



Department of Management Services
Purchasing Division
241 West South Street
Kalamazoo, MI 49007-4796
Phone: 269.337.8020
Fax: 269.337.8500
www.kalamazoo.org

INVITATION FOR BID (IFB)

The City of Kalamazoo, Michigan is soliciting sealed bids for:

PROJECT NAME: Balch Street (Park St. to Burdick St.) Water Main Replacement

BID REFERENCE #: 91244-025.0

IFB ISSUE DATE: June 21, 2023

BID DUE/OPENING DATE: July 18, 2023 @ 3:30 p.m. Local Time (ET)

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: **Debbie Jung, P.E., Senior Civil Engineer** at jungd@kalamazoo.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.

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE #</u>	<u>APPENDICES</u>
		Appendix A
I	Statement of No Bid	Appendix B
I	Instructions to Bidders	Prevailing Wages
II	Bid & Award Pages	Special Provisions & Specifications
III	Insurance Requirements	Drawings/Plans
IV	Special Requirements	
V	General Provisions	
VI	Terms & Conditions	

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 electronically will not be accepted.

3. **EXPLANATION TO BIDDERS**-Any binding explanation desired by a bidder regarding the meaning or interpretation of the Invitation for Bids (IFB) and attachments must be requested in writing, at least 5 business days before the bid opening so a reply may reach all prospective bidders prior to 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.
9. **BID SUBMITTAL**- Bidders can submit sealed bids in one of the following ways:
 - 9.1. **Mail your bid**, to be received before the bid due date and time indicated in the bid document, to the City of Kalamazoo at the following address:

City of Kalamazoo
Purchasing Division
241 West South Street
Kalamazoo, MI 49007

- 9.2. **Deliver your bid to City Hall In-Person** before the bid due date and time indicated in the bid document.
- 9.3. **Deliver your bid to the Treasurer’s Office Payment Drop Box** located in the northwest corner of City Hall (see photos below) before the bid due date and time indicated in the bid document.



1. Open drop box located at City Hall.



2. Insert SEALED BID here.



- 10. **BID TABULATIONS-** The Purchasing Division makes an effort to post bid tabulations to the City of Kalamazoo website within 24 hours after the bid opening date and time at: <https://www.kalamazoo.org/bidopportunities>. However, in certain cases the posting of the bid tabulation may extend beyond the 24-hour window.

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.

BALCH STREET (PARK ST. TO BURDICK ST.) WATER MAIN REPLACEMENT

Item No.	Description	Quantity	Unit	Unit Price	Total Amount
1	Mobilization, Max. 5% of Total Bid	1	LS		
2	Tree, Rem, 19 inch to 36 inch	1	EA		
3	Tree, Rem, 6 inch to 18 inch	1	EA		
4	Dr Structure, Rem	5	EA		
5	Sewer, Rem, Less than 24 inch	90	FT		
6	Curb and Gutter, Rem	1,500	FT		
7	Pavt, Rem	2,352	SYD		
8	Sidewalk, Rem	528	SYD		
9	Machine Grading	1	LS		
10	Subgrade Undercutting, Type I	500	CYD		
11	Erosion Control, Inlet Protection, Fabric Drop, modified	20	EA		
12	Erosion Control, Silt Fence	200	FT		
13	Dewatering System for Contaminated Groundwater, Site	2	EA		
14	Dewatering System for Contaminated Groundwater, Day	24	DAY		
15	Project Cleanup	1	LS		
16	Subbase, CIP	763	CYD		
17	Aggregate Base, 8 inch	2,288	SYD		
18	Maintenance Gravel, Asphalt Millings	400	CYD		
19	Sewer, CL IV, 12 inch, Tr Det B1	90	FT		
20	Dr Structure Cover, Adj, Case 1	1	EA		
21	Cover, Adj, modified	20	EA		
22	Dr Structure Cover, Type B, modified	3	EA		
23	Dr Structure Cover, Type K1, modified	3	EA		
24	Dr Structure Cover, Type Q, modified	3	EA		
25	Dr Structure, 24 inch dia	5	EA		
26	Cold Milling HMA Surface	1,672	SYD		
27	HMA Hand Patching	100	TON		
28	Void Reducing Asphalt Membrane, modified	2,100	FT		
29	HMA, 5EL, modified	487	TON		
30	HMA, 4EL, modified	285	TON		
31	HMA, 3C, modified	355	TON		

CITY OF KALAMAZOO – INVITATION FOR BIDS

Balch Street (Park St. to Burdick St.) Water Main Replacement

Bid Reference #: 91244-025.0

32	Pavt Mrkg, Polyurea, 6 inch, White	1,050	FT		
33	Pavt Mrkg, Polyurea, 4 inch, Yellow	2,010	FT		
34	Pavt Mrkg, Polyurea, 6 inch, Crosswalk	175	FT		
35	Pavt Mrkg, Polyurea, 24 inch, Stop Bar	30	FT		
36	Sidewalk, Nonreinf Conc, 4 inch	1,468	SFT		
37	Driveway, Nonreinf Conc, 6 inch	328	SYD		
38	Curb and Gutter, Conc, Det C4	1,500	FT		
39	Sidewalk Ramp, Conc, 6 inch	331	SFT		
40	Detectable Warning Surface	20	FT		
41	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	51	EA		
42	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	51	EA		
43	Pedestrian Type II Barricade, Temp	10	EA		
44	Lighted Arrow, Type C, Furn	1	EA		
45	Lighted Arrow, Type C, Furn	1	EA		
46	Minor Traf Devices	1	LS		
47	Plastic Drum, Fluorescent, Furn	34	EA		
48	Plastic Drum, Fluorescent, Oper	34	EA		
49	Sign Cover	1	EA		
50	Sign, Portable, Changeable, Message, Furn	2	EA		
51	Sign, Portable, Changeable, Message, Furn	2	EA		
52	Sign, Type B, Temp, Prismatic, Furn	931	SFT		
53	Sign, Type B, Temp, Prismatic, Furn	931	SFT		
54	Maintaining Traffic, modified	1	LS		
55	Slope Restoration, modified	1	LS		
56	Hydrant, Rem	4	EA		
57	Water Main, DI, 4 inch, Tr Det G, Install	4	FT		
58	Water Main, DI, 6 inch, Tr Det G, Install	31	FT		
59	Water Main, DI, 8 inch, Tr Det G, Install	93	FT		
60	Water Main, DI, 16 inch, Tr Det G, Install	13	FT		
61	Water Main, DI, 24 inch, Tr Det G, Install	1,143	FT		
62	Connect to Existing Main, 4 inch	1	EA		
63	Connect to Existing Main, 6 inch	1	EA		
64	Connect to Existing Main, 12 inch	1	EA		
65	Connect to Existing Main, 16 inch	1	EA		
66	Connect to Existing Main, 24 inch	1	EA		
67	Water Main Line Stop, 6 inch	1	EA		
68	Water Main Line Stop, 8 inch	1	EA		
69	Water Main Line Stop, 12 inch	1	EA		
70	Water Main Air Release Manhole in Roadway	1	EA		
71	Gate Valve and Box, 8 inch, Install	2	EA		
72	Butterfly Valve and Box, 16 inch, Install	2	EA		
73	Butterfly Valve and Box, 24 inch, Install	7	EA		

74	Fire Hydrant, Modified, Install	5	EA		
75	Valve Box, Rem	6	EA		
76	Insulation Board, 2 inch	448	SFT		
77	Sanitary Structure, 60 inch dia	1	EA		
78	Sanitary Sewer, Serv Lead, PVC, 12 inch	73	FT		
79	Sanitary Sewer Cleanout, 12 inch	1	EA		
80	Sanitary Sewer Lead Conflict, 6 inch, modified	100	FT		
81	Sanitary Sewer Lead Conflict, 4 inch, modified	100	FT		
82	Remove Water Main, 4 inch	10	FT		
83	Remove Water Main, 6 inch	10	FT		
84	Remove Water Main, 8 inch	971	FT		
85	Remove Water Main, 12 inch	89	FT		
86	Remove Water Main, 16 inch	5	FT		
87	Water Main, 4 inch, Cut and Cap, Install	2	EA		
88	Water Main, 6 inch, Cut and Cap, Install	2	EA		
89	Water Main, 8 inch, Cut and Cap, Install	5	EA		
90	Water Main, 12 inch, Cut and Cap, Install	4	EA		
91	Water Main, 16 inch, Cap, Install	1	EA		
92	Water Main, 24 inch, Cap, Install	1	EA		
93	Water Service, Yard, 3/4 inch, Install	10	EA		
94	Water Service, Street, 1 1/4 inch, Install	35	EA		
95	Water Service, 2 inch, Install	2	EA		
96	Copper Water Service Pipe, 3/4 inch, Install	1,200	FT		
97	Copper Water Service Pipe, 1 1/4 inch, Install	1,245	FT		
98	Copper Water Service Pipe, 2 inch, Install	36	FT		
99	Curb Stop, 1 1/4 inch, Install	23	EA		
100	Meter Pit, Install	4	EA		
101	Water Service Potholing	4	EA		
102	Water Serv, Private, Install	4	EA		
103	Plumber	50	HR		
104	Water Meter Setting	10	EA		
105	Site Preparation, Max \$500	1	LS		
106	Liriodendron tulipifera "tulip tree", 3 inch	3	EA		
107	Tilia Americana "American Linden", 3 inch	2	EA		
108	Watering and Cultivating, First Season, Min \$1,000	1	LS		
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 **10** working days after receipt of notification by Contractor of Notice to Proceed, and final completion shall be **November 1, 2024.**

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 bidders 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
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 sub-contracted 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: _____

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: _____

Financial Contact Name: _____ Financial Contact Phone Number: _____

Financial Contact Email 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

**SECTION III
CITY OF KALAMAZOO
INDEMNITY AND INSURANCE**

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 provision applies only to projects in excess of \$100,000 for City (\$2,000 federal) funded projects.

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 plans and specifications to provide for a contractor who shall provide all labor, materials, tools, and equipment necessary to perform in a professional manner for the *Balch Street (Park St. to Burdick St.) Water Main Replacement* project as described in the specifications and bid document.

2. SCOPE OF WORK

INSTALLATION OF 24" WATER MAIN IN PUBLIC RIGHT-OF-WAY, INSTALLATION AND CONNECTION OF PRIVATE SERVICES, LEAD SERVICE REMOVAL, EXISTING WATER MAIN REMOVAL, AND ABANDONMENT OF EXISTING WATER MAIN. PAVEMENT, DRIVEWAY, SIDEWALK, AND REPLACEMENTS.
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3. QUANTITIES

The quantities shown or indicated on the plans are only estimated. Payment will be made based upon unit pricing of quantities installed.

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 in 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 (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. 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 City 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. The City will provide staking for the project.

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 will NOT be available on the sites. The Contractor must provide for drinking water.
- 11.2 Temporary toilets: To be supplied by the Contractor as may be necessary.
- 11.3 Municipal water may be used for hydro-seeding and irrigation when performing restoration activities. A City provided backflow preventer shall be used.

12. SITE SECURITY

The Contractor shall be responsible for job site security of all materials and tools 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

See Special Provision for Progress Clause.

15. CONSTRUCTION SCHEDULE AND COORDINATION

See Special Provision for Construction Coordination Clause.

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 Contractor shall furnish, erect, maintain and, upon completion of the work, remove 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 and bicycle traffic shall be maintained at all times.
- 19.6 Payment for the traffic control devices shall be based on the contract lump sum price.
- 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. The Contractor shall maintain two-way traffic with flag control as needed when the road is restricted to only one traffic lane.

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.

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 Landscape Architect 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 Debbie Jung, P.E., Senior Civil Engineer at jungd@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 Monica Johnson, Buyer at johnsonm2@kalamazoocity.org or (269) 337-8603.

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@kalamazoo-city.org. Faxed 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 paper work 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.

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, and LL Harris and Associates, 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.

DEFAULT (cont.)

- 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 Department Head or 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 Department Head, the severity of the circumstance warrants, no more than one (1) working day.

APPENDIX A
NON-DISCRIMINATION CLAUSE FOR ALL CITY OF KALAMAZOO CONTRACTS

The Contractor agrees to comply with the Federal Civil Rights Act of 1964 as amended; the Federal Civil Rights Act of 1991 as amended; the Americans With Disabilities Act of 1990 as amended; the Elliott-Larson Civil Rights Act, Act. No. 453, Public Act of 1976 as amended; the Michigan Handicappers Civil Rights Act, Act No. 220, Public Act of 1976 as amended, City Ordinance 1856 and all other applicable Federal and State laws. The Contractor agrees as follows:

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.

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: Contactor 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

**Balch Street (Park St. to Burdick St.)
Water Main Replacement**

Bid Reference #: 91244-025.0

June 2023

"General Decision Number: MI20230061 02/17/2023

Superseded General Decision Number: MI20220061

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: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$16.20 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 2023.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date
 0 01/06/2023

1 02/03/2023
2 02/17/2023

CARP0525-006 06/01/2021

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 25.94	20.59

ELEC0131-006 06/01/2022

	Rates	Fringes
ELECTRICIAN.....	\$ 37.66	8.95+27%

ENGI0325-009 09/01/2022

POWER EQUIPMENT OPERATORS: Underground Construction (Including Sewer)

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 37.67	24.85
GROUP 2.....	\$ 32.78	24.85
GROUP 3.....	\$ 32.28	24.85
GROUP 4.....	\$ 32.00	24.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

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

GROUP 2: Trencher (8-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 06/01/2022

EXCLUDES UNDERGROUND CONSTRUCTION

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1.....	\$ 44.13	24.85
GROUP 2.....	\$ 40.83	24.85
GROUP 3.....	\$ 38.18	24.85
GROUP 4.....	\$ 36.47	24.85
GROUP 5.....	\$ 36.47	24.85
GROUP 6.....	\$ 30.61	24.85
GROUP 7.....	\$ 28.13	24.85

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

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.

IRON0025-011 06/01/2022

	Rates	Fringes
IRONWORKER (REINFORCING).....	\$ 31.43	34.77
IRONWORKER (STRUCTURAL).....	\$ 34.50	38.44

* LABO0334-011 09/01/2022

SCOPE OF WORK:

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

	Rates	Fringes
LABORER		
(1) Common or General.....	\$ 22.42	12.95
(2) Mason Tender- Cement/Concrete.....	\$ 22.55	12.95
(4) Grade Checker.....	\$ 22.73	12.95
(5) Pipelayer.....	\$ 22.85	12.95

LABO0355-010 06/01/2022

EXCLUDES OPEN CUT CONSTRUCTION

	Rates	Fringes
LABORER		
Common or General; Grade Checker; Mason Tender - Cement/Concrete.....	\$ 26.70	12.95
Pipelayer.....	\$ 20.34	12.85

PAIN0312-014 06/12/2014

	Rates	Fringes
PAINTER		
Brush & Roller.....	\$ 21.75	11.94
Spray.....	\$ 22.75	11.94

PLAS0016-020 04/01/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 22.31	12.83

* PLUM0333-026 06/01/2022

Fort Custer

	Rates	Fringes
PLUMBER.....	\$ 42.29	23.94

PLUM0357-012 07/01/2020

Excluding Fort Custer

	Rates	Fringes
PLUMBER.....	\$ 35.20	22.35

TEAM0007-011 06/01/2020

	Rates	Fringes
TRUCK DRIVER		
Lowboy/Semi-Trailer Truck...	\$ 28.05	.50 + a+b
Tractor Haul Truck.....	\$ 27.80	.50 + a+b

FOOTNOTE:

- a. \$470.70 per week.
- b. \$68.70 daily.

* SUMI2010-059 11/09/2010

	Rates	Fringes
LABORER: Landscape.....	\$ 12.25 **	0.00
TRUCK DRIVER: Dump Truck.....	\$ 18.00	6.43
TRUCK DRIVER: Off the Road Truck.....	\$ 20.82	3.69

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$16.20) or 13658 (\$12.15). Please see the Note at the top of the wage determination for more information.

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 <https://www.dol.gov/agencies/whd/government-contracts>.

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 National Office because National Office has 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.

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END OF GENERAL DECISIO"

"General Decision Number: MI20230001 05/26/2023

Superseded General Decision Number: MI20220001

State: Michigan

Construction Types: Highway (Highway, Airport & Bridge xxxxx and Sewer/Incid. to Hwy.)

Counties: Michigan Statewide.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$16.20 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 2023.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/06/2023
1	02/03/2023
2	02/17/2023

3	03/17/2023
4	05/12/2023
5	05/19/2023
6	05/26/2023

CARP0004-004 06/01/2019

REMAINDER OF STATE

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 27.62	20.59

CARP0004-005 06/01/2018

LIVINGSTON (Townships of Brighton, Deerfield, Genoa, Hartland, Oceola & Tyrone), MACOMB, MONROE, OAKLAND, SANILAC, ST. CLAIR AND WAYNE COUNTIES

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 30.50	27.28

ELEC0017-005 06/01/2022

STATEWIDE

	Rates	Fringes
Line Construction		
Groundman/Driver.....	\$ 29.57	7.20+32%
Journeyman Signal Tech, Communications Tech, Tower Tech & Fiber Optic Splicers.	\$ 43.90	7.20+32%
Journeyman Specialist.....	\$ 50.49	7.20+32%
Operator A.....	\$ 37.13	7.20+32%
Operator B.....	\$ 34.67	7.20+32%

Classifications

Journeyman Specialist: Refers to a crew of only one person working alone.
 Operator A: Shall be proficient in operating all power equipment including: Backhoe, Excavator, Directional Bore and Boom/Digger truck.
 Operator B: Shall be proficient in operating any 2 of the above mentioned pieces of equipment listed under Operator A.

ENGI0324-003 06/01/2022

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		

GROUP 1.....	\$ 51.02	24.85
GROUP 2.....	\$ 52.02	24.85
GROUP 3.....	\$ 49.52	24.85
GROUP 4.....	\$ 50.52	24.85
GROUP 5.....	\$ 48.02	24.85
GROUP 6.....	\$ 49.02	24.85
GROUP 7.....	\$ 47.75	24.85
GROUP 8.....	\$ 48.75	24.85
GROUP 9.....	\$ 47.30	24.85
GROUP 10.....	\$ 48.30	24.85
GROUP 11.....	\$ 46.57	24.85
GROUP 12.....	\$ 47.57	24.85
GROUP 13.....	\$ 46.21	24.85
GROUP 14.....	\$ 47.21	24.85
GROUP 15.....	\$ 45.57	24.85
GROUP 16.....	\$ 42.37	24.85
GROUP 17.....	\$ 27.89	12.00
GROUP 18.....	\$ 31.38	24.85

FOOTNOTE:

Paid Holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Engineer when operating combination of boom and jib 400' or longer

GROUP 2: Engineer when operating combination of boom and jib 400' or longer on a crane that requires an oiler

GROUP 3: Engineer when operating combination of boom and jib 300' or longer

GROUP 4: Engineer when operating combination of boom and jib 300' or longer on a crane that requires an oiler

GROUP 5: Engineer when operating combination of boom and jib 220' or longer

GROUP 6: Engineer when operating combination of boom and jib 220' or longer on a crane that requires an oiler

GROUP 7: Engineer when operating combination of boom and jib 140' or longer

GROUP 8: Engineer when operating combination of boom and jib 140' or longer on a crane that requires an oiler

GROUP 9: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level)

GROUP 10: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level) on a crane that requires an oiler

GROUP 11: Engineer when operating combination of boom and jib 120' or longer

GROUP 12: Engineer when operating combination of boom and jib 120' or longer on a crane that requires an oiler

GROUP 13: Crane operator; job mechanic and 3 drum hoist and excavator

GROUP 14: Crane operator on a crane that requires an oiler

GROUP 15: Hoisting operator; 2 drum hoist and rubber tired backhoe

GROUP 16: Forklift and 1 drum hoist

GROUP 17: Compressor or welder operator

GROUP 18: Oiler

ENGI0324-004 06/01/2022

AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN

AREA 2: ANTRIM, BENZIE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE AND WEXFORD COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
AREA 1		
GROUP 1.....	\$ 51.02	24.85
GROUP 2.....	\$ 47.75	24.85
GROUP 3.....	\$ 46.21	24.85
GROUP 4.....	\$ 42.37	24.85
GROUP 5.....	\$ 27.89	12.00
GROUP 6.....	\$ 31.38	24.85
AREA 2		
GROUP 1.....	\$ 51.02	24.85
GROUP 2.....	\$ 47.75	24.85
GROUP 3.....	\$ 46.21	24.85
GROUP 4.....	\$ 42.37	24.85
GROUP 5.....	\$ 27.89	12.00
GROUP 6.....	\$ 31.38	24.85

FOOTNOTES:

Crane operator with main boom and jib 300' or longer: \$1.50 additional to the group 1 rate. Crane operator with main boom and jib 400' or longer: \$3.00 additional to the group 1 rate.

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

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

GROUP 2: Crane Operator with main boom & jib 140' or longer, Tower Crane; Gantry Crane; Whirley Derrick.

GROUP 3: Regular Equipment Operator, Crane, Dozer, Loader, Hoist, Straddle Wagon, Mechanic, Grader and Hydro Excavator.

GROUP 4: Air Tugger (single drum), Material Hoist Pump 6" or over, Elevators, Brokk Concrete Breaker.

GROUP 5: Air Compressor, Welder, Generators, Conveyors

GROUP 6: Oiler and fire tender

 ENGI0324-005 09/01/2022

AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KWEENAW, LAKE, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

Rates Fringes

OPERATOR: Power Equipment
 (Underground construction
 (including sewer))

AREA 1:		
GROUP 1.....	\$ 39.38	24.85
GROUP 2.....	\$ 34.65	24.85
GROUP 3.....	\$ 33.92	24.85
GROUP 4.....	\$ 33.35	24.85
GROUP 5.....	\$ 24.90	12.05
AREA 2:		
GROUP 1.....	\$ 37.67	24.85
GROUP 2.....	\$ 32.78	24.85
GROUP 3.....	\$ 32.28	24.85
GROUP 4.....	\$ 32.00	24.85
GROUP 5.....	\$ 24.90	12.05

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backfiller tamper; Backhoe; Batch plant operator (concrete); Clamshell; Concrete paver (2 drums or larger); Conveyor loader (Euclid type); Crane (crawler, truck type or pile driving); Dozer; Dragline; Elevating grader; Endloader; Gradall (and similar type machine); Grader; Mechanic; Power shovel; Roller (asphalt); Scraper (self-propelled or tractor drawn); Side boom tractor (type D-4 or equivalent and larger); Slip form paver; Slope paver; Trencher (over 8 ft. digging capacity); Well drilling rig; Concrete pump with boom operator; Hydro Excavator

GROUP 2: Boom truck (power swing type boom); Crusher; Hoist; Pump (1 or more - 6-in. discharge or larger - gas or diesel- powered or powered by generator of 300 amperes or more - inclusive of generator); Side boom tractor (smaller than type D-4 or equivalent); Tractor (pneu-tired, other than backhoe or front end loader); Trencher (8-ft. digging capacity and smaller); Vac Truck and End dump operator;

GROUP 3: Air compressors (600 cfm or larger); Air compressors (2 or more-less than 600 cfm); Boom truck (non-swinging, non-powered type boom); Concrete breaker (self-propelled or truck mounted - includes compressor); Concrete paver (1 drum-1/2 yd. or larger); Elevator (other than passenger); Maintenance person; Pump (2 or more-4-in. up to 6-in. discharge-gas or diesel powered - excluding submersible pumps); Pumpcrete machine (and similar equipment); Wagon drill (multiple); Welding machine or generator (2 or more-300 amp. or larger - gas or diesel powered)

GROUP 4: Boiler; Concrete saw (40 hp or over); Curing machine (self-propelled); Farm tractor (with attachment); Finishing machine (concrete); Hydraulic pipe pushing machine; Mulching equipment; Pumps (2 or more up to 4-in. discharge, if used 3 hours or more a day, gas or diesel powered - excluding submersible pumps); Roller (other than asphalt); Stump remover; Trencher (service); Vibrating compaction equipment, self-propelled (6 ft. wide or over); Sweeper (Wayne type); Water wagon and Extend-a boom forklift

Group 5: Fire Person, Oiler

 * ENGI0324-006 06/01/2022

GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW, WAYNE, ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

Rates Fringes

Power equipment operators:
 (AIRPORT, BRIDGE & HIGHWAY
 CONSTRUCTION)

GROUP 1.....	\$ 38.86	24.85
GROUP 2.....	\$ 32.13	24.85
GROUP 3.....	\$ 31.57	24.85
GROUP 4.....	\$ 31.40	24.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt plant operator; Crane operator (does not include work on bridge construction projects when the crane operator is erecting structural components); Dragline operator; Shovel operator; Locomotive operator; Paver operator (5 bags or more); Elevating grader operator; Pile driving operator; Roller operator (asphalt); Blade grader operator; Trenching machine operator (ladder or wheel type); Auto-grader; Slip form paver; Self-propelled or tractor-drawn scraper; Conveyor loader operator (Euclid type); Endloader operator (1 yd. capacity and over); Bulldozer; Hoisting engineer; Tractor operator; Finishing machine operator (asphalt); Mechanic; Pump operator (6-in.

discharge or over, gas, diesel powered or generator of 300 amp. or larger); Shouldering or gravel distributing machine operator (self- propelled); Backhoe (with over 3/8 yd. bucket); Side boom tractor (type D-4 or equivalent or larger); Tube finisher (slip form paving); Gradall (and similar type machine); Asphalt paver (self- propelled); Asphalt planer (self-propelled); Batch plant (concrete-central mix); Slurry machine (asphalt); Concrete pump (3 in. and over); Roto-mill; Swinging boom truck (over 12 ton capacity); Hydro demolisher (water blaster); Farm-type tractor with attached pan; Vacuum truck operator; Batch Plant (concrete dry batch); Concrete Saw Operator (40h.p. or over; Tractor Operator (farm type); Finishing Machine Operator (concrete); Grader Operator (self-propelled fine grade or form (concrete)).

GROUP 2: Screening plant operator; Washing plant operator; Crusher operator; Backhoe (with 3/8 yd. bucket or less); Side boom tractor (smaller than D-4 type or equivalent); Sweeper (Wayne type and similar equipment); Greese Truck; Air Compressor Operator (600 cu.ft. per min or more); Air Compressor Operator (two or more, less than 600 cfm);

GROUP 3: Boiler fire tender; Tractor operator (farm type with attachment); Concrete Breaker; Wagon Drill Operator;

GROUP 4: Oiler; Fire tender; Trencher (service); Flexplane operator; Cleftplane operator; Boom or winch hoist truck operator; Endloader operator *under 1 yd. capacity); Roller Operator (other than asphalt); Curing equipment operator (self-propelled); Power bin operator; Plant drier (6 ft. wide or over); Guard post driver operator (power driven); All mulching equipment; Stump remover; Concrete pump (under 3-in.); Mesh installer (self-propelled); End dump; Skid Steer.

 * ENGI0324-007 05/01/2023

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
Compressor, welder and forklift.....	\$ 38.50	25.00
Crane operator, main boom & jib 120' or longer.....	\$ 44.97	25.00
Crane operator, main boom & jib 140' or longer.....	\$ 44.17	24.60
Crane operator, main boom & jib 220' or longer.....	\$ 45.27	25.00
Mechanic with truck and tools.....	\$ 44.10	25.00
Oiler and fireman.....	\$ 39.96	25.00
Regular operator.....	\$ 42.32	25.00

 ENGI0324-008 10/01/2022

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,

CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE, MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

Rates Fringes

OPERATOR: Power Equipment
(Sewer Relining)

GROUP 1.....	\$ 35.37	14.77
GROUP 2.....	\$ 33.33	14.77

SEWER RELINING CLASSIFICATIONS

GROUP 1: Operation of audio-visual closed circuit TV system, including remote in-ground cutter and other equipment used in connection with the CCTV system

GROUP 2: Operation of hot water heaters and circulation systems, water jetters and vacuum and mechanical debris removal systems

ENGI0325-012 05/01/2023

Rates Fringes

Power equipment operators -
gas distribution and duct
installation work:

GROUP 1.....	\$ 36.18	25.25
GROUP 2.....	\$ 33.45	25.25

SCOPE OF WORK: The construction, installation, treating and reconditioning of pipelines transporting gas vapors within cities, towns, subdivisions, suburban areas, or within private property boundaries, up to and including private meter settings of private industrial, governmental or other premises, more commonly referred to as ""distribution work,"" starting from the first metering station, connection, similar or related facility, of the main or cross country pipeline and including duct installation.

Group 1: Backhoe, crane, grader, mechanic, dozer (D-6 equivalent or larger), side boom (D-4 equivalent or larger), trencher(except service), endloader (2 yd. capacity or greater).

GROUP 2: Dozer (less than D-6 equivalent), endloader (under 2 yd. capacity), side boom (under D-4 capacity), backfiller, pumps (1 or 2 of 6-inch discharge or greater), boom truck (with powered boom), tractor (wheel type other than backhoe or front endloader). Tamper (self-propelled), boom truck (with non-powered boom), concrete saw (20 hp or larger), pumps (2 to 4 under 6-inch discharge), compressor (2 or more or when one is used continuously into the second day) and trencher(service). Oiler, hydraulic pipe pushing

machine, grease person and hydrostatic testing operator.

 IRON0008-007 06/01/2022

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON,
 IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON
 AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector.....	\$ 23.70	6.95
IRONWORKER		
General contracts \$10,000,000 or greater.....	\$ 38.14	28.70
General contracts less than \$10,000,000.....	\$ 38.14	28.70

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor
 Day, Thanksgiving Day & Christmas Day.

 IRON0025-002 06/01/2022

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON,
 CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO,
 ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND,
 MONTMORENCY, OAKLAND, OGEAW, OSCODA, OTSEGO, PRESQUE ISLE,
 ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA,
 WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector		
ALLEGAN, ANTRIM, BARRY, BENZIE, BRANCH, CALHOUN, CHARLEVOIX, EATON, EMMET, GRAND TRAVERSE, HILLSDALE, IONIA, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN AND WEXFORD COUNTIES:..	\$ 24.59	25.43
Bay, Genesee, Lapeer, Livingston (east of Burkhardt Road), Macomb, Midland, Oakland, Saginaw, St. Clair, The University of Michigan, Washtenaw (east of U.S. 23) & Wayne...	\$ 25.81	26.43
IRONWORKER		
Ornamental and Structural...	\$ 34.50	38.44
Reinforcing.....	\$ 31.43	34.77

 IRON0055-005 07/01/2022

LENAWEE AND MONROE COUNTIES:

	Rates	Fringes
IRONWORKER		
Pre-engineered metal buildings.....	\$ 23.59	19.35
All other work.....	\$ 33.00	27.20

IRON0292-003 06/01/2020

BERRIEN AND CASS COUNTIES:

	Rates	Fringes
IRONWORKER (Including pre-engineered metal building erector).....		
	\$ 31.75	22.84

LAB00005-006 10/01/2022

	Rates	Fringes
Laborers - hazardous waste abatement: (ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX, CHEBOYGAN, CRAWFORD, EMMET, GRAND TRAVERSE, IOSCO, KALKASKA, LEELANAU, MISSAUKEE, MONTMORENCY, OSCODA, OTSEGO, PRESQUE ISLE AND WEXFORD COUNTIES - Zone 10)		
Levels A, B or C.....	\$ 17.45	12.75
class b.....	\$ 18.64	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 16.45	12.75
class a.....	\$ 17.64	12.90

Zone 10

Laborers - hazardous waste abatement: (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES - Zone 11)		
Levels A, B or C.....	\$ 25.18	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 22.58	12.90

Laborers - hazardous waste abatement: (ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, IONIA COUNTY (except the city of Portland); KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST.		
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JOSEPH AND VAN BUREN COUNTIES

- Zone 9)

Levels A, B or C.....\$ 21.88	13.26
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;	
Also, Level D.....\$ 20.80	12.90

Laborers - hazardous waste

abatement: (ARENAC, BAY,
CLARE, GLADWIN, GRATIOT,
HURON, ISABELLA, MIDLAND,
OGEMAW, ROSCOMMON, SAGINAW

AND TUSCOLA COUNTIES - Zone 8)

Levels A, B or C.....\$ 23.74	12.95
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;	
Also, Level D.....\$ 20.80	12.90

Laborers - hazardous waste

abatement: (CLINTON, EATON
AND INGHAM COUNTIES; IONIA
COUNTY (City of Portland);
LIVINGSTON COUNTY (west of
Oak Grove Rd., including the
City of Howell) - Zone 6)

Levels A, B or C.....\$ 26.33	12.95
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;	
Also, Level D.....\$ 24.64	12.90

Laborers - hazardous waste

abatement: (GENESEE, LAPEER
AND SHIAWASSEE COUNTIES -
Zone 7)

Levels A, B or C.....\$ 24.20	13.80
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;	
Also, Level D.....\$ 23.20	13.80

Laborers - hazardous waste

abatement: (HILLSDALE,
JACKSON AND LENAWEЕ COUNTIES

- Zone 4)

Levels A, B or C.....\$ 27.13	14.95
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;	
Also, Level D.....\$ 24.17	12.90

Laborers - hazardous waste

abatement: (LIVINGSTON COUNTY
(east of Oak Grove Rd. and
south of M-59, excluding the
city of Howell); AND
WASHTENAW COUNTY - Zone 3)

Levels A, B or C.....\$ 29.93	14.20
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Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 28.93	14.20
Laborers - hazardous waste abatement: (MACOMB AND WAYNE COUNTIES - Zone 1)		
Levels A, B or C.....	\$ 29.93	16.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 28.93	16.90
Laborers - hazardous waste abatement: (MONROE COUNTY - Zone 4)		
Levels A, B or C.....	\$ 31.75	14.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 31.75	14.90
Laborers - hazardous waste abatement: (OAKLAND COUNTY and the Northeast portion of LIVINGSTON COUNTY bordered by Oak Grove Road on the West and M-59 on the South - Zone 2)		
Level A, B, C.....	\$ 29.93	16.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 28.93	16.90
Laborers - hazardous waste abatement: (SANILAC AND ST. CLAIR COUNTIES - Zone 5)		
Levels A, B or C.....	\$ 26.21	16.62
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 24.75	16.35

LAB00259-001 09/01/2022

AREA 1: MACOMB, OAKLAND AND WAYNE COUNTIES
 AREA 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONROE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST.

JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN,
WASHTENAW AND WEXFORD COUNTIES

	Rates	Fringes
Laborers - tunnel, shaft and caisson:		
AREA 1		
GROUP 1.....	\$ 23.62	16.95
GROUP 2.....	\$ 23.73	19.95
GROUP 3.....	\$ 23.79	16.95
GROUP 4.....	\$ 23.97	16.95
GROUP 5.....	\$ 24.22	16.95
GROUP 6.....	\$ 24.55	16.95
GROUP 7.....	\$ 17.83	16.95
AREA 2		
GROUP 1.....	\$ 25.15	12.95
GROUP 2.....	\$ 25.24	12.95
GROUP 3.....	\$ 25.34	12.95
GROUP 4.....	\$ 25.50	12.95
GROUP 5.....	\$ 25.76	12.95
GROUP 6.....	\$ 26.07	12.95
GROUP 7.....	\$ 18.34	12.95

SCOPE OF WORK: Tunnel, shaft and caisson work of every type and description and all operations incidental thereto, including, but not limited to, shafts and tunnels for sewers, water, subways, transportation, diversion, sewerage, caverns, shelters, aquifers, reservoirs, missile silos and steel sheeting for underground construction.

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Tunnel, shaft and caisson laborer, dump, shanty, hog house tender, testing (on gas) and watchman

GROUP 2: Manhole, headwall, catch basin builder, bricklayer tender, mortar machine and material mixer

GROUP 3: Air tool operator (jackhammer, bush hammer and grinder), first bottom, second bottom, cage tender, car pusher, carrier, concrete, concrete form, concrete repair, cement invert laborer, cement finisher, concrete shoveler, conveyor, floor, gasoline and electric tool operator, gunite, grout operator, welder, heading dinky person, inside lock tender, pea gravel operator, pump, outside lock tender, scaffold, top signal person, switch person, track, tigger, utility person, vibrator, winch operator, pipe jacking, wagon drill and air track operator and concrete saw operator (under 40 h.p.)

GROUP 4: Tunnel, shaft and caisson mucker, bracer, liner plate, long haul dinky driver and well point

GROUP 5: Tunnel, shaft and caisson miner, drill runner, key board operator, power knife operator, reinforced steel or mesh (e.g. wire mesh, steel mats, dowel bars, etc.)

