have remained closed since. Refer to the attached pictures and map for pictures of the exposed water main and project area, respectively.

All materials and labor will be provided by contractor.

1. SPECIFICATIONS

The work under this contract shall be performed in accordance with the attached specifications titled:

"Standard Specifications for Water Main and Service Installation 2019"

with the following modifications and additions in addition to the above specifications. In the event of a conflict between the above specifications and these "Project Specifications", the "Project Specifications" shall prevail.

The Michigan Department of Transportation Standard Specifications for Highway Construction 2012 Edition are included by specific paragraph reference.

2. PROJECT AREA

The Contractor shall confine his work to the project area needed for the work. Any other area required for equipment, material storage or for construction operation shall be the Contractor's responsibility. The Contractor shall receive written permission from the Owner's of adjacent properties before using any portion of the property outside the project area.
The Contractor shall take all necessary precautions to minimize disturbances to the area during the construction period. All damage caused by the Contractor or sub-contractors shall be repaired at no expense either to the property owner or to this project.

3. SUMMARY OF WORK

The project will involve the following activities (refer to Unit Prices – Measurement and Payment for further details):

1) Mobilizing necessary equipment, supplies and personnel to the Site.
2) Traffic control and detours which will be provided by the City at no cost to the Contractor. However, the Contractor will be responsible for maintaining all traffic control until project completion.
3) Excavate an access pit east of Portage Creek but west of the existing gate valve. Install a dig box with the minimum required dimensions and cut and remove a section of water main to facilitate access to the pipe interior.
4) Televise the water main. Due to the age of the water main and as-built records not providing sufficient detail to determine the type of fittings on either side of the bridge, the water main shall be televised to determine if CIPP lining may proceed. If elbows (90s) are identified, CIPP lining will not likely proceed.
5) If the decision is made to proceed with CIPP lining, excavate a second access pit west of Portage Creek but east of the existing gate valve. Install a dig box with the minimum required dimensions and cut and remove a section of water main to facilitate access to the pipe interior.
6) Seal the crack in the existing water to prevent discharge of epoxy to Portage Creek during CIPP lining and install expansion joints per manufacturer specifications/recommendations.
7) Perform CIPP lining.
8) Recommission the water main via reconnecting, restraining, pressure testing disinfecting, etc.
9) Backfill and restore surfaces as specified.
10) Dewatering may be necessary due to the project being located adjacent to Portage Creek. If dewatering is required, associated fluids may be discharged to the sanitary sewer at no cost to the Contractor.
11) Polyethylene encasement of water main and fittings encountered in the pits will be required if dewatering is required.
12) Demobilization.
All labor, materials, equipment, transportation, and activity or costs necessary for completion of this work shall be included in this contract unless specifically stated otherwise.

4. PERMITS

Kalamazoo County SESC Permit – Contractor must obtain
EGLE Water Main Permit – Not Required

5. SCHEDULING

The Contractor shall file a construction schedule with the Engineer and Owner and receive approval in writing prior to commencing construction.

Certain areas within the project may require street closing. The Contractor shall coordinate his work with the Owner and shall take the necessary precautions required by the Owner to minimize traffic interference.

All costs associated with scheduling shall be considered incidental to the project.

6. MAINTENANCE OF TRAFFIC

Local traffic shall be maintained at all times during construction. All traffic control devices and placement shall be in accordance with the current MDOT Standards and Specifications for Construction or as directed by engineer.

During the progress of work, the Contractor shall accommodate vehicular traffic in road rights-of-way as provided in these specifications. Access to fire hydrants, water and gas valves shall be maintained at all times during construction.

Where streets and driveways are obstructed, the contractor shall place and maintain temporary driveways, ramps, etc., which, in the opinion of the Engineer, are necessary to accommodate the public. The Contractor shall provide access at night and on weekends for all properties in the immediate construction area. Emergency vehicle access shall be maintained at all times.

The Contractor shall be required to keep the surface of the roadway in a smooth, dust free and accessible condition for adjoining properties at all times. Dust control shall also apply to paved roads in the project area and are to be kept clean by the use of a mechanical sweeping device. Maintenance shall consist of grading the disturbed or graveled surface and maintaining the surface free of “wash-boards” and “chuck-holes”, suitable for traffic.

The Owner will inform the schools, local police, ambulance services and fire department in advance of street obstruction and detours via a media release. Detouring and construction signing shall be in accordance with Michigan Manual of Uniform Traffic Control.

Prior to construction the Contractor shall submit and obtain Owner approval for his traffic control plans, including detour plans and schedules.
The Owner shall provide all detours and associated signage. Contractor shall maintain traffic control until project completion.

7. **LIMITATION ON OPERATIONS**

The Contractor shall at all times conduct his work so that there is a minimum of inconvenience to the residents, businesses and industries within the project area.

8. **PROTECTION OF WORK**

The Contractor shall protect the work until it is accepted by the Engineer and Owner. Any part of the completed work that is damaged prior to acceptance by Engineer and Owner shall be replaced at the Contractor’s expense.

9. **DUST CONTROL**

All haul roads, detour roads and other public and private roads (including backfilled trenches), driveways and parking lots used by the Contractor must be maintained in a dust free condition during the life of this Contract. The control of dust shall be accomplished by sweeping and by the application of dust control materials. The materials and methods of application shall be approved by the Engineer and shall be applied as often as is necessary to control the dust, or if directed to do so by the Owner's representative. If directed to do so, the Contractor shall complete the dust control measures within 24 hours. All spillage on public roadways used as haul routes shall be cleaned daily.

Costs of providing dust control shall be included in the major items of construction. Therefore, no additional payment shall be made.

10. **MATERIAL HAUL ROADS**

Any spillage on public roadways used as haul routes shall be cleaned daily.

11. **PROTECTION OF NATURAL RESOURCES**

The Contractor shall take all necessary steps to prevent damage to fish and game habitats and to preserve the natural resources of the State. Activities shall be carried out so as to minimize discharge of damaging material into any stream, lake, or reservoir.

The Contractor shall exercise caution in the discharge of waters from pumps, deep wells, or well point systems in order that such discharges do not cause erosion, siltation, soil depositions, etc., in sewers, streams or other water courses or drainage structures.

The Contractor shall not permit any sand or debris of any kind to enter the existing ditches, streams, storm sewers or culverts.
The rules and regulations of all work shall comply with Part 301 (Inland Lakes and Streams Act), Part 91 (Soil Erosion and Sedimentation Control Act), and Part 303 Wetlands Protection Act) of Michigan Public Act 451, 1994.

12. SOIL EROSION AND SEDIMENTATION CONTROL (Part 91, P.A. No. 451)

All work shall comply with the rules and regulations of the Michigan Soil Erosion and Sedimentation Control Act (Part 91, Michigan Public Act No. 451, 1994). All SESC control measures shall be in place prior to excavating where required and shall be maintained until construction is complete.

The cost of the above requirements shall be included in the price of the major items of work.

13. DEWATERING

When dewatering of groundwater is required, the Contractor shall limit the dewatering operation to the minimum time and depth required for construction. The Contractor shall submit to the Owner a dewatering plan indicating how dewatering will be accomplished, along with how and where dewatering discharge will be directed and controlled. Dewatering flows shall not be directed immediately to any watercourse. All flow shall be directed to an “ecolobag” or Engineer approved equal sediment trap.

14. EXCESS DIRT

The Contractor shall remove all excess material resulting from construction and arrange for disposal at a suitable site. Excess material shall be the property of the Contractor and shall be disposed of properly by the Contractor.

15. EXISTING UTILITIES

The Contractor shall notify Miss Dig and Utility Companies for utility locations before starting any excavation or drilling activities. Contractor shall cooperate with the utility companies in any repair, relocation or other work to be performed on the utility caused by the construction of the contract.

The Contractor shall be fully responsible for locating, protecting, and repairing all existing public and private utilities. Items in this category shall include, but are not limited to; water mains and services, gas mains and services, storm sewers and catch basins, telephone, electric, cable TV wire, etc. Such work shall be considered incidental to the major items of construction.

A. Contractor shall coordinate access to private property with the Owner or Engineer to locate all private utilities.

B. Sewers (Storm, Culverts, and Under drains)

The Owner provides storm sewer service in the project area.
C. **Sanitary Sewer**

The Owner provides sanitary sewer service in the project area.

D. **Water Main**

The Owner provides water service in the project area.

E. **Cable**

Comcast and/or Charter Communications provides cable service in the project area.

F. **Electric Services**

Consumers Energy operates the electrical system in the project area.

G. **Gas**

Consumers Energy provides natural gas service in the project area.

H. **Telephone**

AT&T Michigan provides telephone service in the project area.

I. **Miss Dig**

The Contractor shall contact "MISS DIG" not less than 72 hours before starting construction for assistance in locating utilities or for any work to be done on utilities. The toll free phone number is (800) 482-7171.

16. **PROTECTION OF UTILITIES**

The Contractor shall furnish, install, use, and maintain adequate sheeting, shoring, bracing, and stabilization methods required to insure the integrity of existing underground utilities both during and after completion of construction. When necessary, the Contractor shall shore and brace existing utility poles which interfere with construction.

The Contractor shall be responsible for repairing all cracks, leaks, breaks, and defects in the utilities during the standard contract guarantee period of two years after acceptance of construction, at no additional cost either to the project owner or the owner of the utility.

Should service provided by public utilities be interrupted by the Contractor, the Contractor shall be responsible for returning all public utilities to normal working order.
Additional underground utilities or structures may be encountered. No additional payment will be made due to unknown or inaccurately located utilities.

The Contractor shall notify Miss Dig and Utility Companies for utility locations before starting any earth moving operations.

The Contractor shall coordinate daily construction activities with that of utility companies which may be relocating some of their facilities as required by the project. No claim for additional compensation will be allowed based on delays caused by utility relocations.

Cost for complying with this specification shall be included in major items of work in the proposal. Therefore, no additional payment for these items shall be made.

17. UTILITY POLES

When necessary, the Contractor shall shore and brace utility poles that interfere with construction. Shoring and bracing shall be such that sinking or excessive tilting does not take place. All relocation or removing and replacing of power poles, light poles and telephone poles shall be done in accordance with Utility Owners Standards and all expenses shall be paid for by the Contractor. All arrangements for relocations with the Utility Company Owners shall be done by the Contractor at least 72 hours prior to need for relocations.

18. TELEPHONE

An emergency telephone system (listing of number) shall be set up and given to the Engineer and Owner so that the Contractor may be immediately notified of any unsafe conditions or emergencies encountered during times that the Contractor is not working on the project.

The Contractor shall provide a local number and a local employee so that he may be contacted at any time (including weekends and holidays) 24 hours a day.

19. MATERIAL TESTING

The Owner reserves the right to sample and test any of the materials required for the proposed construction, either before or after delivery to the project and to reject any material represented by any sample which fails to comply with the minimum requirements specified.

The Contractor shall furnish all materials reasonably required for sample testing and analysis necessary for the testing of materials as required by these specifications.

The cost of the above testing shall be paid for by the Owner. If any pipe fails to meet the specified requirements, all pipe represented by the sample shall be
rejected unless the Contractor can demonstrate through additional tests, at his own expense, that the remainder of the pipe is satisfactory.

Contractor to contract for third party material density testing which shall be paid for under the Backfilling and Surface Restoration Pay Item.