GROUP 6: Dynamite and powder

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LAB00334-001 09/01/2022

	Rates	Fringes
Laborers - open cut:		
ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES:		
GROUP 1.....	\$ 23.47	16.72
GROUP 2.....	\$ 23.58	16.72
GROUP 3.....	\$ 23.63	16.72
GROUP 4.....	\$ 23.71	16.72
GROUP 5.....	\$ 24.17	16.72
GROUP 6.....	\$ 22.00	16.72
GROUP 7.....	\$ 17.84	16.72
ZONE 2 - LIVINGSTON COUNTY (east of M-151 (Oak Grove Rd.)); MONROE AND WASHTENAW COUNTIES:		
GROUP 1.....	\$ 25.20	16.72
GROUP 2.....	\$ 24.91	16.72
GROUP 3.....	\$ 25.03	16.72
GROUP 4.....	\$ 25.10	16.72
GROUP 5.....	\$ 25.25	16.72
GROUP 6.....	\$ 22.55	16.72
GROUP 7.....	\$ 22.11	16.72
ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (City of Portland); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (west of M-151 Oak Grove Rd.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES:		
GROUP 1.....	\$ 23.39	16.72
GROUP 2.....	\$ 23.13	16.72
GROUP 3.....	\$ 23.25	16.72
GROUP 4.....	\$ 23.30	16.72
GROUP 5.....	\$ 23.44	16.72
GROUP 6.....	\$ 20.74	16.72
GROUP 7.....	\$ 22.23	16.72
ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE,		

ROSCOMMON, SAGINAW, ST.
 JOSEPH, TUSCOLA, VAN BUREN
 AND WEXFORD COUNTIES:

GROUP 1.....	\$ 22.42	16.72
GROUP 2.....	\$ 22.15	16.72
GROUP 3.....	\$ 22.26	16.72
GROUP 4.....	\$ 22.33	16.72
GROUP 5.....	\$ 22.45	16.72
GROUP 6.....	\$ 19.67	16.72
GROUP 7.....	\$ 22.30	16.72

ZONE 5 - ALGER, BARAGA,
 CHIPPEWA, DELTA,
 DICKINSON, GOGEBIC,
 HOUGHTON, IRON,
 KEWEENAW, LUCE, MACKINAC,
 MARQUETTE, MENOMINEE,
 ONTONAGON AND SCHOOLCRAFT
 COUNTIES:

GROUP 1.....	\$ 22.24	16.72
GROUP 2.....	\$ 22.38	16.72
GROUP 3.....	\$ 22.51	16.72
GROUP 4.....	\$ 22.56	16.72
GROUP 5.....	\$ 22.64	16.72
GROUP 6.....	\$ 19.99	16.72
GROUP 7.....	\$ 22.45	16.72

SCOPE OF WORK:

Open cut construction work shall be construed to mean work which requires the excavation of earth including industrial, commercial and residential building site excavation and preparation, land balancing, demolition and removal of concrete and underground appurtenances, grading, paving, sewers, utilities and improvements; retention, oxidation, flocculation and irrigation facilities, and also including but not limited to underground piping, conduits, steel sheeting for underground construction, and all work incidental thereto, and general excavation. For all areas except the Upper Peninsula, open cut construction work shall also be construed to mean waterfront work, piers, docks, seawalls, breakwalls, marinas and all incidental work. Open cut construction work shall not include any structural modifications, alterations, additions and repairs to buildings, or highway work, including roads, streets, bridge construction and parking lots or steel erection work and excavation for the building itself and back filling inside of and within 5 ft. of the building and foundations, footings and piers for the building. Open cut construction work shall not include any work covered under Tunnel, Shaft and Caisson work.

OPEN CUT LABORER CLASSIFICATIONS

GROUP 1: Construction laborer

GROUP 2: Mortar and material mixer, concrete form person, signal person, well point person, manhole, headwall and catch basin builder, headwall, seawall, breakwall and dock builder

GROUP 3: Air, gasoline and electric tool operator, vibrator operator, driller, pump person, tar kettle operator, bracer, rodder, reinforced steel or mesh person (e.g., wire mesh, steel mats, dowel bars, etc.), welder, pipe jacking and boring person, wagon drill and air track operator and

concrete saw operator (under 40 h.p.), windlass and tugger person and directional boring person

GROUP 4: Trench or excavating grade person

GROUP 5: Pipe layer (including crock, metal pipe, multi-plate or other conduits)

GROUP 6: Grouting man, audio-visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenances

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LAB00465-001 06/01/2022

LABORER: Highway, Bridge and Airport Construction

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA AND VAN BUREN COUNTIES

AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON AND WEXFORD COUNTIES

AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES

	Rates	Fringes
LABORER (AREA 1)		
GROUP 1.....	\$ 32.02	13.95
GROUP 2.....	\$ 32.15	13.95
GROUP 3.....	\$ 32.33	13.95
GROUP 4.....	\$ 32.41	13.95
GROUP 5.....	\$ 32.62	13.95
GROUP 6.....	\$ 32.92	13.95
LABORER (AREA 2)		
GROUP 1.....	\$ 26.92	12.90
GROUP 2.....	\$ 27.12	12.90
GROUP 3.....	\$ 27.36	12.90
GROUP 4.....	\$ 27.71	12.90
GROUP 5.....	\$ 27.58	12.90
GROUP 6.....	\$ 27.92	12.90
LABORER (AREA 3)		
GROUP 1.....	\$ 26.22	12.90
GROUP 2.....	\$ 26.43	12.90
GROUP 3.....	\$ 26.72	12.90

GROUP 4.....	\$ 27.16	12.90
GROUP 5.....	\$ 26.78	12.90
GROUP 6.....	\$ 27.21	12.90
LABORER (AREA 4)		
GROUP 1.....	\$ 26.22	12.90
GROUP 2.....	\$ 26.43	12.90
GROUP 3.....	\$ 26.72	12.90
GROUP 4.....	\$ 27.16	12.90
GROUP 5.....	\$ 26.78	12.90
GROUP 6.....	\$ 27.21	12.90

LABORER CLASSIFICATIONS

GROUP 1: Asphalt shoveler or loader; asphalt plant misc.; burlap person; yard person; dumper (wagon, truck, etc.); joint filling laborer; miscellaneous laborer; unskilled laborer; sprinkler laborer; form setting laborer; form stripper; pavement reinforcing; handling and placing (e.g., wire mesh, steel mats, dowel bars); mason's tender or bricklayer's tender on manholes; manhole builder; headwalls, etc.; waterproofing, (other than buildings) seal coating and slurry mix, shoring, underpinning; pressure grouting; bridge pin and hanger removal; material recycling laborer; horizontal paver laborer (brick, concrete, clay, stone and asphalt); ground stabilization and modification laborer; grouting; waterblasting; top person; railroad track and trestle laborer; carpenters' tender; guard rail builders' tender; earth retention barrier and wall and M.S.E. wall installer's tender; highway and median installer's tender (including sound, retaining, and crash barriers); fence erector's tender; asphalt raker tender; sign installer; remote control operated equipment.

GROUP 2: Mixer operator (less than 5 sacks); air or electric tool operator (jackhammer, etc.); spreader; boxperson (asphalt, stone, gravel); concrete paddler; power chain saw operator; paving batch truck dumper; tunnel mucker (highway work only); concrete saw (under 40 h.p.) and dry pack machine; roto-mill grounds person.

GROUP 3: Tunnel miner (highway work only); finishers tenders; guard rail builders; highway and median barrier installer; earth retention barrier and wall and M.S.E. wall installer's (including sound, retaining and crash barriers); fence erector; bottom person; powder person; wagon drill and air track operator; diamond and core drills; grade checker; certified welders; curb and side rail setter's tender.

GROUP 4: Asphalt raker

GROUP 5: Pipe layers, oxy-gun

GROUP 6: Line-form setter for curb or pavement; asphalt screed checker/screw man on asphalt paving machines.

LABO1076-005 04/01/2023

MICHIGAN STATEWIDE

	Rates	Fringes
LABORER (DISTRIBUTION WORK)		
Zone 1.....	\$ 25.17	13.32

Zone 2.....	\$ 24.22	13.45
Zone 3.....	\$ 21.60	13.45
Zone 4.....	\$ 20.97	13.43
Zone 5.....	\$ 21.00	13.40

DISTRIBUTION WORK - The construction, installation, treating and reconditioning of distribution pipelines transporting coal, oil, gas or other similar materials, vapors or liquids, including pipelines within private property boundaries, up to and including the meter settings on residential, commercial, industrial, institutional, private and public structures. All work covering pumping stations and tank farms not covered by the Building Trades Agreement. Other distribution lines with the exception of sewer, water and cable television are included.

Underground Duct Layer Pay: \$.40 per hour above the base pay rate.

Zone 1 - Macomb, Oakland and Wayne

Zone 2 - Monroe and Washtenaw

Zone 3 - Bay, Genesee, Lapeer, Midland, Saginaw, Sanilac, Shiawassee and St. Clair

Zone 4 - Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon and Schoolcraft

Zone 5 - Remaining Counties in Michigan

PAIN0022-002 07/01/2008

HILLSDALE, JACKSON AND LENAWEE COUNTIES; LIVINGSTON COUNTY (east of the eastern city limits of Howell, not including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 25.06	14.75

FOOTNOTES: For all spray work and journeyman rigging for spray work, also blowing off, \$0.80 per hour additional (applies only to workers doing rigging for spray work on off the floor work. Does not include setting up or moving rigging on floor surfaces, nor does it apply to workers engaged in covering up or tending spray equipment. For all sandblasting and spray work performed on highway bridges, overpasses, tanks or steel, \$0.80 per hour additional. For all brushing, cleaning and other preparatory work (other than spraying or steeplejack work) at scaffold heights of fifty (50) feet from the ground or higher, \$0.50 per hour additional. For all preparatorial work and painting performed on open steel under forty (40) feet when no scaffolding is involved, \$0.50 per hour additional. For all swing stage work-window jacks and window belts-exterior and interior, \$0.50 per hour additional. For all spray work and sandblaster work to a scaffold height of forty (40) feet above the floor level, \$0.80 per hour additional. For all preparatorial work and painting on all highway bridges or overpasses up to forty (40) feet in height, \$0.50 per hour additional. For all steeplejack work performed where the elevation is forty (40) feet or more, \$1.25 per hour additional.

PAIN0312-001 06/01/2018

EXCLUDES: ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); INCLUDES: Barry, Berrien, Branch, Calhoun, Cass, Hillsdale, Kalamazoo, St. Joseph, Van Buren

	Rates	Fringes
PAINTER		
Brush and roller.....	\$ 23.74	13.35
Spray, Sandblast, Sign		
Painting.....	\$ 24.94	13.35

PAIN0845-003 05/10/2018

CLINTON COUNTY; EATON COUNTY (does not include the townships of Bellevue and Olivet); INGHAM COUNTY; IONIA COUNTY (east of Hwy. M 66); LIVINGSTON COUNTY (west of the eastern city limits of Howell, including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); AND SHIAWASSEE COUNTY (Townships of Bennington, Laingsbury and Perry):

	Rates	Fringes
PAINTER.....	\$ 25.49	13.74

PAIN0845-015 05/10/2018

MUSKEGON COUNTY; NEWAYGO COUNTY (except the Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OCEANA COUNTY; OTTAWA COUNTY (except the townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER.....	\$ 25.49	13.74

PAIN0845-018 05/10/2018

ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); IONIA COUNTY (west of Hwy. M-66); KENT, MECOSTA AND MONTCALM COUNTIES; NEWAYGO COUNTY (Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OSCEOLA COUNTY (south of Hwy. #10); OTTAWA COUNTY (Townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER.....	\$ 25.49	13.74

FOOTNOTES: Lead abatement work: \$1.00 per hour additional.

PAIN1011-003 06/02/2022

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON,
IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON
AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 24.66	14.99

FOOTNOTES: High pay (bridges, overpasses, watertower): 30 to
80 ft.: \$.65 per hour additional. 80 ft. and over: \$1.30
per hour additional.

PAIN1474-002 06/01/2010

HURON COUNTY; LAPEER COUNTY (east of Hwy. M-53); ST. CLAIR,
SANILAC AND TUSCOLA COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 23.79	12.02

FOOTNOTES: Lead abatement work: \$1.00 per hour additional.
Work with any hazardous material: \$1.00 per hour
additional. Sandblasting, steam cleaning and acid cleaning:
\$1.00 per hour additional. Ladder work at or above 40 ft.,
scaffold work at or above 40 ft., swing stage, boatswain
chair, window jacks and all work performed over a falling
height of 40 ft.: \$1.00 per hour additional. Spray gun
work, pick pullers and those handling needles, blowing off
by air pressure, and any person rigging (setting up and
moving off the ground): \$1.00 per hour additional.
Steeplejack, tanks, gas holders, stacks, flag poles, radio
towers and beacons, power line towers, bridges, etc.: \$1.00
per hour additional, paid from the ground up.

PAIN1803-003 06/01/2019

ALCONA, ALPENA, ANTRIM, ARENAC, BAY, BENZIE, CHARLEVOIX,
CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE,
GRATIOT, IOSCO, ISABELLA, KALKASKA, LAKE, LEELANAU, MANISTEE,
MASON, MIDLAND, MISSAUKEE, MONTMORENCY AND OGEMAW COUNTIES;
OSCEOLA COUNTY (north of Hwy. #10); OSCODA, OTSEGO, PRESQUE
ISLE, ROSCOMMON, SAGINAW AND WEXFORD COUNTIES:

	Rates	Fringes
PAINTER Work performed on water, bridges over water or moving traffic, radio and powerline towers, elevated tanks, steeples, smoke stacks over 40 ft. of falling heights, recovery of lead-based paints and any work associated with industrial plants, except		

maintenance of industrial plants.....	\$ 25.39	14.68
All other work, including maintenance of industrial plant.....	\$ 25.39	14.68

FOOTNOTES: Spray painting, sandblasting, blowdown associated with spraying and blasting, water blasting and work involving a swing stage, boatswain chair or spider: \$1.00 per hour additional. All work performed inside tanks, vessels, tank trailers, railroad cars, sewers, smoke stacks, boilers or other spaces having limited egress not including buildings, opentop tanks, pits, etc.: \$1.25 per hour additional.

 PLAS0514-001 06/01/2018

ZONE 1: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES

ZONE 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
ZONE 1.....	\$ 31.47	13.81
ZONE 2.....	\$ 29.97	13.81

 PLUM0190-003 05/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE, MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
Plumber/Pipefitter - gas distribution pipeline: Welding in conjunction with gas distribution pipeline work.....	\$ 33.03	20.19

All other work:.....\$ 24.19 12.28

TEAM0007-004 06/01/2020

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

Rates Fringes

TRUCK DRIVER

AREA 1

Euclids, double bottoms and lowboys.....\$ 28.05 .50 + a+b
Trucks under 8 cu. yds.....\$ 27.80 .50 + a+b
Trucks, 8 cu. yds. and over.....\$ 27.90 .50 + a+b

AREA 2

Euclids, double bottomms and lowboys.....\$ 24.895 .50 + a+b
Euclids, double bottoms and lowboys.....\$ 28.15 .50 + a+b
Trucks under 8 cu. yds.....\$ 27.90 .50 + a+b
Trucks, 8 cu. yds. and over.....\$ 28.00 .50 + a+b

Footnote:

- a. \$470.70 per week
- b. \$68.70 daily

TEAM0247-004 04/01/2013

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, SAGINAW, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

Rates Fringes

Sign Installer

AREA 1		
GROUP 1.....	\$ 21.78	11.83
GROUP 2.....	\$ 25.27	11.8375
AREA 2		
GROUP 1.....	\$ 22.03	11.83
GROUP 2.....	\$ 25.02	11.8375

FOOTNOTE:

a. \$132.70 per week, plus \$17.80 per day.

SIGN INSTALLER CLASSIFICATIONS:

GROUP 1: performs all necessary labor and uses all tools required to construct and set concrete forms required in the installation of highway and street signs

GROUP 2: performs all miscellaneous labor, uses all hand and power tools, and operates all other equipment, mobile or otherwise, required for the installation of highway and street signs

TEAM0247-010 04/01/2018

AREA 1: LAPEER AND SHIAWASSEE COUNTIES

AREA 2: GENESEE, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

Rates Fringes

TRUCK DRIVER (Underground construction)

AREA 1		
GROUP 1.....	\$ 23.82	19.04
GROUP 2.....	\$ 23.91	19.04
GROUP 3.....	\$ 24.12	19.04
AREA 2		
GROUP 1.....	\$ 24.12	19.04
GROUP 2.....	\$ 24.26	19.04
GROUP 3.....	\$ 24.45	19.04

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

SCOPE OF WORK: Excavation, site preparation, land balancing, grading, sewers, utilities and improvements; also including but not limited to, tunnels, underground piping, retention, oxidation, flocculation facilities, conduits, general excavation and steel sheeting for underground construction. Underground construction work shall not include any structural modifications, alterations, additions and repairs to buildings or highway work, including roads, streets, bridge construction and parking lots or steel erection.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver on all trucks (EXCEPT dump trucks of 8 cubic yards capacity or over, pole trailers, semis, low boys, Euclid, double bottom and fuel trucks)

GROUP 2: Truck driver on dump trucks of 8 cubic yards capacity or over, pole trailers, semis and fuel trucks

GROUP 3: Truck driver on low boy, Euclid and double bottom

* SUMI2002-001 05/01/2002

	Rates	Fringes
Flag Person.....	\$ 10.10 **	0.00
LINE PROTECTOR (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)....	\$ 22.89	13.45
LINE PROTECTOR (ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE).....	\$ 20.19	13.45
Pavement Marking Machine (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES) Group 1.....	\$ 30.52	13.45
Pavement Marking Machine (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE) Group 2.....	\$ 27.47	13.45
Pavement Marking Machine (ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES) Group 1.....	\$ 26.92	13.45
Pavement Marking Machine (ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE) Group 2.....	\$ 24.23	13.45

WORK CLASSIFICATIONS:

PAVEMENT MARKER GROUP 1: Drives or operates a truck mounted striper, grinder, blaster, groover, or thermoplastic melter for the placement or removal of temporary or permanent pavement markings or markers.

PAVEMENT MARKER GROUP 2: Performs all functions involved for the placement or removal of temporary or permanent pavement markings or markers not covered by the classification of Pavement Marker Group 1 or Line Protector.

LINE PROTECTOR: Performs all operations for the protection or removal of temporary or permanent pavement markings or markers in a moving convoy operation not performed by the classification of Pavement Marker Group 1. A moving convoy operation is comprised of only Pavement Markers Group 1 and Line Protectors.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$16.20) or 13658 (\$12.15). Please see the Note at the top of the wage determination for more information.

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 <https://www.dol.gov/agencies/whd/government-contracts>.

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 National Office because National Office has 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.

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END OF GENERAL DECISIO"



*Measurement and Payment, Special Provisions,
City Provided Materials Pricing*

**Balch Street (Park St. to Burdick St.)
Water Main Replacement**

Bid Reference #: 91244-025.0

June 2023

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

Water Main Material Advance Purchase

City of Kalamazoo

04/11/2023

a. Description

General

For the unit price per linear foot bid for the various water main, the Contractor shall do all work necessary to construct complete ready for service water main system and test the water main as shown on the plans and as specified, except for work which is specifically included under other contract items. All work shall be done in accordance with section 823 of the 2020 MDOT Standard Specifications for Construction and City of Kalamazoo Standard Specifications for Water Main and Service Installation 2021 available at kalamazoocity.org, unless otherwise specified herein.

b. Materials

Ductile Iron pipe, restrained joints, fittings, polyethylene encasement and associated appurtenances listed below shall be supplied new by the City of Kalamazoo from their selected supplier at no cost to the Contractor. The Contractor shall be responsible for coordinating delivery of materials by contacting the City's specified supplier a minimum of 10 working days prior to desired delivery. In advance of material delivery, a centralized delivery yard shall be established by the Contractor and agreed upon with the City and City's material supplier on or adjacent to the project site. The contractor shall supply any materials not explicitly listed below that are necessary to construct the project. These materials shall be incidental to construction. No second hand or salvaged materials shall be allowed or supplied. All supplied products shall be "**Buy American**" unless otherwise specified and shall comply with the conditions of this section.

Contractor shall review the plans and list of City supplied materials during bidding and throughout construction. If Contractor believes additional quantities will be required, Contractor shall immediately notify the City in writing, and the City shall provide the materials at no cost to the Contractor. City shall not be responsible for any downtime or construction delays associated with insufficient materials being available during construction as the Contractor shall notify the City of foreseen insufficient materials during the bid period. Contractor shall be responsible for all delays and downtime associated with Contractor supplied materials, and shall purchase, provide, and install materials not explicitly listed below that are necessary to construct the project as designed.

All City provided materials, not used during construction, shall be returned to the City within one week of water main and service installation completion, unless otherwise directed by the City's project manager. The Contractor shall be responsible for transporting any excess material from the project site to 415 E. Stockbridge Ave., Kalamazoo, MI. This includes, but is not limited to, partial and full sticks of pipe, partial and full rolls of copper (including tag ends of copper services), valves, fittings, gaskets, bolts, etc.

City provided materials shall be used efficiently and waste from cutting pipes, etc. shall be minimized. City provided materials shall be handled with care and protected from damage, vandalism and thievery. City shall not be responsible for providing additional materials due to theft or mishandling by contractor.

Contractor shall wash the inside of all pipe and fittings with chlorinated water (maximum 200 ppm chlorine solution) immediately prior to placement in the trench. Water pressure and velocity during washing shall not exceed manufacture's recommendations or damage the pipe or fittings.

Contractor shall provide 2 year warranty as described in the City of Kalamazoo Standard Specifications for Water Main and Service Installation. Warranty shall cover all City and Contractor provided parts and materials; and associated contractor labor costs.

Contractor and Engineer shall track City provided material delivery and usage on a daily basis.

Unit pricing is included below for the for the City's procurement of materials for the Contractor to account for sales and use tax per the Michigan Department of Treasury RAB 2016-18. Sales and use tax pricing shall be included in the major items of work.

ITEM	UNIT	UNIT PRICE	QUANTITY	EXTENDED PRICE
POLYETHYLENE ENCASEMENT, 4 INCH	FT	\$ 5.40	20	\$ 108.00
POLYETHYLENE ENCASEMENT, 6 INCH	FT	\$ 1.12	60	\$ 67.20
POLYETHYLENE ENCASEMENT, 8 INCH	FT	\$ 0.67	100	\$ 67.08
POLYETHYLENE ENCASEMENT, 12 INCH	FT	\$ 4.99	20	\$ 99.80
POLYETHYLENE ENCASEMENT, 16 INCH	FT	\$ 4.99	20	\$ 99.80
POLYETHYLENE ENCASEMENT, 24 INCH	FT	\$ 1.33	1200	\$ 1,590.24
DIP_4 INCH	FT	\$ 32.49	20	\$ 649.80
DIP_6 INCH	FT	\$ 24.98	60	\$ 1,498.80
DIP_8 INCH	FT	\$ 35.25	120	\$ 4,230.00
DIP_12 INCH	FT	\$ 58.18	20	\$ 1,163.60
DIP_16 INCH	FT	\$ 84.18	20	\$ 1,683.60
DIP_24 INCH	FT	\$ 138.59	1300	\$ 180,167.00
4" SOLID SLEEVE	EA	\$ 82.00	2	\$ 164.00
6" SOLID SLEEVE	EA	\$ 122.00	2	\$ 244.00
8" SOLID SLEEVE	EA	\$ 159.00	2	\$ 318.00
16" SOLID SLEEVE	EA	\$ 805.00	2	\$ 1,610.00
24" SOLID SLEEVE	EA	\$ 1,780.00	4	\$ 7,120.00
8" 45 DEG BEND	EA	\$ 162.00	14	\$ 2,268.00
16" 45 DEG BEND	EA	\$ 896.00	3	\$ 2,688.00
24" 45 DEG BEND	EA	\$ 2,023.00	12	\$ 24,276.00
24" 22.5 DEG BEND	EA	\$ 1,952.00	8	\$ 15,616.00
24" 11.25 DEG BEND	EA	\$ 1,796.00	4	\$ 7,184.00
4" CAP	EA	\$ 42.00	2	\$ 84.00
6" CAP	EA	\$ 56.00	2	\$ 112.00

8" CAP	EA	\$ 87.00	4	\$ 348.00
12" CAP	EA	\$ 162.00	4	\$ 648.00
16" CAP	EA	\$ 448.00	1	\$ 448.00
24" CAP	EA	\$ 1,056.00	1	\$ 1,056.00
4" PLUG	EA	\$ 54.00	1	\$ 54.00
6" PLUG	EA	\$ 84.00	1	\$ 84.00
8" PLUG	EA	\$ 118.00	1	\$ 118.00
8"X6" TEE	EA	\$ 251.00	2	\$ 502.00
24"X6" TEE	EA	\$ 2,306.00	3	\$ 6,918.00
24"X8" TEE	EA	\$ 2,492.00	2	\$ 4,984.00
24"X16" TEE	EA	\$ 3,413.00	2	\$ 6,826.00
24"X24" TEE	EA	\$ 4,379.00	1	\$ 4,379.00
8"X4" REDUCER	EA	\$ 125.00	1	\$ 125.00
8"x6" REDUCER	EA	\$ 133.00	1	\$ 133.00
24"X12" REDUCER	EA	\$ 1,636.00	1	\$ 1,636.00
4" MEGA LUGS W/ GASKET AND BOLT KIT	EA	\$ 48.00	10	\$ 480.00
6" MEGA LUGS W/ GASKET AND BOLT KIT	EA	\$ 56.00	30	\$ 1,680.00
8" MEGA LUGS W/ GASKET AND BOLT KIT	EA	\$ 75.00	45	\$ 3,375.00
12" MEGA LUGS W/ GASKET AND BOLT KIT	EA	\$ 141.00	10	\$ 1,410.00
16" MEGA LUGS W/ GASKET AND BOLT KIT	EA	\$ 246.00	5	\$ 1,230.00
24" MEGA LUGS W/ GASKET AND BOLT KIT	EA	\$ 539.00	100	\$ 53,900.00
8" FIELD LOCKING GASKET	EA	\$ 126.70	4	\$ 506.80
24" FIELD LOCKING GASKET	EA	\$ 827.52	60	\$ 49,651.20
6" GATE VALVE	EA	\$ 910.00	5	\$ 4,550.00
8" GATE VALVE	EA	\$ 1,407.00	2	\$ 2,814.00
16" BUTTERFLY VALVE	EA	\$ 4,851.00	1	\$ 4,851.00
24" BUTTERFLY VALVE	EA	\$ 10,459.00	8	\$ 83,672.00
VALVE BOX	EA	\$ 257.83	20	\$ 5,156.60
12x12-INCH TAPPING SADDLE WITH VALVE	EA	\$ 5,804.27	1	\$ 5,804.27
HYDRANT	EA	\$ 3,634.00	5	\$ 18,170.00
6" X 13" SWIVEL X SOLID ADAPTER W/ SWIVEL GLAND	EA		5	\$ 1,000.00
24"X1" SADDLE	EA	\$ 111.83	35	\$ 3,914.05
24"X2" SADDLE	EA	\$ 131.58	2	\$ 263.16
0.75" COPPER	FT	\$ 6.03	1300	\$ 7,839.00
1.25" COPPER	FT	\$ 9.90	1300	\$ 12,870.00
2" COPPER	FT	\$ 19.94	60	\$ 1,196.40
1.25" SERVICE BRASS - STREET REDUCING	EA	\$ 256.61	23	\$ 5,902.03
0.75" SERVICE BRASS - YARD	EA	\$ 107.92	10	\$ 1,079.20
2" SERVICE BRASS	EA	\$ 496.41	2	\$ 992.82
CURB BOX	EA	\$ 124.10	23	\$ 2,854.30
FORD BOX COMPLETE, 0.75 INCH	EA	\$ 818.25	4	\$ 3,273.00
AIR RELEASE VALVE, 2 Inch	EA	\$ 1,208.80	1	\$ 1,208.80

TOTAL PRICE			\$ 561,011.55
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Item 1.25" SERVICE BRASS – STREET REDUCING: Shall include one each of the following parts per the Standard Specifications.

Part	Ford #	AY McDonald #
1" CC x 1.25" FC Corporation Stop	FB600-45-NL	74701B - NL, 5142-321
1.25" FCxFIP Curb Stop	B21-555-NL	76102 W - NL, 5142-356
0.75" x 1.25" Bushing	C18-35-NL	72206 D - NL; 5429-036
0.75" MIPxFC	C28-33-NL	74753 - NL, 5120-139

Item 1.25" SERVICE BRASS – STREET: Shall include one each of the following parts per the Standard Specifications.

Part	Ford #	AY McDonald #
1" CC x 1.25" FC Corporation Stop	FB600-45-NL	74701B, 5142-013
1.25" FCxFC Curb Stop	B22-555-NL	76100, 5142-340

Item 0.75" SERVICE BRASS – YARD: Shall include one each of the following parts per the Standard Specifications.

Part	Ford #	AY McDonald #	Apollo
Angle Valve, 0.75" FC x 5/8" MC	BA23-331W-NL	74642B, 5143-195	-
Meter Connector, 5/8" MC x 0.75" MIP	C38-13-2-188-NL	74620, 5124-065	-
0.75" Ball Valve	-	-	77FLF-104-01

Item 1.25" SERVICE BRASS – YARD: Shall include one each of the following parts per the Standard Specifications.

Part	Ford #	AY McDonald #	Apollo
1.25" FCx1"MC Angle Valve	KV23-454W-NL	-	-
Meter Connector, 1" MCx1" MIP	C38-44-2-625-NL	74620, 5124-111	-
1" Ball Valve	-	-	77FLF-105-01

Item 2" SERVICE BRASS: Shall include a 2"x5½" brass nipple, tapping valve, and coupling per the Standard Specifications.

c. Measurement and Payment

1. 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:
 - a. Excavation and backfill;
 - b. Hydrostatic testing;
 - c. Disinfecting and flushing the water main and bacteriological testing;
 - d. All material **not supplied** by the City, labor and equipment necessary to remedy an unsatisfactory hydrostatic test, including removing and replacing any backfill;
 - e. Installing **compact ductile iron fittings**, gaskets, bracing or sheeting, blocking, **polywrap**, and miscellaneous items for installing pipe and reconnecting to the existing Municipal system
 - f. Preparing and providing as-constructed plans within two weeks of water main completion, including autocad(dwg), shapefile, excel or CSV file(s) with coordinates of valves, valve boxes, fittings, hydrants, taps, curb stops and water main pipe (at 60 foot intervals). Michigan State Plane South Coordinate System shall be used and grid to ground scale shall be noted. Accuracy shall be sub-foot.
2. The City of Kalamazoo may withhold payment and/or final acceptance until the City of Kalamazoo accepts the as-built plans.
3. 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.
4. 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.

The Contract Items included under this category of "Water Main and Fittings" and "Water Services" are as follows:

<u>Pay Item</u>	<u>Pay Unit</u>
Water Main, 4 inch, Cut and Cap, Install	Each
Water Main, 6 inch, Cut and Cap, Install	Each
Water Main, 8 inch, Cut and Cap, Install	Each
Water Main, 12 inch, Cut and Cap, Install	Each
Water Main, 16 inch, Cap, Install	Each
Water Main, 24 inch, Cap, Install	Each
Water Main, DI, 4 inch, Tr Det G, Install	Foot
Water Main, DI, 6 inch, Tr Det G, Install	Foot
Water Main, DI, 8 inch, Tr Det G, Install	Foot
Water Main, DI, 16 inch, Tr Det G, Install	Foot
Water Main, DI, 24 inch, Tr Det G, Install	Foot
Gate Valve and Box, 8 inch, Install	Each
Butterfly Valve and Box, 16 inch, Install	Each
Butterfly Valve and Box, 24 inch, Install	Each
Fire Hydrant, Modified, Install	Each
Water Service, Yard, 3/4 inch, Install	Each
Water Service, 1 1/4 inch, Install	Each
Water Service, 2 inch, Install	Each
Copper Water Service Pipe, 3/4 inch, Install	Foot
Copper Water Service Pipe, 1 1/4 inch, Install	Foot
Copper Water Service Pipe, 2 inch, Install	Foot
Curb Stop, 1 1/4 inch, Install	Each
Curb Stop, 2 inch, Install	Each
Water Serv, Private, Install	Each

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.

The cost of removing or abandoning existing water mains, 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.

Payment for Water Main, __inch, Cut and Cap includes the cost of cutting the existing water main, and placing the required plugs and thrust blocks.

Payment for the installation of Compact Ductile Iron Fittings and Polyethylene Encasement shall be included in the pay item for Water Main, _in, Tr Det G, Install (see page 6 for additional detail).

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
WATER MAIN LINE STOP

H&S:TAS

1 of 2

11/30/2022

a. **Description.** This work consists of providing, installing and operating a water main line stop (Hydra-Stop) to isolate a section of existing live water main as shown on the plans and described herein.

Work Included Under Other Contract Items:

Water Main and Fittings
Valves and Boxes
Connect to Existing Main

b. **Materials.** Provide materials in accordance with section 823 of the 2020 MDOT Standard Specifications for Construction and with the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation. Submit catalog cuts to the Engineer for approval prior to ordering line stop materials.

c. **Construction.** Complete all work in accordance with the standard specifications and the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation. Verify the material, size, ovality, and condition of the existing water main prior to ordering the line stop materials.

Verify the pressure in the existing main is below the line stop manufacturer's recommendation before installation of the line stop.

Do not attempt to force, reshape, or bend saddle plates by excessive tightening of saddle studs.

Utilize concrete supports and reaction blocking for the line stop fitting per the City of Kalamazoo 2020 Standard Specifications for Water Main and Service Installation.

Complete a pressure test after assembly of the line stop saddle, drain nozzle and fitting.

Install a completion plug, blind flange and check for water tightness prior to abandonment of the line stop fitting. Coat the whole assembly with a coal tar epoxy to a final minimum cured thickness of 0.020 inches.

d. **Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item.

Pay Item	Pay Unit
Water Main Line Stop, __inch.....	Each

Water Main Line Stop, ___inch includes payment in full for furnishing all material, labor and equipment necessary to perform the work specified herein and shown on the plans.

Perform all work required in conjunction with dewatering operations, without separate payment, and consider it is included in the Water Main Line Stop, ___inch pay item.

Furnish all labor, equipment and materials for trench excavation, disposal, and backfill and consider it is included in the Water Main Line Stop, ___inch pay item.

Removal and replacement of pavement, curb, curb and gutter, and sidewalk will be paid for separately, based on actual quantities.

Cutting and capping of the water main in conjunction with the line stop shall be paid separately, under Water Main Cut and Cap, ___ inch pay item.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
WATER MAIN AIR RELEASE VALVE

H&S:ARP

1 of 3

04/11/2023

- a. **Description.** This work consists of providing and installing air release valve on the new 24" water main.

Work Included Under Other Contract Items:

Water Main and Fittings
Valves and Boxes
Connect to Existing Main

- b. **Materials.** Provide materials in accordance with section 403 and 823 of the 2020 MDOT Standard Specifications for Construction and with the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation.

All air release valves shall be manufactured per ANSI/AWWA C512-04. Cla-Val Series 36 Combination Air Valves or approved equal. The valves shall be with a 2" diameter inlet and outlet.

The combination air valve shall combine the operating features of both an air and vacuum valve and an air release valve in one housing. The air and vacuum valve portion shall automatically exhaust large quantities of air during the filling of the pipeline and automatically allow air to reenter the pipeline when the internal pressure of the pipeline approaches a negative value due to column separation, draining of the pipeline, or other emergency. The air release valve portion shall automatically release small amounts of air from the pipeline while it is under pressure.

The inlet and outlet of the valve shall have the same cross section area. The float shall be guided by a stainless-steel guide shaft and seat drip tight against a synthetic rubber seal. 4 inch and larger valves shall have dual guided shafts of hexagonal cross section and a protective discharge hood.

The float shall be of all stainless-steel construction and capable of withstanding maximum system surge pressure without failure. The body and cover shall be concentrically located end of ductile iron and the valve internal parts shall be stainless steel or Buna-N rubber.

All 1-inch and 2-inch valves shall be NPT. All valves 4 inch and larger shall be flanged.

Sign for air release valves shall be installed as specified by the Engineer at each air release chamber using the same materials specified for a hydrant sign. The sign shall be blue with "Water Valve" in white (see picture below).



c. **Construction.** Complete all work in accordance with the standard specifications and the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation.

Construct air release valves and vaults in accordance to the attached modified WA-05-Series of the City of Kalamazoo Standard Plans.

When installing the air release valves in conjunction with new water main construction, the contractor shall use ductile iron fittings (tapping saddles are not allowed, unless otherwise directed by the engineer).

d. **Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item.

Pay Item

Pay Unit

Water Main Air Release Manhole in RoadwayEach

Water Main Air Release Manhole in Roadway includes payment in full for furnishing all material, labor and equipment necessary to perform the work specified herein and shown on the plans, including all ductile iron fittings and joint restraint.

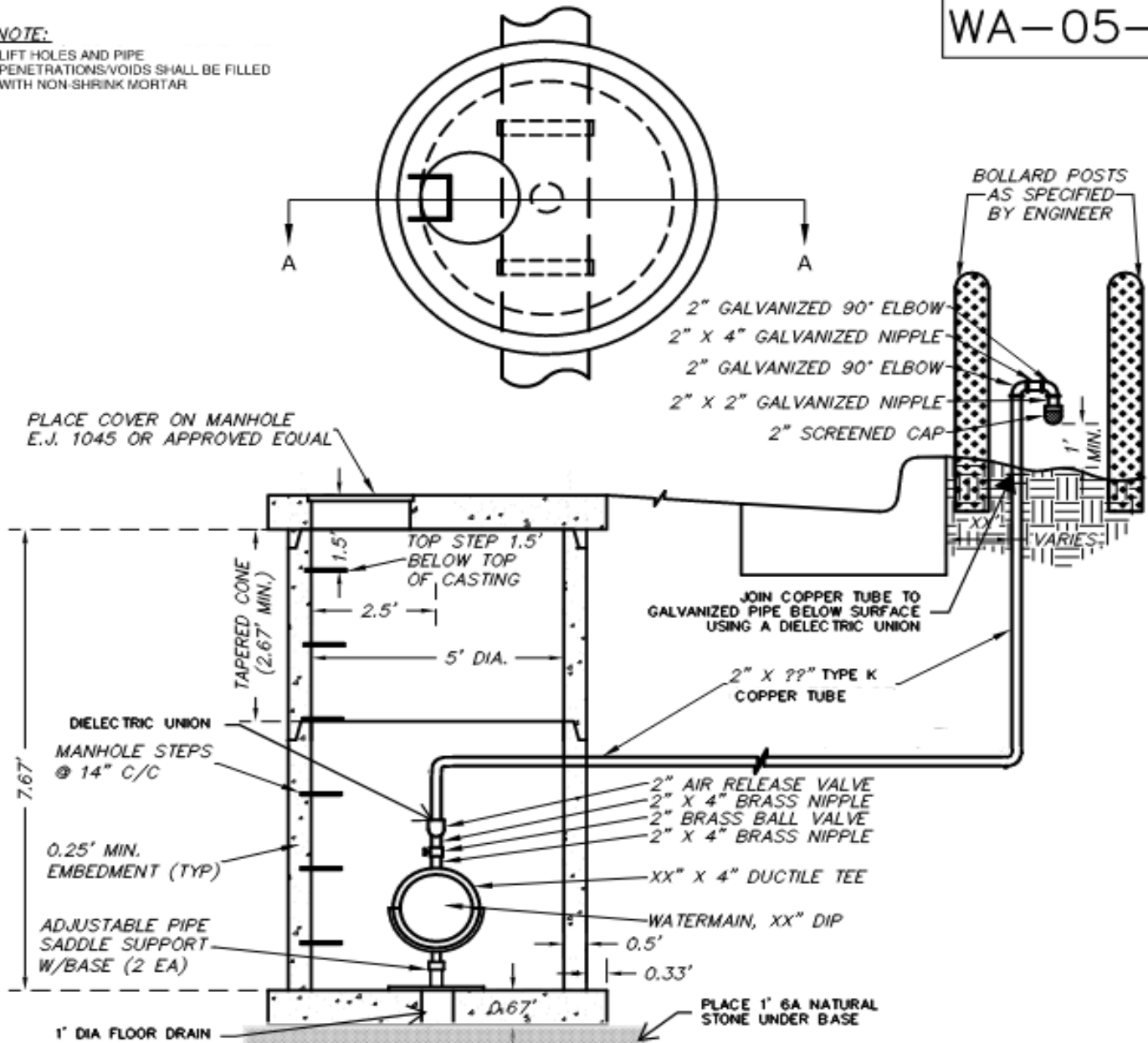
Furnish all labor, equipment and materials for trench excavation, disposal, and backfill and consider it is included in the Water Main Air Release Manhole in Roadway pay item.

Removal and replacement of pavement, curb, curb and gutter, and sidewalk will be paid for separately, based on actual quantities unless otherwise noted.

WA-05-B

NOTE:

LIFT HOLES AND PIPE PENETRATIONS/VOIDS SHALL BE FILLED WITH NON-SHRINK MORTAR



TYPICAL 2" AIR RELEASE MANHOLE

PRECAST REINFORCED CONCRETE SHOWN (OTHER OPTIONS INCLUDE CONCRETE BLOCK, BRICK OR CAST IN PLACE WALL SECTIONS)

SCHEDULE OF FITTINGS

ITEM DESCRIPTION	QUANTITY
AIR RELEASE VALVE, 2"	1
COPPER TUBE 2" X XX"	1
GALVANIZED NIPPLE, 2" X 4"	1
GALVANIZED NIPPLE, 2" X 2"	1
GALVANIZED 90° ELBOW, 2"	2
PIPE SUPPORT BASE	2

ITEM DESCRIPTION	QUANTITY
BRASS BALL VALVE, 2"	1
BRASS NIPPLE, 2" X 4"	2



CITY OF KALAMAZOO
Department Of Public Services

**AIR RELEASE MANHOLE
IN ROADWAY**

RECOMMENDED BY _____

APPROVED BY _____

APPROVED BY _____

ACCEPTED BY _____

DATE

CITY OF KALAMAZOO

SPECIAL PROVISION
FOR
WATER SERVICES

H&S:TAS

1 of 4

04/11/2023

a. **Water Services Description.** This work consists of constructing proposed water services from the distribution main to the curb shut off valve, or as directed by the Engineer. The intent of this special provision is to replace all street side water services and connections between the proposed water main and the existing curb stop locations. This Special Provision shall also be used for temporarily relocating services to the existing water main between S. Park St. W. and S. Burdick St. as provided on the plans.

Non-Copper Water Yard Service Replacement Description. Under the Michigan Lead Copper Rule, partial lead service line replacements are not allowed. Once the service line is taken out of service for replacement, all non-copper or non-plastic portions of that service line, including the water meter, shall be replaced prior to the service being reconnected and the water turned back on to reduce particulate lead release. This includes replacing any non-copper or non-plastic private water lines from meter pits to the inside of the house. All water services with a meter pit must have the service line material from the meter pit to the house verified. Any non-copper water services that need temporary relocation must be replaced at the time of relocation.

Work Included Under Other Contract Items

Water Main and Fittings
Valves and Boxes
Fire Hydrants
Hydrant, Rem

b. **Materials.** Refer to the Water Main Materials Advance Purchase Special Provision for listing of materials supplied by the City of Kalamazoo for this work. Any materials not provided shall meet the requirements of the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation.

c. **Water Service Construction Methods.** This work shall be in accordance with City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation, this special provision and the 2020 MDOT Standard Specifications for Construction. The Contractor shall notify the City of Kalamazoo's Public Services Department before this work is to begin and follow all City procedures for notifying the residents.

1. Water Service, Street

- i. The minimum size for all new services shall be 1 ¼ inch. The property owner may request a larger size if needed.
- ii. When replacing a service that is a ¾ inch service, a new 1 ¼ inch tap will be completed, new 1 ¼ inch street service line installed, and reduced down after the curb shut off.
- iii. Services shall be installed via trenchless installation methods where feasible to minimize pavement removal and open-cut trenches.
- iv. 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.
- v. If relocating a portion of water service, shut down the water service by method approved by the Engineer or authorized representative.
- vi. Install new street side water services from the proposed main to the curb stop.

Replace curb stop valve and box and connect to existing yard service as shown on the plans or determined by the Engineer.

vii. Existing curb boxes shall be completely removed.

2. **Non-Copper Water Service Replacement Construction Methods.** A City supplied water filter shall be provided once the connection is complete.

- i. **Water Service Potholing.** Contractor shall coordinate with Engineer or authorized representative to expose the private line approximately 3' from the meter pit along the private line toward the house until the private line coupling is observed. The pothole shall be backfilled immediately after viewing and data collection.
- ii. **Water Service, Yard.** Shall match the size of the existing service and includes the portion of the water service from the curb stop valve to the meter.
- iii. **Water Service, Private.** Shall match the size of the existing service and includes the portion of the water service from the meter pit to 18" inside the exterior wall or the first valve, whichever is shorter.
- iv. **Plumber.** A plumber licensed in the State of Michigan is required to connect either the meter to the existing private plumbing in the house or to connect the Water Service Private to the existing private plumbing in the house.
- v. **Meter Setting.** The old meter shall be removed and provided to the Engineer or authorized representative. Contractor shall install the new meter, ground clamps, ground wire, and meter remote. The new meter and meter remote stickers shall be provided to the Engineer or authorized representative.

3. **Water Service, 2-inch**

- i. Service shall be installed via trenchless installation methods where feasible to minimize pavement removal and open-cut trenches.
- ii. New service shall be reconnected to existing service with a splice in the area between the curb and sidewalk.

d. **Measurement and Payment.** The completed work, as measured, shall be paid for at the contract unit price for the following contract pay items.

Pay Item	Unit
Water Service, Street, 1 ¼ inch, Install _____	Each
Water Service, Yard, ¾ inch, Install _____	Each
Water Service, 2 inch, Install _____	Each
Copper Water Service Pipe, ¾ inch, Install _____	Foot
Copper Water Service Pipe, 1 ¼ inch, Install _____	Foot
Copper Water Service Pipe, 2 inch, Install _____	Foot
Curb Stop and Box, 1 ¼ inch, Install _____	Each
Meter Pit, Install _____	Each
Water Service Potholing _____	Each
Water Serv, Private, Install _____	Each
Plumber _____	Hour
Water Meter Setting _____	Each

Water Service, Street, 1 ¼ inch, Install is payment in full for each water service installed on the proposed water main (or temporarily installed on the existing 12" water main) and reconnected to the existing yard service. The item shall include earth excavation, jacking and boring, tapping the main, installing the service saddle and corporation stop, connecting the proposed street service to the existing yard service and any other required fittings; providing, placing, and compacting backfill and any other miscellaneous materials, equipment and work necessary for the installation of the service as described.

Water Service, Yard, ¾ inch, Install is payment in full for each water service installed from the curb stop to the first valve at the meter. The item shall include earth excavation, jacking and boring, connecting the yard service to the meter, and any other required fittings; providing, placing, and compacting backfill, lawn restoration and any other miscellaneous materials, equipment and work necessary for the installation of the service as described.

Water Service, 2 inch, Install is payment in full for each water service installed on the proposed water main (or temporarily installed on the existing 12" water main) and reconnected to the existing service. The item shall include earth excavation, jacking and boring, tapping the main, installing the service saddle and valve, connecting the new service to the existing service and any other required fittings; providing, placing, and compacting backfill and any other miscellaneous materials, equipment and work necessary for the installation of the service as described. This work also includes installing a 6-inch valve box on the tapping valve.

Copper Water Service Pipe, ½ inch, Install is payment in full for each linear foot water service installed as directed by Engineer.

Curb Stop and Box, 1 ¼ inch, Install is payment in full for each curb stop valve and box installed. Complete removal of the existing curb box shall also be included. Adjusting the curb stop to finished grade is considered incidental to the installation.

Meter Pit, Install is payment in full for connecting the yard service and private service to the meter setter piece and installing the Meter Pit. Includes adjusting the meter pit casting to finished grade and removing the old meter pit.

Water Service Potholing is payment in full for all material, labor, and equipment necessary to expose the water service and backfill the hole as directed by the engineer. Water Service Potholing will be paid once per water service. All removals and replacements required for water service potholing installation shall be considered incidental.

Water Serv, Private, Install is payment in full for all labor, and equipment necessary to install the water line from the downstream valve at a meter pit to 18" inside the exterior wall or the first valve regardless of length. The item shall include earth excavation, jacking and boring, connecting the new service to the valve at the meter pit and any other required fittings; providing, placing, and compacting backfill and any other miscellaneous materials, equipment and work necessary for the installation of the service as described. The length of pipe installed shall be paid separately. Lawn restoration is included in this work. Any pavement or sidewalk removal required for this work shall be paid separately.

The hourly rate for **Plumber** shall include all labor and materials required to make the required connections as described.

Water Meter Setting is payment in full for all material, labor, and equipment necessary to install the new meter and meter remote.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
CONNECT TO EXISTING MAIN, _ INCH W/ STANDBY

H&S:TAS

1 of 1

11/30/2022

a. **Description.** For the unit prices bid for the various connections to existing mains as defined below under the heading "Measurement and Payment", the contractor shall furnish all materials and do all work necessary to connect the proposed mains to the existing mains as shown on the plans and as herein specified.

Work Included Under Other Contract Items

Water Main and Fittings

Valves and Boxes

Fire Hydrants

Hydrant, Rem

Water Services

b. **Materials.** Provide materials in accordance with section 823 of the 2020 MDOT Standard Specifications for Construction and with the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation.

c. **Construction.** The work under the various connection items shall include all materials and work required to connect the proposed main to the existing main (ductile iron, cast iron, over-sized cast iron, or plastic) as shown on the plans. Included shall be removing any existing plugs or fittings, furnishing and installing any required fittings, including but not limited to cut-in-tees, cut-in-sleeves, and any other work and materials required to switch over to the new main. The installation of all valves and fittings other than those required to connect to the existing main shall be paid for under their respective bid items.

The existing and required fittings shown on the plans are based upon available information. The contractor shall expose the existing main and fittings at the proposed connection and shall determine the actual fittings required. The contractor shall be responsible with the aid of the owner and the engineer for determining the location of any existing valves necessary to isolate and shut down the existing main for the connections. The contractor shall have all required fittings and equipment ready for installation prior to shutting off the existing main to minimize the shutdown period in accordance with the "Water Main and Fittings" Special Provision. The contractor shall coordinate with the Department of Public Services and the Engineer to determine the timing for the connections. Contractor shall verify each shutdown is sufficient prior to cutting the water main. This may be achieved by tapping the water main within the section of water main that will be removed, or operating a hydrant within the shutdown area. For bidding purposes, assume that one tap will be required for each connection to existing water main. Tapping valves, etc. may be removed and reused for this purpose. **Contractor shall include in their bid, mobilization and standby costs for a line stop contractor to be present for each connection to existing water main. Line stop contractor shall have all necessary equipment on-site and ready to perform a line stop (if required), and shall remain on-site until the contractor confirms that the**

shutdown is sufficient to perform the connection to the existing water main without needing a line stop. In the event that a line stop is required, the line stop will be performed and paid in accordance with the Line Stop Pay Item.

Do not disturb or cut into existing in-service water mains without a city employee present. 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 or authorized representative's approval of the schedule before beginning the work. Water service interruptions (shutdowns) to allow for connections to existing water mains shall occur between the hours of 8:00 AM and 4:00 PM Monday through Friday. Any individual shutdown shall not last more than 8 hours.

d. **Measurement and Payment.** The contractor will be paid the unit price for each proposed water main connected to existing water main, regardless of main material, as shown on the plans. The Contract Items included under this category of "Connection to Existing Mains", are defined as follows:

Pay Item	Pay Unit
Connect to Existing Main, 24 inch	Each
Connect to Existing Main, 16 inch	Each
Connect to Existing Main, 12 inch	Each
Connect to Existing Main, 6 inch	Each
Connect to Existing Main, 4 inch	Each

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
WATER MAIN FIRE HYDRANT EXTENSION

H&S:TAS

1 of 1

03/14/2023

a. **Description.** This work consists of providing and installing extension kits for water main fire hydrants. The contractor shall furnish all materials and do all work necessary to install standpipe and rod extension kit for fire hydrants, except for work which is specifically included under other contract items. All work shall be done in accordance with section 823 of the 2020 MDOT Standard Specifications for Construction and with the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation unless otherwise specified herein.

Work Included Under Other Contract Items

- Valves and Boxes
- Fire Hydrants
- Fire Hydrant, Rem

b. **Materials.** Provide materials in accordance with section 823 of the 2020 MDOT Standard Specifications for Construction and with the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation.

Standpipe and rod extension kit (K562) for 5-1/4" Waterous Pacer Traffic models. Traffic 5-1/4" Waterous Pacer 250 PSIG rated working pressure model WB67, or equivalent.

c. **Construction.** Complete all work in accordance with the 2020 MDOT Standard specifications for Construction, the City of Kalamazoo 2021 Standard Specifications for Water Main and Service Installation. Install standpipe and rod extension kit in strict accordance with manufacturers recommendation. Install Water Main Fire Hydrant Extension at locations as directed by the Engineer.

d. **Measurement.** The completed work, as described, will not be paid and measured by a separate pay item. Cost shall be included with Fire Hydrant pay item.

Water Main Fire Hydrant Extension..... Cost shall be included with Fire Hydrant pay item. No additional payment will be allowed for hydrant extensions.

Fire Hydrant includes furnishing all material, labor, and equipment necessary to perform the work specified herein and shown on the plans.

Perform all work required in conjunction with dewatering operations, without separate payment, and consider it is included in the Fire Hydrant pay item.

Furnish all labor, equipment and materials for trench excavation, disposal, and backfill and consider it is included in the Fire Hydrant pay item.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
CONSTRUCTION COORDINATION CLAUSE

H&S:ARP

1 of 1

04/11/23

In addition to the Water Main Replacement, Balch St. to Burdick St. project, other projects/considerations that may require additional coordination shall be noted.

1. Dewatering activities may require the contractor to adjust the dewatering schedule that conforms to the City of Kalamazoo's Water Reclamation Plants' ability to accept the additional flow created.
2. Dewatering activities may require the contractor to adjust the dewatering schedule to work within the adjacent wellhead backwash schedule.

Cooperation by CONTRACTOR

The City of Kalamazoo and/or Contract Agencies may perform work within or adjacent to the Construction Influence Area (CIA). The above coordination with the Contractor through the engineer to minimize interference. No additional payment will be made to the Contractor for delays to the project schedule associated with these items.

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.

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.

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.

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.

The City of Kalamazoo and/or Contract Agencies may perform work within or adjacent to the Construction Influence Area (CIA). The above coordination with the Contractor through the engineer to minimize interference. No additional payment will be made to the Contractor for delays to the project schedule associated with these items.

The contractor shall conduct the operations to interfere as little as possible with those of other contractors, utilities, or any public authority work on or near the work as shown on the plans or in the proposal. The owner reserves the right to perform other work by contract or otherwise, and to permit public utility companies and others to do work on or near the project during progress of the work. The contractor shall conduct the work and shall cooperate with such other parties to cause as little interference as possible with their operations and as the engineer may direct. No additional compensation will be paid to the contractor for any reasonable delay or due to the operations of such other parties doing the work indicated or shown on the plans or in the proposal, or for any reasonable delays on construction due to the encountering of existing utilities that are shown on the plans.

CITY OF KALAMAZOO

SPECIAL PROVISION
FOR
PROGRESS CLAUSE

H&S:ARP

1 of 2

06/21/2023

After receipt of Notice to Proceed, work shall start within the timeframe agreed upon by the contractor and Project Manager outlined in the table below unless otherwise agreed to by the project manager. The approved low bidder(s) shall commence work at their discretion. Upon commencement of work, substantial completion shall be achieved within the “Work Timeframe Allowance” listed in the table above. In no case, shall any work be commenced prior to receipt of formal notice of award by the City. The project shall be substantially completed and ready for final inspection in accordance with the following table.

Milestone	Schedule
Estimated Award – City Council	August 7, 2023
Commencement of Work	Date Determined by Contractor
Substantial Completion - Final Inspection	October 15, 2024
Final Completion - Restoration Punchlist	November 1, 2024
Work Timeframe Allowance	12 Weeks

The approved low bidder(s) for the work covered by this proposal shall be required to participate in a pre-construction meeting with the City and the Engineer to work out a detailed progress schedule. The schedule of this meeting will be set within two weeks of contract approval.

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.

The progress schedule shall include, as a minimum, the starting and completion dates for major items, and where specified in the bid document the date the project is to be opened to traffic 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.

If the Bidding Proposal specifies other controlling dates, these shall also be included in the Progress Schedule.

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.

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

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.

Once work has begun, the project shall be completed within 12 weeks.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
UTILITY COORDINATION CLAUSE

H&S:TAS

1 of 2

03/14/2023

The Contractor shall cooperate and coordinate construction activities with the owner of utilities as stated in Section 104.08 of the MDOT 2020 Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in Section 107.12 of the MDOT 2020 Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 109.05E of the MDOT 2020 Standard Specifications for Construction.

The following Utility Owners have facilities located within the right-of-way.

- Cable: Charter Communications,
4176 Commercial Avenue
Portage, MI 49002
(269) 459-8746
Bryan.Longcore2@Charter.com
- Electric: Consumers Energy,
2500 East Cork Street
Kalamazoo, MI 49001
(269) 337-2245, Mr. Andre Taylor
andre.taylor@cmsenergy.com
- Gas: Consumers Energy,
2500 East Cork Street
Kalamazoo, MI 49001
(269) 337-2366, Mr. Kyle Oak
kyle.oak@cmsenergy.com
- Telephone: AT&T,
2919 Millcork Street
Kalamazoo, MI 49001
(269) 384-4475, Mr. Todd Berghuis
tb1973@att.com
- Fiber Optic: City of Kalamazoo,
415 Stockbridge Avenue
Kalamazoo, MI 49001
(269) 337-8601, Mr. Ron Ridenour
ridenourr@kalamazoocity.org

Q3 Technologies, LLC,
1005 Foster Avenue
Kalamazoo, MI 49048
(269) 377-1308, Troy Quakenbush
tquakenbush@q3-tech.com

CTS Telecom,
13800 East Michigan Avenue
Galesburg, MI 49053
(269) 746-3232, Mr. Tom Cady
tcady@ctstelecom.com

Water: City of Kalamazoo,
415 Stockbridge Avenue
Kalamazoo, MI 49001
(269) 337-8558, Debbie Jung
jungd@kalamazoocity.org

Sewer: City of Kalamazoo,
1415 North Harrison Street
Kalamazoo, MI 49007
(269) 337-8551, Mr. Ryan Stoughton
stoughtonr@kalamazoocity.org

The Contractor shall call "Miss Dig" a minimum of 3 working days prior to beginning construction operations. Saturday, Sundays and Holidays shall not be included as a working day. On all projects:

"3 Days before you Dig - Call Miss Dig - Toll Free" 811.

The owners of existing service facilities that are within grading or structure limits will move them to locations designated by the Engineer or will remove them entirely from the highway right-of-way. Owners of Public Utilities will not be required by the City to move additional poles or structures in order to facilitate the operation of construction equipment unless it is determined by the Engineer that such poles or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operations.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
DEWATERING SYSTEM, EXCAVATION

H&S:ARP

1 of 3

03/28/2023

a. Description. This work consists of lowering the groundwater table to facilitate construction in the area of the excavation for the proposed trench. This work may require the use of pumps for trench dewatering or well points, deep wells, or other measures that are utilized to control groundwater to facilitate installation of underground utilities.

The groundwater removed during the dewatering process shall be discharged to the Kalamazoo Water Reclamation Plant's sanitary sewer system, unless otherwise directed by the engineer. The contractor is responsible to obtain a letter of approval and adhere to the Construction Dewatering Projects Guidelines.

This work also includes the operation and monitoring used for discharge to the Kalamazoo Water Reclamation Plant's sanitary sewer system. The Engineer shall provide all sampling and analysis of any treatment system as deemed necessary by the Kalamazoo Water Reclamation Plant.

b. Contaminated Ground Water Areas of groundwater contamination have been identified in the vicinity of the monitoring wells depicted on the plans.

Handle the contaminated water in accordance with the *MIOSHA* Standard for Hazardous Waste Operations and Emergency Response (HAZWOPER). Ensure applicable workers work under the direction of an on-site supervisor and a site-specific safety and health plan (HASP) and are properly trained. Ensure all workers are protected pursuant to the HAZWOPER Standard.

Furnish to the Department, at the preconstruction meeting, sufficient documentation verifying the qualifications of Contractor personnel who are performing the sampling and handling work. In addition, the Contractor must provide a HASP, for review, as required by the *MIOSHA* standard.

Groundwater analytical results at the two test wells depicted on the plans are provided as part of this special provision. The flow required must adequately dewater the trench, as specified above, and yield an effluent concentration that meets the requirements of the sanitary sewer system owner or the NPDES permit. Given the presence of {PFAS}, pumping rates may need to be reduced significantly. Ensure the system is approved by the Engineer prior to starting the work.

c. Well Points and Deep Wells. Should groundwater control be performed by deep well and/or well point pumping systems, ensure it is done without damage to property or structures, and without interference with the rights of the public, owners of private property, pedestrians, vehicular traffic, or the work of other contractors. Any pumping methods used for dewatering and control of groundwater and seepage must have properly designed filters. This is to ensure that adjacent soil will not be pumped with the water creating voids underground and around the face of the excavation or under existing structures. Ensure the filter design is reviewed and approved by the Engineer prior to placement.

Perform the dewatering operations in an approved and predetermined sequence with the excavation operation such that the perimeter and face of the excavation is stable. Dewatering

well diameter, pumping rate and well spacing must provide adequate drawdown of the water level. Set wells to intercept groundwater that, otherwise, would enter the excavation and interfere with the work.

e. Sanitary Sewer Monitor the volume of untreated water discharged to the Kalamazoo Water Reclamation Plant's sanitary sewer system by using a totalizing turbine type flow meter. Place the flow meter inline on the effluent line and shall be designed for high flow applications and must have a flow totalizing register that is adequately sealed to eliminate fogging and condensation. Ensure the type of meter used is reviewed and approved by the Engineer prior to placement.

Written permission from the Kalamazoo Water Reclamation Plant authority is required prior to discharge to the sanitary sewer system. Furnish a copy of the written authorization to the Engineer prior to discharging any water to the system.

Monitor the volume of flow being discharged to the sanitary sewer system and document daily by reading the register on the flow meter. Furnish this information to the Engineer daily or as otherwise approved. The city shall pay all fees associated with the volumetric discharge to the Kalamazoo Water Reclamation Plant.

f. Hazardous/Nonhazardous Material Handling. Load all hazardous and nonhazardous waste and transport using properly trained personnel, onto placarded vehicles and under an approved hazardous or liquid industrial waste manifest, as required. All manifests are to be signed by the Engineer or their representative. The terms hazardous and nonhazardous, as used in this document, are defined in 1994 PA 451, Parts 111 and 121 of the NREPA.

g. Construction. The methods and materials required to accomplish this work must be determined by the Contractor, subject to approval by the Engineer, before initiation or installation of the dewatering system.

Ensure the dewatering system for contaminated groundwater is independent of other dewatering operations by a separate installation. Utilize the system for the entirety of the project as determined necessary by the Engineer. Take all appropriate precautions to prevent exacerbation of contamination.

The Engineer may order corrective actions to the dewatering or treatment system at any time to improve the efficiency of the system at no additional cost to the contract.

h. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Dewatering System for Contaminated Groundwater, Site	Each
Dewatering System for Contaminated Groundwater, Day	Day

Dewatering System for Contaminated Groundwater, Site includes the initial setup of all wells, piping, supplies, power, and fuel necessary for the installation, removal and disposal at each dewatering location.

Dewatering System for Contaminated Groundwater, Day includes daily operation and maintenance of all wells, piping, supplies, power, and fuel necessary for the dewatering operation.

Disposal of contaminated soil or sediment, excavated or displaced during the installation of this system, will be included in the pay item of **Non-hazardous Contaminated Material Handling and Disposal (LM)**.

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673



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January 09, 2023

Bobby Glasser
Michigan Consulting and Environmental
2800 S. 11th St.
2800 Kalamazoo, MI 49009

RE: Trace Project 22L0811
Client Project Balch Street - City of Kalamazoo - 12/20/22

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAP Accreditation, Trace certifies that these test results meet all requirements of the NELAP Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAP at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at tbrewer@trace-labs.com.

Sincerely,

A handwritten signature in black ink that reads "Timothy W. Brewer".

Tim Brewer
Project Manager
Enclosures



NJDEP Accreditation No. MI008

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SAMPLE SUMMARY

Trace Project ID: 22L0811
Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
22L0811-01	TW-2	Ground Water	BG	12/20/22 12:10	12/21/22 11:20
22L0811-02	TW-3	Ground Water	BG	12/20/22 15:15	12/21/22 11:20

CERTIFICATE OF ANALYSIS

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the laboratory is not accredited by NELAP for this compound
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.
 Solid matrices Method Blanks are at 100% solids as such results are the same wet or dry.

DATA QUALIFIERS

Trace ID: 22L0811-01

Analysis: SM 4500-H+ B-11

pH Note 511 : The sample was received and, therefore, analyzed beyond the established EPA hold time. The result must be considered estimated.

pH Note pH : The pH was analyzed at 15:58

Analysis: SM 5210B-16 + HACH 10360

Biochemical Oxygen Demand, Carbonaceous 5-day Note B-01 : The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/l dissolved oxygen depletion. Therefore the reported limit has been raised .

Trace ID: 22L0811-02

Analysis: SM 4500-H+ B-11

pH Note 511 : The sample was received and, therefore, analyzed beyond the established EPA hold time. The result must be considered estimated.

pH Note pHa : The pH was analyzed at 15:59

Analysis: SM 5210B-16 + HACH 10360

Biochemical Oxygen Demand, Carbonaceous 5-day Note B-01 : The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/l dissolved oxygen depletion. Therefore the reported limit has been raised .

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ANALYTICAL RESULTS

Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

Trace ID: 22L0811-01 Matrix: Ground Water Date Collected: 12/20/22 12:10
 Sample ID: TW-2 Date Received: 12/21/22 11:20

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
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METALS, TOTAL

Analysis Method: EPA 200.8 Rev. 5.4

Batch: T130977

Cadmium	<1.0 ug/L	1.0	1	01/02/23	bjv	01/03/23	acs		40
Chromium	<5.0 ug/L	5.0	1	01/02/23	bjv	01/03/23	acs		4700
Copper	1.5 ug/L	1.0	1	01/02/23	bjv	01/03/23	acs		2200
Lead	<3.0 ug/L	3.0	1	01/02/23	bjv	01/03/23	acs		110
Nickel	<5.0 ug/L	5.0	1	01/02/23	bjv	01/03/23	acs		1600
Zinc	10 ug/L	10	1	01/02/23	bjv	01/03/23	acs		5300

Analysis Method: EPA 245.1 Rev. 3.0

Batch: T130858

Mercury	<0.20 ug/L	0.20	1	12/27/22	bjv	12/28/22	jma	N	0.21
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WET CHEMISTRY

Analysis Method: EPA 1664B

Batch: T130945

Oil & Grease (HEM)	<9.6 mg/L	9.6	3.205128	01/02/23	kbc	01/03/23	kbc	N	
Total Petroleum Hydrocarbons (SGT-HEM)	<9.6 mg/L	9.6	3.205128	01/02/23	kbc	01/03/23	kbc	N	

PESTICIDES/PCBS

Analysis Method: EPA 608

Batch: T130948

Aroclor-1016	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1221	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1232	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1242	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1248	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1254	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1260	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	

Surrogates:

Tetrachloro-m-xylene	89 %	18-105	1	01/02/23	kbc	01/04/23	ahr	N	
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ANALYTICAL RESULTS

Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

Trace ID: 22L0811-01 Matrix: Ground Water Date Collected: 12/20/22 12:10
 Sample ID: TW-2 Date Received: 12/21/22 11:20

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 624.1									
<i>Batch: T130822</i>									
Benzene	<1.0 ug/L	1.0	1	12/22/22	nw	12/22/22	nw		
Toluene	<1.0 ug/L	1.0	1	12/22/22	nw	12/22/22	nw		
Ethylbenzene	<1.0 ug/L	1.0	1	12/22/22	nw	12/22/22	nw		
Xylenes, total	<3.0 ug/L	3.0	1	12/22/22	nw	12/22/22	nw		
Surrogates:									
1,2-Dichloroethane-d4	121 %	68-133	1	12/22/22	nw	12/22/22	nw		
Toluene-d8	100 %	75-120	1	12/22/22	nw	12/22/22	nw		
4-Bromofluorobenzene	100 %	69-119	1	12/22/22	nw	12/22/22	nw		
1,2-Dichlorobenzene-d4	94 %	72-127	1	12/22/22	nw	12/22/22	nw		
WET CHEMISTRY									
Analysis Method: ASTM D7511-12									
<i>Batch: T130875</i>									
Cyanide (Total)	<5.0 ug/L	5.0	1	12/27/22	mr	12/27/22	mr		250
Analysis Method: EPA 350.1 Rev. 2.0									
<i>Batch: T130877</i>									
Ammonia as N	<0.010 mg/L	0.010	1	12/27/22	ans	12/27/22	ans		18
Analysis Method: SM 2540 D-15									
<i>Batch: T130828</i>									
Total Suspended Solids	18 mg/L	10	1	12/26/22	mr	12/26/22	mr		260
Analysis Method: SM 4500-H+ B-11									
<i>Batch: T130816</i>									
pH	6.94 pH Units		1	12/20/22	ay	12/21/22	kb	511, pH, N	
Analysis Method: SM 5210B-16 + HACH 10360									
<i>Batch: T130789</i>									
Biochemical Oxygen Demand, Carbonaceous 5-day	<4.0 mg/L	4.0	4	12/21/22	ans	12/26/22	ans/drm	B-01, N	240

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ANALYTICAL RESULTS

Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

Trace ID: 22L0811-02 Matrix: Ground Water Date Collected: 12/20/22 15:15
 Sample ID: TW-3 Date Received: 12/21/22 11:20

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL									
Analysis Method: EPA 200.8 Rev. 5.4									
<i>Batch: T130977</i>									
Cadmium	<1.0 ug/L	1.0	1	01/02/23	bjv	01/03/23	acs		40
Chromium	<5.0 ug/L	5.0	1	01/02/23	bjv	01/03/23	acs		4700
Copper	5.4 ug/L	1.0	1	01/02/23	bjv	01/03/23	acs		2200
Lead	<3.0 ug/L	3.0	1	01/02/23	bjv	01/03/23	acs		110
Nickel	8.6 ug/L	5.0	1	01/02/23	bjv	01/03/23	acs		1600
Zinc	<10 ug/L	10	1	01/02/23	bjv	01/03/23	acs		5300
Analysis Method: EPA 245.1 Rev. 3.0									
<i>Batch: T130858</i>									
Mercury	<0.20 ug/L	0.20	1	12/27/22	bjv	12/28/22	jma	N	0.21
WET CHEMISTRY									
Analysis Method: EPA 1664B									
<i>Batch: T130945</i>									
Oil & Grease (HEM)	<9.7 mg/L	9.7	3.246753	01/02/23	kbc	01/03/23	kbc	N	
Total Petroleum Hydrocarbons (SGT-HEM)	<9.7 mg/L	9.7	3.246753	01/02/23	kbc	01/03/23	kbc	N	
PESTICIDES/PCBS									
Analysis Method: EPA 608									
<i>Batch: T130948</i>									
Aroclor-1016	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1221	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1232	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1242	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1248	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1254	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Aroclor-1260	<0.10 ug/L	0.10	1	01/02/23	kbc	01/04/23	ahr	N	
Surrogates:									
Tetrachloro-m-xylene	68 %	18-105	1	01/02/23	kbc	01/04/23	ahr	N	

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ANALYTICAL RESULTS

Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

Trace ID: 22L0811-02 Matrix: Ground Water Date Collected: 12/20/22 15:15
 Sample ID: TW-3 Date Received: 12/21/22 11:20

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 624.1									
<i>Batch: T130822</i>									
Benzene	<1.0 ug/L	1.0	1	12/22/22	nw	12/22/22	nw		
Toluene	<1.0 ug/L	1.0	1	12/22/22	nw	12/22/22	nw		
Ethylbenzene	<1.0 ug/L	1.0	1	12/22/22	nw	12/22/22	nw		
Xylenes, total	<3.0 ug/L	3.0	1	12/22/22	nw	12/22/22	nw		
Surrogates:									
1,2-Dichloroethane-d4	105 %	68-133	1	12/22/22	nw	12/22/22	nw		
Toluene-d8	105 %	75-120	1	12/22/22	nw	12/22/22	nw		
4-Bromofluorobenzene	87 %	69-119	1	12/22/22	nw	12/22/22	nw		
1,2-Dichlorobenzene-d4	96 %	72-127	1	12/22/22	nw	12/22/22	nw		
WET CHEMISTRY									
Analysis Method: ASTM D7511-12									
<i>Batch: T130875</i>									
Cyanide (Total)	<5.0 ug/L	5.0	1	12/27/22	mr	12/27/22	mr		250
Analysis Method: EPA 350.1 Rev. 2.0									
<i>Batch: T130877</i>									
Ammonia as N	1.1 mg/L	0.010	1	12/27/22	ans	12/27/22	ans		18
Analysis Method: SM 2540 D-15									
<i>Batch: T130828</i>									
Total Suspended Solids	* 310 mg/L	13	3.333333	12/26/22	mr	12/26/22	mr		260
Analysis Method: SM 4500-H+ B-11									
<i>Batch: T130816</i>									
pH	6.88 pH Units		1	12/20/22	ay	12/21/22	kb	511, pHa, N	
Analysis Method: SM 5210B-16 + HACH 10360									
<i>Batch: T130789</i>									
Biochemical Oxygen Demand, Carbonaceous 5-day	<4.0 mg/L	4.0	4	12/21/22	ans	12/26/22	ans/drm	B-01, N	240