20. COORDINATION

The Contractor shall coordinate construction with the Owner and Engineer. Contractor shall attend periodic coordination meetings scheduled by the Engineer as necessary.

21. RECORD PLANS

The Contractor shall maintain a set of record drawings throughout the project. The Contractor shall make the drawings available to the Owner and Engineer in a timely manner upon request. A set of record drawings shall be submitted to the Engineer at the completion of the project.

22. PAYMENT

Payment shall be made for the proposal items only. All the work specified above, in UNIT PRICES - MEASUREMENT AND PAYMENT, and/or indicated on the drawings shall be considered included in the unit prices shown on the proposal.

Work which, in the opinion of the Engineer or Owner, is considered incidental to or is required as a result of Contractor’s operations in performance of the project covered by designated work items will not be considered for additional payment.
UNIT PRICES - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes descriptions of the method of measurement and the basis of payment for Unit Price Work under this Contract.

B. Basis of Contract Payments:
   1. Final Contract Price shall be determined by actual quantities installed at unit prices stated in Contractor’s Bid.
   2. Owner shall determine actual as-built quantities.
   3. All work not included as a Bid item shall be considered incidental to construction and not paid for directly, except Work that would be considered additional Work due to unforeseen conditions.
   4. Unit price payments for individual items shall include everything necessary for such item to function as intended.
   5. Owner reserves the right to increase, decrease or eliminate any quantities for items listed in Contractor’s Bid or which become a part of the Contract Documents.
   6. All work shall be completed in accordance with the City of Kalamazoo Standard Specifications for Water Main and Service Installation 2019 and manufacturer’s specifications/recommendations.

C. Items included as incidental to Unit Prices for systems and appurtenances. Unless there is a specific pay item identified, the unit price payment shall include, but not be limited to:
   1. Clear, excavate, bedding, backfill, compaction, disposal of items for clearing and unsuitable or excess excavated materials.
   2. Temporary sheeting, bracing and shoring of excavations.
   3. Locating, support, protection, repair, connection or reconnection of existing pipelines and utilities.
   4. Cleanup and surface restoration.
   5. Water service repair.
   7. Removal of pipes, valves, structures and appurtenances located within the excavation limits.
   8. Support of utility poles and existing underground utilities as necessary.
   9. Remove, salvage, and replace street signs.
   10. Material certification and density/compaction testing.
   11. Owner will perform and pay for bacterial sampling of water main.

1.3 GENERAL CONDITIONS

A. Item No. 1 – Mobilization, (Maximum of 5% of Total Bid):
   1. Includes:
      a. Preparatory work and expenses incurred prior to beginning work onsite.
      b. Transport materials, personnel, and equipment to the job site.
      c. Establish temporary onsite construction facilities.
Unit Prices - Measurement and Payment
Water Main CIPP Lining – Stockbridge Ave. and Portage Creek
Page 2 of 4

d. Provide insurance, bonds, and other costs associated with the project in general and not included in other pay items.
e. All required submittals.

2. Unit of Measure:
  a. Lump Sum.
  b. Payment will be authorized after 25% of the contract amount is earned.

B. Item No. 2 – Excavation, Dig Boxes and Cut Water Main:
  1. Includes the following:
     a. Sawcut, remove (full depth) and dispose of existing bituminous, concrete, composite pavement materials, and aggregate base.
     b. Excavate access pits at locations depicted on the drawings to a minimum depth of one foot below the invert of the existing water main.
     c. 6-inches of clear stone shall be placed and maintained at the bottom of the access pits.
     d. Excavated materials shall be directly loaded into dump trucks and stockpiled at an offsite location for reuse.
     e. Provide and install two trench boxes (one in each access pit), each trench box shall be minimum 8-foot-wide by 15-foot-long, shall be large enough to allow for all work to be completed, and shall extend minimum one foot above grade.
     f. All pits shall be fully enclosed on all 4-sides, with all annular space filled with clear stone and systems shall meet OSHA approved standards for shoring.
     g. Cut and remove a section of the existing 8-inch diameter cast iron water main between the existing gate valves and bridge (within each pit) to facilitate access to the water main.
     h. Provide and install necessary appurtenances to prevent movement, thrusting, etc. of water main that will remain in service.
     i. Provide and maintain type III barricades and minimum 4-foot-tall temporary fence around both pits until backfilling is complete.
     j. Contractor to determine required surface material removal length and width based on proposed Means and Methods.
     k. Clean roadway and all impacted areas on an as needed basis to maintain a clean project area and minimize the potential for sediment transport to Portage Creek, the City’s storm sewer and/or private property; soil tracked onto roadways must be removed immediately.

  2. Unit of Measure: Each

C. Item No. 3 - Televising
  1. Includes the following:
     a. Televis the existing water main between the access pits to determine if proceeding with CIPP lining is feasible due to the types and locations of existing fittings.
     b. Televising equipment shall be clean and disinfected prior to use.
     c. Equipment that has been used to televis sewers will not be allowed.
     d. Provide video to City.

  2. Unit of Measure: Lump Sum

D. Item No. 4 – Seal Crack in Water Main and Install Expansion Joints
  1. Includes the following:
     a. Seal the crack in the existing water main to prevent the discharge of epoxy to Portage Creek during the CIPP lining process. See attached pictures.
b. Provide all fittings and hardware and install expansion joints in each pit, per manufacturer (Aqua-Pipe®) specifications/recommendations (see attached Technical Bulletin Volume 1 Number 2).

2. Unit of Measure: Lump Sum

E. Item No. 5 – CIPP Lining:
   1. Includes the following using an Aqua-Pipe® licensee:
      a. Thoroughly clean the water main and prepare it for lining using Aqua-Pipe® approved methods and materials.
      b. Once cleaned, televise water main and provide video to the City; and laser profile inside of water main to determine appropriate CIPP liner size. City records indicate the existing water main is 8-inch diameter cast iron.
      c. Using Aqua-Pipe® approved methods and materials, provide and install approximately 160 feet of Aqua-Pipe® cured-in-place-pipe (CIPP) that is NSF-61 Certified for potable water use.
      d. Televise water main once lined and provide video to the City.
      e. Flush and pressure test water main in accordance with ASTM F1216-16-8.3, the City of Kalamazoo Standard Specifications for Water Main and Service Installation 2019 and manufacturer’s specifications/recommendations.
      f. Protect water main and associated equipment from freezing temperatures until the water main is put into service.
      g. Provide lining report to City.
      h. No service connections are present in the project area.
      i. Temporary water by-pass systems or connections are not required.
      j. Act 399 permit is not required.
      k. Fire hydrants are located adjacent to the project area and may be used as a water source, provided that appropriate backflow preventers are used and opening/closing of hydrants is performed by or coordinated with the City.

2. Unit of Measure: Lump Sum

F. Item No. 6 - Recommissioning
   1. Includes the following:
      a. Reconnect, restrain, flush, pressure test and disinfect the CIPP lined water main in accordance with the City of Kalamazoo Standard Specifications for Water Main and Service Installation 2019 and manufacturer’s specifications/recommendations.
      b. Furnish, install and remove sampling taps.
      c. Provide all necessary pipe, fittings and hardware.
      d. Owner will perform and pay for bacterial sampling of water main.
      e. Additional pressure testing and disinfection shall be completed at the Contractor's expense until results are acceptable by the Owner.

2. Unit of Measure: Lump Sum
G. Item No. 7 – Backfill and Surface Restoration
   1. Includes the following:
      a. Remove trench boxes.
      b. Backfill and compact each pit using previously excavated soil.
      c. Provide, place and compact 24-inch thick MDOT Granular Material Cass III Sub-Base and 8-inch thick MDOT 21AA Aggregate Base.
      d. Furnish and place HMA base, leveling and top course mixture to match existing roadway; assumed maximum thickness is 6-inches.

   2. Unit of Measure: Each

H. Item No. 8 – Dewatering
   1. Includes the following, if required:
      a. Provide construction dewatering to facilitate all work provided herein, including pumps, hoses, labor, additional excavation, sumps, etc.
      b. Dewatering fluids shall be discharged to the sanitary sewer at no cost to the Contractor.
      c. Contractor shall coordinate discharge to the sanitary sewer with the City.

   2. Unit of Measure: Lump Sum

I. Item No. 9 – Polyethylene Encasement:
   1. Includes the following:
      a. Provide and install polyethylene encasement of water main where groundwater is encountered or as directed by the Owner.

   2. Unit of measure: Linear Feet as measured along the centerline of the water main.

END OF SECTION
Figure 1: Project Overview

Water Main CIPP Lining – Stockbridge Ave. and Portage Creek
Eastern Portion of Exposed Water Main – Creek is Approximately Two Feet Deep with Gravel Bottom.

Central Portion of Exposed Water Main – Creek is Approximately Two Feet Deep with Gravel Bottom.

Western Portion of Exposed Water Main – Creek is Approximately Two Feet Deep with Gravel Bottom.
Lateral Crack on Bottom of Water Main – Crack Generally Runs the Length of the Middle Stick of Pipe. Other Cracks are Likely Present. Seal All Visual Cracks to Prevent Release of Epoxy to Portage Creek.
**TECHNICAL BULLETIN**

**LINING PIPES EXPOSED TO HIGH TEMPERATURE VARIATIONS**

On occasion, it is necessary to line an existing water main exposed to high temperature variations. For example, an exposed non insulated steel pipe which is attached under a bridge. The following solution is used to provide adequate space to allow for longitudinal movement due to thermal expansion and contraction.

**EXPLANATION**

Aqua-Pipe® has been designed to have high bonding capacity. In climates where high temperature variations can occur, the thermal expansion and contraction differences between the exposed pipe and the liner may produce friction forces strong enough to break the bond between the existing pipe and the liner. When this is unavoidable, the insertion of a small piece of new pipe incorporating one or several gaps will allow both the existing pipe and the Aqua-Pipe® liner to expand and contract separately thus avoiding any future joint dislocations or failures. This solution can also be used to solve other problems, such as in the case when the exposed end of the existing pipe located in the access pit will not produce a proper connection to the new pipe and/or fittings. The solution can be used whether the existing pipe is made of cast or ductile iron, asbestos cement or steel.

**HIGHLIGHTS**

The procedure is required:

- When lining an exposed pipe undergoing high temperature variations;
- To allow separate pipe and liner movement when confronted with thermal expansion and contraction;
- After proper thermal expansion and contraction calculations have been carried out.
Reference Standards
There is no reference standard required for this operation. The drawing below shows a typical configuration. This construction procedure has been successfully used on many occasions. Note that thermal expansion calculations need to be carried out when designing this type of installation. This operation may not be the proper solution if service connections are present in the pipe section to be lined. Contact Sanexen’s Engineering Department for any assistance.

Installation Procedure
The installation procedure is the same as a typical Aqua-Pipe® installation with the following exception: a segment of new pipe, such as ductile iron or C905 PVC, is inserted at the end of the existing pipe located in the access pit. This new segment also incorporates a predetermined gap to allow possible movement. The pipe section is then lined using Aqua-Pipe®. The exposed liner located at this gap is protected during backfilling by a loose coupling. The new piece of pipe should be at least 20 inches in length. The gap must be selected according to the ambient temperature during installation.
CITY OF KALAMAZOO
DEPARTMENT OF PUBLIC SERVICES

WATER RESOURCES DIVISION

THE CITY OF

PUBLIC SERVICES DEPARTMENT
WATER RESOURCES DIVISION
415 STOCKBRIDGE AVE.
KALAMAZOO, MICHIGAN 49001-2898
PHONE 269-337-8601
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Standard Specifications for
Water Main and Service Installation
2019

(1)
PART 1 GENERAL

1.01 SCOPE

A. This Section includes furnishing and installing water main systems.

B. Reconnection of proposed water main and/or water service connections to existing water main and/or water service constructions shall be in conformance with requirements of this Section.

C. This Section shall include furnishing, excavating, installing, testing, disinfecting, and backfilling all required water main pipe, water service pipes, water main appurtenances, water service, and other work incidental to the water main and/or water service installation unless specifically included under other Items.

D. This work shall also consist of providing as-constructed plans of the completed work.

1.02 SUBMITTALS

A. Submittals shall be the responsibility of the Contractor:

1. Shop Drawings for Review:
   a. Manufacturer’s Shop Drawings indicating physical dimensions, and joint details for each size, type, and class of pipe, fittings and specials furnished for the project.

2. Information for the Record:
   a. Manufacturer’s certification indicating that the pipe and joints meet specifications for each production run for each size, type, and class of pipe furnished. The Engineer may request test results to verify certification. Certification documents shall be according to the Source Quality Control of this Section.
   b. Manufacturer’s installation instructions.
   c. The laboratory shall submit test certifications of pipe ordered tested under "Field Quality Control," of this Section.

3. Engineer may request additional Shop Drawings or Information for the Record as required.

4. Requests for approved equals must be submitted to the Engineer for review a minimum of two (2) weeks prior to bid.

1.03 AS CONSTRUCTED RECORD

A. During construction the contractor shall be required to keep current a set of “as constructed” drawings. Before final payment shall be made, the contractor shall submit for approval to the City of Kalamazoo the complete set of as constructed drawings. Each set of “as constructed” drawings shall be labeled “As Constructed”, dated, and contain at a minimum the following information (additional information may be required by the City of Kalamazoo):

1. Note distance between all fittings (Center to Center of Fittings).
2. Note Hydrant to valve, valve to main distances (Center to Center of Fittings).
3. Note the type of bend used, (# of degrees), and the Direction of Bend: (Up or down), (N-S-E-W).
4. Details and profiles of special field situations that relate to the water distribution system shall be included.
5. Dimensional information locating each water distribution system component to real world features, such as property lines, right-of-way lines, and centerlines of roads.
6. On all cul-de-sacs with no center island, measure bends and hydrants to center of cul-de-sac. On all cul-de-sacs with a center island, measure bends and hydrants to center of the roadway.
7. When fittings/hydrants are installed as proposed, please circle the proposed listing.
8. When installing 12 inch or larger valves, (Butterfly Valves), indicate which side of the main the operating nut is on.
9. The contractor shall complete the service card information including a sketch of the water service installation with dimensions and location of the curb box.

1.04 CONTRACT WORK

A. Prior to the start of construction the City of Kalamazoo shall be given the opportunity to provide construction services for any and all portions of the water main construction. The City of Kalamazoo shall submit an estimated cost to perform the work or will issue a bill based on time and material costs. A separate contract with the City of Kalamazoo will be needed for work to be performed by the City of Kalamazoo.

1. City of Kalamazoo shall perform all water main taps in the water system, unless otherwise directed by the Engineer.

B. The City of Kalamazoo Department of Public Services must approve the Contractor who will perform water main installation. A reference list of at least five (5) Type 1 supply water main projects completed by the Contractor shall be submitted in support of the Contractor’s qualifications. The Department of Public Services maintains a list of Contractors approved for water main installation and can be contacted to receive a current copy of that list.

C. The Contractor (when hired by the City) or Developer (when the Contractor is hired to perform work by the Developer), shall provide a written statement of warranty (Warranty Bond) for a period of 2 years from the date of final acceptance for water main work or after meter is installed for water service work. Warranty work shall cover any necessary cost to repair water main or appurtenance leaks and water main or appurtenance leak damage at no cost to the City of Kalamazoo. Final acceptance on a water service will only be given once the water meter is installed.
PART 2 PRODUCTS

All Products shall be supplied new from the manufacturer and certified new from the supplier. No second hand or salvaged material shall be allowed. All products shall be “Made in the U.S.A.” unless otherwise specified in this section.

2.01 DUCTILE IRON

A. Ductile Iron (DI) Pipe Specifications:

1. Ductile Iron Pipe shall be manufactured in accordance with American National Standards Institute (ANSI) and American Water Works Association (AWWA) ANSI/AWWA C150/A21.50 and C151/A21.51. Pipe shall be minimum thickness Class 52 pipe. Flanged pipe shall be manufactured in accordance with ANSI/AWWA C115/A21.15. Pipe through concrete floors or foundations shall be minimum thickness Class 53 pipe.

   a. Water pipe must be lined with a standard thickness cement mortar lining sealed with a bituminous seal coat in accordance with ANSI/AWWA C104/A21.4, unless otherwise required. The outside of the pipe must be coated with the standard bituminous seal and each length of pipe must be marked with the following information:

      1) Metal thickness class.
      2) Net weight of the pipe without lining.
      3) The nominal size.
      4) The manufacturer’s identifying symbol.

   b. Underground pipe shall be push on or mechanical joints and above ground pipe shall be flanged joints with gaskets meeting the requirements of ANSI/AWWA C111/A21.11. Nitrile gaskets shall be provided as indicated on the plans. Each joint shall contain serrated silicon bronze electrical continuity wedges as directed by the Engineer or authorized representative. 4 to 6 inch pipe shall use 2 wedges, 8 to 12 inch pipe shall use 3 wedges, and 16 inch and above shall use 4 wedges.

B. Restrained Joints

1. Restrained joints shall meet the requirements of ANSI/AWWA C111/A21.11, and AWWA/ANSI C110/A21.10 or ANSI/AWWA C153/A21.53.

2. Mechanical restrained joints shall be EBAA Iron Megalug series 1100, Romac Romagrip, or approved equal.

   a. Restraint devices for nominal pipe sizes 4 inch through 54 inch shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10.

   b. The devices shall have a working pressure rating of 350 psi for 3-16 inch, 250 psi for 18-48 inch and 200 psi for the 54 inch size. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes.

   c. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.

   d. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN.
e. Three (3) test bars shall be incrementally poured per production shift as per Underwriter’s Laboratory (U.L.) specifications and ASTM A536. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.

f. Chemical and nodularity tests shall be performed as recommended by the Ductile Iron Society, on a per ladle basis.

g. All components shall be manufacture and assembled in the United States.

h. Coating for restraint devices shall consist of the following:
   1) All wedge assemblies and related parts shall be processed through a phosphate wash, rinse and drying operation prior to coating application. The coating shall consist of a minimum of two coats of liquid thermoset epoxy coating with heat cure to follow each coat.
   2) All casting bodies shall be surface pretreated with a phosphate wash, rinse and sealer before drying. The coating shall be electrostatically applied and heat cured. The coating shall be a polyester based powder to provide corrosion, impact and UV resistance.
   3) The coating system shall be MEGA-BOND by EBAA Iron, Inc. or approved equal.

3. Push on restrained joint shall be field locking gasket as manufactured by US Pipe, Mueller Co., McWane, American USA, or approved equal. Field locking gasket shall match appropriately to the manufacturer of the pipe used.

4. Use of threaded rods or thrust blocks as a restrained joint shall not be permitted, unless approved by the Engineer.

C. Ductile Iron Pipe Fittings

1. Fittings, plugs, and gaskets must meet the requirements of ANSI/AWWA C111/A21.11, and AWWA/ANSI C110/A21.10 or ANSI/AWWA C153/A21.53. Cement mortar linings for fittings must meet the requirements of ANSI/AWWA C104/A21.4.

2. Mechanical joints shall be EBAA Iron Megalug series 1100, Romac Romagrip, or approved equal.

D. Ductile Iron Valves

1. All underground valves in sizes from 4 inches to 10 inches shall be reduced wall, resilient-seated gate vales for water supply service meeting the requirements of AWWA C 515. Valves shall be American Flow Control Series 2500, Clow model 2638, or EJ Flowmaster Series resilient seated gate valve, Mechanical joint with rubber gaskets (per AWWA/ANSI C 111/A21.11), ductile iron body, stainless steel stem, mechanical joint restraint, and ¾ inch tee head bolts. Valves shall open right (clockwise) and be equipped with standard AWWA operating nut. Nut shall be color coded red.
   a. In lieu of a mechanical joint restraint, American Flow Control Series 2500 valves may be equipped with ALPHA joints.

2. All underground valves 12 inches and larger shall be rubber-seated butterfly valves meeting the requirements of AWWA C 504. Valves shall be Pratt Groundhog Butterfly Valves, by Henry Pratt Company, Clow, M&H, or Kennedy model 4500, mechanical joint with rubber gaskets (per AWWA/ANSI C 111/A21.11), ductile iron body, mechanical joint restraint, and ¾ inch tee head bolts. Valves shall open right...
(clockwise) and be equipped with standard AWWA operating nut. Nut shall be color coded red.

3. All above ground or in pits/vaults valves between 3 inches and 10 inches shall be rubber seated gate valves meeting the requirements of AWWA C515. Valves shall be American Flow Control Series 2500 Resilient Wedge Gate Valve, Clow model 2638, EJ Flowmaster Series, or approved equal with flanged joint with rubber gaskets (per AWWA/ANSI C 111/A21.11), ductile iron body, stainless steel stem, and be equipped with a hand wheel to operate.

4. All above ground or in pits/vaults valves 12 inches and larger shall be rubber seated butterfly valves meeting the requirements of AWWA C504. Valves shall be by Henry Pratt Company, Clow, M&H, or Kennedy, flanged joint with rubber gaskets (per AWWA/ANSI C 111/A21.11), ductile iron body, and ¾ inch stainless steel bolts, washers and nuts. Valves shall open right (clockwise) and be equipped with standard wheel to operate.

5. All underground valves in sizes from 4 inches to 16 inches used in combination with a tapping saddle shall be reduced wall, resilient-seated gate valves for water supply service meeting the requirements of AWWA C 515. Valves shall be American Flow Control Series 2500, Clow model 2638, EJ Flowmaster Series with flanged and mechanical joint ends with rubber gaskets (per AWWA/ANSI C 111/A21.11), ductile iron body, stainless steel stem, mechanical joint restraint, and ¾ inch tee head bolts or approved equal. Valves shall open right (clockwise) and be equipped with standard AWWA operating nut. Nut shall be color coded red.

2.02 HYDRANTS

A. All fire hydrants shall be American Flow Control or EJ and shall meet the requirements of AWWA C502. Hydrants shall be provided as complete units including hydrant, hydrant marker, pipe, pipe fittings and valve meeting section 2.01, 2.02 and 2.03 requirements. Hydrants shall be supplied for a bury depth of 5.5 feet. The hydrant barrel shall be painted safety yellow by the manufacturer. Hydrant caps and operating nut shall be painted John Deere green by the manufacturer.