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Monday, January 09, 2023

Fibertec Project Number: A12842
Project Identification: 22L0811 /22L0811
Submittal Date: 12/27/2022

Mr. Tim Brewer
Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444

Dear Mr. Brewer,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Sue Ricketts at 11:47 AM, Jan 09, 2023

For Daryl P. Strandbergh
Laboratory Director

Enclosures

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8660 S. Mackinaw Trail

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T: (231) 775-8368

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F: (231) 775-8584



Analytical Laboratory Report
Laboratory Project Number: A12842
Laboratory Sample Number: A12842-001

Order: A12842
 Date: 01/09/23

Client Identification: Trace Analytical Laboratories, Inc.	Sample Description: TW-2 22L0811-01	Chain of Custody: N/A
Client Project Name: 22L0811	Sample No: 22L0811-01	Collect Date: 12/20/22
Client Project No: 22L0811	Sample Matrix: Ground Water	Collect Time: 12:10

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

PFAS Aliquot ID: **A12842-001** Matrix: **Ground Water**
 Method: **EPA 0537.1 (Modified)** Description: **TW-2 22L0811-01**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. ADONA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 2.9CI-PF3ONS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 3.11CI-PF3OUdS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 4. N-EtFOSAA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 5. FtS 4:2	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 6. FtS 6:2	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 7. FtS 8:2	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 8. HFPO-DA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 9. N-MeFOSAA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 10. PFBA	4.0		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 11. PFBS	5.1		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 12. PFBSA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 13. PFDA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 14. PFDoA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 15. PFDS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 16. PFECHS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 17. PFHpA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 18. PFHpS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 19. PFHxA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 20. PFHxSA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 21. PFHxS-Total	3.4		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 22. PFNA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 23. PFNS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 24. PFOA	5.5		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 25. PFOSA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 26. PFOS-Total	25		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 27. PFPeA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 28. PFPeS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 29. PFTeA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 30. PFTriA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 31. PFUnA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG

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Analytical Laboratory Report
Laboratory Project Number: A12842
Laboratory Sample Number: A12842-002

Order: A12842
 Date: 01/09/23

Client Identification: Trace Analytical Laboratories, Inc.	Sample Description: TW-3 22L0811-02	Chain of Custody: N/A
Client Project Name: 22L0811	Sample No: 22L0811-02	Collect Date: 12/20/22
Client Project No: 22L0811	Sample Matrix: Ground Water	Collect Time: 15:15

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

PFAS Aliquot ID: **A12842-002** Matrix: **Ground Water**
 Method: **EPA 0537.1 (Modified)** Description: **TW-3 22L0811-02**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. ADONA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 2.9CI-PF3ONS	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 3.11CI-PF3OUdS	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 4. N-EtFOSAA	1.3	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 5. FtS 4:2	U	EIS+	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 6. FtS 6:2	U	EIS+	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 7. FtS 8:2	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 8. HFPO-DA	3.1		ng/L	2.0	5.0	01/05/23	PS22L29F	01/05/23	SM23A05A	SKG
‡ 9. N-MeFOSAA	3.3	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 10. PFBA	30	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 11. PFBS	20		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 12. PFBSA	3.2		ng/L	2.5	5.0	01/05/23	PS22L29F	01/05/23	SM23A05A	SKG
‡ 13. PFDA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 14. PFDoA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 15. PFDS	3.3	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 16. PFECHS	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 17. PFHpA	7.3		ng/L	2.0	5.0	01/05/23	PS22L29F	01/05/23	SM23A05A	SKG
‡ 18. PFHpS	1.6	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 19. PFHxA	57		ng/L	2.0	5.0	01/05/23	PS22L29F	01/05/23	SM23A05A	SKG
‡ 20. PFHxSA	U		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 21. PFHxS-Total	7.5		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 22. PFNA	3.3		ng/L	2.0	5.0	01/05/23	PS22L29F	01/05/23	SM23A05A	SKG
‡ 23. PFNS	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 24. PFOA	26		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 25. PFOSA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 26. PFOS-Total	5.2		ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 27. PFPeA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 28. PFPeS	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 29. PFTeA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 30. PFTriA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG
‡ 31. PFUnA	U	EIS-	ng/L	1.0	1.0	12/29/22	PS22L29F	01/03/23	SM23A03A	SKG

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Acronym (Param)	Analyte Name	CAS Number
1. ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
2. 9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1
3. 11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
4. N-EtFOSAA	2-(N-Ethylperfluorooctanesulfonamido) acetic acid	2991-50-6
5. FtS 4:2	Fluorotelomer sulphonic acid 4:2	757124-72-4
6. FtS 6:2	Fluorotelomer sulphonic acid 6:2	27619-97-2
7. FtS 8:2	Fluorotelomer sulphonic acid 8:2	39108-34-4
8. HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6
9. N-MeFOSAA	2-(N-Methylperfluorooctanesulfonamido) acetic acid	2355-31-9
10. PFBA	Perfluorobutanoic acid	375-22-4
11. PFBS	Perfluorobutanesulfonic acid	375-73-5
12. PFBSA	Perfluorobutylsulfonamide	30334-69-1
13. PFDA	Perfluorodecanoic acid	335-76-2
14. PFDoA	Perfluorododecanoic acid	307-55-1
15. PFDS	Perfluorodecanesulfonic acid	335-77-3
16. PFECHS	Perfluoroethylcyclohexane sulfonate	335-24-0
17. PFHpA	Perfluoroheptanoic acid	375-85-9
18. PFHpS	Perfluoroheptanesulfonic acid	375-92-8
19. PFHxA	Perfluorohexanoic acid	307-24-4
20. PFHxSA	Perfluorohexanesulfonamide	41997-13-1
21. PFHxS-Total	Perfluorohexanesulfonic acid	355-46-4
22. PFNA	Perfluorononanoic acid	375-95-1
23. PFNS	Perfluoronanesulfonic acid	68259-12-1
24. PFOA	Perfluorooctanoic acid	335-67-1
25. PFOSA	Perfluorooctanesulfonamide	754-91-6
26. PFOS-Total	Perfluorooctanesulfonic acid	1763-23-1
27. PFPeA	Perfluoropentanoic acid	2706-90-3
28. PFPeS	Perfluoropentanesulfonic acid	2706-91-4
29. PFTeA	Perfluorotetradecanoic acid	376-06-7
30. PFTriA	Perfluorotridecanoic acid	72629-94-8
31. PFUnA	Perfluoroundecanoic acid	2058-94-8

Definitions/ Qualifiers:

- A:** Spike recovery or precision unusable due to dilution.
- B:** The analyte was detected in the associated method blank.
- E:** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
- J:** The concentration is an estimated value.
- M:** Modified Method
- U:** The analyte was not detected at or above the reporting limit.
- X:** Matrix Interference has resulted in a raised reporting limit or distorted result.
- W:** Results reported on a wet-weight basis.
- *:** Value reported is outside QC limits

Exception Summary:

- EIS-** : The Isotope Dilution/Extracted Internal Standard area exceeds the lower control limit.
- EIS+** : The Isotope Dilution/Extracted Internal Standard area exceeds the upper control limit.

Analysis Locations:

All analyses performed in Holt.



Accreditation Number(s):

T104704518-22-14 (TX)

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QUALITY CONTROL RESULTS

Trace Project ID: 22L0811

Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130977

Analysis Description: Zinc, Total

QC Batch Method: EPA 200.2

Analysis Method: EPA 200.8 Rev. 5.4

METHOD BLANK: T130977-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Cadmium	ug/L	<1.0	1.0	
Chromium	ug/L	<5.0	5.0	
Copper	ug/L	<1.0	1.0	
Nickel	ug/L	<5.0	5.0	
Lead	ug/L	<3.0	3.0	
Zinc	ug/L	<10	10	

LABORATORY CONTROL SAMPLE: T130977-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Cadmium	ug/L	50.0	56.7	113	85-115	
Chromium	ug/L	50.0	49.7	99	85-115	
Copper	ug/L	1600	1560	98	85-115	
Nickel	ug/L	1600	1540	96	85-115	
Lead	ug/L	100	94.1	94	85-115	
Zinc	ug/L	1600	1610	101	85-115	

MATRIX SPIKE: T130977-MS1

Original: 22L0811-01

Parameter	Units	Original Result	Spike Conc.	MS Result	MS % Rec	% Rec Unit	Notes
Cadmium	ug/L	0	50.0	54.4	109	70-130	
Chromium	ug/L	0	50.0	50.5	101	70-130	
Copper	ug/L	1.54	1600	1490	93	70-130	
Nickel	ug/L	0	1600	1510	94	70-130	
Lead	ug/L	0	100	90.8	91	70-130	
Zinc	ug/L	10.2	1600	1550	96	70-130	

MATRIX SPIKE: T130977-MS2

Original: 22L0811-02

Parameter	Units	Original Result	Spike Conc.	MS Result	MS % Rec	% Rec Unit	Notes
Cadmium	ug/L	0	50.0	52.1	104	70-130	
Chromium	ug/L	0.733	50.0	49.6	98	70-130	
Copper	ug/L	5.44	1600	1450	91	70-130	

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MATRIX SPIKE: T130977-MS2 Original: 22L0811-02

Parameter	Units	Original Result	Spike Conc.	MS Result	MS % Rec	% Rec Unit	Notes
Nickel	ug/L	8.62	1600	1460	91	70-130	
Lead	ug/L	0	100	91.6	92	70-130	
Zinc	ug/L	5.28	1600	1490	93	70-130	

Trace Project ID: 22L0811

Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130858	Analysis Description: Mercury, Total, EPA 245.1
QC Batch Method: EPA 245.2 Prep	Analysis Method: EPA 245.1 Rev. 3.0

METHOD BLANK: T130858-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	ug/L	<0.20	0.20	

LABORATORY CONTROL SAMPLE: T130858-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	ug/L	2.00	1.81	90	85-115	

Trace Project ID: 22L0811

Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130945	Analysis Description: Oil and Grease, Gravimetric
QC Batch Method: EPA 1664B	Analysis Method: EPA 1664B

METHOD BLANK: T130945-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Oil & Grease (HEM)	mg/L	<3.0	3.0	
Total Petroleum Hydrocarbons (SGT-HEM)	mg/L	<3.0	3.0	

LABORATORY CONTROL SAMPLE: T130945-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Oil & Grease (HEM)	mg/L	40.0	39.0	97	78-114	

LABORATORY CONTROL SAMPLE: T130945-BS2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Oil & Grease (HEM)	mg/L	40.0	40.6	102	78-114	

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Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130948	Analysis Description: PCBs
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.	Analysis Method: EPA 608

METHOD BLANK: T130948-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Aroclor-1016	ug/L	<0.10	0.10	
Aroclor-1221	ug/L	<0.10	0.10	
Aroclor-1232	ug/L	<0.10	0.10	
Aroclor-1242	ug/L	<0.10	0.10	
Aroclor-1248	ug/L	<0.10	0.10	
Aroclor-1254	ug/L	<0.10	0.10	
Aroclor-1260	ug/L	<0.10	0.10	
Tetrachloro-m-xylene (S)	%	75	18-105	

LABORATORY CONTROL SAMPLE: T130948-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Aroclor-1016	ug/L	0.800	0.668	84	50-140	
Aroclor-1260	ug/L	0.800	0.545	68	8-140	
Tetrachloro-m-xylene (S)	%	0.0600	0.0457	76	18-105	

Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130822	Analysis Description: 624 BTEX Only
QC Batch Method: EPA 5030B Purge-and-Trap for Aqueous Samples	Analysis Method: EPA 624.1

METHOD BLANK: T130822-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Benzene	ug/L	<1.0	1.0	
Toluene	ug/L	<1.0	1.0	
Ethylbenzene	ug/L	<1.0	1.0	
Xylenes, total	ug/L	<3.0	3.0	
1,2-Dichloroethane-d4 (S)	%	117	68-133	
Toluene-d8 (S)	%	103	75-120	
4-Bromofluorobenzene (S)	%	100	69-119	
1,2-Dichlorobenzene-d4 (S)	%	93	72-127	

LABORATORY CONTROL SAMPLE: T130822-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
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LABORATORY CONTROL SAMPLE: T130822-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Benzene	ug/L	50.0	47.0	94	65-135	
Toluene	ug/L	50.0	53.1	106	70-130	
Ethylbenzene	ug/L	50.0	53.8	108	60-140	
Xylenes, total	ug/L	150	142	95	70-130	
1,2-Dichloroethane-d4 (S)	%	30.0	31.1	104	68-133	
Toluene-d8 (S)	%	30.0	31.5	105	75-120	
4-Bromofluorobenzene (S)	%	30.0	32.8	109	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.5	98	72-127	

Trace Project ID: 22L0811

Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130875

Analysis Description: Cyanide, Total

QC Batch Method: ASTM D7511-12

Analysis Method: ASTM D7511-12

METHOD BLANK: T130875-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Cyanide (Total)	ug/L	<5.0	5.0	

LABORATORY CONTROL SAMPLE: T130875-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Cyanide (Total)	ug/L	100	106	106	90-110	

Trace Project ID: 22L0811

Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130877

Analysis Description: Nitrogen, Ammonia

QC Batch Method: EPA 350.1 Rev. 2.0

Analysis Method: EPA 350.1 Rev. 2.0

METHOD BLANK: T130877-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Ammonia as N	mg/L	<0.010	0.010	

LABORATORY CONTROL SAMPLE: T130877-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Ammonia as N	mg/L	1.00	0.985	98	90-110	

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Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130828	Analysis Description: Total Suspended Solids
QC Batch Method: SM 2540 D-15	Analysis Method: SM 2540 D-15

METHOD BLANK: T130828-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Total Suspended Solids	mg/L	<1.0	1.0	

LABORATORY CONTROL SAMPLE: T130828-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Total Suspended Solids	mg/L	100	99.1	99	85-115	

LABORATORY CONTROL SAMPLE: T130828-BS2

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Total Suspended Solids	mg/L	100	90.0	90	85-115	

LABORATORY CONTROL SAMPLE: T130828-BS3

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Total Suspended Solids	mg/L	100	93.1	93	85-115	

LABORATORY CONTROL SAMPLE: T130828-BS4

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Total Suspended Solids	mg/L	100	91.1	91	85-115	

LABORATORY CONTROL SAMPLE: T130828-BS5

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Total Suspended Solids	mg/L	100	96.1	96	85-115	

Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

QC Batch: T130816	Analysis Description: pH, SM 4500
QC Batch Method: *** DEFAULT PREP ***	Analysis Method: SM 4500-H+ B-11

Trace Project ID: 22L0811
 Client Project ID: Balch Street - City of Kalamazoo - 12/20/22

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QC Batch: T130789
 QC Batch Method: SM 5210B-16 + HACH 10360

Analysis Description: Carbonaceous Biochemical Oxygen Demand
 Analysis Method: SM 5210B-16 + HACH 10360

METHOD BLANK: T130789-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Biochemical Oxygen Demand, Carbonaceous 5-day	mg/L	<1.0	1.0	

LABORATORY CONTROL SAMPLE: T130789-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Biochemical Oxygen Demand, Carbonaceous 5-day	mg/L	198	180	91	85-115	

CERTIFICATE OF ANALYSIS

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Trace Analytical Laboratories, Inc.
 2241 Black Creek Road
 Muskegon, MI 49444-2673

Phone 231.773.5998
 Fax 888.979.4469
 www.trace-labs.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Report Results To:

Company Name: Michigan Consulting & Environmental
 Report To: Bobby Glasser
 Mailing Address: 2860 S. 11th Street, Suite #2
 City, State, Zip Code: Kalamazoo, MI 49009
 Office Phone: 269-547-5295 Cell Phone: 269-547-5295
 Email Address: bglasser@michenv.com
 Billing Email Address: ap@michenv.com

Bill To:

PO #: MEI Project # 51819
 Contact Name: Jen Baxter
 Billing Address (if different): 1669 S. Isabella Road
 City, State, Zip Code: Mt. Pleasant, MI 48858
 Phone Number: 989-772-2441

Requested Turnaround Times (TAT)

- Standard: 5-10 Business days
- 3 Business Days*
- 1 Business Day*

* Rush TAT Requires Prior Approval

Matrix Key:

- WW = Wastewater
- DW = Drinking Water
- GW = Groundwater
- LW = Liquid Waste
- O = Oil
- WI = Wipes
- S = Solid
- SL = Sludge
- A = Air
- U = Unknown

Project Name: Balch Street - City of Kalamazoo

Sampled By (print): Bobby Glasser, Senior Project Mgr.

Trace No.	Sample Collection Date	Sample Collection Time	Sample ID/Name	Metals	Field Filter (Y or N)	Matrix - see above →	Number of Containers		Preservation										Remarks/Notes	Possible Health Hazards?
							Cool ≤ 4°C	Hydrochloric Acid (HCl)	Nitric Acid (HNO3)	Sulfuric Acid (H2SO4)	Sodium Thiosulfate	Sodium Hydroxide (NaOH)	Ascorbic Acid	Trizma	Other					
1	12/20/22	12:10	TW-2	N	N	GW	11	X	X	X	X	X	X	X	X	X	X	X		
2	12/20/22	15:15	TW-3	N	N	GW	11	X	X	X	X	X	X	X	X	X	X	X		

City of Kalamazoo
 Dewatering Parameters
 (See Attached)

Analysis Requested

Trace User: NC
 Logged By: NC
 Checked By: VB
 Soil Volatiles Preserved (circle if applicable):
 MeOH Low Level Lab
 Sample Collection Time (Hrs):

Please Sign

Released By: Bobby Glasser (mei) * Received By: [Signature] Date: 12/20/22 Time: 15:55
 Released By: [Signature] Date: 12/21/22 Time: 11:20

Received By: [Signature] Date: 12/21/22 Time: 11:20

Form 70-2-2

CERTIFICATE OF ANALYSIS

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22L0811
 Michigan Consulting and En
 Project Manager: Tim Brewer

Sample Log In Checklist

Date:	12/21/22		Original Observation	Corrected Temperature	IR-9 (CF: +0.1°C)	IR-10 (CF: 0.0°C)	20B12743 (CF: -0.2°C)	Temp Blank	Client Sample
Time:	15:30								
Logged by:	KB								
Package Description:	Cooler								
Package Temp °C	-1.2	-1.2							
Representative Sample Temp °C	3.4	3.2							

Sample Receipt

- Yes No
- Received on ice or other coolant
- Ice still present upon receipt
- Custody seals present
- Trace Courier Client Drop-off
- Yes No Custody seals intact (if applicable)
- UPS Fed Ex US Mail Other

Sample Condition

- Yes No N/A
- All sample containers arrived unbroken and labeled
- Sufficient sample to run requested analyses
- Correct chemical preservative added to samples
- Samples preserved at Trace
- Chemical preservation verified, check EMD pH test strip used (if applicable)
- pH 0-2.5 (Lot: HC291593) pH 11.0-13.0 (Lot: HC022540) Other
- Air bubbles absent from VOAs

Chain of Custody (COC)

- Yes No
- All bottle labels agree with COC
- COC filled out properly
- COC signed by client

Notes:

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CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
MAINTENANCE GRAVEL, ASPHALT MILLINGS

H&S:TAS

1 of 1

11/28/2022

a. Description. This work consists of providing all labor, materials and equipment necessary to construct and maintain an aggregate surface on a prepared grade to maintain traffic between the interim open to traffic date and final Hot Mix Asphalt (HMA) surfacing as directed by the Engineer. Traffic shall not travel on maintenance surfaces for longer than 7 working days, areas that are required to be opened to traffic greater than 7 working days shall be hand patched, unless otherwise directed by the engineer. Removal and disposal of the aggregate when no longer needed, or has been placed longer than 7 working days, is included in this item of work. Conduct work in accordance with section 306 of the Standard Specifications for Construction except as modified by this special provision.

Work Included Under Other Contract Items

Aggregate Base
Hand patching

b. Materials. Asphalt Millings. Material must not exceed a nominal maximum size of 1 inch.

c. Construction. Place asphalt millings on an unfrozen grade at locations shown on the plans or as directed by the Engineer to provide a flush transition to the existing HMA roadway surface or other areas where traffic is to be maintained. Compact asphalt millings to at least 98% of the maximum unit weight.

Maintain the milling surface in a smooth, stable condition until no longer needed for maintaining traffic. When construction operations progress to the point that the maintenance gravel is no longer needed, removal of the maintenance gravel must occur in the same workday as final paving.

Asphalt millings shall not be incorporated into the construction of aggregate base, shoulders or approaches, the Contractor is responsible for removal and disposal of the material in accordance with the standard specifications.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Maintenance Gravel, Asphalt Millings	Cubic Yard

CITY OF KALAMAZOO

SPECIAL PROVISION
FOR
COVER, ADJ

H&S:IJV

1 of 2

03/13/2023

a. Description. This work consists of removing and replacing existing City of Kalamazoo owned manhole structure covers or valve boxes during HMA surface operations with City of Kalamazoo standard covers. This operation uses the Mr. Manhole™, Manhole Leveling System, or equivalent. Section references are to the current version of the MDOT Standard Specifications for Construction.

b. Materials. Provide materials in accordance with the following:

1. Cover and Casting:
 - a. Supply the City of Kalamazoo standard design cover and casting for Sanitary and Storm sewer per special provision for **DR. STRUCTURE COVER, TYPE __**, **MODIFIED** or water main valve boxes meeting the requirements of section 908.
2. Concrete:
 - a. Use Grade P-NC concrete meeting the requirements of Section 1006.
3. Mortar Type R-2:
 - a. Use mortar meeting the requirement of Section 1005.
4. HMA:
 - a. Use HMA mixtures as specified in the special provisions

c. Construction. Remove existing pavement around the drainage structure using the Mr. Manhole™ or equivalent system. Remove the existing drainage structure in a manner to avoid roadway materials from entering the manhole structure. Salvage existing manhole covers and castings if in good condition; otherwise replace the casting and cover. If pickup is needed, notify the Engineer when manhole cover and casting are ready for pickup. Place a steel plate over the manhole structure and fill in the resulting void with the HMA mixture or material approved by the Engineer. Record the location of each structure and use a locating system or GPS record of each structure for finding it following final paving.

Prior to paving, ensure that locations of structures are confirmed & recorded, and any markers or caps used are in place to easily identify and find each structure after final paving. Upon completion of final paving, cut out and remove the pavement around the structure using the Mr. Manhole™ or equivalent system. Avoid roadway materials from entering the manhole structure. Remove the plate and locator cap. Set the new structure cover in a full bed of mortar or using custom adjusting rings built for this purpose. Adjust in accordance with manufacturer's instructions, MDOT Standard Specifications, and best practices. Set the structure cover level with the roadway (nominal offset = 0", maximum offset = +/- 1/8"). Fill in resulting void with concrete meeting the requirements of Section 1006. Assume ownership of excess removed materials and dispose of according to subsection 205.03P.

Any material entering the Sewer system must be removed promptly. If the contractor neglects to remove the material within 7 days for storm or 24 hours for sanitary after receiving written notification from the Engineer, the Engineer may proceed with the removal. The Engineer will deduct the cost of the removal from the monies that are or may become due to the contractor.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Cover, Adj, Modified.....	Each

The unit price for Sewer Cover, Adj includes all labor, equipment, and materials to remove the existing pavement, install the new cover and casting or valve box, and place the concrete collar.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
DR STRUCTURE COVER, TYPE __, MODIFIED

H&S:TAS

1 of 1

03/13/2023

a. Description. This work consists of installing drainage structure castings with City logos in accordance with City of Kalamazoo standards.

b. Materials. All materials shall conform with Section 403.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction with the exception of the following:

Cover B, Modified shall consist of an EJIW 1045ZPT bolted frame with a 1040A non-bolted non-vented cover with 2 inch "STORM SEWER" lettering or approved equal.

Cover K1, Modified shall consist of an EJIW 7045 frame with M1 grate and 7050 T1 back.

Cover Q, Modified shall consist of an EJIW 1045ZPT bolted frame with a 1040A non-bolted cover with 2 inch "SANITARY SEWER" lettering or approved equal.

c. Construction. All construction shall conform with Section 403.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Dr Structure Cover, Type B, Modified.....	Each
Dr Structure Cover, Type K1, Modified.....	Each
Dr Structure Cover, Type Q, Modified.....	Each

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
SANITARY SEWER LEAD CONFLICTS

H&S:TAS

1 of 1

11/28/2022

a. Description. This work consists of furnishing and constructing sanitary leads as necessary to adjust sanitary sewer connections from the main sewer to the nearest possible end point in instances of conflict with proposed water main or storm sewer. This includes sewer pipe, fittings, temporary plugs, clearing and grading, dewatering, earth excavation, joint materials, concrete, laying of pipe, backfill, and disposal of excess material; protection of existing structures and utilities, cleanup and other operations necessary to complete the work as shown on the plans and as specified in section 825 of the 2020 MDOT Standard Specifications for Construction.

b. Materials. All materials shall conform with section 825 of the 2020 MDOT Standard Specifications for Construction.

c. Construction. All construction shall conform with section 825 of the 2020 MDOT Standard Specifications for Construction.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Sanitary Sewer Lead Conflict, ___ inch, Modified.....	Foot

Sanitary Sewer Lead. The Engineer will measure **Sanitary Sewer Lead** of the type and size in place for horizontal length from wye to termination. The unit price of **Sanitary Sewer Lead** includes the cost of the following:

1. Excavation and backfill;
2. Dewatering operations (trench and/or pipe);
3. Providing and installing fittings, gaskets, and geotextile fabric;
4. Installing risers as detailed on the plans;
5. Plugging and marking terminations;
6. Testing and televising; and
7. Preparing and providing as-built plans.

The City may withhold payment until the Engineer accepts the as-built plans.

The cost of dewatering of trenches, pipe, or both is included in the unit price for relevant items of work.

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.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
HMA APPLICATION ESTIMATE

H&S: TAS

1 of 1

11/28/2022

a. Description. This work shall be done in accordance with Division 5 of the 2020 MDOT Standard Specifications for Construction except as herein specified. The Local Agency representative will perform density testing.

b. Materials. The HMA application estimate is as follows:

1. HMA, 3C (base) shall have a yield of 275 pounds per square yard
2. HMA, 4EL (leveling) shall have a yield of 220 pounds per square yard
3. HMA, 5EL, (top) shall have a yield of 220 pounds per square yard

Asphalt binder shall be PG 64-28 for HMA, 3C.
Asphalt binder shall be PG 64-28 for HMA, 4EL.
Asphalt binder shall be PG 64-28 for HMA, 5EL.

Target air voids shall be designed for 4.0% and field regressed to 3.0% for all HMA mixes.

Aggregate Wear Index for the HMA, 5EL (Top) shall be 260 minimum. HMA Bond Coat shall be type SS – 1h and be applied at the rate of 0.10 gal/syd per Manufacturer’s recommendation.

Hand Patching shall be HMA, 3C, PG 64-28 and HMA, 4EL, PG 64-28 or other mix as approved by the Engineer in writing before placement.

RAP shall not exceed Tier 1 limits as specified in the MDOT Special Provision for Recycled Hot Mix Asphalt Mixture on Local Agency Projects included in this proposal.

c. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
HMA, (<u>type</u>), Modified	Ton

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
VOID REDUCING ASPHALT MEMBRANE FOR LONGITUDINAL JOINTS

H&S:IJV

1 of 3

03/14/2023

a. **Description.** This work consists of applying a void reducing asphalt membrane (VRAM) underneath the longitudinal construction joint of a course of an asphalt pavement. Apply VRAM shall be applied beneath the intended area of the asphalt pavement longitudinal construction joint prior to the installation of the asphalt course.

b. **Materials.** Furnish bituminous material for the VRAM that meets the requirements of Table 1. Add elastomers to base asphalt and include either a styrene-butadiene diblock or triblock copolymer without oil extension, or a styrene-butadiene rubber. Air blown asphalt, acid modification and other modifiers are prohibited.

TEST	TEST REQUIREMENT	TEST METHOD
Dynamic shear @ 88°C (unaged), $G^*/\sin \delta$, kPa	1.00 min.	AASHTO T 315
Creep stiffness @ -18°C (unaged) Stiffness (S), MPa m-value	300 max. 0.300 min.	AASHTO T 313
Ash, %	1.0 - 4.0	AASHTO T 111
Elastic Recovery, 10 cm elongation, cut immediately, 25°C, %	58 min.	ASTM D6084 method A
Separation test, T 53, Ring and Ball Softening Point °C	3 max.	ASTM D7173

c. **Construction.**

1. Equipment

- a. Provide a pressure distributor that is capable of applying the VRAM at the desired thickness. Equip the distributor with a heating and recirculating system along with a functioning auger agitating system or vertical shaft mixer in the hauling tank to prevent localized overheating.
- b. Use a melter kettle for transporting and/or application of the material. Equip the melter kettle with an oil jacketed double-boiler type with agitating and recirculating systems. Dispense material from the kettle through a pressure feed wand with an applicator shoe or through a pressure feed wand into a thermal hand cart similar to a walk behind thermoplastic paint applicator.

2. Surface Preparation. Prior to the application of the VRAM ensure the area of the intended longitudinal asphalt pavement joint is thoroughly cleaned and free of debris. Clean the area by sweeper/vacuum truck, power broom, air compressor or hand to the satisfaction of the Engineer. Ensure the existing surface is dry and free of moisture.

3. General Placement Operation.

- a. When applying VRAM, center the VRAM application width within 2 inches of the project established centerline or established lane edge.
- b. Apply the VRAM to the existing surface prior to any or all tack coat applications.
- c. Apply the VRAM to the existing surface at the width and minimum thickness as specified in Table 2.

Table 2: VRAM Application Rate

Non-SMA Mixtures		
Overlay Thickness, inches	VRAM Width, inches	Application Rate, lb/ft
1	18	0.80
1¼	18	0.88
≥ 1½	18	0.95
SMA Mixtures		
Overlay Thickness, inches	VRAM Width, inches	Application Rate, lb/ft
1½	18	1.26
1¾	18	1.38
≥ 2	18	1.51
<ol style="list-style-type: none"> 1. The thickness of the VRAM may taper from the center of the application to a lesser thickness on the edge of the application. Maintain the width and weight per foot. 2. In the event of a joint between a SMA and non-SMA mixture, the non-SMA application rate will be used. 3. When applying VRAM half-width, apply the application at one-half the prescribed width and rate. 		

- d. Apply the VRAM in a single pass placed by any application method listed in subsection c.1 of this special provision. Do not use excessive material either in thickness or width.
- e. Apply the VRAM at a width of not less or greater than 1.5 inches of the width specified in Table 2. Apply VRAM half-width at not less or greater than 1.5 inches of one-half the width specified in Table 2. If the VRAM flows more than 2 inches from the initial placement width, stop paving and take remedial action subject to the Engineer's approval.
- f. In the event VRAM flushes to the surface of the new lift, remove the excess VRAM to the Engineer's approval.

- g. Apply the VRAM to be suitable for construction traffic to drive on without pick up or tracking of the VRAM within 30 minutes of placement. If pick up or tracking occurs, stop paving and take remedial action subject to the Engineer's approval.
- h. To prevent overlapping of successive applications of VRAM, place suitable release paper or provide other means over the previous applied VRAM.
- i. In the event the intended location of the longitudinal joint falls on the crown or at a location where adjacent pavement passes have differing cross slopes; adjust the application location of the VRAM for an edge of paving offset.
- j. Ensure the existing surface and ambient temperatures are a minimum 40 °F and rising during application of the VRAM.
- k. Prior to start of paving of pavement course, ensure the paver end plate and grade control device is adequately raised above the finished height of the VRAM.
- l. Furnish a quality inspection report showing the source, manufacturer, and the date shipped, for each load of VRAM. When directed by the Engineer, the Contractor must take representative samples of material for testing.

4. **Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item.

Pay Item	Pay Unit
Void Reducing Asphalt Membrane, modified.....	Ft

Void Reducing Asphalt Membrane includes placement of VRAM at the width and rate listed in Table 2 in a single pass. Payment includes all materials, surface preparation and documentation.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
SLOPE RESTORATION, MODIFIED

H&S:TAS

1 of 1

11/28/2022

a. Description. This work consists of preparing all areas disturbed during construction for slope restoration by the contractor or as directed by the Engineer, and applying topsoil, fertilizer, seed, and mulch with mulch anchor, mulch blanket or high velocity mulch blanket to those areas.

b. Materials. All materials shall conform with Sections 816 and 917 of the 2020 MDOT Standard Specifications for Construction unless modified by this special provision or as directed by the engineer. All seeding shall use Class "A" Mixture in accordance with Section 816.03.

c. Construction. Construction methods shall be in accordance with Section 816.03 of the 2020 MDOT Standard Specifications for Construction.

Mulch Blanket and High Velocity Mulch Blanket shall be placed in large disturbed areas with a 1-on-4 slope or greater as directed by the Engineer.

If an area washes out after this work has been properly completed and approved by the Engineer, Contractor shall make the required restorations and corrections to prevent future washouts and replace the topsoil, fertilizer, seed and mulch. This replacement will be paid for as additional work using the applicable contract items.

If weeds are determined by the Engineer to cover more than ten percent of the total area of slope restoration, the Contractor shall provide weed control in accordance to subsection 816.03.I of the 2020 MDOT Standard Specifications for Construction. Weed control shall be at the Contractor's expense with no additional charges to the project for materials, labor or equipment.

d. Measurement and Payment. The completed work as described will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Pay Unit
Slope Restoration, Modified	Lump Sum

Slope Restoration, Modified shall be placed in all disturbed areas. All materials, labor and equipment required to install **Slope Restoration, Modified** which includes Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; Mulch and Mulch Anchoring; Mulch Blanket and High Velocity Mulch Blanket will not be paid for separately but shall be included in the contract unit price bid for **Slope Restoration, Modified**.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
INSULATION BOARD OVER PROPOSED WATER MAIN

TAS: H&S

1 of 1

11/28/2022

a. Description. This work consists of insulating the proposed water main or proposed service lines at locations shown on the plans, or determined at the time of construction, to protect against the penetration of frost.

This work includes furnishing and placing insulation board to the prepared grade. It also includes excavating, backfilling, shaping and compaction necessary to install the insulation board.

b. Materials. The insulation must be rigid, extruded polystyrene board meeting *ASTM C 578, Type V*, having a nominal board thickness of 2 inches, minimum compressive strength of 100 psi and a minimum R-Value of 10. Furnish the board in minimum 4 foot by 8 foot sheets unless otherwise approved by the Engineer, and of the cumulative thickness indicated on the plans or determined at the time of construction and approved by the Engineer. Trim the edges square and must have not more than 1/4 inch bow measured against a straightedge.

c. Construction. It is necessary to insulate the water main or service lines wherever indicated on the plans or determined at the time of construction. Place the insulation board on a prepared grade 12 inches above the top of the pipe, where possible and fasten with skewers or other means approved by the Engineer, so that backfill compaction requirements of the trench can be met. Trim the surface of the grade to a smoothness of $\pm 3/4$ inch per 10 feet. With approval of the Engineer, the specified smoothness may be obtained by the placement of a thin layer of granular material Class II. Where necessary to place more than one layer of insulation board, ensure the joints are staggered.

Install the insulation board using methods and means that will not cause damage. Remove damaged insulation board and replaced at no cost to the City.

Asphalt or other material having a temperature exceeding 150 degrees Fahrenheit must not be placed in direct contact with the insulation board.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Insulation Board, 2 inch	Square Foot

Insulation Board, 2 inch includes furnishing and installing the insulation board complete including fasteners and any required granular material Class II.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
**MAINTAINING TRAFFIC
PERMANENT PAVEMENT MARKINGS
AND PERMANENT SIGNING**

H&S:ARP

1 of 9

03/14/2023

Route: Balch Street from S. Park St. W. to S. Burdick St. in the City of Kalamazoo.
Location: Kalamazoo County
Description: The scope of work includes water main, pavement, driveway, sidewalk, and curb replacement.

GENERAL

Maintain traffic according to subsections 104.07, 104.10, and sections 812 and 922 of the *2020 Standard Specifications for Construction*, including any Supplemental Specifications, and as specified herein. All traffic control devices and their usage shall conform to the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)*, 2009 edition, as revised and as specified herein, including any supplemental specifications and revisions.

Notify the Project Engineer, City of Kalamazoo Manager, and City officials a minimum of 72 business hours prior to the implementation of any detours, road closures, or lane closures and major traffic shifts.