2. EJ hydrants shall be WaterMaster Model 5BR250 with snow barrel.

B. Hydrants shall have two 2.5 inch national standard hose connections, 7.5 threads per inch, OD of threads 3 1/16 inch and one 5 inch integral “STORZ” type nozzle connection. Hose nozzle cap nut and the weather shield hydrant operating nut shall be square 15/16 inch at bottom of nut tapered to 13/16 inch at top (Waterous reference #19). The hydrant mechanism shall be on a non-rising stem opening clockwise.

C. Hydrants shall be equipped drip valve, tapped for plug. The draining system shall be bronze. Draining system shall be positively activated by the main operating rod.

D. Hydrants shall have a 6 inch shoe with mechanical joint connections in conformance to ANSI/AWWA C115/21.11.

2.03 FIRE HYDRANT MARKER

A. The fire hydrant sign shall be installed on a galvanized 2 pound sign post.

B. The fire hydrant sign shall be aluminum 8 inch x 18 inch (MDOT type III-A) with hydrant symbol and down arrow of a reflective material.
C. Fire hydrant mounted marker whips shall be 4 feet x 3/8 inch solid pultrusion fiberglass shaft, with seven (7) 6 inch bands of E.G. reflective sheeting of alternating lime green and red color. Marker shall have a single solid stainless steel spring with aluminum threaded insert, and use Zinc coated bolt & mounting hardware.

2.04 TAPPING SLEEVES

A. Tapping sleeves for size on size taps or 12 inch and larger sleeves:
   1. Model shall be American Flow Control series 2800-C, Tyler Union or approved equal.
   2. Sleeves shall be of construction meeting ASTM A536. Side flange seals shall be O-ring type of round cross-sectional shape.
   3. All sleeves to include the end joint accessories and split glands necessary to assemble sleeve to pipe.
   4. Sleeve shall be coated with asphaltic varnish in compliance with NSF-61.

B. Tapping sleeves smaller than 12 inch which are not size on size:
   1. Model shall be Smith-Blair series 665, Romac style SST III, Ford style FTSS, or approved equal.
   2. Sleeves shall be 18-8 type 304 Stainless Steel in accordance with AWWA C223.
   3. Bolts, nuts, and washers shall be 18-8 Type 304 Stainless Steel. Nuts shall be heavy hex, and coated to prevent galling.

C. All gaskets shall be Nitrile in compliance with NSF-61.

D. No special tools shall be required other than standard socket wrench.

E. Flange end pilot dimensions to be in compliance with MSS-Sp-60.

2.05 AIR RELEASE VALVES

A. Air release valves shall be Cla-Val series 34 air release valve, series 36 combination air valve, or approved equal. Air release valves shall be sized in accordance with the manufacturer’s recommendations.

B. Air vent screens shall be black PVC, with NPT threaded to match the size of the connection pipe. Screen shall be one-piece 304 Stainless, mesh size 100.

2.06 REPAIR SLEEVES

A. All repair sleeves shall be certified NSF/ANSI 61-G and 372, and be in accordance with AWWA C230. Sleeves without service tap shall be Smith – Blair model 226, PowerSeal model 3121, or approved equal. Sleeves with service tap shall be Smith – Blair model 238, PowerSeal model 3131, or approved equal.

B. Sleeves shall use Type 304 Stainless Steel hardware in accordance with ASTM A193/A194. Sleeves shall have conductivity feature.

C. The repair sleeves shall be of the full circle type designed to repair a fully broken (completely separated) pipe and shall be rated for a working pressure of not less than 150 psi. Repair sleeves 12 inches or under in size will have a single joint.

D. The length of the sleeves shall not be less than 7 ½ inches. Sleeves shall have no less than three (3) guide bolts on the minimum specified length. Sleeves of longer length shall have an additional guide bolt for every two (2) inches of additional band length.

E. Each sleeve shall consist of a sealing gasket, a non-magnetic stainless steel band with contact buttons protruding through specially prepared gaskets, clamp lugs, bolts and nuts.
F. No welding will be permitted in the manufacture of stainless steel repair sleeves except for the addition of the tap to repair sleeve.

G. The lugs shall not be deformed in the process of attachments to the band during assembly or during removal in the field.

H. The gasket shall be natural rubber, nitrile or approved equal and shall be of the tapered overlap design to give a pressure tight fit on the pipe surface to form a leak tight, permanent seal when the repair sleeve is installed. The gasket shall have a grid pattern to conform pipe surface irregularities.

I. The gasket shall have a stainless steel bridge plate flush mounted and securely bonded into the gasket during the molding of the gasket.

2.07 POLYETHYLENE ENCASEMENT

A. Polyethylene encasement must be manufactured using 8 mil thick virgin polyethylene in accordance with ANSI/AWWA C105/A21.10. Provide the tube size recommended by the manufacturer to protect the pipe and fitting sizes. Provide adhesive tape for the polyethylene tube as recommended by the manufacturer. Tape for repairing damage to the polyethylene must have a life expectancy equal to or greater than the life expectancy of the polyethylene.

2.08 STEEL BLOW-OFF PIPE

A. Steel pipe shall be hot dipped galvanized meeting the requirements of ASTM A53.

2.09 WATER SERVICES AND APPURTENANCES

A. Copper Service Lines

1. Copper pipe shall be used for service lines which are 2-inches and 1 ¼-inch. All copper services shall conform to AWWA C800. Water service pipe shall be copper meeting the requirements of ASTM B88, type K.

2. All appurtenances on copper service lines shall be flare copper connections. Other connections may be used in lieu of flare copper connections if approved by the Engineer prior to installation.

B. All water service appurtenances shall meet the requirements of AWWA C800 and be from The Ford Meter Box Company, Inc., A.Y. McDonald Mfg. Co., or as approved by the Engineer. All water service appurtenances for 2 inch and smaller are as follows:

1. Curb Stops 1 ¾ inch – Ford B22-555-NL or AY McDonald 76100 NL (1 ¾ inch)
2. Curb Stops 2 inch – Ford B11-777-NL
3. Curb Stops ¾ inch (for use when reducing a 1 ¼ inch street service to ¾ inch yard service) – Ford B21-555-NL, C18-35-NL, and C28-33-NL
4. Curb Stops ¾ inch (when using ¾ inch street service) – Ford B22-333-NL or AY McDonald 76100 NL (3/4 inch)
5. Corporation Stops 1 ¾ inch – Ford FB600-45-NL or AY McDonald 74701B NL (1 x 1 ¾ inch)
6. Corporation Stops ¾ inch – FB600-3-NL or AY McDonald 74701B NL (3/4 inch)
7. Water meters – All water meters shall be supplied and installed by the City of Kalamazoo.
8. Service Saddles 1 inch– Smith-Blair 311, Romac 101U, or Ford F101
9. Service Saddles 2 inch– Smith-Blair 313, Romac 202U, or Ford F202
10. Couplings – Ford C22-55-NL or AY McDonald 74758 NL for 1 ¼ inch and Ford C44-77-NL for 2 inch.

11. Brass Fittings – All brass fittings such as tees, elbows, caps, nipples and similar items shall be manufactured in the U.S.A.

C. All water service appurtenances larger than 2 inch shall be in accordance with section 2.01.

D. All multiple meter settings with more than two meters excluding the fire meter shall use a fabricated meter manifold. Fabricated manifold shall be manufactured as follows:
   1. Water manifold shall be made using Stainless Steel pipe or Schedule 40 Galvanized pipe per section 2.08.
   2. Inlet and outlets shall be threaded or welded flange. End cap shall be welded on.
   3. After manifold fabrication is complete all interior surfaces shall be sandblasted and Epoxy coated with Carboline Carboguard. Spray exterior of all welds with Cold Galvanizing compound.

E. Conduit used as sleeves shall be schedule 40 PVC or approved by Engineer.

2.10 METER SETTINGS

A. Interior meter settings shall use components from the following manufactures.
   1. 1 inch meter – Ford KV23-454W-NL Angle Valve, Ford C38-44-2-625-NL, Brass Nipple, Apollo 77CLF-105-01 Ball Valve or approved equal
   2. 1½ inch and 2 inch meter – Ford FV13-777W-NL Angle Valve, Ford CF35-66NL (1 ½ inch), Ford CF 35-67-NL (2 inch), Brass Nipple, Watts VFFBV-3C Ball valve or approved equal.
   3. 3 inch and larger rubber seated gate valves meeting the requirements of AWWA C515. Valves shall be American Series 2500 Resilient Wedge Gate Valve with hand wheel by American or equal flanged joint with rubber gaskets (per AWWA/ANSI C111/A21.11), and be equipped with a hand wheel to operate, Hymax 874-56-03008812 (3 inch), 874-56-04010812 (4 inch), 874-56-06016312 (6 inch), or 874-56-08021712 (8 inch) Flange Adaptor, and flange to plain end ductile spool piece.

B. Exterior meter settings shall use components from the following manufactures.
   1. 1 inch meter – Ford V84-22-55-NL Copper setter
   2. 1 ½ inch and 2 inch meter – Watts LFFBV-3C Ball Valve or approved equal. Ford CF-77-1-937-NL Meter Flange, Ford C28-77-NL Coupler, and Brass Nipple.
   3. 3 inch and larger – All above ground or in pits/vaults valves 3 inches and larger shall be rubber seated gate valves meeting the requirements of AWWA C515. Valves shall be American Series 2500 Resilient Wedge Gate Valve with hand wheel by American or equal flanged joint with rubber gaskets (per AWWA/ANSI C111/A21.11), and be equipped with a hand wheel to operate, Hymax 874-56-03008812 (3 inch), 874-56-04010812 (4 inch), 874-56-06016312 (6 inch), or 874-56-08021712 (8 inch) Flange Adaptor, and flange to plain end ductile spool piece.

2.11 FIRE SERVICE APPURTENANCES

A. All fire service appurtenances shall meet the requirements of AWWA C800 and be from the following manufacturers.
1. Double Check Valve Detector Assembly – Zurn Wilkins Model 350DA or 350ADA with meter setting, AMES Colt LFC300 with meter setting, or approved equal. The City of Kalamazoo will supply the 5/8 inch water meter.

2. Reduced Pressure Zone Assembly – When using a RPZ in lieu of double check valve for a backflow device, a Zurn Wilkins Model 375DA or 375ADA with meter setting, AMES Colt LFC500 with meter setting, or approved equal shall be required. The City of Kalamazoo will supply the 5/8 inch water meter.

3. Valves – Mueller R-2360-6 Outside Screw and Yoke (O.S.&Y.) with sample tap or approved equal. Sample tap shall have a 4 ½ inch brass nipple, brass ball valve, and brass plug meeting NSF/ANSI Standard 61 requirements.

2.12 METER BOXES AND VAULTS

A. All Meter Boxes, Vaults and components shall be from the following manufactures.

1. Box – Hancor MP NL1 24 0008 - 24 inch x 48 inch or ADS24X48MP 24 inchx48 inch white corrugated meter pit or Engineer approved equal.

2. Vault – Precast concrete meter vault shall have a 3 inch minimum wall thickness and size shall be depended on number of meters and meter size. The wall shall have steps that are equally spaced 12 inches apart. Meter vault shop drawings shall be submitted to the Engineer and approved for each installation.

3. Meter Pit Cover - Ford MC-24-MB-T with an inner lid, Vestal 32-052, 32-055, 32-104, and 32-046 or approved equal.

4. Meter Vault Cover – Ford MC-24HH-MB-T

2.13 VALVE BOXES

A. Curb Stop Boxes for 1 ¼ inch Service – Bingham & Taylor Fig. No. 4901, 94-F with 2 ½” New Style Flush Fit Cover or approved equal. Cover shall be inscribed with the word “water”.

B. Gate Valve Box or 2 inch Service Box – the valve box shall be of adjustable length screw type. The valve box shall be a malleable iron casting conforming to Subsection 908.03 of the 2012 Michigan Department of Transportation (MDOT) Standard Specifications for Construction. This valve box shall either be a two or three piece screw type and the cover shall be inscribed with the word “water.” Valve box 8550 Series (two piece) or 8560 Series (three piece) manufactured by EJ, 5664-S manufactured by Bingham & Taylor, or approved equal.

2.14 BACKFILL MATERIALS

A. Use materials meeting the requirements of section 902 of the 2012 Michigan Department of Transportation Standard Specifications for Construction.
PART 3 EXECUTION

3.01 CONSTRUCTION

A. The plans show the locations of existing utilities in accordance with available data. If the work requires precise information on the location of existing utilities, the Contractor will expose utilities shown on the plans to determine the actual locations.

Do not disturb or cut into existing in-service water mains. If the operation of valves in existing water mains is required, notify the City of Kalamazoo a minimum of 3 working days in advance. Coordinate scheduling of water main connections with the City of Kalamazoo. Secure the Engineer’s or authorized representative’s approval of the schedule before beginning the work.

The City of Kalamazoo will open or close in service valves and provide on-site inspections for all water main and water service installations. The City of Kalamazoo will perform this work for an estimated time and material charge. The cost of opening and closing valves and on-site inspection will need a separate contract with the City of Kalamazoo prior to start of work. This does not apply to work being contracted by the City of Kalamazoo.

Minimize the out of service time for existing water mains. Make connections at night, on Sundays, or on holidays, as conditions require or as approved by the City of Kalamazoo. Minimize interference with the water supply if abandoning existing water mains and incorporating new water mains into the water system.

3.02 TRENCH EXCAVATION

A. Excavate water main trenches to the lines and grades shown on the plans in accordance with modifications approved by the Engineer, or authorized representative, or to meet or bypass existing utility structures. Excavate trenches to the depths shown on the plans to provide 5 feet of cover from top of water main to the final grade. Excavate trenches to the widths shown on Michigan Department of Transportation Standard Plan R-83 Series.

B. Excavate the bottom of the trench to the required grade to allow 6 inches of bedding for the pipe. Do not block under the pipe.

C. Maintain trenches for water mains free of ground or surface water by pumping or as otherwise approved by the Engineer or authorized representative.

D. Install, and later remove, temporary timber bracing, as required to prevent movement or damage to new or existing water mains or adjacent utilities.

E. During backfilling, carefully remove supports for sheeted and braced excavations to prevent earth banks or adjacent streets from collapsing.

F. The Contractor may leave sheeting and bracing in place during backfilling and remove after completing backfilling operations. The Contractor may leave sheeting and bracing in place, if approved by the Engineer and the Contractor cuts it off 5 feet below the ground surface.

3.03 DISPOSAL

A. Dispose of waste material as specified in section 205 of the 2012 Michigan Department of Transportation Standard Specifications for Construction.
3.04 LAYING OF THE PIPE

A. Install the pipe joint restraint system in accordance with the manufacturer's recommendations, or as directed by the Engineer. Assemble the pipe in the trench. If deflections at joints are required by changes in grade, alignment, or to plumb valve stems, ensure deflections of bell and spigot joints and mechanical fitting joints do not exceed three-quarters of the maximum deflection recommended by the joint manufacturer or that allowed by AWWA C600, whichever is less. Do not store or leave tools or other objects in the pipe.

B. Provide restrained joints as indicated on the plans. No tie rods or thrust blocks shall be allowed unless approved by the Engineer or authorized representative.

C. Proper actuation of the gripping wedges of the mechanical joint restraint shall be ensured with torque limiting twist off nuts.

D. The Contractor shall provide a written statement of warranty (Warranty Bond) for a period of 2 years from the date of final acceptance (after meter is installed). Warranty work shall cover any necessary cost to repair water main or appurtenance leaks and water main or appurtenance leak damage at no cost to the City of Kalamazoo. Final acceptance will only be given once the water service meter is installed.

E. Pipe shall be laid with bell ends facing the direction of laying, unless otherwise directed by the Engineer or authorized representative. When pipe is laid on a grade of 10 percent or greater, the laying shall start at the bottom and proceed upward with the bell ends of the pipe upgrade.

F. Install silicon bronze wedges between all push-on joint pipes to allow for underground location and thawing of pipeline. 4 to 6 inch pipe shall use 2 wedges, 8 to 12 inch pipe shall use 3 wedges, and 16 inch and above shall use 4 wedges at each pipe joint.

G. Pipe shall be restrained in accordance with Table 3.1.
### Table 3.1 Pipe Thrust Restraint Table

**NON-POLYWRAPPED PIPE**

<table>
<thead>
<tr>
<th>Pipe Size (Inches)</th>
<th>90° Bend</th>
<th>45° Bend</th>
<th>22.5° Bend</th>
<th>11.25° Bend</th>
<th>Tee*</th>
<th>Reducer (One Size)</th>
<th>Reducer (Two Sizes)</th>
<th>Dead End</th>
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**POLYWRAPPED PIPE**

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* Length of restraint for branch; use the size of the branch
Consult Engineer for scenarios not included in table.

### 3.05 ABANDONING WATER MAINS

A. Remove and dispose of abandoned pipe, gate boxes, or other appurtenances, as necessary for placement of a new water main at no additional cost to the City of Kalamazoo. Remove portions of gate boxes to at least 3 feet below the pavement surface under the road, and to at least 12 inches below the planned grade outside the road. If the Engineer determines abandoned mains may remain in place, cap the end of pipe with cap and megalug or as directed by the Engineer or authorized representative. If shown on the plans or directed by the Engineer or authorized representative, fill abandoned water mains with non-structural flowable fill.

### 3.06 VALVES

A. Set and join valves to the water mains as required for cleaning, laying, and jointing the required type of pipe, as shown on the plans. Install valves as required by the contract, or
as approved by the Engineer. Place the valve stems plumb. Install valves to not bear on the pipe. Install anchor coupling with valves installed on tees or crosses.

B. When installing 12 inch and larger valves (Butterfly Valves), the operating nut shall be located on the side of the valve furthest from the centerline of the roadway, unless otherwise directed by the Engineer.

3.07 LIVE TAPS TO IN SERVICE WATER MAINS

A. Prior to tapping of the main contractor shall disinfect all pipe, appurtenances, tapping machine with chlorinated water.

B. Contractor shall install all necessary tapping appurtenances according to manufacturer’s recommendation.

C. Contractor shall use equipment which allows the tapping machine to rinse out metal shavings and tap water main per manufacturer’s recommendations. No tap 4 inches or larger shall be allowed within 4 feet from any joint, fitting, or exiting tap regardless of location of tap. 1 ¼ inch taps located within 10 feet of previous tap shall be offset 15 degrees.

D. Once tapping is complete Contractor shall disinfect all exposed water main and appurtenances with chlorinated water.

3.08 VALVE BOXES.

A. Provide valve boxes that do not transmit shock or stress to the valve. Place valve boxes plumb over the operating nut of the valve, with the box cover flush with the pavement, or as approved by the Engineer or authorized representative. Provide firm support for valve boxes.

B. Valve boxes shall be installed, centered and plumbed over the operating nut of the gate valve. The area around the valve box shall be back-filled with Granular Material Class II placed in layers not to exceed 12 inches, and thoroughly compacted to the required density. The Contractor shall take due care to prevent the box from shifting during backfilling operations. The tops of the valve boxes shall be flush with the established pavement or ground surface.

3.09 ADJUSTING OR RECONSTRUCTING WATER SHUT OFFS OR VALVE BOXES

A. Adjust and reconstruct water shutoffs or valve boxes to the final grade or as approved by the Engineer or authorized representative. Replace shutoff or gate box materials damaged during adjustment or reconstruction, as determined by the Engineer, or authorized representative, at no additional cost to the City of Kalamazoo.

3.10 WATER SERVICES

A. Water Services shall not be connected to the water main until approved by the Engineer or authorized representative.

1. The standard size for all new services shall be 1 ¼ inch. The property owner/developer may request a larger size if needed.

2. ¼ inch service materials may only be used when performing repairs or partial replacements of an existing 3 inch service, or when replacing the yard service of a ¾ inch service. When replacing a complete street side service of a ¾ inch service, a new 1 ¼ inch tap will be completed, new 1 ¼ inch street service line installed, and reduced down at the curb shut off per section 2.09.B.3.

B. Tap water main per section 3.07.

C. When more than two meters excluding the fire meter are required to be set on a single service line, a fabricated meter manifold shall be installed.

D. Copper Water Services (2 inch or smaller)
1. Construct services from the distribution main to the water meter. Lay services in a straight line perpendicular to the water main unless approved by the Engineer or authorized representative. Construct service with a continuous piece of copper from the corporation stop to the curb stop and curb stop to the water meter unless approved by the Engineer or authorized representative. Services over 300 feet will require an exterior meter setting (meter pit).

2. All couplings shall be located as close to the water main as possible, but outside roadway unless approved by the Engineer.

3. The use of thread sealant shall be not be allowed on flare fittings.

4. No splices shall be allowed for 1 ¼ inch or smaller yard services 90 feet and shorter in length.

E. Water Services Greater than 2 inch

1. For services entering a building with no basement, install the stand pipe flange 12 inch from the finished floor elevation and 6 to 12 inches away from any walls. Install the flange pipe so two bolt holes are parallel from each wall (two hole). For services entering a building with a basement or into a concrete vault, install the stand pipe flange 6 to 12 inches off the wall. Install the flange pipe so that two bolt holes are parallel to the floor, normal to the wall. For all services entering a building, the service line shall be located in room located on an outside wall of the building, with enough room to maintain the service.

2. Contractor shall complete installation of service prior to pressure testing and disinfection. The Contractor shall pressure test the complete fire service from the nearest outside valve to first valve (OS&Y) before installing the fire check valve per section 3.20. Service shall be cleaned, flushed and tested per section 3.21. No connection shall be made to these services until after pressure test is complete and consecutive negative bacterial test results have been received in accordance with sections 3.20 and 3.21 of this specification, and the water main approved by the Engineer or authorized representative.

F. No adapter flange or grooved pipe joint shall be used on any portion of the service to be maintained by the City of Kalamazoo.

G. Construct the service pipe with at least 5 feet of cover, unless Engineer or authorized representative requires additional depth.

H. Make all service connections, and transfers. Maintain and protect, at no additional cost, existing service connections requiring transfer, but not shown on the plans, until reconnection or disposal.

I. If relocating a portion of water service, shut down the water service by method approved by the Engineer or authorized representative.

J. When the street service is installed separately from the yard service a copper disk shall be installed on the yard side of the curb valve per the manufactures recommendations as approved by the Engineer or authorized representative.

K. Service lines entry points into the structure shall be sealed with hydraulic cement or mastic putty and oakum to prevent groundwater infiltration.