During work hours, equipment, material and company vehicles may be parked or stored within the right-of-way as directed by the Engineer. All equipment, material and company vehicles to be parked or stored overnight shall be placed 15' from edge of travel way within the Construction Influence Area (CIA) project limits.

Coordinate operations with Contractors performing work on other projects within or adjacent to the CIA, to avoid conflicts in the maintenance of traffic, construction staging, and to provide for the orderly progress of contract work.

Changes and/or adjustments to the maintaining traffic plans and standards may be applied as determined by the Engineer.

Coordinate all lane closures with Kalamazoo Metro Transit to maintain access or provide alternate access for any bus stops within the CIA.

CONSTRUCTION INFLUENCE AREA (CIA)

The CIA includes the area within the rights-of-way on Balch St., from the intersection of S. Park St. W. through the intersection of S. Burdick St., including the rights-of-way of any intersecting roads adjacent to the work zone for a distance of approximately 800 feet in advance of Balch St.

TRAFFIC RESTRICTIONS – GENERAL

The Contractor shall maintain traffic according to this maintaining traffic special provision, signing typical, and the notes therein.

No work shall be performed during the Memorial Day, Independence Day, and Labor Day holiday periods, as defined by the Engineer. All work shall be done between the hours of 7 a.m. to 7 p.m. (Monday – Friday) unless otherwise specified herein. Work done outside of the times specified herein will be at the discretion of the Engineer and any additional cost for maintaining traffic shall be borne by the Contractor. No work shall be done on Weekends (Saturday and Sunday), unless otherwise specified herein or approved by the Engineer in writing.

During construction, reasonable access shall be maintained to all business and residential drives at all times.

When lane closures are in place, the Contractor shall completely cover or remove existing conflicting warning, regulatory, and guide signs according to Section 812.03 of the *Standard Specifications for Construction, 2020 edition*. Any signs damaged during this project shall be replaced in-kind at the Contractor's expense.

As necessary, HMA Hand Patching shall be placed in any location as directed by the Engineer to transition any differences in grade between transverse or longitudinal joints on paved surfaces.

During the road construction activities, the construction area shall be closed with traffic detoured in three phases as indicated and detailed herein. All detour signage shall be as required by the City of Kalamazoo and MDOT. The following detour routing and traffic modifications are anticipated:

Balch St. shall be closed from S. Burdick St. to S. Park St. W. Type III barricades shall be placed at S. Burdick St., S. Park St. W., S. Park St., and S. Rose St. as detailed in *Sheet C-9 Phase 1 & 3 Maintenance of Traffic Plan*. Close right-turn lane on S Park St. W and thru lane on Balch St. as detailed in *Sheet C-9 Phase 1 & 3 Maintenance of Traffic Plan*.

Balch St. shall be closed from S. Burdick St. to S. Park St. Type III barricades shall be placed at S. Park St. W., S. Park St., and S. Rose St. as detailed in *Sheet C-9 Phase 2 Maintenance of Traffic Plan*. Close right-turn lane on S. Park St. W. and thru lane on Balch St. as detailed in *Sheet C-9 Phase 2 Maintenance of Traffic Plan*. The Balch St. & S. Burdick St. intersection shall be closed. Type III barricades shall be placed at the northern, southern, and western side of the intersection as detailed in *Sheet C-9 Phase 2 Maintenance of Traffic Plan*. Additionally, the western driveway of 1601 S. Burdick St. shall be closed and Type III barricades shall be placed at the drive apron.

Balch St. shall be closed from S. Burdick St. to S. Park St. W. Type III barricades shall be placed at S. Burdick St., S. Park St. W., S. Park St., and S. Rose St. as detailed in *Sheet C-9 Phase 1 & 3 Maintenance of Traffic Plan*. Close right-turn lane on S. Park St. W. and thru lane on Balch St. as detailed in *Sheet C-9 Phase 1 & 3 Maintenance of Traffic Plan*. S. Burdick St. traffic fully open, HMA final paving in water main trench.

Final pavement marking shall be placed upon completion of placement of the base course of HMA.

Temporary signage and barricades shall be placed throughout the project duration until permanent signs and pavement markings are in place. Contractor shall provide access to all businesses along Balch St. at all times

The contractor shall maintain a 12' wide access lane for driveway and emergency access at all times.

The contractor shall maintain pedestrian traffic at all times. Only sidewalks on one side of each intersection shall be closed at a time. Two consecutive intersections shall not have work impacting pedestrian facilities in process on the same side at any time.

Modification of traffic control signs shall require 72 hours prior notification and approval by the Engineer.

All closures, traffic detours, and traffic shifts shall be reviewed and approved by the Engineer prior to implementation or use.

The Contractor shall notify the Engineer at least 72 hours in advance of erection or removal of existing signs.

Continue work that is initiated that includes any lane restrictions until completed. A lack of work activity for more than one week requires the removal and replacement of lane restrictions with all the costs borne by the Contractor.

Restrict access for construction vehicles between traveled lanes and work areas to specific locations. The number of access points and their locations requires the approval of the Engineer.

Restore undercuts or excavations immediately adjacent to active traffic lanes to no less than a one-on-four slope at the end of each working period unless otherwise approved by the Engineer. Require and provide fencing to protect open trenches during non-working hours as part of the trenching item utilized.

Provide transverse and longitudinal HMA tapers at all grade changes caused by cold-milling and overlays. Maintain traffic on the unmilled surface, unless otherwise approved by the Engineer.

STAGE CONSTRUCTION

Base the traffic control required by this Special Provision for work on Balch St. and adjacent roadways on the suggested sequence of operations contained in the staging plans. Use an alternate traffic control plan, subject to review and approval by the Engineer. Require the following brief description of traffic control detailed on the plans during each construction stage.

PHASE 1 – Close Balch St. at Sta. 0+00 – Sta. 11+00 to thru traffic.

Eastbound and westbound traffic on Balch St. will be detoured around the project limits and only local traffic will remain open for two-way traffic. On Balch St., maintain a 12' wide access lane

for driveway and emergency access at all times. Utilize maintenance gravel or asphalt millings in water service trenches on Balch St. as directed by the Engineer. Utilize traffic shifts and flag control as necessary. See *Sheet C-9 Phase 1 & 3 Maintenance of Traffic Plan* for more details.

- A. Relocate existing services leads from existing 8" northern water main to existing 12" southern water main. See Sheet C-4 & C-5 for details.

Utilize traffic shifts and flag control as necessary;

1. Utilize attached MDOT typical lane closures 343-SP-ZIP-1LC-(R) to close thru-lane on Balch St. and the right-turn at S. Park St. W. to facilitate traffic control at S. Park St. W. & Balch St. Intersection. Leave gap in Plastic Drums on Balch St. to maintain access to 403 Balch St. Driveway.

PHASE 2 – Keep Balch St. closed at Sta. 0+00 – Sta. 11+00 to thru traffic. Close Balch St. & Burdick St. Intersection to all traffic.

Eastbound and westbound traffic on Balch St. will be detoured around the project limits and only local traffic will remain open for two-way traffic. On Balch St., maintain a 12' wide access lane for driveway and emergency access at all times. All traffic will be detoured around Balch St. & Burdick St. Intersection. Pave water main trenches in Balch St. & Burdick St. Intersection as directed by the Engineer. Utilize traffic shifts and flag control as necessary to place final pavement. See *Sheet C-10 Phase 2 Maintenance of Traffic Plan* for more details.

- A. Install 24" water main on Balch St. from Sta. 11+61 to Sta. 11+00 including; water main tap, 12" x 24" reducer, 24" x 24" x 16" tee, 16" WM, 16" Plug, 24" x 24" x 24" tee, 24" Butterfly Valve, 24" Plug, 45° bends, vertical deflections, and 24" WM.

Utilize traffic shifts and flag control as necessary;

1. Utilize attached MDOT typical lane closures 343-SP-ZIP-1LC-(R) to close thru-lane on Balch St. and the right-turn at S. Park St. W. to facilitate traffic control at S. Park St. W. & Balch St. Intersection. Leave gap in Plastic Drums on Balch St. to maintain access to 403 Balch St. Driveway.

PHASE 3 – Keep Balch St. at Sta. 0+00 – Sta. 11+00 to thru traffic. Open Balch St. & Burdick St. Intersection to full traffic.

Eastbound and westbound traffic on Balch St. will be detoured around the project limits and only local traffic will remain open for two-way traffic. On Balch St., maintain a 12' wide access lane for driveway and emergency access at all times. Utilize maintenance gravel or asphalt millings in water service trenches on Balch St. as directed by the Engineer. Utilize traffic shifts and flag control as necessary to hand patch. See *Sheet C-9 Phase 1 & 3 Maintenance of Traffic Plan* for more details.

- A. Install 24" water main on Balch St. from Sta. 11+00 to Sta. 0+25 including sewer relocations, service connections, curb and gutter, and sidewalk ramps.

Utilize traffic shifts and flag control as necessary;

1. Utilize attached MDOT typical lane closures 343-SP-ZIP-1LC-(R) to close thru-lane on Balch St. and the right-turn at S. Park St. W. to facilitate traffic control at S. Park St. W. & Balch St. Intersection. Leave gap in Plastic Drums on Balch St. to maintain access to 403 Balch St. Driveway.

CHANNELIZING DEVICES

All channelizing devices used on this project shall be Plastic Drums, Lighted with High Intensity Sheeting.

450 Plastic Drum, High Intensity _ are included to be used at the discretion of the Engineer. Any additional channelizing devices needed for construction shall be approved by the Engineer prior to delivery and placement.

All channelizing devices shall be supplied from MDOT's approved list. The use of 42" channelizing devices may be allowed as directed by the Engineer.

Channelizing device spacing shall conform to the distances specified in the maintaining traffic typical and/or stage construction plans, unless otherwise directed by the Engineer.

All channelizing devices used on this project will have sufficient ballast to prevent the barrel from moving or tipping. If moving or tipping of plastic drums occurs as the result of wind generated by traffic or occurring naturally, the Contractor will be required to place additional ballast on the plastic drum at no additional cost to the Department.

Lighted Arrows, Type C, shall be used when closing a traffic lane or where lighted arrow panels are called for on the attached typical. The lighted arrow panel for the lane closures shall be located at the beginning of the taper or as close as possible to the beginning of the taper where physical limitation exists.

Placement of High Intensity Type III Barricades, Double Sided, Lighted and High Intensity Type III Barricades, Lighted shall be as directed by the Engineer.

TRAFFIC CONTROL DEVICES

All traffic control devices shall conform to the Traffic and Safety Standard Plan WZD-125 series and the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)*, 2009 edition, as revised and as specified herein, including any supplemental specifications and revisions.

All traffic control devices used on this project shall be like new at the time of initial deployment. These devices shall meet the acceptable criteria in ATSSA's quality guidelines for *Work Zone Traffic Control Devices* for the remaining life of this project.

All traffic control devices moved to facilitate the Contractor's operation shall be reset by the end of the work day. The Contractor shall routinely maintain all traffic control devices. Routine maintenance includes, but is not limited to, maintaining proper placement, replacing damaged devices and cleaning. The Contractor shall be responsible for reviewing the adequacy and maintenance of all traffic control devices at least once per day everyday for the duration of this project. Replacement and repair of the devices shall be restricted to daylight hours. Weekly Service Reports will need to be submitted to the Engineer for review and payment.

Temporary Signs

All temporary signs shall be faced with prismatic retroreflective sheeting.

All temporary signs that shall be in place for more than 14 days shall be mounted on driven posts.

Installation of all sign posts shall follow MDOT special detail WZD-100-A.

Place temporary sign spacing and taper lengths as shown on attached Typical 101-GEN-Spacing-Charts

Place ground driven sign supports as shown on attached Traffic and Safety Standard Plan Special Detail WZD-100-A. Refer to Traffic and Safety Standard Plan WZD-125-E for portable supports.

Include 10 – R2-1 (“SPEED LIMIT 25 MPH”) signs in the quantities, to place after intersecting roads and no more than 2 miles apart. Additional locations are to be designated by the Engineer.

Place signing for lane closures as shown on attached Typical 343-SP-ZIP-1LC-(R) and as shown in the phasing sequence and plans.

Include 16 – W8-1 (“BUMP”) signs in the quantities, to place at all milled joints on mainline and side roads.

Mount all temporary signs at a five-foot minimum bottom height in uncurbed areas and seven-foot minimum bottom height in curbed or pedestrian areas.

Consider distances shown between construction warning, regulatory and guide signs shown on the Typical as approximate. Signs may require field adjustment, as the Engineer directs.

Fabricate all temporary signs with legends and symbols flush to the signs face and do not extend beyond the sign borders or edges.

Mount all temporary signs that will be in place for more than 14 days on driven posts. Refer to Traffic and Safety Standard Plan WZD-125-E when installing temporary diamond signs with portable supports. Note that the Type A Warning Light is required.

When a portable construction sign is no longer applicable, remove it or lay it down on its non-reflective side with its feet off.

Use Type C Lighted Arrows (min 48 inch x 98 inch) to merge traffic and secure by elevating the tires above the ground, or use wheel chocks or sandbags.

The Federal Highway Administration (FHWA) requires all signs to be NCHRP 350 crashworthy. For design and configuration refer to their website:

<https://safety.fhwa.dot.gov>

All diamond shaped signs shall be 48" x 48", unless otherwise noted.

Temporary warning, regulatory, and guide signs on portable supports that are not required for a particular work operation, shall be removed or laid down with the legs off as directed by the Engineer. These signs shall not occupy the shoulder of the roadway when laid down nor shall they be placed against attenuators. This work shall be included in the cost of "Sign, Type __, Temp, Prismatic, Oper".

If there are permanent signs that are not applicable during construction, they shall be covered completely with plywood, or removed and then reinstalled at completion of the work. This operation shall be paid for under the item Sign Cover.

All temporary signs shall be installed on driven posts per attached Maintaining Traffic Typical WZD-100A. All other temporary signs may be installed on portable supports with the approval of the Engineer.

Portable Changeable Message Signs (PCMS)

Portable Changeable Message Signs, PCMS, shall be used. The PCMS are intended to be used to warn traffic of upcoming work and changing traffic control during the life of the project. They will be installed and operational a minimum of 14 calendar days prior to the start of work or as directed by the Engineer. The PCMS location are shown on phase 1, 2, & 3 detour plan on sheets C-9 and messages shall have the approval of the Engineer prior to displaying the message to the motoring public.

Suggested messages displayed on the PCMS include:

- ROAD WORK BEGINS XXXXX (Date to be determined)
- ROAD WORK AHEAD, WATCH FOR BACKUPS
- BALCH STREET CLOSED
- BALCH INTERSECTION, CLOSED STARTING XX/XX/XX, (Date to be determined)

Permanent Signs

All permanent signing shall be fabricated and placed according to the current editions of the MMUTCD, Standard Highway Signs Manual and sign support typical, published by the Michigan Department of Transportation as revised and as specified herein, including any supplemental specifications and revisions.

The Contractor and Engineer shall inspect, document, and photograph each sign being covered prior to covering the sign.

Any signs that are damaged during construction shall be replaced at the Contractor's expense.

Pedestrian or Non-Motorized Facilities.

Maintain all facilities in accordance with The Americans with Disability Act (ADA) requirements. Provide facilities equivalent to or better than the route a person would have encountered prior to construction activities.

Within the project limits, all sidewalks and bike paths shall be left in place if no work is impacting the existing sidewalk. All sidewalks and bike paths shall be replaced and opened within four working days once removed for construction. During construction, reasonable access shall be maintained for pedestrians.

In locations where sidewalk is removed and will not be replaced with permanent materials within four working days, temporary facilities must be provided. Temporary facilities must also be provided for all businesses. Temporary facilities may consist of wooden boardwalks or other materials, provided that the temporary facilities meet ADA requirements and a minimum width of 4' is maintained. The Contractor must submit a pedestrian access and temporary facility management plan to the Engineer a minimum of 2 weeks prior to removing sidewalk sections that will require access be maintained.

Close and detour any sidewalk ramps and crosswalk areas to pedestrian traffic that are impacted by the work. Cover pedestrian signal heads when the crosswalk or ramp is affected.

Keep sidewalk areas clear of any equipment or materials at all times the sidewalks are open to pedestrian traffic.

Permanent Pavement Markings

Permanent pavement markings shall be constructed in accordance with Section 811 of the Michigan Department of Transportation *2020 Standard Specifications for Construction*, including any Supplemental Specifications, the most current version of the MDOT Pavement Marking Typical Plans-900 series, and any special provisions in this proposal. Permanent pavement markings shall consist of the following:

- Pavt Mrkg, Polyurea, 12 inch, Crosswalk
- Pavt Mrkg, Polyurea, 24 inch, Stop Bar
- Pavt Mrkg, Polyurea, 4 inch, Yellow
- Pavt Mrkg, Polyurea, 6 inch, White

All permanent pavement markings that are removed for traffic control or obliterated outside the project limits during construction operations shall be replaced with Waterborne for lane and edge lines and Overlay Cold Plastic material for special markings.

Final pavement markings shall be installed prior to opening the road to traffic.

MEASUREMENT AND PAYMENT

The estimate of quantities for maintaining traffic on this project is based on the suggested sequence of operations. Payment shall be in accordance with Sub-Section 812.04 of the *2020 Standard Specifications for Construction* and any supplemental specifications, unless otherwise specified.

Payment for quantities used to maintain traffic will be based on the maximum number of units required by the Engineer at any one time for the entire project and have been estimated based on the attached typical and the plans.

Any additional quantities for traffic control devices not included in the estimate and utilized for the Contractor's convenience shall be provided at the expense of the Contractor.

Contract Item (Pay item)	Pay unit
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn.....	Ea
Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Ea
Pedestrian Type II Barricade, Temp	Ea
Lighted Arrow, Type C, Furn.....	Ea
Lighted Arrow, Type C, Oper	Ea
Minor Traf Devices	LS
Plastic Drum, Fluorescent, Furn	Ea
Plastic Drum, Fluorescent, Lighted, Oper	Ea
Sign Cover	Ea
Sign Portable, Changeable, Message, Furn	Ea
Sign Portable, Changeable, Message, Oper	Ea
Sign, Type B, Temp, Prismatic, Furn	Sft
Sign, Type B, Temp, Prismatic, Oper	Sft
Maintaining Traffic, modified	LS



*City of Kalamazoo Standard Specifications for
Water Main and Service Installation, 2021*

**Balch Street (Park St. to Burdick St.)
Water Main Replacement**

Bid Reference #: 91244-025.0

June 2023

**CITY OF KALAMAZOO
DEPARTMENT OF
PUBLIC SERVICES**

WATER RESOURCES DIVISION



PUBLIC SERVICES DEPARTMENT

WATER RESOURCES DIVISION
415 STOCKBRIDGE AVE.
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**Standard Specifications for
Water Main and Service Installation
2021**



WATER MAIN AND WATER SERVICES

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. Note lengths and locations of restrained joints.
5. Details and profiles of special field situations that relate to the water distribution system shall be included.
6. Dimensional information locating each water distribution system component to real world features, such as property lines, right-of-way lines, and centerlines of roads.
7. 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.
8. When fittings/hydrants are installed as proposed, please circle the proposed listing.
9. All hydrants shall be noted as to whether or not drip valve plugs were installed.
10. When installing 12 inch or larger valves, (Butterfly Valves), indicate which side of the main the operating nut was placed, as well as gear box style with number of turns to close.
11. The contractor shall complete the service card information including a sketch of the water service installation with dimensions and location of the curb box.
12. Contractor shall GPS all valves, hydrants, fittings, as well a minimum every 3 lengths of pipe for straight runs. DWG files shall be provided to the Engineer upon completion of the project. GPS accuracy shall be subfoot.
13. **All as-built record drawings shall be completed and turned in to the Engineer within 2 weeks from completion of the installation.**

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 all water main and appurtenance work shall not occur until all items have been inspected by the Engineer, passed all required testing, as well as receipt and approval of all as built documents. Additionally, final acceptance on a water service will only be given **once the water meter is installed**.
 1. Water service or water main warranty work shall be completed either a prequalified contractor under the inspection of the City of Kalamazoo, or by City of Kalamazoo field service crews. All warranty work shall be paid for by the Developer or the Contractor.
- D. The Contractor is responsible for field locating all work which has not yet received final acceptance by the City of Kalamazoo. All damage to work that has not received final acceptance is the responsibility of the Contractor.

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 **“Buy American”** 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 C 115/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 or fluoroelastomer gaskets shall must be used as indicated on the plans and in locations of known or suspected soil or groundwater contamination as necessary. Gaskets provided will be specified based on the type of contamination that is encountered. 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.
 - c. Pipe used in conjunction with Horizontal Directional Drilling operations shall be Flex-Ring or TR FLEX joints.

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, Ford Series 1400, 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 4 to 16 inch, 250 psi for 18 to 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 or Flex Ring style as manufactured by US Pipe, McWane, American USA, or approved equal. Field locking or Flex Ring 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.
 5. Restrained flange adapters shall be EBAA Iron Megaflange series 2100 or approved equal.
 - a. Restrained flange adapters shall be made of ductile iron conforming to ASTM A536 and have flange bolt circles that are compatible with ANSI/AWWA C110/A21.10 (125#/Class 150 Bolt Pattern).
 - b. Restraint for flange adapter shall consist of plurality of individual actuated gripping wedges to maximize restraint capability. Torque limiting actuating screws shall be used to insure proper initial set of gripping wedges.
 - c. The flange adapters shall be capable of deflection during assembly or permit lengths of pipe to be field cut to allow a minimum of 0.6 inch gap between the end of the pipe and the mating flange without affecting the integrity of the seal.
 - d. All internal surfaces of the gasket ring (wetted parts) shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213. The coating shall meet ANSI/NSF-61. Exterior surfaces of the gasket ring shall be coated with a minimum of 6 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C116/A21.16.
 - e. Restraint Ring coated with MEGA-Bond Restraint Coating System.

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.
3. Restrained flange adapters shall be EBAA Iron Megaflange series 2100 or approved equal.

2.02 Ductile Iron Valves

- A. All underground valves in sizes from 4 inches to 10 inches 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, 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. Valves shall have a working pressure rating of 250 psi or greater.
1. In lieu of a mechanical joint restraint, American Flow Control Series 2500 valves may be equipped with ALPHA joints.
- B. 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. Valves shall have a working pressure rating of 250 psi or greater.
- C. 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 bolts, nuts and washers, stainless steel stem, and be equipped with a hand wheel to operate. Valves shall have a working pressure rating of 150 psi or greater.
- D. 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. Valves shall have a working pressure rating of 150 psi or greater.
- E. 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 one flanged and one 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. Valves shall have a working pressure rating of 250 psi or greater.

- F. All valves used in conjunction with a fire service line shall be Mueller R-2361-6 Outside Screw and Yoke (O.S.&Y.) with sample tap or approved equal. The stem shall be type 304 stainless steel. Sample tap shall have a 4 ½ inch brass nipple, brass ball valve, and brass plug meeting NSF/ANSI Standard 61 requirements. Sample tap shall be ½ inch for 4 inch and smaller valves and ¾ inch for valves larger than 4 inch.
- G. All valves installed using the insertion style method shall be an all stainless steel body Resilient Wedge Gate Valve designed for permanent use in potable water systems. The design will allow the valve to be installed into an existing pressurized pipeline while maintaining constant pressure and service without system shutdown. No restraining devices, restraining fasteners, or transition gaskets shall be required for the installation or operation of the valve. Valves in sizes 4 inches to 12 inches shall be Hydra-Stop Insta-Valve 250 or approved equal. 16 inch valves shall be Hydra-stop Insta-Valve Plus 250 or approved equal.

2.03 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, 2.03 and 2.04 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.
 - 1. American Flow Control hydrants shall be 5 ¼ inch Waterous Pacer Traffic Model WB67-250. Hydrants shall be supplied with a 16 inch upper standpipe length. The Hydrant will come equipped with a bronze upper valve washer. In lieu of a mechanical joint restraint, hydrants may be equipped with ALPHA joints.
 - 2. EJ hydrants shall be WaterMaster Model 5BR250 with snow barrel.
- B. Hydrants shall come equipped with a Carrol Drain. Drain piping shall be made of type 304 stainless steel. External port shall have removable cap for flushing hydrant. Carrol Drain assembly shall be constructed so that it is removable when replacement of assembly is necessary.
- C. Hydrants shall have two 2 ½ 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, weather shield hydrant operating nut, Storz nozzle cap nut, and Carrol Drain cap 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. Chains shall not be supplied with the hydrant caps.
- D. Hydrants shall be equipped drip valve, tapped for plug. The drip valve system shall be bronze. Draining system shall be positively activated by the main operating rod, meaning the drip valve will open when the hydrant is closed. Hydrant shall be provided with plug removed.
- E. Hydrants shall have a 6 inch shoe with mechanical joint connections in conformance to ANSI/AWWA C115/21.11.

2.04 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.

2.05 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, Smith-Blair series 665, Romac style SST III, Ford style FTSS, Ford MJTS, or approved equal.
 2. Ductile Iron Tapping Sleeves.
 - a. Sleeves shall be of construction meeting ASTM A536. Side flange seals shall be O-ring type of round cross-sectional shape.
 - b. All sleeves to include the end joint accessories and split glands necessary to assemble sleeve to pipe.
 - c. Sleeve shall be coated with asphaltic varnish in compliance with NSF-61.
 3. Stainless Steel Tapping Sleeves.
 - a. Sleeves shall be 18-8 type 304 Stainless Steel in accordance with AWWA C223.
 - b. Bolts, nuts, and washers shall be 18-8 Type 304 Stainless Steel. Nuts shall be heavy hex, and coated to prevent galling.
- 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. Line Stop Tapping Sleeves and appurtenances:
1. Model shall be Hydra-Stop HSF 250 Patriot or approved equal
 2. Body shall be type 304 Stainless Steel in accordance with AWWA C223.
 3. Blind Flange shall be Epoxy Coated Carbon Steel or type 304 Stainless Steel.
 4. Bolts, Nuts and Washers shall be type 304 Stainless Steel.
 5. Completion Plug shall be HSF 250 Push and Pin Style, made of reinforced composite polymer.
 6. Completion Plug O-ring shall be BUNA-N Rubber
 7. Completion Plug Pins shall be SAE Grade 8, Zinc coated to prevent corrosion
 8. Completion Pin Plug shall be type 304 Stainless Steel, coated to prevent galling.
 9. Flange O-Ring shall be BUNA-N Rubber.
- D. All gaskets shall be Nitrile in compliance with NSF-61.
- E. No special tools shall be required other than standard socket wrench.
- F. Flange end pilot dimensions to be in compliance with MSS-Sp-60.

2.06 AIR RELEASE VALVES

- A. Air Release Valves – All air release valves shall be manufactured per ANSI/AWWA C512-04. Cla-Val Series 36 Combination Air Valves, or approved equal. The valves shall be of the size listed in the plans.
1. The combination air valve shall combine the operating features of both an air and vacuum valve and an air release valve in one housing. The air and vacuum valve portion shall automatically exhaust large quantities of air during the filling of the pipeline and automatically allow air to reenter the pipeline when the internal pressure of the pipeline approaches a negative value due to column separation, draining of the pipeline, or other emergency. The air release valve portion shall automatically release small amounts of air from the pipeline while it is under pressure.
 2. The inlet and outlet of the valve shall have the same cross section area. The float shall be guided by a stainless steel guide shaft and seat drip tight against a synthetic rubber seal. 4 inch and larger valves shall have dual guided shafts of hexagonal cross section and a protective discharge hood.
 3. The float shall be of all stainless steel construction and capable of withstanding maximum system surge pressure without failure. The body and cover shall be concentrically located and of ductile iron and the valve internal parts shall be stainless steel or Buna-N rubber.
 4. All 1 inch and 2 inch valves shall be NPT. All valves 4 inch and larger shall be flanged.
- B. Vent piping shall be 2 inch diameter, with copper piping below grade and galvanized piping above grade.
- C. 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. Silver reflective tape shall be placed on the vent pipe.
- D. An air release valve sign shall be installed on a galvanized 2 pound sign post.
- E. The valve sign shall be aluminum 8 inch x 18 inch (MDOT type III-A) with valve symbol and down arrow of a reflective material.

2.07 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 of 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.

2.08 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.

2.09 STEEL BLOW-OFF PIPE

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

2.10 WATER SERVICES AND APPURTENANCES

A. Copper Service Lines

- 1. Copper pipe shall be used for service lines which are $\frac{3}{4}$ inch, 1 $\frac{1}{4}$ inch and 2-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. $\frac{3}{4}$ inch services:

- a. Corporation Stop $\frac{3}{4}$ inch – FB600-3-NL or AY McDonald 74701B NL (3/4 inch)
- b. Service Saddle – Smith-Blair 311(4 to 12 inch water main), Smith-Blair 313 (16 to 24 inch water main), Romac 101U(4 to 12 inch water main), Romac 202SSU (16 to 24 inch water main), Ford F101(4 to 12 inch water main), or Ford F202(16 to 24 inch water main).
- c. Curb Stop (for use when reducing a 1 $\frac{1}{4}$ inch street service to $\frac{3}{4}$ inch yard service) – Ford B21-555-NL, C18-35-NL, and C28-33-NL
- d. Curb Stop (when using $\frac{3}{4}$ inch street service) – Ford B22-333-NL or AY McDonald 76100 NL ($\frac{3}{4}$ inch)
- e. Brass Fittings – All brass fittings such as tees, elbows, caps, nipples and similar items shall be manufactured in the U.S.A.
- f. Couplings – Ford C22-33-NL or AY McDonald 74758 NL ($\frac{3}{4}$ inch)

2. 1 $\frac{1}{4}$ inch services:

- a. Corporation Stop – Ford FB600-45-NL or AY McDonald 74701B NL (1 x 1 $\frac{1}{4}$ inch)

- b. Service Saddle – Smith-Blair 311(4 to 12 inch water main), Smith-Blair 313 (16 to 24 inch water main), Romac 101U(4 to 12 inch water main), Romac 202SSU (16 to 24 inch water main), Ford F101(4 to 12 inch water main), or Ford F202(16 to 24 inch water main).
 - c. Curb Stop – Ford B22-555-NL or AY McDonald 76100 NL (1 ¼ inch)
 - d. Brass Fittings – All brass fittings such as tees, elbows, caps, nipples and similar items shall be manufactured in the U.S.A.
 - e. Couplings – Ford C22-55-NL or AY McDonald 74758 NL (1 ¼ inch)
3. 2 inch services:
- a. Tapping Valve – Ford B11-777-NL
 - b. Service Saddle – Smith-Blair 313, Romac 202S, or Ford F202
 - c. Brass Fittings – All brass fittings such as tees, elbows, caps, nipples and similar items shall be manufactured in the U.S.A.
 - d. Couplings – Ford C44-77-NL
4. Water meters – All water meters shall be Neptune Water Meters. They shall be supplied and installed by the City of Kalamazoo.
- 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 304 Schedule 40 Stainless Steel pipe.
 - 2. Inlet and outlets shall be threaded or welded flange. End cap shall be welded flange with a blind flange for future additions.
- E. Conduit used as sleeves shall be schedule 40 PVC or approved by Engineer.

2.11 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 94ALF-105-01A 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 35-77-NL (2 inch), Brass Nipple, Watts LFFBV-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 C 111/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 or type 304 stainless steel spool piece.
- B. Exterior meter settings shall use components from the following manufactures.
- 1. 5/8 inch meter – Ford V81-22-33-NL
 - 2. ¾ inch meter – Ford V83-22-33-NL
 - 3. 1 inch meter – Ford V84-22-55-NL Copper setter

4. 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.
5. 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 or type 304 stainless steel spool piece.

2.12 FIRE SERVICE APPURTENANCES

- A. All fire service appurtenances shall meet the requirements of AWWA/ANSI C110/A21.10, AWWA C115, 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.

2.13 METER BOXES AND VAULTS

- A. All Meter Boxes, Meter 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 – Vestal 32-497, 32-055, 32-104, and 32-046 or approved equal.
 4. Meter Vault Cover – Ford MC-24HH-MB-T

2.14 VALVE BOXES AND VAULTS

- A. Curb Stop Boxes for 1 ¼ inch Service – Bingham & Taylor Fig. No. 4901-B, 94-F with 2 ½” New Style Flush Fit Cover or approved equal. Cover shall be inscribed with the word “water”.
 1. Curb Stop Box extensions shall be cast iron and manufactured by Bingham & Taylor, capable of being mounted directly to the curb stop box.
- 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 *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, 4905 size no. 22 manufactured by Bingham & Taylor, or approved equal.
 1. Gate Valve Box extensions shall be cast iron and manufactured by EJ or Bingham & Taylor, capable of being mounted directly to the gate valve box.
- C. Valve Vaults for Insta-Valves – Valve vaults used in conjunction with Insta-Valves shall be constructed with materials as detailed in WA-8-A of the City of Kalamazoo Standard Plans.

They shall be of the diameter specified and in accordance with subsection 823.02 of the Michigan Department of Transportation *Standard Specifications for Construction* for Gate Wells.

- D. Valve Vaults for Air Release Valves – Valve vaults used in conjunction with Air Release Valves shall be constructed with materials as detailed in the latest WA-4-Series or WA-5-Series of the City of Kalamazoo Standard Plans. They shall be of the diameter specified and in accordance with subsection 823.02 of the Michigan Department of Transportation *Standard Specifications for Construction* for Gate Wells.

2.15 BACKFILL MATERIALS

- A. Use materials meeting the requirements of section 902 of the 2012 Michigan Department of Transportation *Standard Specifications for Construction*.

2.16 BELL JOINT LEAK CLAMP

- A. Bell Joint Leak Clamps shall be Smith-Blair Model 274, Ford Meter Box FBC or MJSC style, or approved equal.
 - 1. The bell spigot ring, section connector, and range spacer shall be ductile iron 80-55-06 in accordance with ASTM 536. Fusion bonded epoxy finish shall meet application methods per AWWA C213. Spigot ring design shall be interlocking to allow ease of installation without interrupting the flow of the pipe. The bolt head pocket shall be integral for one wrench installation.
 - 2. Gasket shall be Nitrile Buna-N per ASTM D2000, and certified to NSF/ANSI 61-G & 372.
 - 3. Restraint Rods and Nuts shall be Type 304 Stainless Steel. Restraint Rod shall have rolled threads, and Nut shall be fluoropolymer coated to prevent galling.
- B. Bell encapsulating couplings shall be Ford Meter Box MJBE style.
 - 1. The coupling shall be designed to fully encapsulate the pipe bell. The coupling shall be of split mechanical joint design with independent end seal and side seal gaskets.
 - 2. All welded components shall be constructed with ASTM A 36 carbon steel.
 - 3. The end seal and side seal gaskets shall be virgin NBR formulated for water service. The gaskets shall not require field trimming, cutting or modification.
 - 4. The end seal compression ring shall be manufactured with ductile iron per ASTM A 526 Grade 65-45-12 or ASTM A 36 carbon steel.
 - 5. The coupling shall be coated to an average of 12 mills thickness with a fusion-bonded epoxy that is NSF 61 listed and meeting application methods of AWWA C213.

2.17 COUPLINGS

- A. Wide range couplings shall be Romac Alpha or approved equal.
 - 1. All cast components shall be ductile iron, meeting or exceeding ASTM A 536, grade 65-45-12
 - 2. Grippers shall be ductile iron, meeting or exceeding ASTM A 536, grade 65-45-12.
 - 3. Gaskets shall be SBR compounded for water service per ASTM D2000 and meet NSF61 classification.
 - 4. Bolts and nuts shall be 304 stainless steel.
 - 5. Body shall be epoxy coated, and NSF61 Certified.

2.18 STRUCTURE CASTINGS

- A. All 24 inch structure covers shall be a malleable iron casting conforming to subsection 908.03 of the 2012 Michigan Department of Transportation *Standard Specifications for Construction*. The structure cover shall be series 1040 manufactured by EJ, inscribed with the word "Water".

2.19 STEEL CASING PIPE AND APPURTENANCES

- A. Steel casing pipe shall meet the requirements in accordance with subsection 909.05.D of the 2012 Michigan Department of Transportation *Standard Specifications for Construction* with the exceptions listed below:

- 1. For steel casing pipe jacked under a railroad, replace in its entirety the entry for 30 inch nominal size listed in Table 909-18 with the following:

Nominal OD and Wall Thickness in Inches Jacked in Place Steel Pipe

Nominal Size	Nominal Outside Diameter	Wall Thickness
30	30.000	0.406(a)
<ul style="list-style-type: none"> a. Coated or cathodically protected (0.469 inch minimum if uncoated and unprotected) 		

- 2. Steel casing must have a minimum yield strength of 35,000 pounds per square inch (psi) and be in accordance with ASTM A53, Type E or S, Grade A or B and be designed for Cooper E80 loading requirements. In all cases, the allowable jacking strength capacity of the casing pipe shall be capable of withstanding the maximum jacking forces imposed by the operation.