L. FIRE SERVICES

1. The Contractor shall notify the Engineer or authorized representative a minimum of 3 working days prior to flushing the fire service or testing the fire system capacity.
M. EXTERIOR METER SETTINGS

1. Exterior meter settings shall be installed by the Contractor according to the Engineer’s or authorized representative’s recommendations, and in accordance with City of Kalamazoo Standard Plans.

2. Meter boxes or vaults shall not be installed in any street, alley, parking area, driveway, or sidewalk. Major landscaping (shrubs, boulders, etc.) and structures (retaining walls, fences, buildings, etc.) shall not be placed within seven and a half (7.5) feet or trees shall not be planted within ten (10) feet of any meter box or vault, unless otherwise directed by the Engineer.

3. The ground surrounding meter boxes, pits and vaults shall slope away from the lid at a minimum grade of 2%

4. No plumbing or electrical connections will be allowed inside the meter box or vault, unless otherwise directed by the Engineer.

5. All tees, connections, and couplings shall be a minimum of five (5) feet downstream from the meter box or vault wall on the outlet side. Tees and connections shall not be installed between the curb stop and the meter setter or copper horn.

6. Meters shall be installed by the City of Kalamazoo upon inspection and acceptance of the meter setting.

7. Meter boxes shall be used for all 1 inch exterior meter settings. The Contractor shall install meter boxes to horizontal location and to final grade as determined by grade stakes. Meter boxes shall be installed 5 feet outside the right of way in private property. Typical Detail Drawing WS-8-B.

8. For services 1 ¼ inch and smaller, curb shutoffs shall be located in the right of way, centered in the curb lawn area, or as directed by the Engineer.

9. The Contractor shall install meter vaults for 1 ½ inch and larger meter settings.

10. Meters shall be installed by the City of Kalamazoo upon inspection and acceptance of the meter setting.

N. INTERIOR METER SETTINGS (PREFERED)

1. Interior valve and meter inlet connection shall be installed by the Contractor in accordance with the Engineer, or authorized representative’s recommendations and final approval.

2. The meter setting shall be located in a heated portion of the building. The meter setting shall not be located in a crawl space, above electrical appliance, or near an electrical panel. A clear and unobstructed access to the meter of not less than 24 inches by 24 inches shall be provided.

   a. 1 ¼ meter settings must be placed in basements. Meter setting shall be placed in the front of the building facing the street or within three feet of the front on the side unless otherwise approved by the Engineer or authorized representative. Water Services shall not be placed under footings. If service enters house under the porch and the porch footing extends below water service, a 2 inch PVC sleeve will be required.

   b. A ½ inch schedule 40 PVC conduit, or larger, shall be installed from the meter setting to the remote reading point. There shall be no more than 75 feet of conduit between pull boxes. There shall be no more than four (4) 90-degree bends
between pull boxes. All pull boxes must be installed no more than 96 inches above the floor. Pull boxes shall not be installed in attics or crawl spaces.

3. The City of Kalamazoo will install the meter, readout, readout wire, copper ground wire, outlet meter connection and valve.

3.11 WATER MAINS, CUT AND PLUG

A. All work related to water main, cut and plug shall be in accordance with section 3.05 A. If the plans show cutting and plugging water mains, arrange for the City of Kalamazoo to shut down the main. Remove the section of pipe and plug the water main as shown on the plans or as approved by the Engineer or authorized representative. Construct the required restraint as directed by the Engineer or authorized representative.

3.12 FIRE HYDRANTS

A. Set fire hydrants at the locations shown on the plans and in accordance with City of Kalamazoo standard plans and manufacturer’s recommendations or as coordinated with the City of Kalamazoo. Equip the hydrant with auxiliary valves, as shown on the plans. Stand hydrants plumb, with side nozzles parallel to the curb, and with the pumper nozzle normal to the curb, unless otherwise directed by the Engineer. Place the nozzles at the height specified by the City of Kalamazoo.

B. Hydrant caps shall not be supplied with attaching chains, or shall have attaching chains removed before being put into service.

C. For all gate valves connected adjacent to a tee or hydrant, the anchor between the fitting or hydrant and the valve shall be a 6 inch by 13 inch swivel by solid adapter with swivel gland.

D. Install a valve box over hydrant valve in accordance with section 3.08.

E. Hydrants shall have a protective cover placed over hydrants prior to backfilling to ensure the hydrant is not damaged. If hydrant is damaged, the contractor shall repair or replace the hydrant at no cost to the City.

3.13 FIRE HYDRANT MARKER

A. The sign shall be located between the hydrant and curb and offset from the pumper nozzle, or as directed by the Engineer. The sign shall be placed 3 feet away from the hydrant. The sign shall be single sided or double sided as directed by the Engineer or authorized representative. The sign shall have an installed height to the bottom of the sign of 5 feet above the final grade in areas with sidewalk and 7 feet above the final grade in areas without sidewalk.

B. A fire hydrant mounted whip may be installed in addition to fire hydrant sign if approved by the Engineer. Fire hydrant whip shall be mounted to the fire hydrant opposite the pumper nozzle in accordance with the manufacturer’s specifications.

3.14 FIRE HYDRANT REMOVAL

A. If the plans show removal of a fire hydrant, remove the entire hydrant assembly, including the following:

1. Auxiliary gate valve and box, unless otherwise approved by the Engineer or authorized representative.
2. Internal valve assembly;
3. Top bonnet;
4. Standpipe; and
5. Hydrant inlet body, unless otherwise approved by the Engineer.
B. If the City of Kalamazoo approves leaving the auxiliary gate valve and box in place, remove to at least 3 feet below the pavement surface under the road, or at least 12 inches below planned grade outside the road.

C. Stockpile the removed material at a location accessible to the City of Kalamazoo. The City of Kalamazoo will maintain ownership of the hydrant, and will remove the assembly from the project site

3.15 RELocATING FIRE HYDRANTS

A. If the plans show relocating a hydrant, arrange for the City of Kalamazoo to shut down the hydrant auxiliary valve. Remove the hydrant and reinstall at the required location. Reconnect the hydrant to the water main by shutting down the main, tapping a new hydrant outlet, or using the existing outlet. Install piping as required. If the relocated hydrant does not pass testing the hydrant shall be replaced with new at no cost to the City of Kalamazoo.

3.16 MISCELLANEOUS FITTINGS

A. Install the following at the locations shown on the plans and in accordance with good construction practices and manufactures recommendations:
   1. Elbows,
   2. Tees,
   3. Corporation stops,
   4. Blow offs,
   5. Pipe adapters,
   6. Pipe couplings,
   7. Retaining glands, and
   8. Other miscellaneous fittings.

3.17 BACKFILLING AND COMPACTING

A. Backfill and compaction shall be in accordance with Michigan Department of Transportation Standard plan for utility trenches R-83-Series.

B. Backfilling Under Existing Conduits - Where it is necessary to undercut or replace existing utility conduits and/or service lines, the excavation beneath such lines shall be backfilled the entire length with granular bedding material tamped in place in 6-inch layers to the required density. The granular bedding shall extend outward from the spring line of the conduit a distance of 2-feet on either side and thence downward at its natural slope.

C. Backfilling With Excavated Material - Unless otherwise specified or directed, material excavated in connection with the work shall be used for backfilling and other filling purposes, if it meets all requirements given elsewhere in this specification.

D. Backfill Immediately Following Inspection - All trenches and excavations shall be backfilled immediately after pipe is laid therein, unless otherwise directed by the Engineer or authorized representative. Under no circumstances shall water be permitted to rise in un-backfilled trenches after pipe has been placed.

E. Service leads shall not be backfilled until the pipe ends are referenced and the Engineer or authorized representative has measured the pipe for payment.

F. Backfilling around and over structures and pipes shall be carefully done by hand and tamped with suitable tools of approved weight to a point 1-foot above the top of pipe. Selected material or, where specified or ordered by the Engineer, special backfill material shall be used
in this area. The material shall be placed in uniform layers not exceeding 6-inch in depth up each side. Each layer shall be placed, then carefully and uniformly tamped to the specified density so as to eliminate the possibility of lateral displacement of pipe or structure.

G. Backfilling by Machinery - After the backfill has been placed and compacted around the boxes and pipe to a height of 1-foot above the top. The remainder of the trench may be backfilled by machine. The backfill material shall be deposited in horizontal layers and each layer shall be thoroughly compacted to the specified density by approved methods before a succeeding layer is placed. In no case will backfill material from a bucket be allowed to fall directly on a structure or pipe and in all cases the bucket must be lowered so that the shock of the falling material will not cause damage.

3.18 COMPACTION REQUIREMENTS

A. Compact each layer to 95% (90% if outside the influence of the road way) maximum density as tested by the Michigan Department of Transportation Density Testing and Inspection Manual.

3.19 COMPACTION TEST

A. Trenches and excavation around structures shall be backfilled and consolidated in layers, as specified, to the existing ground surface. Compaction tests shall be performed on each layer immediately after compaction.

B. Initial test series for each type of backfill material shall be continued until the method of consolidation employed has proven to attain the required compaction. Any change in the proven method of consolidations will require additional testing and field verification of compaction.

C. Subgrade below pavements, curbs, sidewalks, and structures shall be consolidated as specified. Compaction tests shall be performed to verify specified consolidation.

3.20 HYDROSTATIC TESTING

A. Perform hydrostatic testing of water mains in accordance with AWWA C600.

B. Ensure City of Kalamazoo personnel witness pressure testing. Give the City of Kalamazoo personnel at least 1 full working day notice before testing.

C. Provide the personnel, temporary timber bracing, plugs, test pumps, temporary connections to the Municipal water system, and any other required apparatus. Provide the water for hydrostatic testing if not available from the City of Kalamazoo. Water must be pumped from a measurable source in order to determine testing allowance water.

D. Before applying test pressure, expel air from the pipe in increments of no greater than 1,000 feet. Pressure test each section of water main. If the Contractor chooses not to pressure test against an existing valve, a new valve may be installed at the expense of the Contractor.

E. Pipe shall be pumped with water to a minimum test pressure of 150 pounds per square inch (psi) at the highest point of elevation to begin test. Test shall last for at least 2 hours, with a maximum drop of pressure of 5 psi. If the drop in pressure is greater than 5 psi but less than 20 psi, a testing allowance water test shall be performed. Testing allowance water, as measured by the quantity of water pumped into the pipe to attain the pressure at which the test began must not exceed the testing allowance.
F. Testing allowance water is determined using the following formula

\[
L = \frac{SD\sqrt{P}}{148,000}
\]

Where

- \( L \) = testing allowance water in gallons per hour
- \( S \) = length of pipe in feet
- \( D \) = actual pipe diameter in inches, and
- \( P \) = 150 psi

G. If testing allowance water is above the allowable limit occurs during hydrostatic testing, remove backfill to expose pipe and repair the joints. Repeat testing after repairs are complete. If multiple leaks occur the contractor may be required to reinstall main at Contractors expense.

H. Correct visible leaks regardless of the amount of leakage. Replace faulty pipes, fittings, gate valves, or other accessories disclosed by testing. Repeat the test until the pipes, fittings, gate valves, and other accessories meet the requirements.

3.21 DISINFECTION, FLUSHING, AND BACTERIOLOGICAL TESTING

A. Disinfect the water main in accordance with AWWA C651 and applicable Michigan Department of Environmental Quality (MDEQ) regulations after successful hydrostatic testing.