- B. Stainless steel band spacer shall be Advance Products & Systems model SSIM or approved equal. The bands shall be constructed of circular stainless steel bands, which bolt together forming a shell around the carrier pipe. The spacers shall be designed with runners to support the carrier within the casing and maintain a minimum clearance of 1.00 inches between the casing inside diameter (ID) and the spacer outside diameter (OD). The spacers shall contain four modular runners – two on each half. Stainless steel bolts, nuts and washers shall be supplied with the casing spacers.

The band shall be manufacture of 8 inch wide 14-guage T-304 stainless steel. Abrasion resistant runners, having a minimum length of 7 inches and a minimum width of 1 inch, shall be attached to each band to minimize friction between the casing pipe and the carrier pipe as it is installed. Runner material shall be of glass filled polymer with compression strength of 33,000 psi, flexural strength of 40,000 psi, and tensile strength of 27,000 psi. The ends of thall runners shall be beveled to facilitate installation over rough weld beads or the welded ends of misaligned or deformed casing pipe.

Interior surfaces of the circular stainless steel band shall be lined with PVC, or EPDM alternate, having a minimum thickness of .090 inches with a harness of Durometer "A" 85-90.

Recommended position of the spacers is one placed not more than one foot from each end of the casing and pipe joint. Subsequent spacers shall be placed every 6-8 feet apart thereafter.

- C. Casing end seal shall be Advance Products & Systems model AC or approved equal. Pull-on casing end seals shall be manufactured of 1/8 inch thick neoprene rubber assuring excellent chemical resistance and resiliency. End seals must be effectively used in the temperature range of -20 degrees to 190 degrees Fahrenheit. End seals shall include ½ inch wide T304 stainless steel bandings with 100% nonmagnetic worm gear mechanism. End seals shall be seamless, have vulcanized edges, and can be pulled on at the time of 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.

No trees or permanent structures shall be placed within 10 feet of the centerline of the water main or service line.

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								
Pipe Size (Inches)	90° Bend	45° Bend	22.5° Bend	11.25° Bend	Tee*	Reducer (One Size)	Reducer (Two Sizes)	Dead End
4	44	18	9	5	42	-	-	42
6	62	26	13	7	59	31	-	59
8	82	34	17	9	78	33	56	78
10	100	42	20	10	94	32	58	94
12	119	50	24	12	110	33	59	110
16	157	65	32	16	143	61	85	143
20	195	81	39	20	173	61	109	173
24	233	97	47	23	204	61	111	204
30	288	120	58	29	246	86	134	246
POLYWRAPPED PIPE								
Pipe Size (Inches)	90° Bend	45° Bend	22.5° Bend	11.25° Bend	Tee*	Reducer (One Size)	Reducer (Two Sizes)	Dead End
4	62	26	13	7	60	-	-	60
6	88	37	18	9	84	44	-	84
8	117	49	24	12	111	47	80	111
10	142	59	29	14	133	45	82	133
12	170	71	34	17	158	47	84	158
16	224	93	45	23	203	87	121	203
20	278	116	56	28	247	87	155	247
24	332	138	66	33	291	87	159	291
30	411	171	82	41	351	123	191	351
* Length of restraint for branch; use the size of the branch Consult Engineer for scenarios not included in table.								

3.05 INSTALLATION OF PIPE INVOLVING HORIZONTAL DIRECTIONAL DRILLING

- A. Horizontal direction drilling (HDD) is a method of trenchless construction using a surface launched steerable drill tool controlled from a mobile drilling frame, and includes a field power unit, drilling fluid mixing system, and mobile spoils extraction system. The work generally consists of three phases:
1. Drilling a pilot hole from the surface or pit at a starting point to an exit pit at the surface beyond the obstacle or area that is to be avoided.
 2. Reaming the pilot hole to make it large enough for the pipeline to be installed.
 3. Pipeline is pulled into place. During the pipe pulling operation, drilling fluid (a bentonite, water, and polymer solution) is injected to stabilize the hole, remove cuttings, and lubricate the pipe.
- B. Coordination

1. Drilling operations shall not interfere with, interrupt or endanger surface features or surface activities.
2. When rock stratum, boulders, underground obstructions, or other soil conditions that impede the progress of drilling operation are encountered, the Contractor and Engineer shall review the situation and jointly determine the feasibility of continuing drilling operations, making adjustments or switching to an alternative construction method.
3. The contractor shall familiarize themselves with the geologic characterization of the soil stratum at the proposed drilling path. The Contractor shall be responsible for informing the Engineer of any changes that are required in the directional drilling procedure due to geologic conditions.
4. Launching and recovery pits shall be as small as practical. Dewatering of pits and excavations shall be done in accordance with the City of Kalamazoo Standard Specifications. When groundwater is encountered, the Contractor shall provide a dewatering system of sufficient capacity to keep any excavation free from water until the backfill operation is in progress. Dewatering shall be performed in a manner that removal of soil particles is held to a minimum. Water from the dewatering system shall be desilted before discharge. Methods of dewatering and desilting, including all costs shall be the Contractor's responsibility and are included in the Horizontal Directional Drilling Water Main pay item.
5. Utilities shown on the plans are approximate. In areas where there is a potential conflict, the Contractor shall dig up and verify the locations and elevations of the utilities at no additional expense to the City. The Contractor shall assume full responsibility for the protection fall utilities, structures and their foundations which may be affected by the work.
6. Before beginning the drilling process, the Engineer shall stake the proposed drill path.

C. Drill Path Survey

1. The Drill path shall be walked in the presence of the Engineer and the Contractor with the guidance system that shall be used for each segment of drill path. The contractor shall locate and record any surface and subsurface magnetic variations or abnormalities and all points of interference, as well as verifying all utility locations and corresponding utility maps. Should any discrepancies arise between utility maps, field locations and guidance system findings, the Contractor shall clarify all discrepancies prior to beginning drilling operations. The drill path survey shall be performed no earlier than two days prior to commencing drilling operations. Provide the Engineer 48-hour notice of drill path survey.

D. Equipment

1. The drilling equipment shall be capable of placing the pipe within the planned line and grade without inverted slopes.
2. The drilling equipment shall be capable of pulling product pipe from either the downstream or upstream pit locations. The equipment must be adequately sized for the application.
3. The guide system shall have the capability of measuring inclination, roll and azimuth. The guidance system shall have an independent means to ensure the accuracy of the installation. The Contractor shall demonstrate a viable method to eliminate accumulated error due to the inclinometer (pitch or accelerometer). The guidance

system shall be capable of generating a plot of borehole survey for the purpose of a record drawing. The guidance system shall meet the following specifications:

Inclination:	Accuracy	+0.05
	Range	+90
	Repeatability	+0.02
Roll:	Accuracy	+0.05
	Range	+90
Azimuth	Accuracy	+0.05
	Range	+90

4. Equipment setup requirements at the launch and recover locations shall be determined by the Contractor in accordance with the Plans and shall be submitted to the Engineer prior to commencement of drilling operations.

E. Pilot Hole Drilling

1. The entry angle of the pilot hole and the drilling process shall maintain a curvature that does not exceed the allowable bending radii of the carrier pipe per the manufacturer's recommendations.

F. The contractor shall follow the pipeline alignment as shown on the Plans, within the specification requirements. The location and depth of the drill head in relation to the profile and centerline of the alignment shall be determined at a maximum of ten-foot intervals. Acceptable tolerance shall be 0.5 feet variation from the centerline of the pipe in both vertical and horizontal directions (1-foot tolerance window).

G. In the event of difficulties at any time during drilling operation requiring the complete withdrawal from the tunnel, the Contractor shall either be allowed to withdraw and abandon the tunnel and begin a second attempt at a different location. The alternate locations shall be approved by the Engineer before the Contractor withdraws.

H. Access pits shall be at the beginning and end segments shown on the Plans. Intermittent pits shall be approved by the Engineer prior to proceeding with drilling operations. No intermittent access pits shall be allowed in Railroad Right of Ways.

I. Installing the Carrier Pipe:

1. After the pilot hole is completed, the Contractor shall install a swivel to the reamer and commence pullback operations.
2. Reaming diameter shall not exceed 1.5 times the diameter of the carrier pipe being installed.
3. The carrier pipe being pulled into the tunnel shall be protected and supported so that it moves freely and is not damaged by stones and debris on the ground during installation.
4. Pullback forces shall not exceed the allowable forces for the carrier pipe.

J. The Contractor shall allow sufficient lengths of carrier pipe to extend past the termination point to allow connections to adjacent pipe sections, tees, or fittings. Pulled pipe shall be allowed 24 hours of stabilization prior to making tie-ins. The length of extra carrier pipe shall be at the Contractor's discretion.

K. Field Inspection

1. All pipe sections, specials, and jointing materials shall be carefully examined for defects and no piece shall be laid that is known to be defective. Any defective piece discovered installed shall be removed and replaced with a sound one in a manner satisfactory to the Engineer at the Contractor's expense.
2. Defective material shall be marked with an "X" in pink paint and shall be removed from the job site.

L. Drilling Fluid Containment and Disposal Requirements

1. The contractor shall contain, handle, and dispose of drilling fluids in accordance with the following requirements:
 1. All drilling fluid and fluid additives shall be disclosed, and Material Safety Data Sheets (MSDS) shall be provided to the permit agency and the Engineer upon request.
 2. Excess drilling fluid shall be confined in a containment pit at the entry and exit location until recycled or removed from the site.
 3. Precautions shall be taken to ensure that drilling fluid does not enter the roadways, streams, municipal storm or sanitary sewer lines, and/or any other drainage system or body of water.
 4. When installing below railroads, vents shall be installed on either side of the railroad tracks to direct any excess drilling fluid to a containment area and to prevent unintended surfacing of drilling fluid within the Railroad Right of Way.
 5. Unintended surfacing of drilling fluid shall be contained at the point of discharge and recycled or removed from the site.
 6. Drilling fluids that are not recycled and reused shall be removed from the site and disposed at an approved disposal site.
 7. Drilling fluids shall be completely removed from the construction site prior to backfilling or restoring the site.

3.06 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.

3.07 VALVES

- A. Prior to installation, all valves shall be fully operated open and close to verify its functionality and number of turns. 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, with swivel gland located on the valve side of the anchor coupling.
- 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.

3.08 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.

3.09 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.

3.10 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.

3.11 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. ¾ inch service materials may only be used when performing repairs or partial replacements of an existing ¾ 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 2.10.
- B. Tap water main per section 3.08.
- 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. Water Services 2 inch and 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.
5. Tap and curb shut off locations shall be no closer than 5 feet to edge of driveways. If a service is required to be abandoned due to improper location, service shall be fully abandoned at the water main tap location and new service installed the developer's expense. Corporation stop shall be shut off, copper piping removed, and copper disc installed on the corporation stop.
6. If finish grade changes from plan grade after installation of service, curb shutoff shall be adjusted to 5 foot bury depth at the developer's expense.
7. 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.

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 hydrostatic test the complete fire service from the nearest outside valve to first valve (OS&Y) before installing the fire check valve per section 3.22. Service shall be cleaned, flushed and tested per section 3.23. 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 3.22 and 3.23 of this specification, and the water main approved by the Engineer or authorized representative.
3. No adapter flange or grooved pipe joint shall be used on any portion of the service to be maintained by the City of Kalamazoo, with the exception of the meter side of an OS&Y fire service valve.
4. For service lines with multiple meter settings, a valve the same size as the incoming service line shall be installed prior to the tee or manifold. If one of the meter settings is for a fire service, the valve shall be an OS&Y valve in accordance with section 2.02.F.

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

G. 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.

- H. If relocating a portion of water service, shut down the water service by method approved by the Engineer or authorized representative.
- I. Service lines entry points into the structure shall be sealed with hydraulic cement or mastic putty and oakum to prevent groundwater infiltration. For ductile iron pipe services, link seals should be used as the preferred method.
- J. 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.
 - 2. All fire services shall have an OS&Y valve meeting the requirements of 2.02.F installed. The sample tap on the OS&Y Valve shall be installed on the downstream side of the valve.
- K. 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.
- L. 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. Meter settings will be required for services greater than 300 feet, slab on grade, crawl spaces, where minimum 5 foot bury depth cannot be maintained, and other reasons. Contractor shall verify proper meter location with the Engineer prior to construction.
 - 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. All work shall be in accordance with the current WS-8 of the City of Kalamazoo Standard Plans.
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.

3.12 WATER MAINS, CUT AND PLUG

- A. All work related to water main, cut and plug shall be in accordance with section 3.06.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.

3.13 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. When installed, the hydrant shall be located on the side of the water main furthest from the centerline of the roadway, unless otherwise directed by the Engineer. 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. 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. The swivel gland shall be located on the hydrant side of the solid adapter.
- C. Install a valve box over hydrant valve in accordance with section 3.09.
- D. 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.
- E. If site conditions are such that it is not desirable for hydrant drain into the surrounding soil (i.e. when hydrant has less than 10 feet of separation from a sewer, high ground water, impervious or contaminated soils, etc.), hydrant drip valve plug(s) shall be installed by the Contractor onsite. Final determination on drip valve plug installation shall be made by the

Engineer or his representative. As constructed records shall be noted whether or not the drip valve plug was installed.

3.14 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 7 feet above the final grade in areas with sidewalk and 5 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.

3.15 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

3.16 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.

3.17 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.

3.18 AIR RELEASE VALVES AND VAULTS

- A. Construct air release valves and vaults in accordance with the current WA-4-Series and WA-5-Series of the City of Kalamazoo Standard Plans.
- B. When installing the air release valves in conjunction with new water main construction, the contractor shall use ductile iron fittings.
- C. When installing the air release vaults as a retrofit to existing water main, live taps may be performed as directed by the engineer.

3.19 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.

3.20 COMPACTION REQUIREMENTS

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

3.21 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.

3.22 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 pressure drop 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.

3.23 DISINFECTION, FLUSHING, AND BACTERIOROLOGICAL TESTING

- A. Disinfect the water main in accordance with AWWA C651 and applicable Michigan Department of Environment, Great Lakes, and Energy (EGLE) regulations after successful hydrostatic testing.
- B. Disinfect and flush new, and portions of existing, water mains as required by the EGLE.
- 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 chorine 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. Dechlorination shall be in accordance with AWWA C655.
- G. After flushing, perform bacteriological testing in accordance with AWWA C651 and EGLE 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 EGLE regulations.
- H. If a bacteriological test fails, repeat disinfection, flushing, and testing.
- I. Pressure and chlorination taps shall be removed within one business day of passing tests, so main can be activated.

3.24 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. Appropriately sized polyethylene encasement shall be used so that there are no longitudinal splices. This may require using one or more size larger diameter encasement than the pipe installed.

- C. Polyethylene encasement shall be required for all installations when groundwater is detected in the utility trench.
- D. Polyethylene encasement shall be required for all directional drilling installations involving ductile iron pipe.

3.25 WATER INFRASTRUCTURE IN STEEL CASING

- A. Work shall be performed in accordance with section 401 of the Michigan Department of Transportation *Standard Specifications for Construction* and as detailed herein. In all cases, the Contractor shall submit a work plan detailing the following:
 - 1. Means and methods for bracing and shoring;
 - 2. Methods of maintaining and adjusting line and grade;
 - 3. Drilled/bored diameter;
 - 4. Drill hole stabilization procedures;
 - 5. Size and location of the auger head relative to the casing;
 - 6. Methods of dealing with cobbles/boulders and obstructions;
 - 7. Estimated jacking thrust required;
 - 8. Method of monitoring casing elevation;
 - 9. Thrust block design calculations;
 - 10. Record keeping system to document casing advance and jacking pressures;
 - 11. Grouting procedures;
 - 12. Temporary dewatering measures and;
 - 13. Mitigation procedures if sinkholes or settlement above the pipe occurs or excessive movement of the settlement monitors is observed.
- B. Minimum Allowable Depths.
 - 1. The minimum allowable depth of the Horizontal Auger Bore (HAB) installed casing pipe shall be in accordance with Table 3.2

Table 3.2 Minimum Allowable Depths Table	
Location	Minimum Depth
Base of Rail	6 Feet
Existing Ground	5 Feet
Roadway	5 Feet
Ditch Flowline	5 Feet

- C. Access Pits.
 - 1. Excavate jacking and receiving pits as necessary. Provide and install all sheeting, shoring, bracing and any other earth retention measures in accordance with section 704 of the Michigan Department of Transportation *Standard Specifications for Construction*. Provide site drainage and subsurface dewatering and other items associated with the operation as necessary to facilitate the proposed work.
- D. Lead Auger/Overcut Allowance.

1. A full-size auger section shall be used as the lead section of the casing. The auger shall not protrude from the leading edge of the casing. However, if soil conditions halt the movement of the casing, the auger shall be allowed to protrude not more than 1 inch in front of the casing during the boring operation. Overcut is the annular space between the excavated hole and the outside diameter of the casing pipe. The allowable overcut diameter is one inch greater than the casing pipe radius.
- E. Watertight joints.
1. Watertight joints are required to ensure the integrity of the road and railroad bed. Casing pipe shall be constructed to prevent water leakage or earth infiltration and must be certified free from any breaks or leaks throughout its entire length.
- F. Lubrication Fluids.
1. Lubrication fluids are specifically required for this method regardless of the soil conditions. Any deviations from the use of lubrication shall require prior approval for the Engineer. The Contractor shall install vents on either side of the casing pipe to prevent fracking during installation. These vents shall also be used as relief in case of a water main break. Lubrication fluids, consisting of a mixture of water and bentonite or bentonite/polymer, shall be used in the annular space between the casing being installed and the native soil to stabilize and lubricate the drill hole. Grease will not be allowed for use as lubrication for this purpose.
- G. Pipe Locating and Tracking.
1. One of the following tracking, locating, and guidance systems shall be used:
 - a. Waterline system.
 - b. Mechanical control head.
 - c. Electronic (inertial) control head.
 - d. Walkover system.
 - e. Laser guided tunnel attachment.
 - f. Laser guided pilot rod.
 2. The Contractor will be responsible for submitting their proposed pipe locating tracking method at the preconstruction meeting for approval.
- H. Settlement/Heaving Monitoring.
1. Settlement/Heaving monitoring shall be performed in a manner that will minimize the movement of the ground in front of, above, and surrounding the horizontal auger bore operation; and will minimize subsidence of the surface above and in the vicinity of the boring. The ground shall be supported in a manner to prevent loss of ground and keep the perimeter and face of the boring stable at all times, including during shutdown periods. A survey shall be performed one day prior to initiating this operation at each required monitoring location. A similar survey shall then be performed at each location, on a daily basis, until the permitted activity has been completed. All survey readings shall be recorded to the nearest one-hundredth (0.01) of a foot. Digital photographs of the pavement and rail conditions shall also be taken prior and after the pipe installation. Specific monitoring locations and requirements may also be provided for railway crossings.
- I. Ground Water Control.

1. Dewatering shall be conducted whenever there is a high ground water table level to prevent flooding and facilitate the operation. The water table elevation shall be maintained at least 1 foot below the bottom of the casing at all times. When needed, dewatering may be initiated prior to any excavation.
2. Minor water seepage or pockets of saturated soil may be effectively controlled through bailing or pumping. This control shall be accomplished without removing any adjacent soil that could weaken or undermine any access pit, its supports, or other nearby structures.
3. Larger volumes of ground water shall be controlled with one or more well points or with staged deep wells. Well points and staged deep well pumping systems shall be installed and operated without damage to property or structures, and without interference with the right of the public, owners of private property, pedestrians, vehicular traffic, or the work of other contractors. Any pumping methods used for dewatering and control of ground water and seepage shall have properly designated filters to ensure that the adjacent soil is not pumped along the water. Well diameter, well spacing and the pump's pumping rate shall provide adequate draw down of the water level. Wells shall be located to intercept ground water that otherwise would enter the access pit excavation and interfere with the work. Upon removal of a well, the hole shall be filled and grouted.
4. Existing storm sewers shall only be used to discharge water from the dewatering operation in accordance with a permit obtained from the appropriate storm sewer owner. Filters or sediment control devices shall be required to ensure that the existing system is not adversely affected by construction debris or sediment.

J. Casing End Seals/Bulkheads

1. Casing ends shall be enclosed using 1/8 inch thick synthetic rubber casing ends seals in accordance with section 2.19.C of this document. Ensure end seals are water tight and attach securely to the casing pipe and the carrier pipe (water main). Ensure end seals are acceptable to the Engineer.

K. Backfill Requirements.

1. Remove the pits and backfill the excavations as necessary with material meeting the standard specifications as approved by the Engineer.

L. Railroad Specific Requirements.

1. For Steel casing pipe jacked in place under a railroad, the following will apply in accordance with the current AREMA Manual;
 - a. When steel casing pipe is used, the joints must be fully closed by welding or mechanical means as approved by the Engineer.
 - b. Minimum cover over the casing must be at least 6.0 feet from the bottom of the railroad tie to the top of the casing pipe at its closest point.
 - c. Casing pipe must extend beyond the limits of the entire railroad right-of-way.
 - d. Jacking construction requirements must be in accordance with the current AREMA Manual, Chapter 1, Part 4.

3.26 INSTALLATION OF LINE STOPS AND INSERTION VALVES

- A. Line Stops and Insertion Valves shall be performed in the locations as detailed on the plans or as directed by the Engineer. Prior to installation of the line stop or insertion valve, coordinate the deactivation of the water main so that all customers have been given proper notification

of the shutdown. No work shall be performed without the Engineer or authorized representative present.

B. Excavate and expose the water main. Remove scale from the water main and make sure there are no flaws which would affect the seal with the saddle.

C. Line Stops

1. Install permanent line stop body on the pipeline and perform line stop according to manufacturer's instructions. Upon completion of the work associated with the line stop, reactivate the water main and install permanent blind flange on the line stop body. Ensure that all as built information is recorded and submitted as detailed in section 1.03.

D. Insertion Valves

1. Install Insertion Valve body on the pipeline and perform valve insertion according to manufacturer's instructions. Operate the valve to ensure that it is fully functional.

2. Construct valve vault as detailed in WA-8-A of the City of Kalamazoo Standard Plans. Ensure that all as built information is recorded and submitted as detailed in section 1.03.

3.27 FINAL RESTORATION

A. Contractor shall restore site to preconstruction condition or better, or as detailed on the plans.

B. Final grade shall be 5 feet above completed water main or water service line, unless otherwise approved by the Engineer. If final grade is changed greater than 6 inches from the approved plans, the Developer or Contractor shall raise or lower water main and water services so that they are maintained at 5 feet below final grade. All costs associated with this work shall be paid for by the Developer or Contractor.

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.

Pay Item	Pay Unit
Water Main, DI __ inch, Tr Det __	Foot
Water Main, DI __ inch, in Casing.....	Foot
Water Main, DI __ inch, HDD.....	Foot
Gate Valve and Box, __ inch,.....	Each
Butterfly Valve and Box, __ inch.....	Each
Polyethylene Encasement.....	Foot
Water Main, __ inch, Cut and Plug	Each
Fire Hydrant	Each
Hydrant, Rem	Each
Hydrant Relocate, Case __	Each
Water Serv	Each
Water Serv, Long.....	Each
Water Serv, Conflict	Each
Water Serv, Yard	Each
Copper Tubing, Additional Length	Foot
Water Serv, 2 inch.....	Each
Water Serv, Conflict, 2 inch	Each
Copper Tubing, Additional Length, 2 inch	Foot

Steel Casing Pipe, __ inch, Jacked in Place.....Foot

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.

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

- E. 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.

- F. 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.

- G. 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.

- H. 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.

- I. Payment for water services 1 ¼ 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.

- J. 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.

- K. Services with a diameter larger than 2 inches will be measured and paid for as water mains.
- L. 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:
 - 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.
- M. 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**.
- N. 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.
- O. 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.
- P. 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.
- Q. 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.
- R. 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.
- S. Payment for **Steel Casing Pipe, __inch, Jacked in Place** of the size required will be paid for by the length installed. The unit price for **Steel Casing Pipe, Jacked in Place** includes the cost of excavating the pits, providing and installing sheeting, bracing, and any other safety devices, providing jacking equipment: drainage and dewatering; bulkheading and sealing the casing, providing and installing vents, grouting the annular space between the casing and native soil and any other items associated with the operation.

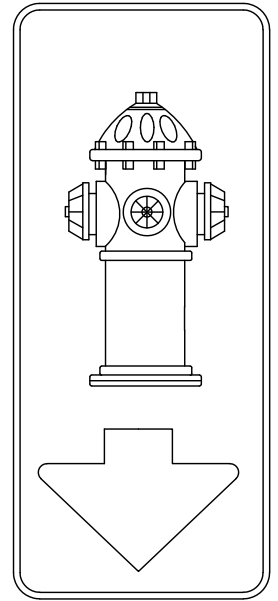
- T. Payment for **Water Main, DI, __inch, in Casing**, of the size required will be paid for by the length installed. The unit price for **Water Main, DI __inch, in Casing** shall include the cost for furnishing and installing the water main and casing spacers inside the casing.
- U. Payment for **Water Main, DI, __inch, HDD**, of the size required will be paid for by the length installed. The unit price shall include the cost of all equipment and materials, excavation and backfill, dewatering operations (trench, pit or pipe), temporary water system to maintain service during construction, hydrostatic testing, disinfecting and flushing the water mains, and bacteriological testing, all materials, labor and equipment necessary to remedy and unsatisfactory hydrostatic test, including removing and replacing any backfill, providing and install all, gaskets, bracing or sheeting, blocking and miscellaneous items for installing pipe of the required size and material and reconnecting to the water system as shown on the plans.

END OF SECTION

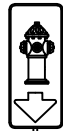
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WA-1-D

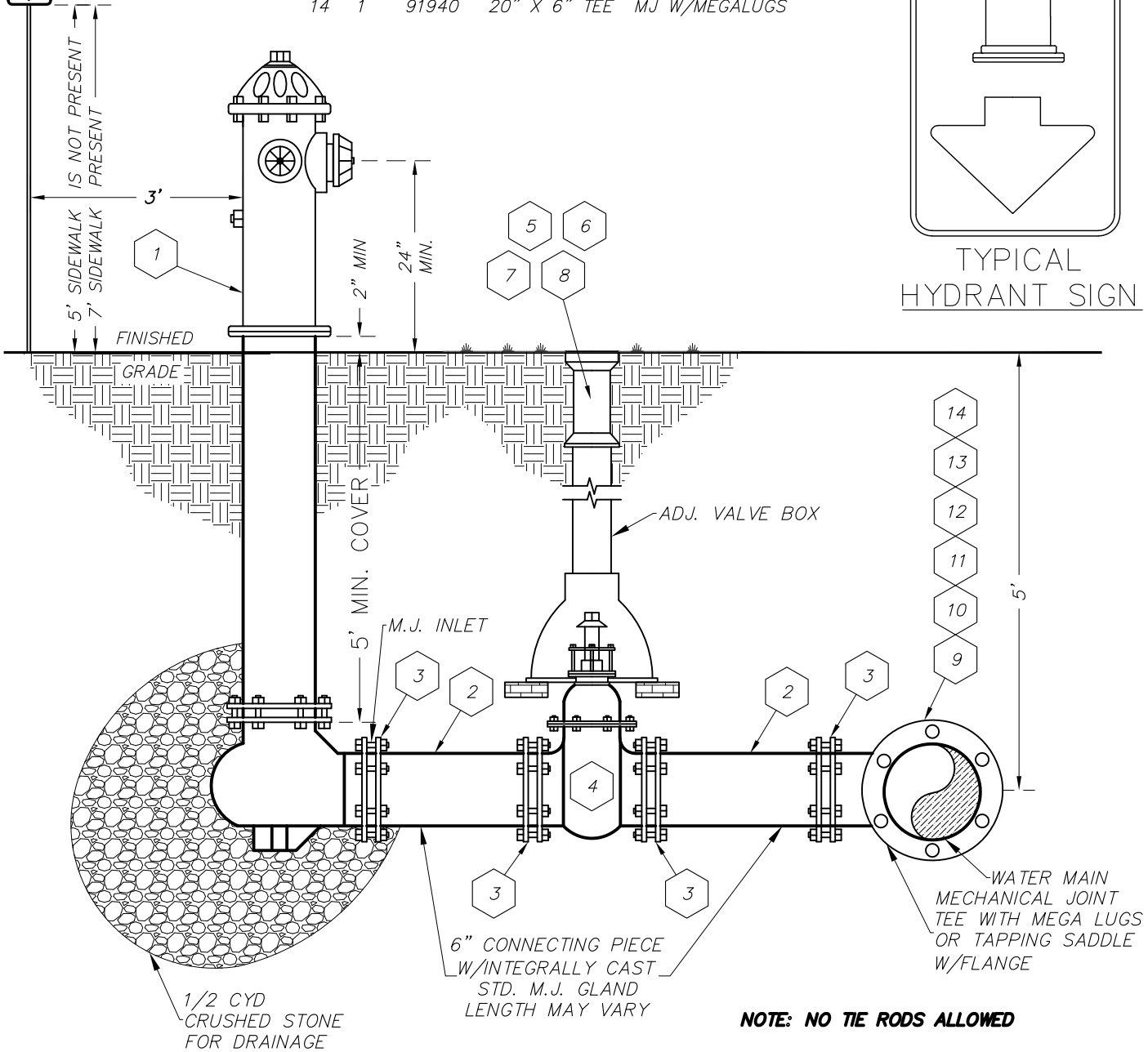
ITEM	QTY.	#	DESCRIPTION
1	1	39887	6" HYDRANT W/CARROLL DRAIN
2	2	70000	CONNECTING PIECE (13")
3	4	33801	6" GASKET (MJ)
4	1	96696	6" GATE VALVE (MJ)
5	1	08550	VALVE BOX BOTTOM
6	1	08520	VALVE BOX TOP SECTION
7	1	08500	VALVE BOX RING CASTING
8	1	08490	VALVE BOX COVER
9	1	91440	6" TEE MJ
10	1	91525	8" X 6" TEE MJ W/MEGALUGS
11	1	91750	10" X 6" TEE MJ W/MEGALUGS
12	1	91825	12" X 6" TEE MJ W/MEGALUGS
13	1	91909	16" X 6" TEE MJ W/MEGALUGS
14	1	91940	20" X 6" TEE MJ W/MEGALUGS



TYPICAL HYDRANT SIGN

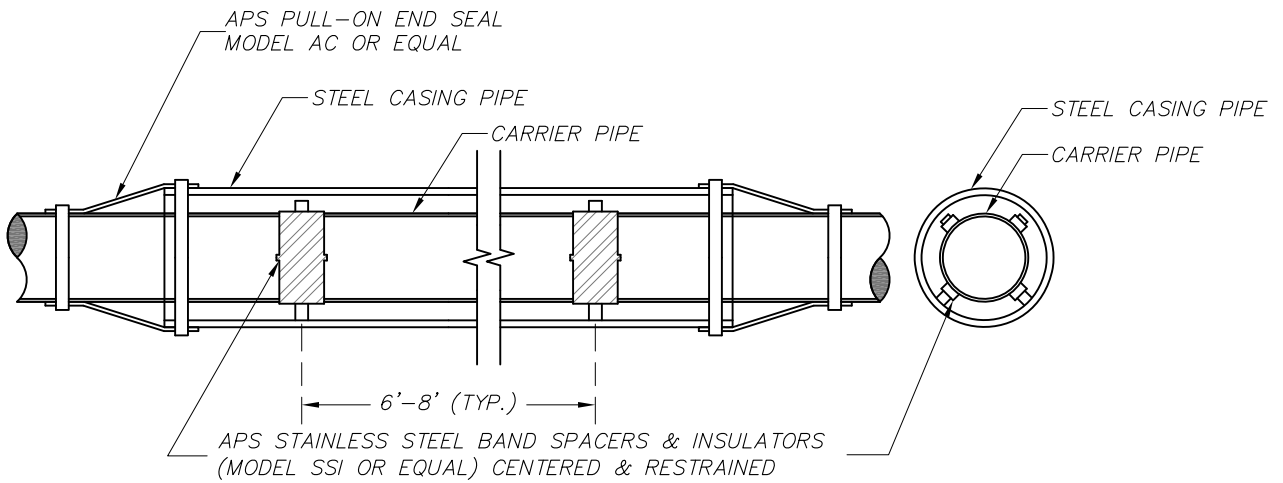


DOUBLE SIDED HYDRANT SIGN



NOTE: NO TIE RODS ALLOWED

	CITY OF KALAMAZOO Department Of Public Services	RECOMMENDED BY _____	DATE _____
	TYPICAL FIRE HYDRANT & GATE VALVE DETAIL	APPROVED BY _____	
		APPROVED BY _____	
		ACCEPTED BY _____	



CASING CARRIER PIPE DETAIL

SIZE CASING AND CARRIER PIPES PER PLAN AND SPECIFICATIONS

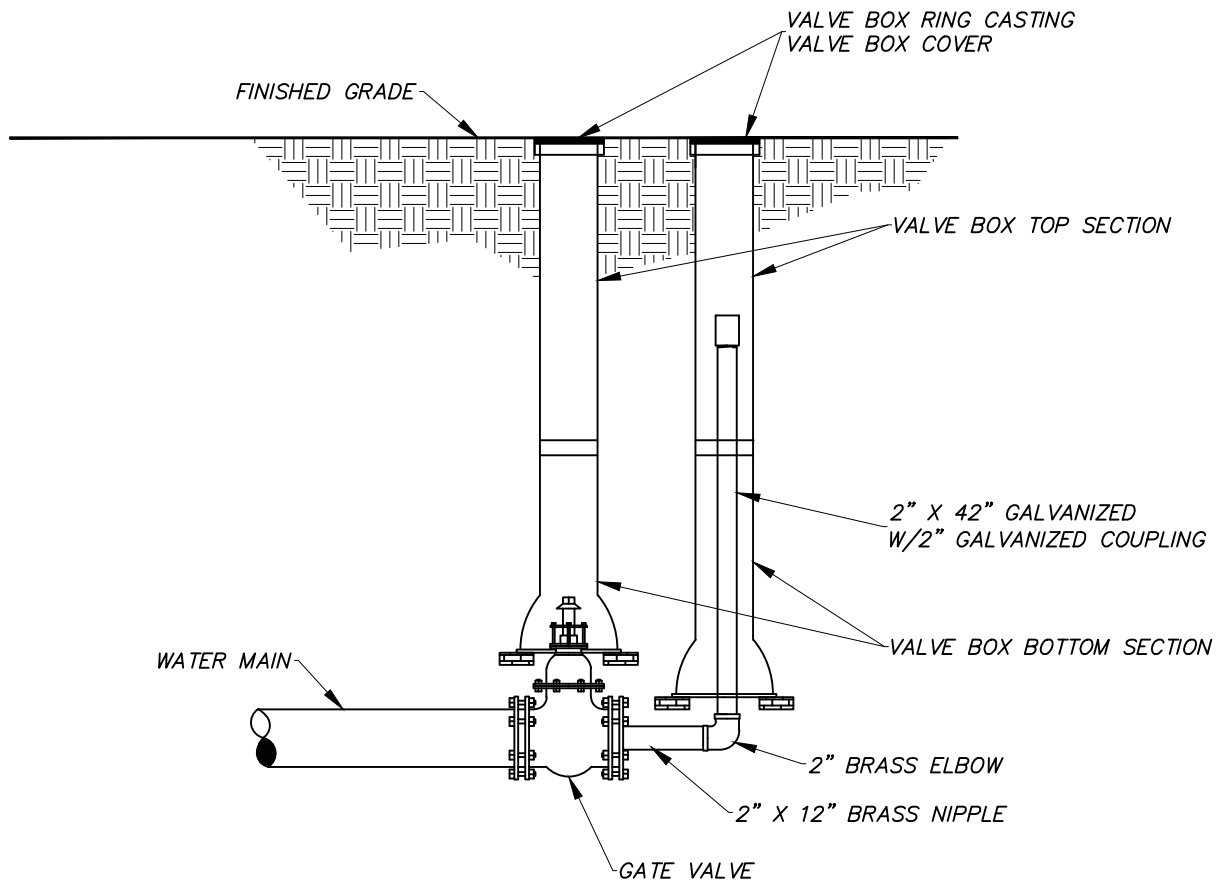
TYPICAL BAND SPACER POSITIONING:
 ONE PLACED NOT MORE THAN 1 FOOT FROM EACH END OF THE CASING AND
 PIPE JOINTS WITH SUBSEQUENT SPACERS PLACED EVERY 6-8 FEET THEREAFTER.
 FOR 18 FOOT PIPE THERE SHALL BE THREE BAND SPACERS.
 FOR 20 FOOT PIPE THERE SHALL BE FOUR BAND SPACERS.



CITY OF KALAMAZOO
 Department Of Public Services

CASING CARRIER PIPE

RECOMMENDED BY _____	DATE _____
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	



NOT TO SCALE

J:\CAD STANDARDS\STANDARD DETAILS\WATER\UPDATED DRAWINGS\ACAD DRAWINGS\WA-3-B BLOW OFF CONNECTION 2 INCH.dwg, 6/12/2016 12:01:24 PM

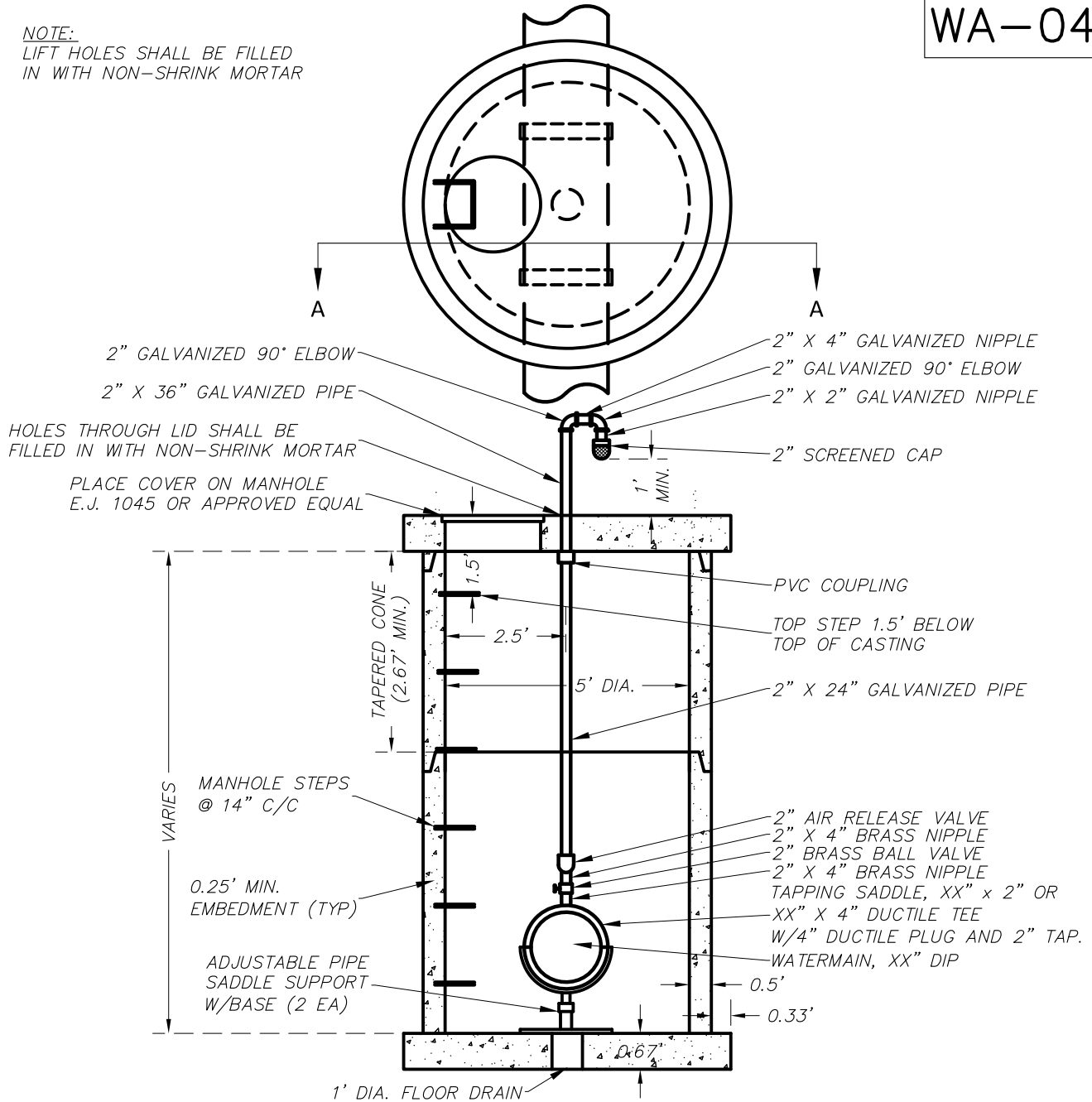


CITY OF KALAMAZOO
Department Of Public Services

**2" BLOW OFF
CONNECTION**

RECOMMENDED BY _____	DATE _____
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	

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



TYPICAL 2" AIR RELEASE MANHOLE

PRECAST REINFORCED CONCRETE SHOWN (OTHER OPTIONS INCLUDE CONCRETE BLOCK, BRICK OR CAST IN PLACE WALL SECTIONS)

SCHEDULE OF FITTINGS

ITEM DESCRIPTION	QUANTITY
AIR RELEASE VALVE, 2"	1
GALVANIZED PIPE, 2" X 60"	1
GALVANIZED NIPPLE, 2" X 4"	1
GALVANIZED NIPPLE, 2" X 2"	1
GALVANIZED 90° ELBOW, 2"	2
PIPE SUPPORT BASE	2

ITEM DESCRIPTION	QUANTITY
TAPPING SADDLE, XX X 2"	1
BRASS BALL VALVE, 2"	1
BRASS NIPPLE, 2" X 4"	2



CITY OF KALAMAZOO
Department Of Public Services

AIR RELEASE MANHOLE

RECOMMENDED BY _____

APPROVED BY _____

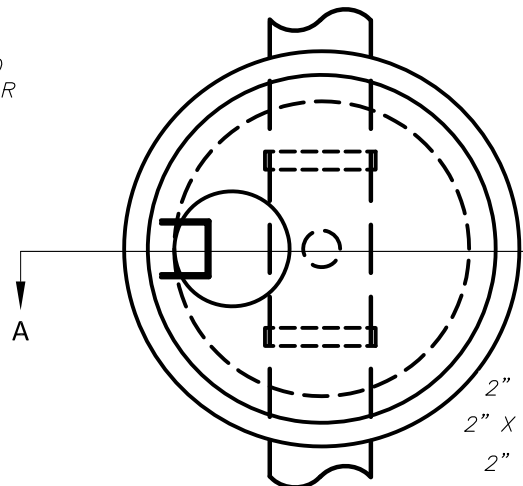
APPROVED BY _____

ACCEPTED BY _____

DATE

WA-05-C

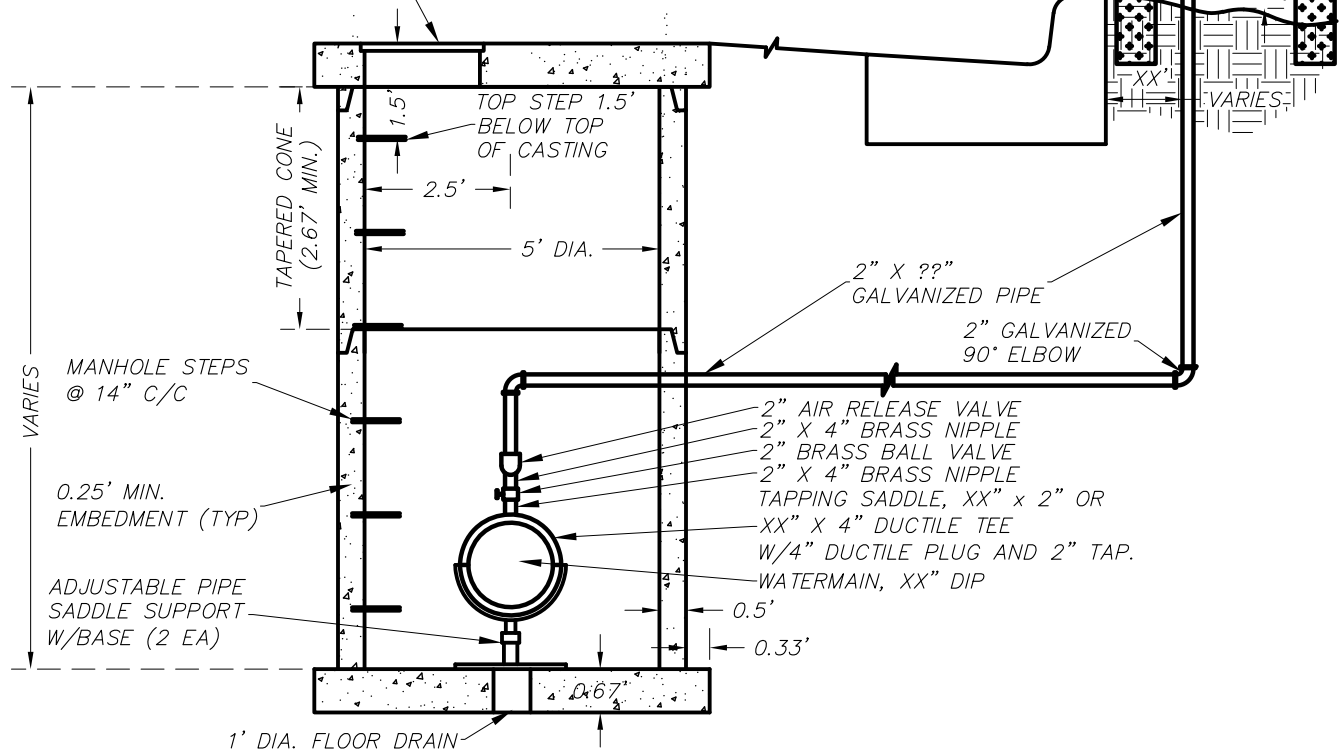
NOTE:
LIFT HOLES SHALL BE FILLED
IN WITH NON-SHRINK MORTAR



- 2" GALVANIZED 90° ELBOW
- 2" X 4" GALVANIZED NIPPLE
- 2" GALVANIZED 90° ELBOW
- 2" X 2" GALVANIZED NIPPLE
- 2" SCREENED CAP

BOLLARD POSTS
AS SPECIFIED
BY ENGINEER

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



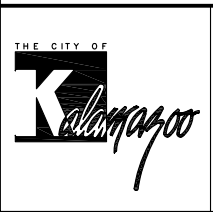
TYPICAL 2" AIR RELEASE MANHOLE

PRECAST REINFORCED CONCRETE SHOWN (OTHER OPTIONS INCLUDE
CONCRETE BLOCK, BRICK OR CAST IN PLACE WALL SECTIONS)

SCHEDULE OF FITTINGS

ITEM DESCRIPTION	QUANTITY
AIR RELEASE VALVE, 2"	1
GALVANIZED PIPE, 2" X 60"	1
GALVANIZED NIPPLE, 2" X 4"	1
GALVANIZED NIPPLE, 2" X 2"	1
GALVANIZED 90° ELBOW, 2"	2
PIPE SUPPORT BASE	2

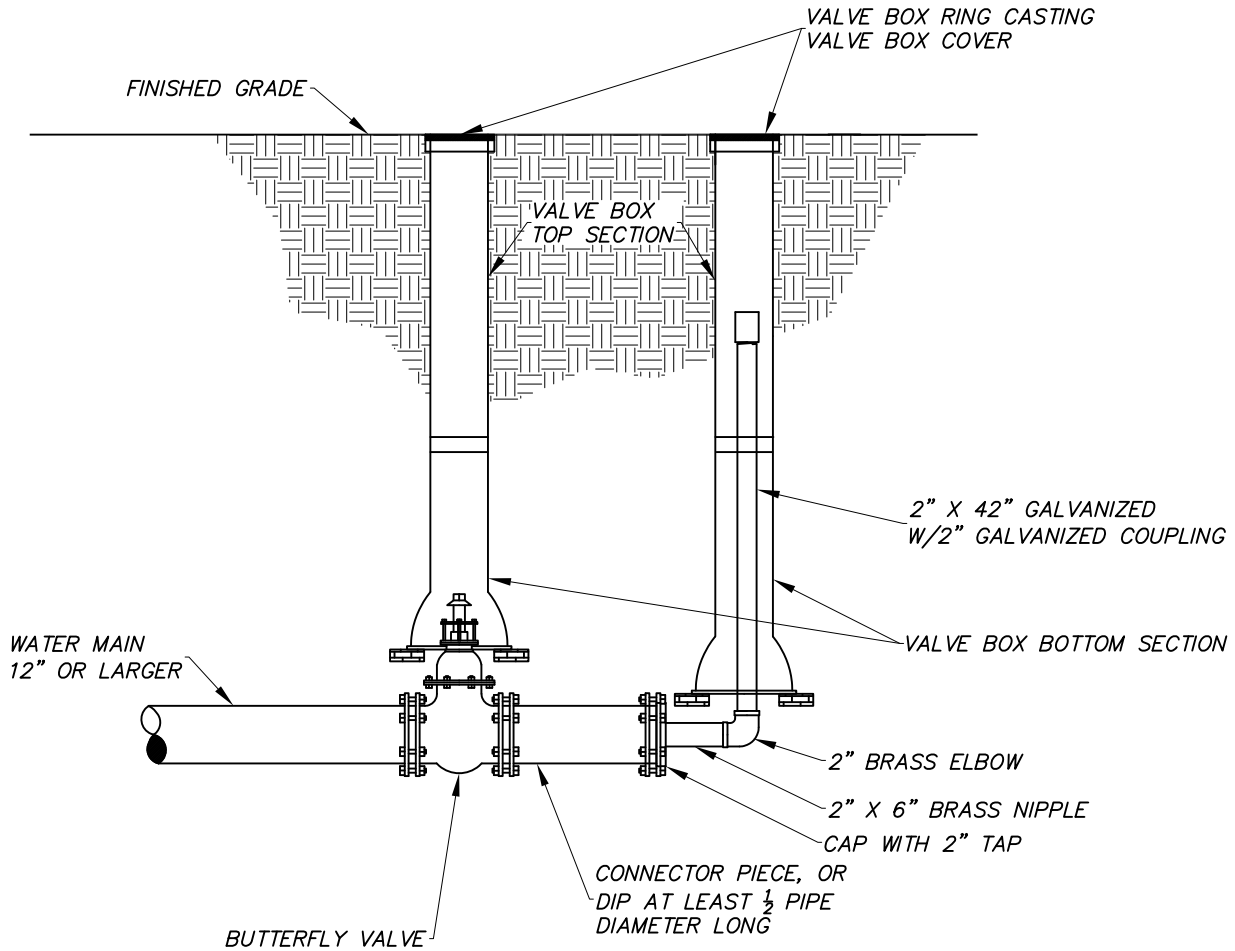
ITEM DESCRIPTION	QUANTITY
TAPPING SADDLE, XX X 2"	1
BRASS BALL VALVE, 2"	1
BRASS NIPPLE, 2" X 4"	2



CITY OF KALAMAZOO
Department Of Public Services

AIR RELEASE MANHOLE IN ROADWAY

RECOMMENDED BY	DATE
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	



NOT TO SCALE



CITY OF KALAMAZOO
Department Of Public Services

**2" BLOW OFF
CONNECTION
12" OR LARGER MAIN**

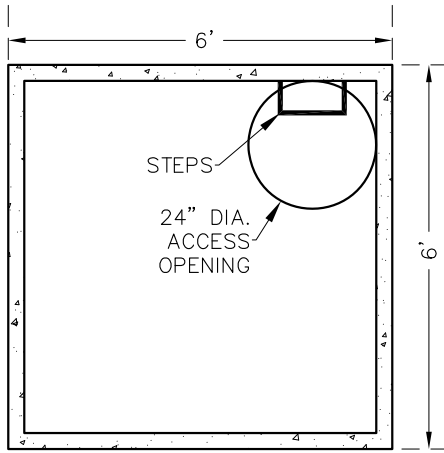
RECOMMENDED BY _____

APPROVED BY _____

APPROVED BY _____

ACCEPTED BY _____

DATE

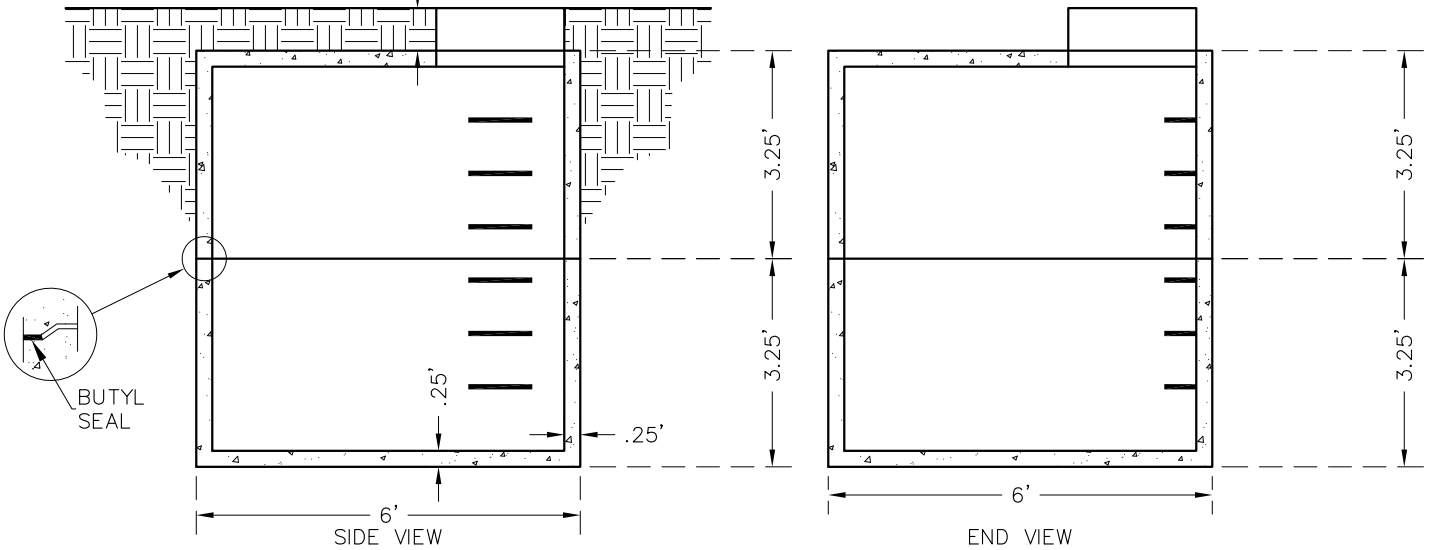


TOP VIEW

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.

TOP OF PIT TO FINAL GRADE SHALL NOT EXCEED 8"



SIDE VIEW

END VIEW



CITY OF KALAMAZOO
Department Of Public Services

STANDARD METER PIT

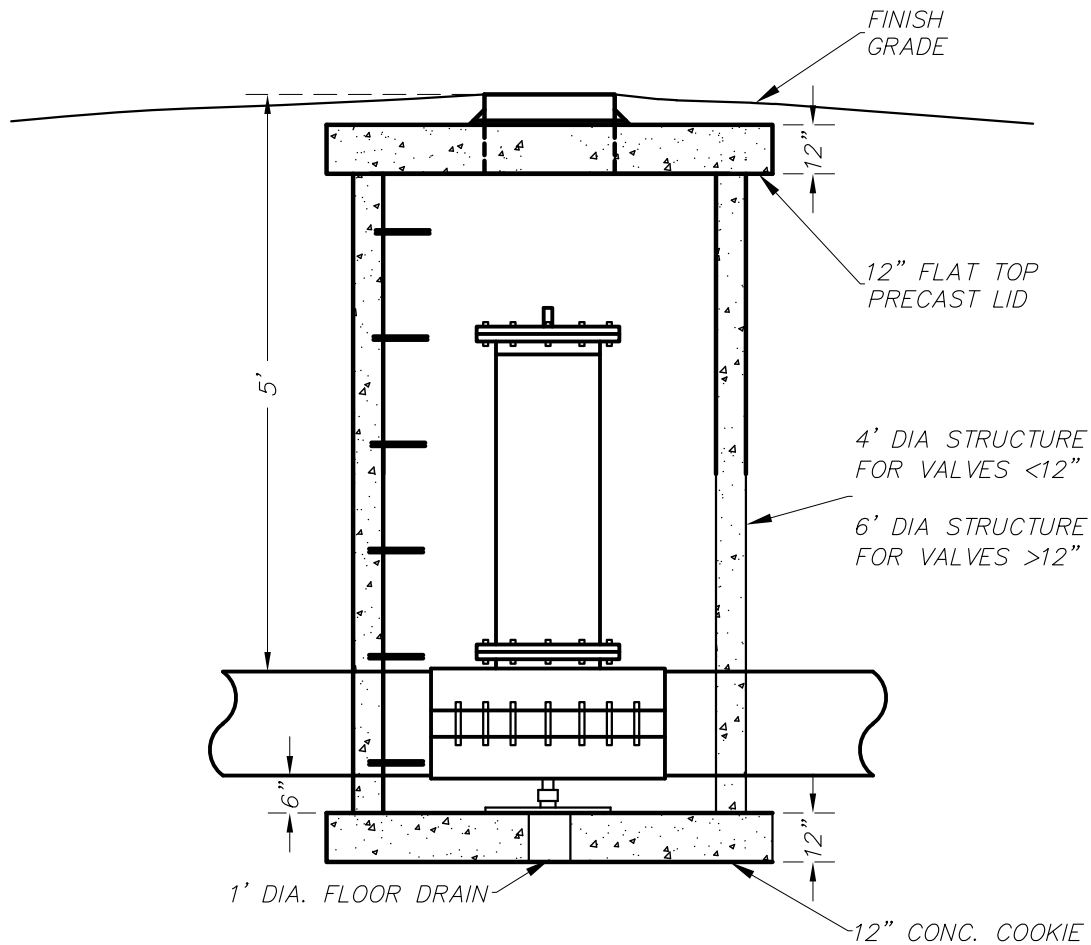
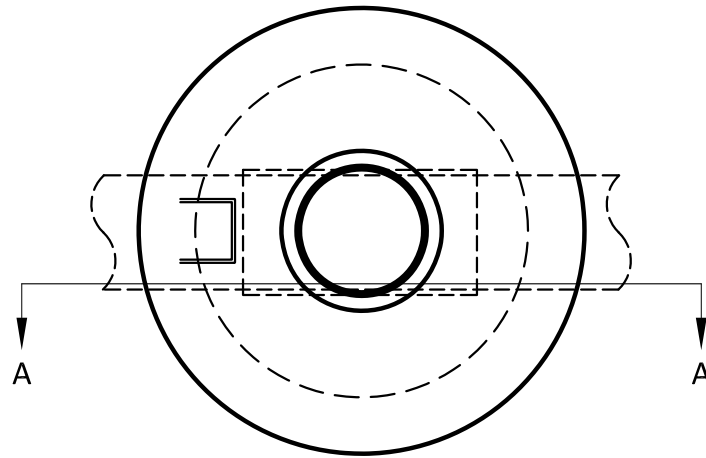
RECOMMENDED BY _____

APPROVED BY _____

APPROVED BY _____

ACCEPTED BY _____

DATE



TYPICAL INSERTA – VALVE
PRECAST REINFORCED CONCRETE SHOWN



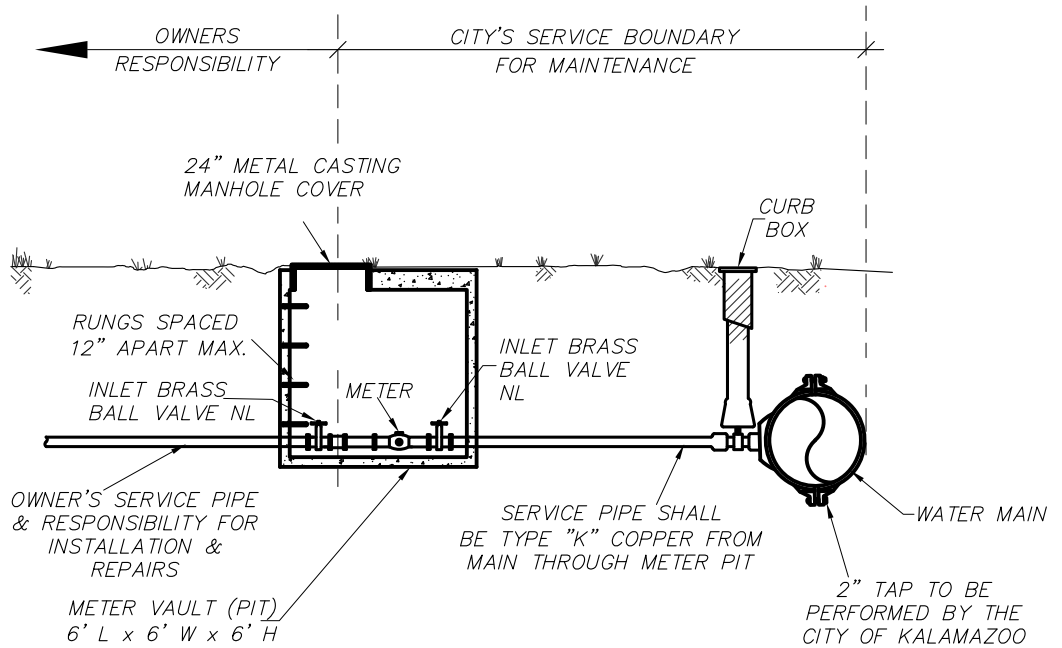
CITY OF KALAMAZOO
 Department Of Public Services

**INSERTA-VALVE
 STRUCTURE**

RECOMMENDED BY _____	DATE _____
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	

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.



CITY OF KALAMAZOO
Department Of Public Services

**2" SERVICE LINE
METER VAULT**

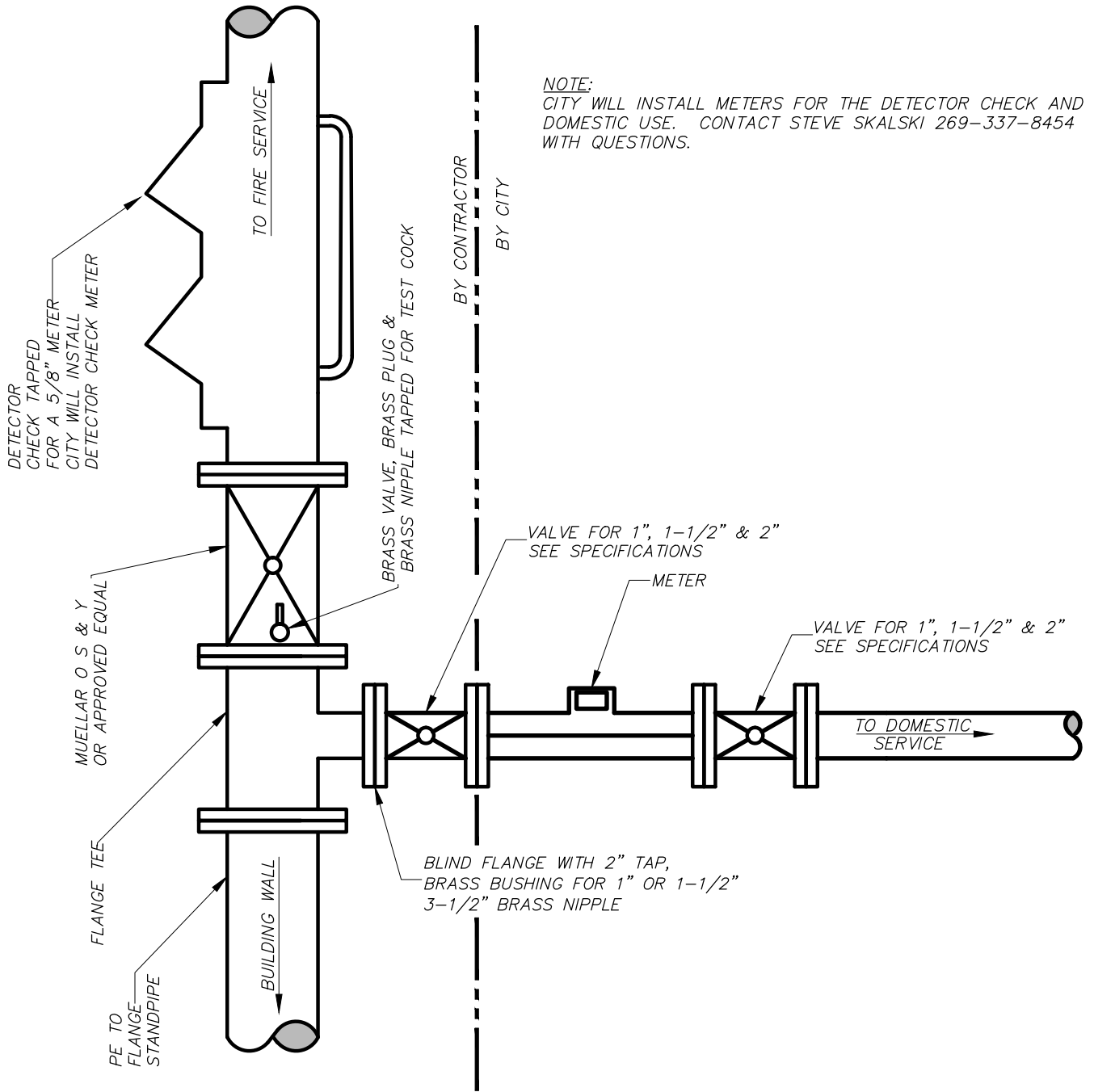
RECOMMENDED BY _____

APPROVED BY _____

APPROVED BY _____

ACCEPTED BY _____

DATE

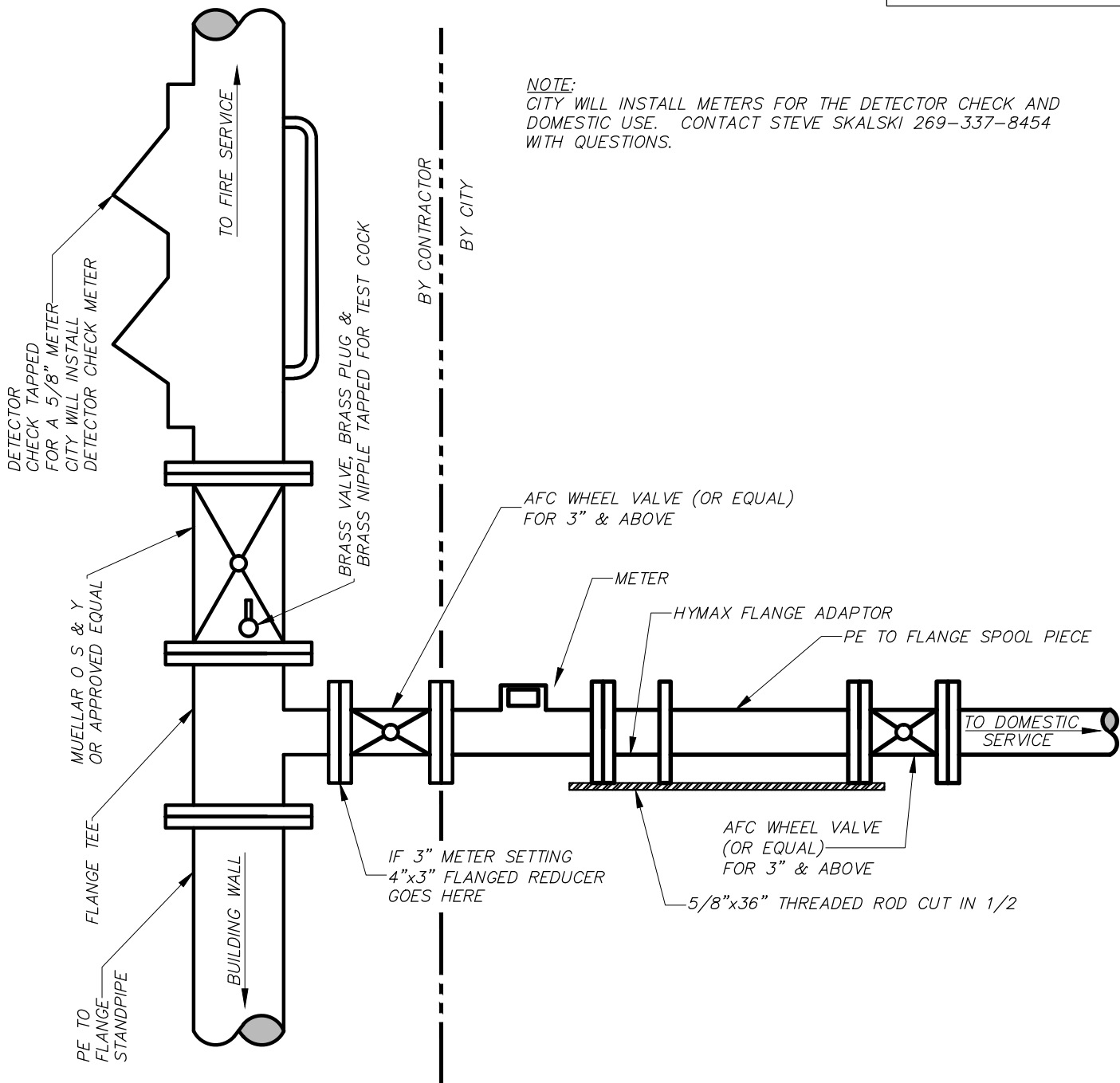


NOTE:
CITY WILL INSTALL METERS FOR THE DETECTOR CHECK AND DOMESTIC USE. CONTACT STEVE SKALSKI 269-337-8454 WITH QUESTIONS.



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

RECOMMENDED BY _____	DATE _____
APPROVED 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.

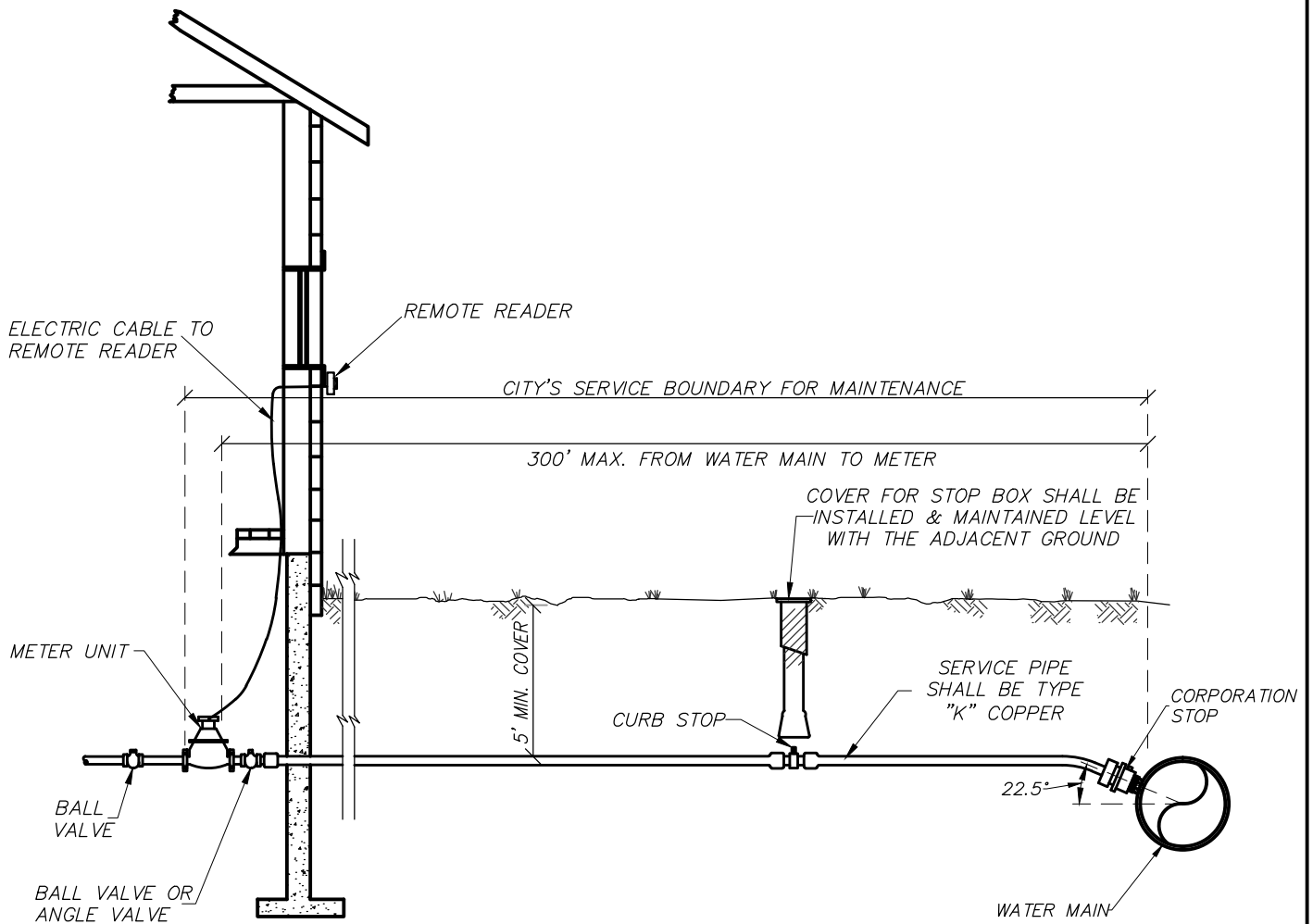


CITY OF KALAMAZOO
 Department Of Public Services
**TYPICAL FIRE SERVICE
 DETAIL**
 3" 4" 6"

RECOMMENDED BY _____	DATE _____
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	

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.