B. Disinfect and flush new, and portions of existing, water mains as required by the MDEQ.

C. Use blow offs, fire hydrants, or other means as shown on the plans or approved by the Engineer, or authorized representative, to flush water mains in accordance with AWWA C651, with a velocity of at least 3 feet per second. Provide hoses and other equipment and arrange a means of disposing of the water without damaging the work or adjacent property.

D. Use the continuous feed method with chlorine added simultaneously with the water. Add chlorine or liquid hypochlorite to meet the requirement of at least 25 milligrams per liter of chlorine. Slowly add the water to the main and allow it to stand for at least 24 hours. At the end of the 24-hour period, ensure the chlorine residual is a minimum of 10 milligrams per liter. If not met, re-chlorinate and flush the water main until a minimum 10 milligrams per liter residual remains after 24 hours.

E. After completing disinfection, initially flush the water mains with water at a velocity of at least 3 feet per second to replace the entire volume of chlorinated water in the pipeline. After initial flushing, perform final flushing until the residual chlorine content meets the standard level for the water distribution system. The City of Kalamazoo may require a waiting period after flushing and before bacteriological sampling.

F. Dispose of chlorinated water in accordance with applicable state and local requirements. If necessary, apply a reducing agent to the water to neutralize the chlorine and create a chlorine residual of no greater than 1 ppm.

G. After flushing, perform bacteriological testing in accordance with AWWA C651 and MDEQ requirements. Test chlorine residuals before taking each bacteriological sample. Ensure the chlorine residual is less than 1.5 milligrams per liter before taking a bacteriological sample. The City of Kalamazoo will collect samples from each branch of pipe in the presence of the Engineer, or authorized representative, and contractor personnel. The City of Kalamazoo will
be responsible for the transportation of the samples to a State of Michigan approved lab for testing. Two consecutive bacteriologically safe tests at 24-hour intervals for each section of pipe are required. Acceptable tests are negative for bacteria and as otherwise defined by AWWA C651 and MDEQ regulations.

H. If a bacteriological test fails, repeat disinfection, flushing, and testing.

3.22 POLYETHYLENE ENCASEMENT

A. Polyethylene encasement will be required for all ductile iron installations when the soil test evaluation is greater than or equal to 10 points based as indicated in AWWA/ANSI C105/A21.5 or as directed by the Engineer. Sampling of the soils is to be completed by the developer or municipality responsible for the installation.

B. Install polyethylene encasement on water mains and fittings installed through concrete floor and foundations and as indicated on the plans in accordance with the manufacturer’s installation instructions and AWWA/ANSI C105/A21.10.

C. Polyethylene encasement will be required for all installations when groundwater is detected in the utility trench.
PART 4 MEASUREMENT AND PAYMENT

4.01 PAY ITEMS

Measurement a payment may not apply if construction is not being funded with City of Kalamazoo funds. Please review signed construction contract for actual measurement and payment specifications.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Main, DI __ inch, Tr Det __</td>
<td>Foot</td>
</tr>
<tr>
<td>Gate Valve and Box, __ inch,</td>
<td>Each</td>
</tr>
<tr>
<td>Butterfly Valve and Box, __ inch</td>
<td>Each</td>
</tr>
<tr>
<td>Polyethylene Encasement</td>
<td>Foot</td>
</tr>
<tr>
<td>Water Main, __ inch, Cut and Plug</td>
<td>Each</td>
</tr>
<tr>
<td>Fire Hydrant</td>
<td>Each</td>
</tr>
<tr>
<td>Hydrant, Rem</td>
<td>Each</td>
</tr>
<tr>
<td>Hydrant Relocate, Case __</td>
<td>Each</td>
</tr>
<tr>
<td>Water Serv</td>
<td>Each</td>
</tr>
<tr>
<td>Water Serv, Long</td>
<td>Each</td>
</tr>
<tr>
<td>Water Serv, Conflict</td>
<td>Each</td>
</tr>
<tr>
<td>Water Serv, Yard</td>
<td>Each</td>
</tr>
<tr>
<td>Copper Tubing, Additional Length</td>
<td>Foot</td>
</tr>
<tr>
<td>Water Serv, 2 inch</td>
<td>Each</td>
</tr>
<tr>
<td>Water Serv, Conflict, 2 inch</td>
<td>Each</td>
</tr>
<tr>
<td>Copper Tubing, Additional Length, 2 inch</td>
<td>Foot</td>
</tr>
</tbody>
</table>

4.02 MEASUREMENT OF PAY ITEMS

A. Payment for Water Mains shall be measured based on the sizes and trench details required, along the centerline of the pipe, with no deductions for fittings. The unit price of Water Main, DI, includes the cost of the following:
1. Excavation and backfill;
2. Dewatering operations (trench and/or pipe);
3. Provide temporary water system to maintain service during construction;
4. Hydrostatic testing;
5. Disinfecting and flushing the water main and bacteriological testing;
6. All material, labor and equipment necessary to remedy an unsatisfactory hydrostatic test, including removing and replacing any backfill;
7. Providing and installing fittings, gaskets, bracing or sheeting, blocking and miscellaneous items for installing pipe and reconnecting to the Municipal Water System;
8. Preparing and providing as-constructed plans.

B. The City of Kalamazoo may withhold payment and/or final acceptance until the City of Kalamazoo accepts the as-built plans.

C. The cost of dewatering of trenches, pipe, or both associated with alterations to the Municipal Water System, is included in the unit price for relevant items of work.

D. The cost of excavating, disposing of excess material, and providing, placing, and compacting the backfill, is included in the unit price for related items of work.

E. The cost of removing or abandoning existing water mains, gate valve boxes, and other appurtenances to provide clearance for the proposed water main or roadway, is included in the unit price for relevant items of work.

F. Payment for Gate Valves, Butterfly Valves, and Valve Boxes, shall be as follows:
   1. The unit prices of Gate Valve and Box and Butterfly Valve and Box, of the types and sizes required, include the cost of providing and installing the valve and valve box, complete and ready for use.

G. Payment for water services 1 ½ and smaller shall be as follows:
   1. Water Serv refers to services between the water main and the curb shut off no greater than 33 feet long. Water Serv, Long refers to services between the water main and the curb shut off greater than 33 feet long and up to 66 feet in length. Water Serv, Yard refers to the services between the curb shut off and the water meter setting, up to 25 feet in length. Copper Tubing, Additional Length refers to the additional copper tubing and work needed when services between the curb shut off and the water meter setting are over 25 feet in length, and when the length of the service between the center of the road and the curb shut off exceeds 66 feet. Water Serv, Conflict refers to relocating only a portion of a water service.

H. Payment for water services 2 inches in size shall be as follows:
   1. Water Serv, 2 inch refers to the services between the water main and the water meter setting no greater than 58 feet in length. Water Serv Conflict, 2 inch refers to relocating only a portion of a 2 inch water service. Copper Tubing, Additional length, 2 inch refers to the additional copper tubing and work needed when services exceed 58 feet in length.

I. Services with a diameter larger than 2 inches will be measured and paid for as water mains.

J. The unit prices for Water Serv, Water Serv, Long, Water Serv, Yard, Copper Tubing, Additional Length, Water Serv Conflict, Water Serv, 2 inch, Water Serv Conflict, 2 inch, and Copper Tubing, Additional Length, 2 inch, include the cost of the following, unless otherwise accounted for in other pay items:

(23)
1. Earth excavation;
2. Removing pavement;
3. Replacing pavement;
4. Jacking and boring;
5. Providing and installing type K copper tubing, service saddle, corporation stops, service stops, and service boxes;
6. Disinfecting;
7. Providing, placing, and compacting backfill;
8. Slope Restoration to equal or better conditions; and
9. Miscellaneous material, equipment, or operations.

K. Payment for additional service connections, not shown on the plans, but maintained, protected, and reconnected or disposed of by the Contractor will be paid for as Water Serv, or Water Serv, Long.

L. The pay item Water Serv, Conflict will apply only to portions of water services requiring relocation due to direct conflict with utilities, other items of work, or as otherwise approved by the City of Kalamazoo. Payment for all other relocations requiring replacement of corporation or service stops will be paid for as Water Serv or Water Serv, Long.

M. Payment for Water Main, __inch, Cut and Plug includes the cost of cutting the existing water main, providing and placing the required plug, and thrust blocks.

N. Payment for Fire Hydrant includes the cost of providing and installing the hydrant, hydrant valve, valve box, and all pieces between the valve and hydrant, including the coarse gravel and concrete base, fire hydrant marker at the locations shown on the plans in a ready-for-use condition unless noted otherwise.

O. Payment for Hydrant, Rem includes the cost of breaking down the auxiliary gate valve, gate box, the hydrant assembly, backfilling, and plugging the opening in the existing main.

P. Payment for Hydrant, Relocate, Case __ (of the case required), includes the cost of vertically adjusting the relocated hydrant to final grade and the following:

1. Case 1 includes the cost of removing the hydrant, extending the existing hydrant lead from the gate valve, reinstalling the hydrant in a ready-for-use condition, adjusting the existing gate box and hydrant to final grade, and providing and installing sleeves, fittings, and joint restraints.

2. Case 2 includes the cost of removing the existing hydrant, gate valve and box, and reinstalling the hydrant and gate valve in a ready-for-use condition, adjusting the existing gate box and hydrant to final grade, and providing and installing the cutting-in-sleeve, pipe coupling, tee, elbow, and joint restraints.
CASING CARRIER PIPE DETAIL

SIZE CASING AND CARRIERPIPES PER PLAN AND SPECIFICATIONS

AP S PULL-ON END SEAL
MODEL AC OR EQUAL

STEEL CASING PIPE

CARRIER PIPE

APS STAINLESS STEEL BAND SPACERS & INSULATORS
(MODEL SSI OR EQUAL) CENTERED & RESTRAINED

CARRIER PIPE

1'-6"

8' (TYP.)
NOTE:
LIFT HOLES SHALL BE FILLED IN WITH NON-SHRINK MORTAR

HOLE THROUGH LID SHALL BE FILLED IN WITH NON-SHRINK MORTAR
PLACE COVER ON MANHOLE
E.J. 1045 OR APPROVED EQUAL

TYPICAL 2" AIR RELEASE MANHOLE

SCHEDULE OF FITTINGS

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR RELEASE VALVE, 2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>GALVANIZED PIPE, 2&quot; X 60&quot;</td>
<td>1</td>
</tr>
<tr>
<td>GALVANIZED NIPPLE, 2&quot; X 4&quot;</td>
<td>1</td>
</tr>
<tr>
<td>GALVANIZED NIPPLE, 2&quot; X 3&quot;</td>
<td>1</td>
</tr>
<tr>
<td>GALVANIZED 90° ELBOW, 2&quot;</td>
<td>2</td>
</tr>
<tr>
<td>PIPE SUPPORT BASE</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAPPING SADDLE, XX X 2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>BRASS BALL VALVE, 2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>BRASS NIPPLE, 2&quot; X 4&quot;</td>
<td>2</td>
</tr>
</tbody>
</table>

CITY OF KALAMAZOO
Department of Public Services

AIR RELEASE MANHOLE

RECOMMENDED BY

APPROVED BY

ACCEPTED BY
NOTE:
LIFT HOLES SHALL BE FILLED IN WITH NON-SHRINK MORTAR

PLACE COVER ON MANHOLE E.J. 1045 OR APPROVED EQUAL

TYPICAL 2" AIR RELEASE MANHOLE
PRECAST REINFORCED CONCRETE SHOWN (OTHER OPTIONS INCLUDE CONCRETE BLOCK, BRICK OR CAST IN PLACE WALL SECTIONS)

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR RELEASE VALVE, 2&quot;</td>
<td>1</td>
<td>TAPPING SADDLE, XX X 2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>GALVANIZED PIPE, 2&quot; X 60&quot;</td>
<td>1</td>
<td>BRASS BALL VALVE, 2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>GALVANIZED NIPPLE, 2&quot; X 4&quot;</td>
<td>1</td>
<td>BRASS NIPPLE, 2&quot; X 4&quot;</td>
<td>2</td>
</tr>
<tr>
<td>GALVANIZED NIPPLE, 2&quot; X 2&quot;</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GALVANIZED 90° ELBOW, 2&quot;</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIPE SUPPORT BASE</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CITY OF KALAMAZOO
Department of Public Services

AIR RELEASE MANHOLE IN ROADWAY

RECOMMENDED BY
APPROVED BY
ACCEPTED BY
NOTES:
1. METER VAULT DESIGN TO BE SUBMITTED AND APPROVED FOR EACH INDIVIDUAL INSTALLATION. DESIGN SHALL CONFORM TO KALAMAZOO WATER ENGINEERING STANDARDS LATEST REVISION.
2. THE DISTANCE BETWEEN RUNGS, CLEATS AND STEPS SHALL NOT EXCEED 12 INCHES AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER.
3. PLACEMENT OF CURB BOX CAN VARY FROM A MAXIMUM OF 5 FEET OUTSIDE THE PROPERTY LINE TO A MAXIMUM OF 5 FEET INSIDE THE PROPERTY LINE. PLACEMENT OF THE CURB BOX OUTSIDE THE PROPERTY LINE IS PREFERRED.
4. ACCESS COVER – FORD MC-24-MB-T WITH AN INNER LID, VESTAL 32-055, 32-104, AND 32-046 OR APPROVED EQUAL.
NOTES:

1. METER VAULT (PIT) DESIGN MUST BE SUBMITTED AND APPROVED FOR EACH INDIVIDUAL INSTALLATION. DESIGN SHALL CONFORM TO THE CITY OF KALAMAZOO STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION LATEST REVISION.

2. THE DISTANCE BETWEEN RUNGS, CLEATS & STEPS SHALL NOT EXCEED 12 INCHES AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER.

3. CURB BOX WILL BE INSTALLED AT THE WATER MAIN.

4. COVER FOR METER PIT & CURB BOX SHALL BE INSTALLED & MAINTAINED LEVEL WITH THE ADJACENT GROUND.

OWNERS RESPONSIBILITY

CITY'S SERVICE BOUNDARY FOR MAINTENANCE

24" METAL CASTING MANHOLE COVER

RUNGS SPACED 12" APART MAX.
INLET BRASS BALL VALVE NL

METER VAULT (PIT)
6' L x 6' W x 6' H

INLET BRASS BALL VALVE NL

OWNER'S SERVICE PIPE & RESPONSIBILITY FOR INSTALLATION & REPAIRS

SERVICE PIPE SHALL BE TYPE "K" COPPER FROM MAIN THROUGH METER PIT

2" TAP TO BE PERFORMED BY THE CITY OF KALAMAZOO

WATER MAIN

Curb Box
NOTE:
CITY WILL INSTALL METERS FOR THE DETECTOR CHECK AND DOMESTIC USE. CONTACT STEVE SKALSKI 269-337-8454 WITH QUESTIONS.

DETCTOR CHECK TAPPED FOR A 5/8" METER VIA PULL-OUT DETCTOR CHECK METER

MUELLER O & Y OR APPROVED EQUAL

FLANGE TEE

PE TO FLANGE STANDPIPE

BUILDING WALL

TO FIRE SERVICE

BSA VALVE, BRASS PLUG & BRASS NIPPLE TAPPED FOR TEST COCK

METER

VALVE FOR 1", 1-1/2" & 2" SEE SPECIFICATIONS

VALVE FOR 1", 1-1/2" & 2" SEE SPECIFICATIONS

BLIND FLANGE WITH 2" TAP, BRASS BUSHING FOR 1" OR 1-1/2" 3-1/2" BRASS NIPPLE

TO DOMESTIC SERVICE

CITY OF KALAMAZOO
Department Of Public Services
TYPICAL FIRE SERVICE DETAIL
1"  1-1/2"  2"

RECOMMENDED BY

APPROVED BY

ACCEPTED BY
NOTE:
CITY WILL INSTALL METERS FOR THE DETECTOR CHECK AND
DOMESTIC USE. CONTACT STEVE SKALSKI 269-337-8454
WITH QUESTIONS.

PE TO FLANGE SPOOL PIECE
HYMAX FLANGE ADAPTOR

AFC WHEEL VALVE (OR EQUAL)
FOR 3" & ABOVE

PE TO FLANGE SPOOL PIECE

AFC WHEEL VALVE
(OR EQUAL)
FOR 3" & ABOVE

5/8"x36" THREADED ROD CUT IN 1/2

IF 3" METER SETTING
4"x3" FLANGED REDUCER
GOES HERE

METER

FLANGE TEE

PLUMB O.S. & Y
OR APPROVED EQUAL

BUILDING WALL

TO FIRE SERVICE
NOTES:

1. PLACEMENT OF STOP BOX CAN VARY FROM A MAXIMUM OF 5 FEET OUTSIDE THE PROPERTY LINE TO A MAXIMUM OF 5 FEET INSIDE THE PROPERTY LINE. PLACEMENT OF THE STOP BOX OUTSIDE THE PROPERTY LINE IS PREFERRED.

2. CITY WATER WILL REPAIR LEAKS ON SERVICE LINES WHEN NOTIFIED, FROM THE CORPORATION STOP TO METER.
NOTES:

1. NOT FOR INSTALLATION IN ROADWAYS, DRIVEWAYS OR PARKING AREAS.

2. IF SURFACE IS NOT TO FINAL GRADE AT TIME OF INSTALLATION OF METER, OWNER MUST RAISE OR LOWER PIT WHEN SURFACE IS GRADED.

3. METER SETTING MUST BE INSPECTED BEFORE BACKFILLING.*

4. LOCATION OF METER SHALL BE 5 FEET INSIDE PROPERTY LINE UNLESS OTHERWISE ESTABLISHED BY UTILITY SERVICES.

5. NO CONCRETE FLOOR TO BE LAID IN METER PIT.

6. REFERENCE CITY OF KALAMAZOO PUBLIC SERVICES WATER CONSTRUCTION SPECIFICATIONS (LATEST EDITION) FOR PRODUCT SPECIFICATIONS.

7. NO SPRINKLER SYSTEM CONNECTIONS SHALL BE MADE IN THE METER PIT. SPRINKLER PIT SHALL BE 5 FT. DOWNSTREAM FROM METER, MEASURED CENTER TO CENTER.

8. NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 4 FT. OF METER.

9. GRADE CHANGES AFTER METER PIT INSTALLATION SHALL REQUIRE THAT THE OWNER ADJUST METER PIT COVER TO 1/2" ABOVE FINAL GRADE.

10. IF PRESSURE REDUCING VALVE IS REQUIRED BY PLUMBING CODE, IT SHALL BE INSTALLED INSIDE THE BUILDING, IMMEDIATELY FOLLOWING THE MAIN SHUT-OFF VALVE.

11. COPPER PIPE SHALL SHOW NO VISIBLE CRIMPING.

* FOR INSPECTION CALL (269) 988-6433 INSPECTOR
* FOR INSPECTION CALL (269) 337-8769 ENGINEER
NOTES:

PLACEMENT OF STOP BOX CAN VARY FROM A MAXIMUM OF 5 FOOT OUTSIDE THE PROPERTY LINE TO A MAXIMUM OF 5 FOOT INSIDE THE PROPERTY LINE TO AVOID SIDEWALK. PLACEMENT OF STOP BOX OUTSIDE THE PROPERTY LINE IS PREFERRED.

OWNER’S RESPONSIBILITY SHALL BE UP TO 5 FEET FROM THE METER PIT customer side.

WATER DEPARTMENT’S RESPONSIBILITY SHALL BE THE WATER MAIN, THE CORPORATION STOP AND SERVICE PIPING UP TO 5 FEET FROM THE METER.

METER PIT AND COVER SHALL BE THE RESPONSIBILITY OF THE OWNER.

COVER FOR METER PIT & STOP BOX SHALL BE INSTALLED & MAINTAINED LEVEL WITH THE ADJACENT GROUND

SERVICE PIPE SHALL BE TYPE "K" COPPER FROM MAIN THROUGH METER PIT

CURB STOP & SERVICE BOX

CORPORATION STOP

TAPPING SADDLE — REFERENCE CONSTRUCTION SPECIFICATIONS

WATER MAIN

OWNER'S SERVICE PIPE AND RESPONSIBILITY

DISTANCE VARIES

NOT LESS THAN 5'-0"
PIT SHALL BE 8' X 8' X 6' MIN.

12" WATER MAIN

12" ACCESS HOLES OVER OS & Y

24" ACCESS
NOTE:
City will install meters for the detector check and domestic use. Contact Steve Skalski 269-337-8454 with questions.

Typical Fire Service Detail, Domestic 3", 4", & 6" & Irrigation 1" or 2" Vertical Setting

Recommended By

Approved By

Accepted By
NOTE:
CITY WILL INSTALL METERS FOR THE DETECTOR CHECK AND DOMESTIC USE. CONTACT STEVE SKALSKI 269-337-8454 WITH QUESTIONS.

1" OR 2" STD. 90°
W/1" OR 2" BRASS BALL VALVE
OR FORD ANGLE VALVE
(FV13-777W-NL) 2"
(KV13-444W-NL) 1"

1" OR 2" X 12" BRASS NIPPLE

TEE

REDUCER (IF NEEDED)

TEE

8 1/2" FLANGE TO PE

HYMAX COUPLING

METER

O S & Y VALVE
(MUST BE HORIZONTAL OR AT 45° FOR CLEARANCE)

TO FIRE SERVICE

TO IRIGATION

PE TO FLANGE STANDPIPE

BY CONTRACTOR

BY CITY

BY CONTRACTOR

BY CITY

BY CONTRACTOR

BY CITY

BY CONTRACTOR

BY CITY

BY CONTRACTOR

BY CITY

BY CONTRACTOR

BY CITY

BY CONTRACTOR

BY CITY

BY CONTRACTOR

BY CITY
NOTE:
CITY WILL INSTALL METERS FOR THE DETECTOR CHECK AND DOMESTIC USE. CONTACT STEVE SKALSKI 269-337-8454 WITH QUESTIONS.

TYPICAL FIRE SERVICE DETAIL
HORIZONTAL SETTING
2" DOMESTIC
1" IRRIGATION
NOTE:
CITY WILL INSTALL METERS FOR THE DETECTOR CHECK AND
DOMESTIC USE. CONTACT STEVE SKALSKI 269-337-8454
WITH QUESTIONS.