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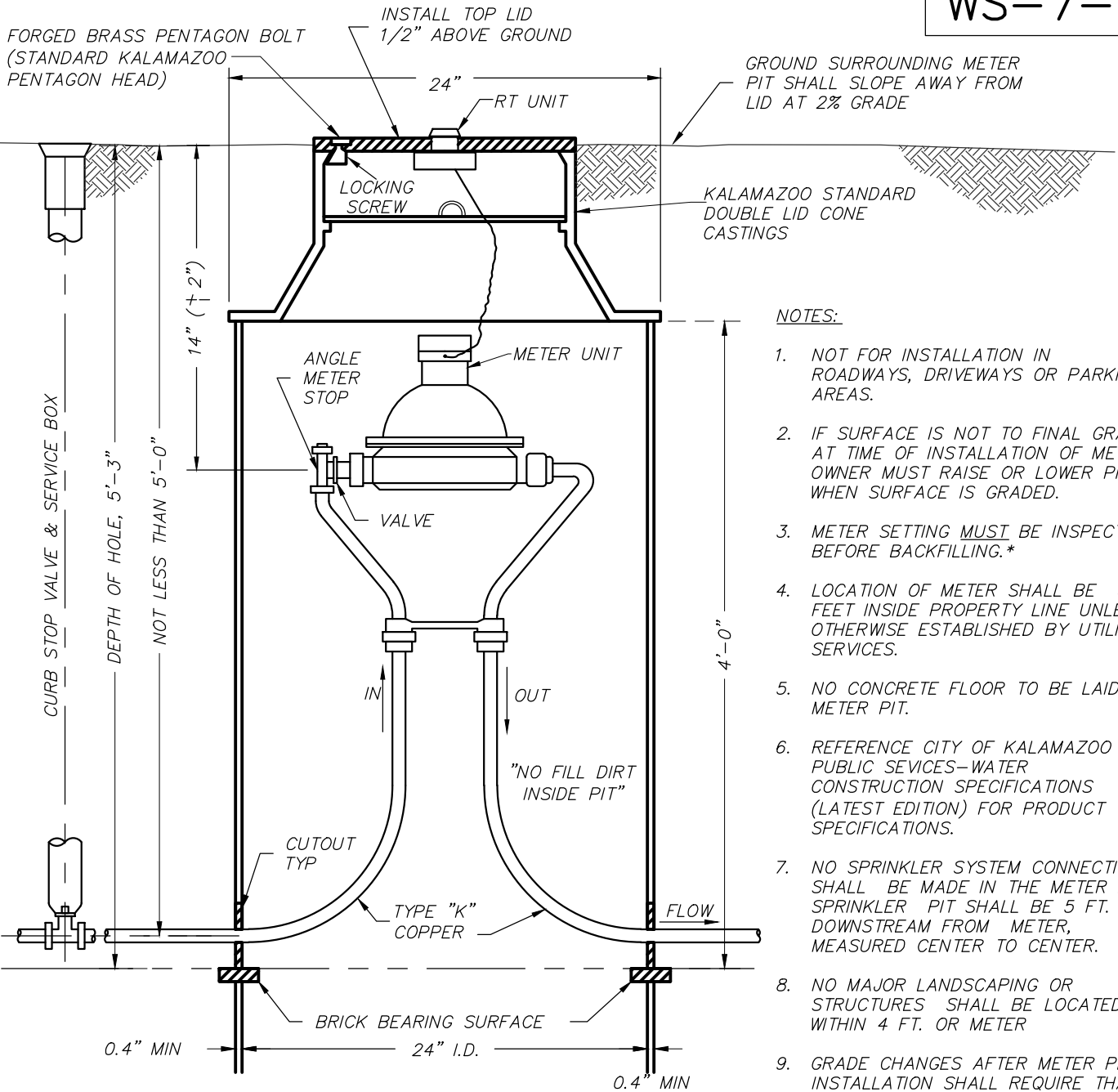


CITY OF KALAMAZOO
Department Of Public Services

**SERVICE LINE, STOP BOX AND
INSIDE METER INSTALLATION
1-1/4" SERVICE & 1" METER**

	DATE
RECOMMENDED BY _____	
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	

WS-7-A



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) 998-6433 INSPECTOR
 * FOR INSPECTION CALL (269) 337-8769 ENGINEER

J:\COK CAD STANDARDS\STANDARD DETAILS\WATER\UPDATED DRAWINGS\WS-7-A OUTSIDE METER 1 INCH.dwg, 4/1/2014 8:18:07 AM



CITY OF KALAMAZOO
 Department Of Public Services

OUTSIDE SETTING FOR
 1" METER

RECOMMENDED BY _____	DATE _____
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	

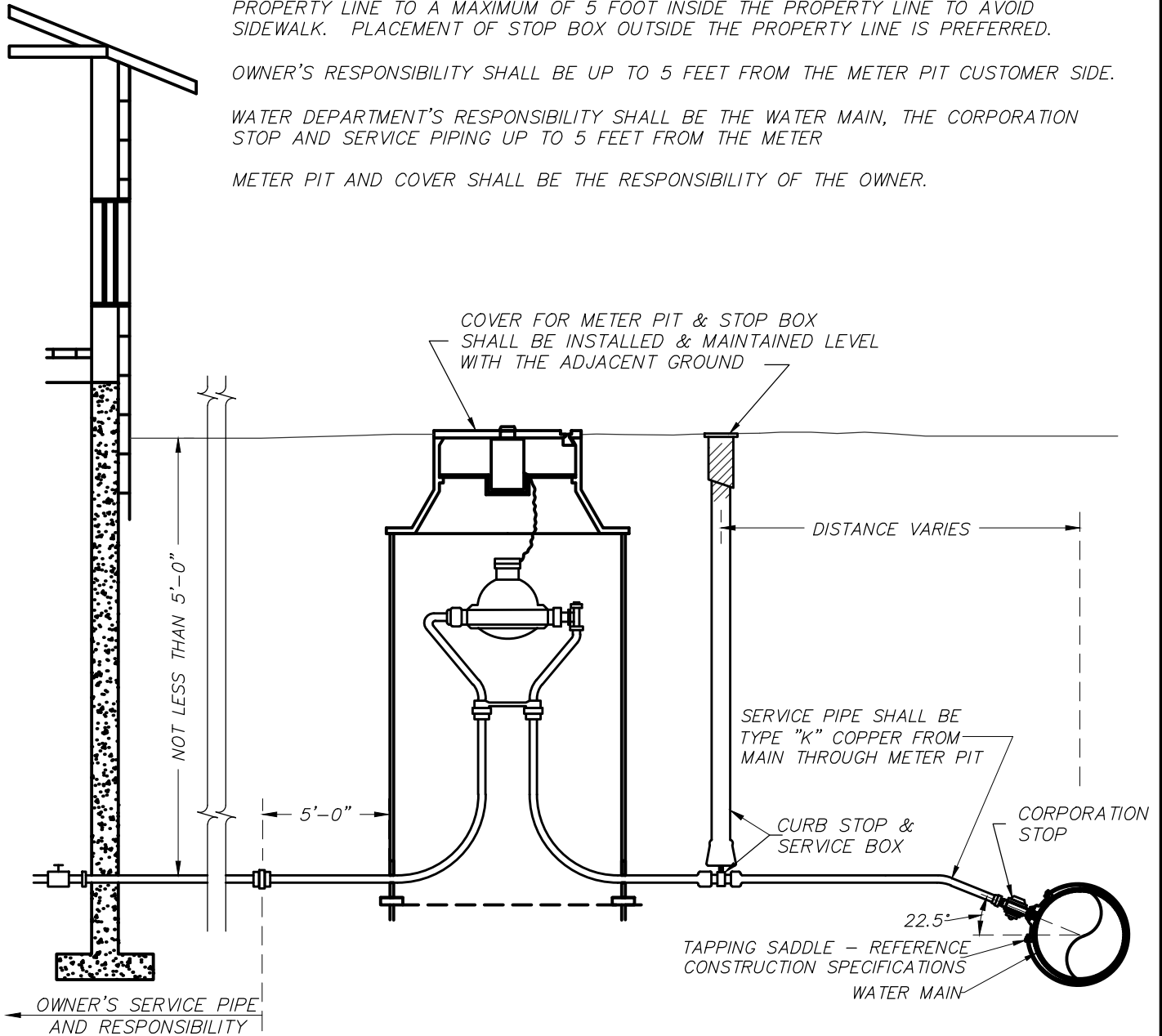
NOTES:

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.



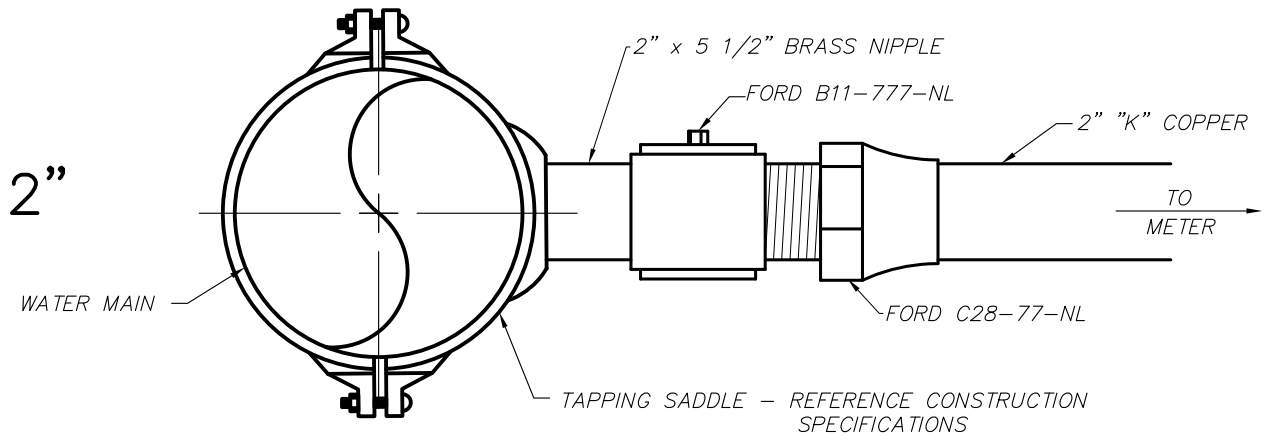
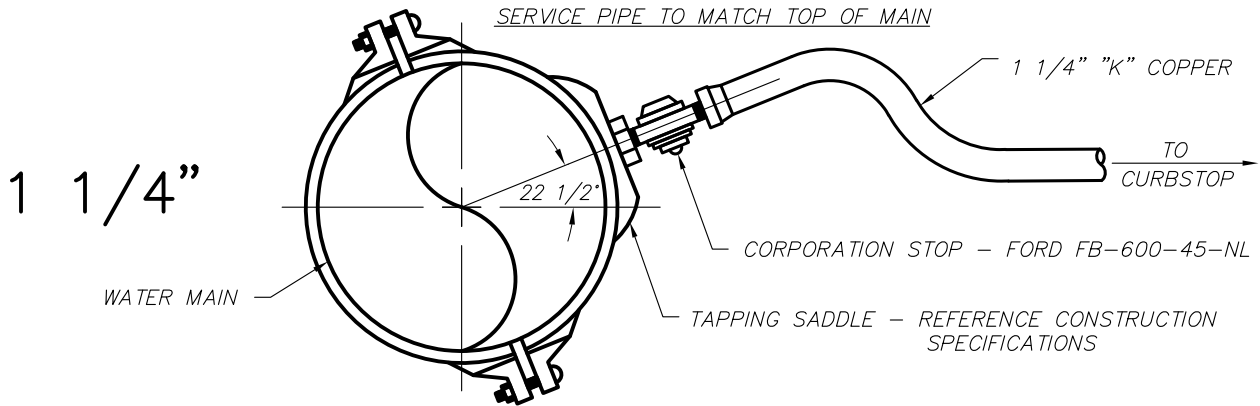
9/15/2015 12:06:36 PM



CITY OF KALAMAZOO
Department Of Public Services

**1-1/4" SERVICE LINE,
STOP BOX AND OUTSIDE
METER INSTALLATION**

RECOMMENDED BY _____	DATE
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	



CITY OF KALAMAZOO
Department Of Public Services

**WATER SERVICE
TAPPING SLEEVE**

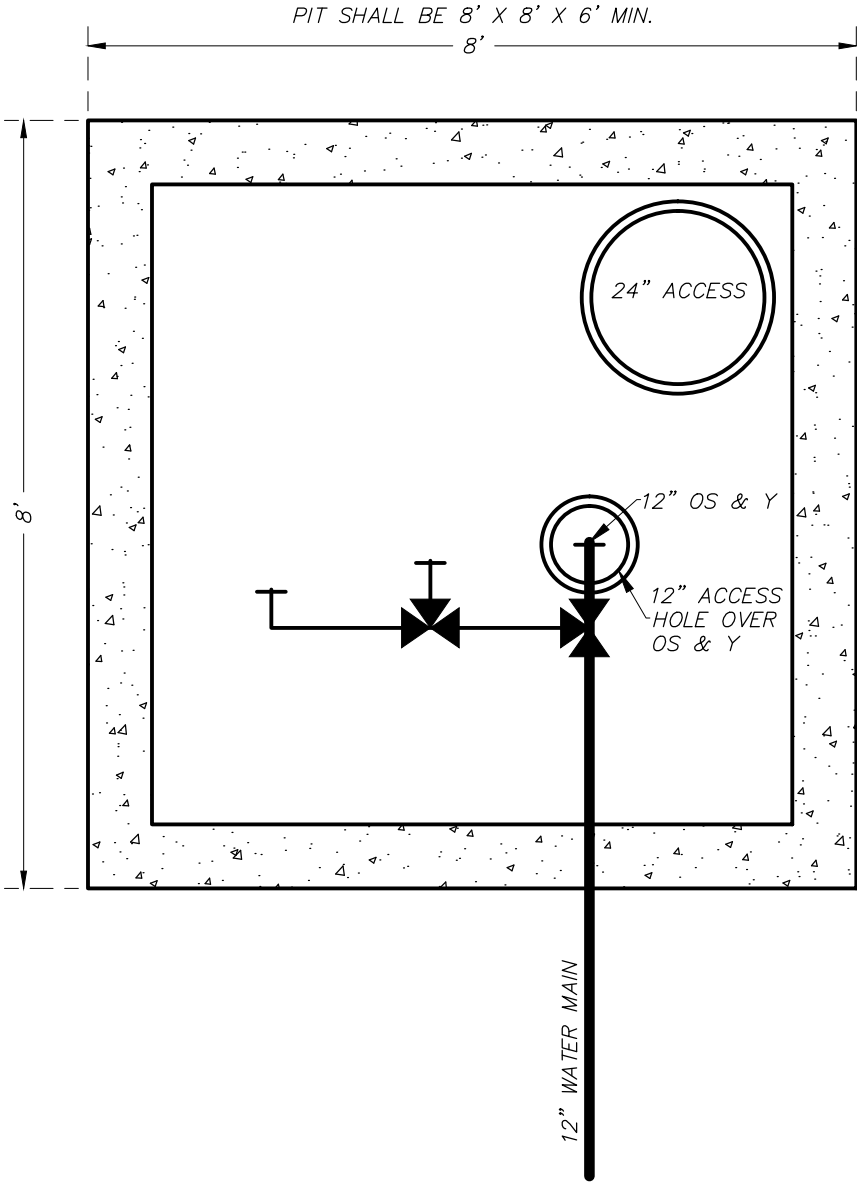
RECOMMENDED BY _____

APPROVED BY _____

APPROVED BY _____

ACCEPTED BY _____

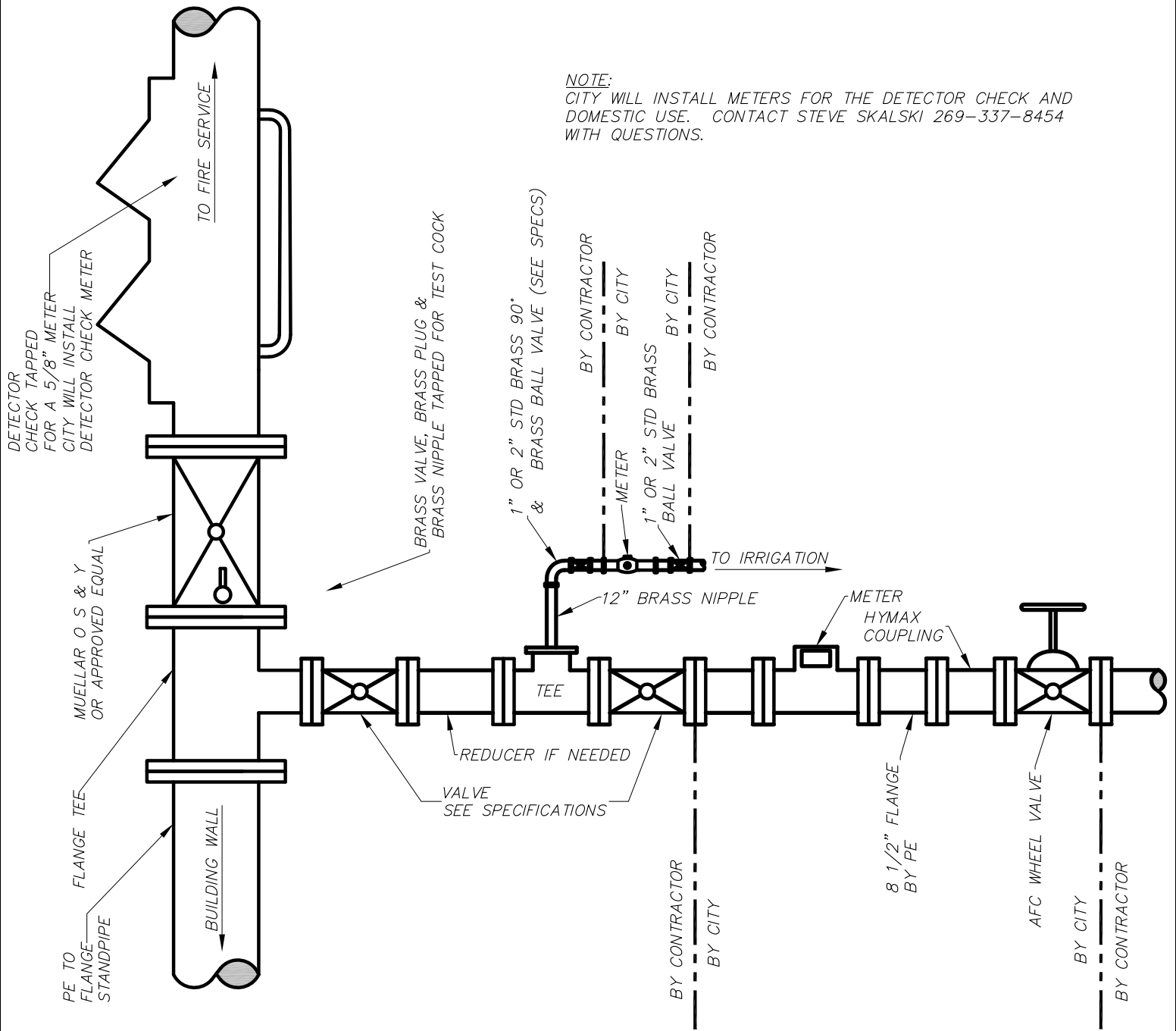
DATE



CITY OF KALAMAZOO
Department Of Public Services

12 INCH METER PIT

	DATE
RECOMMENDED BY _____	
APPROVED 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.



TYPICAL FIRE SERVICE
DETAIL, DOMESTIC 3", 4",
& 6" & IRRIGATION 1" OR
2" VERTICAL SETTING

RECOMMENDED BY _____

APPROVED BY _____

APPROVED BY _____

ACCEPTED BY _____

DATE

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

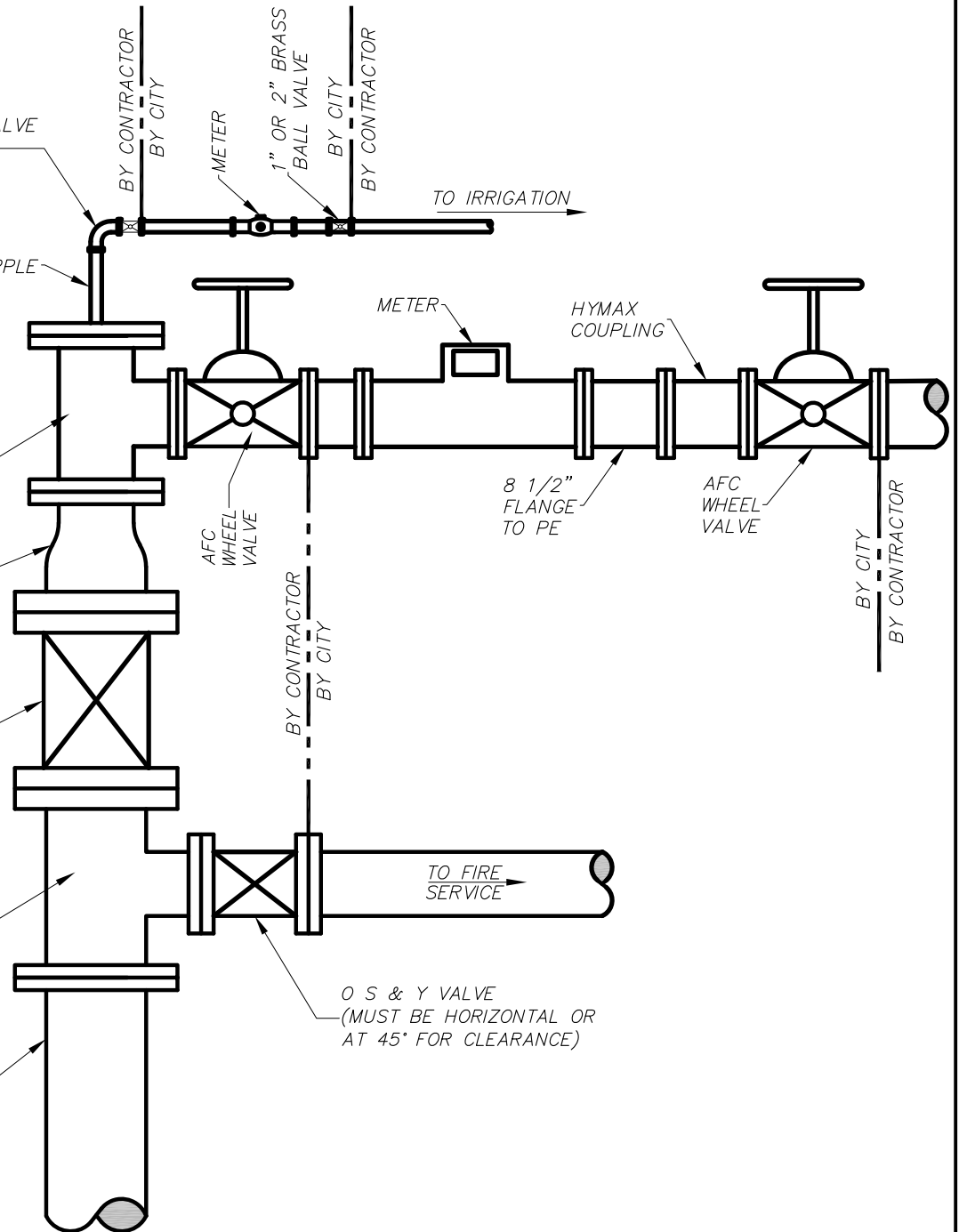
VALVE
 SEE SPECIFICATIONS

REDUCER
 (IF NEEDED)

TEE

TEE

PE TO
 FLANGE
 STANDPIPE



TO IRRIGATION

METER

HYMAX
 COUPLING

8 1/2"
 FLANGE
 TO PE

AFC
 WHEEL
 VALVE

AFC
 WHEEL
 VALVE

BY CONTRACTOR
 BY CITY

BY CITY
 BY CONTRACTOR

TO FIRE
 SERVICE

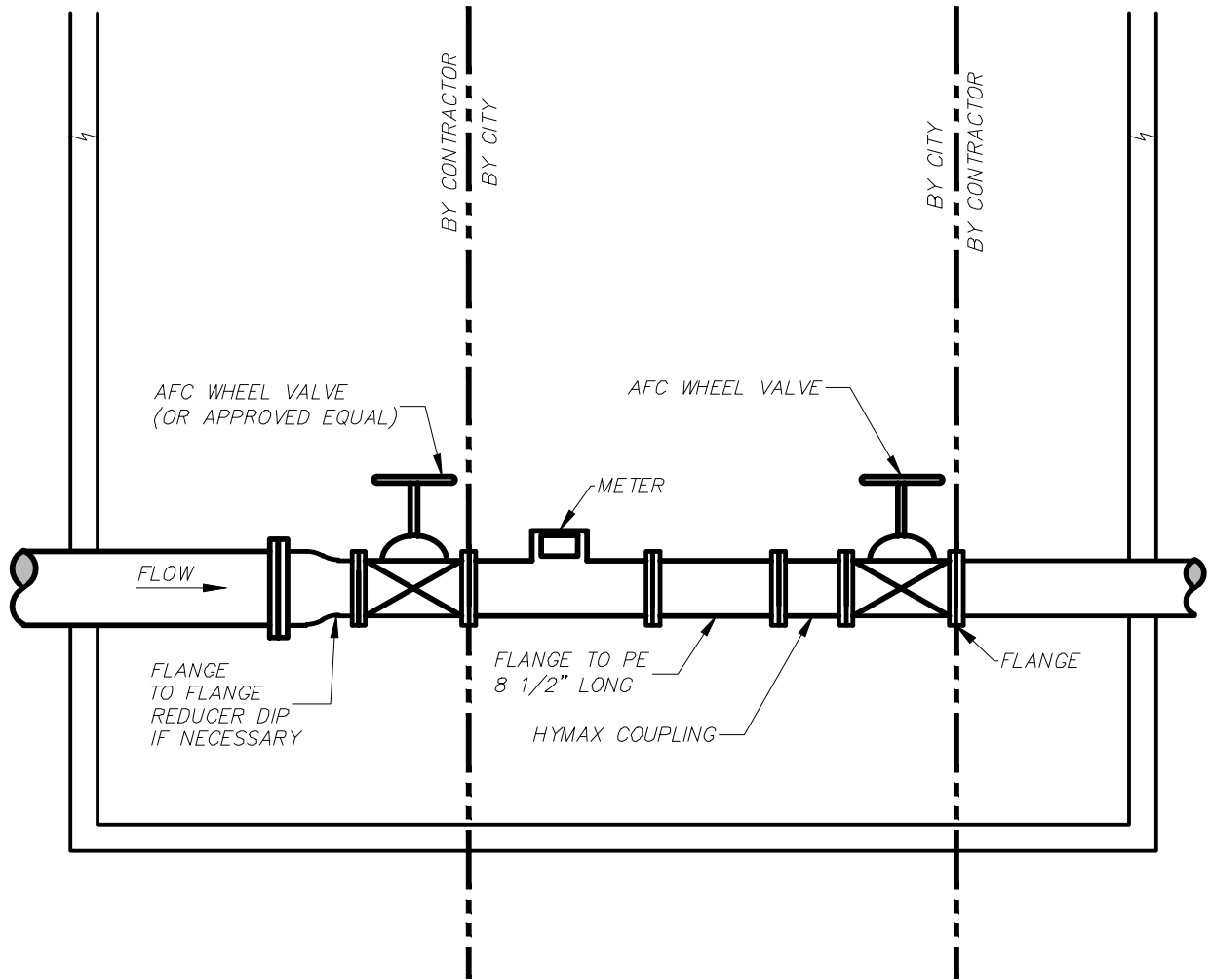
O S & Y VALVE
 (MUST BE HORIZONTAL OR
 AT 45° FOR CLEARANCE)



CITY OF KALAMAZOO
 Department Of Public Services
TYPICAL FIRE SERVICE DETAIL
HORIZONTAL SETTING
W/3", 4", OR 6" DOMESTIC
& 1" OR 2" IRRIGATION

RECOMMENDED BY _____	DATE _____
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	

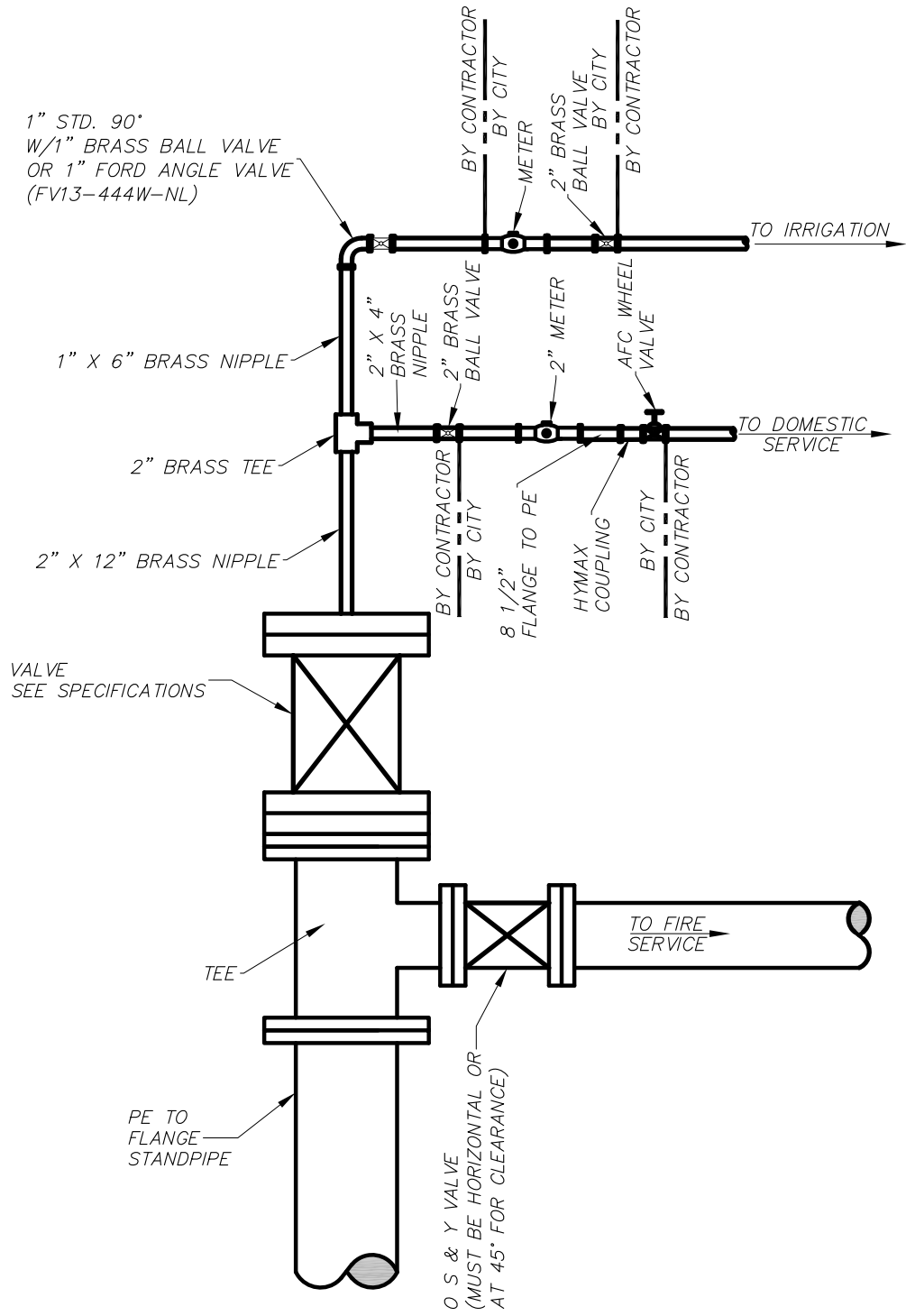
NOTE:
 CITY WILL INSTALL METERS FOR THE DETECTOR CHECK AND DOMESTIC USE. CONTACT STEVE SKALSKI 269-337-8454 WITH QUESTIONS.



CITY OF KALAMAZOO
 Department Of Public Services
**PIT METER SETTING
 DETAIL FOR
 3", 4", 6" & 8"**

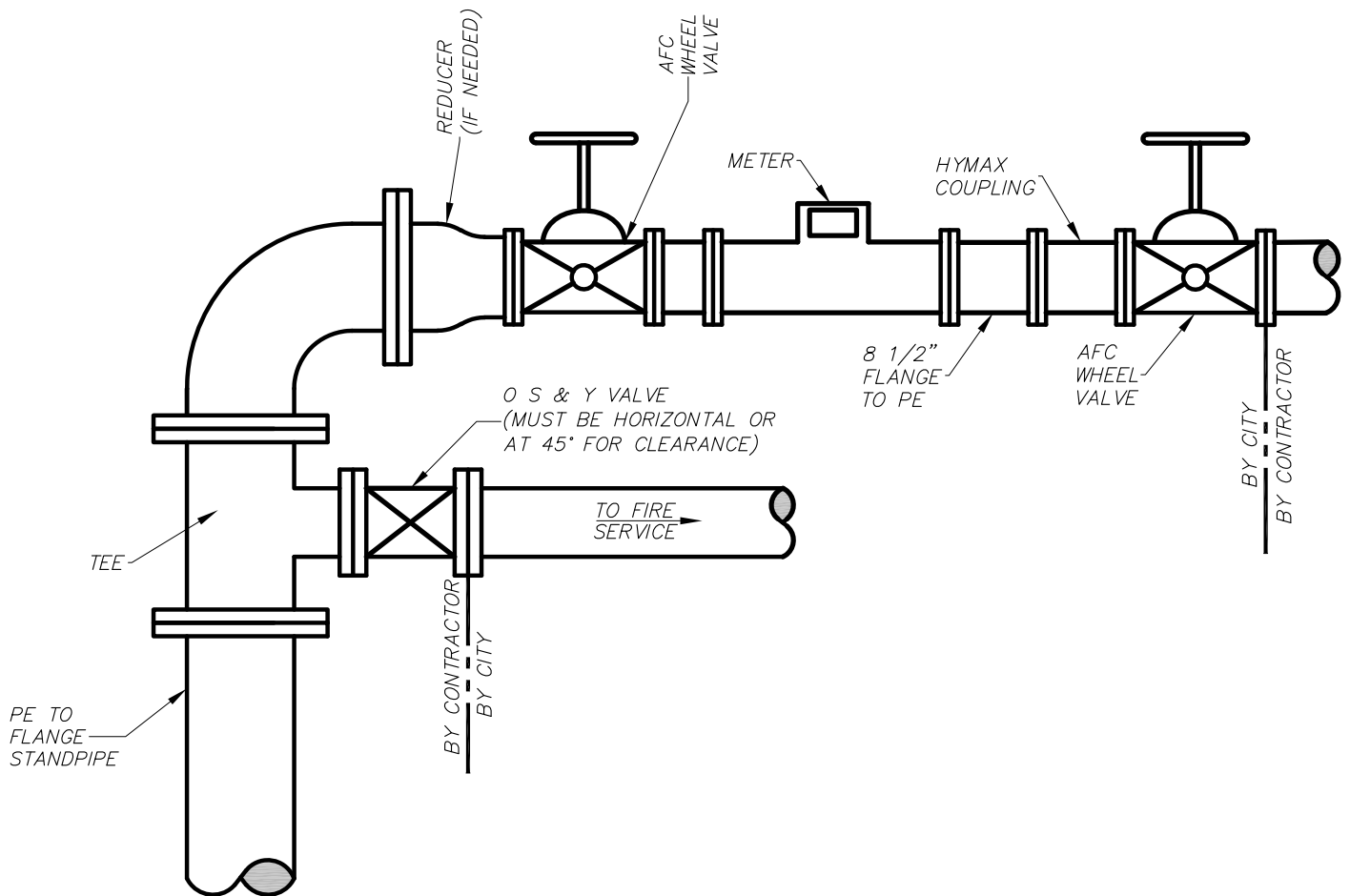
RECOMMENDED BY _____	DATE _____
APPROVED BY _____	
APPROVED BY _____	
ACCEPTED BY _____	

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



	CITY OF KALAMAZOO Department Of Public Services	RECOMMENDED BY _____	DATE
	TYPICAL FIRE SERVICE DETAIL HORIZONTAL SETTING 2" DOMESTIC 1" IRRIGATION	APPROVED 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.



CITY OF KALAMAZOO
 Department Of Public Services

**TYPICAL FIRE SERVICE DETAIL
 HORIZONTAL SETTING
 W/3", 4", OR 6" DOMESTIC**

RECOMMENDED BY _____

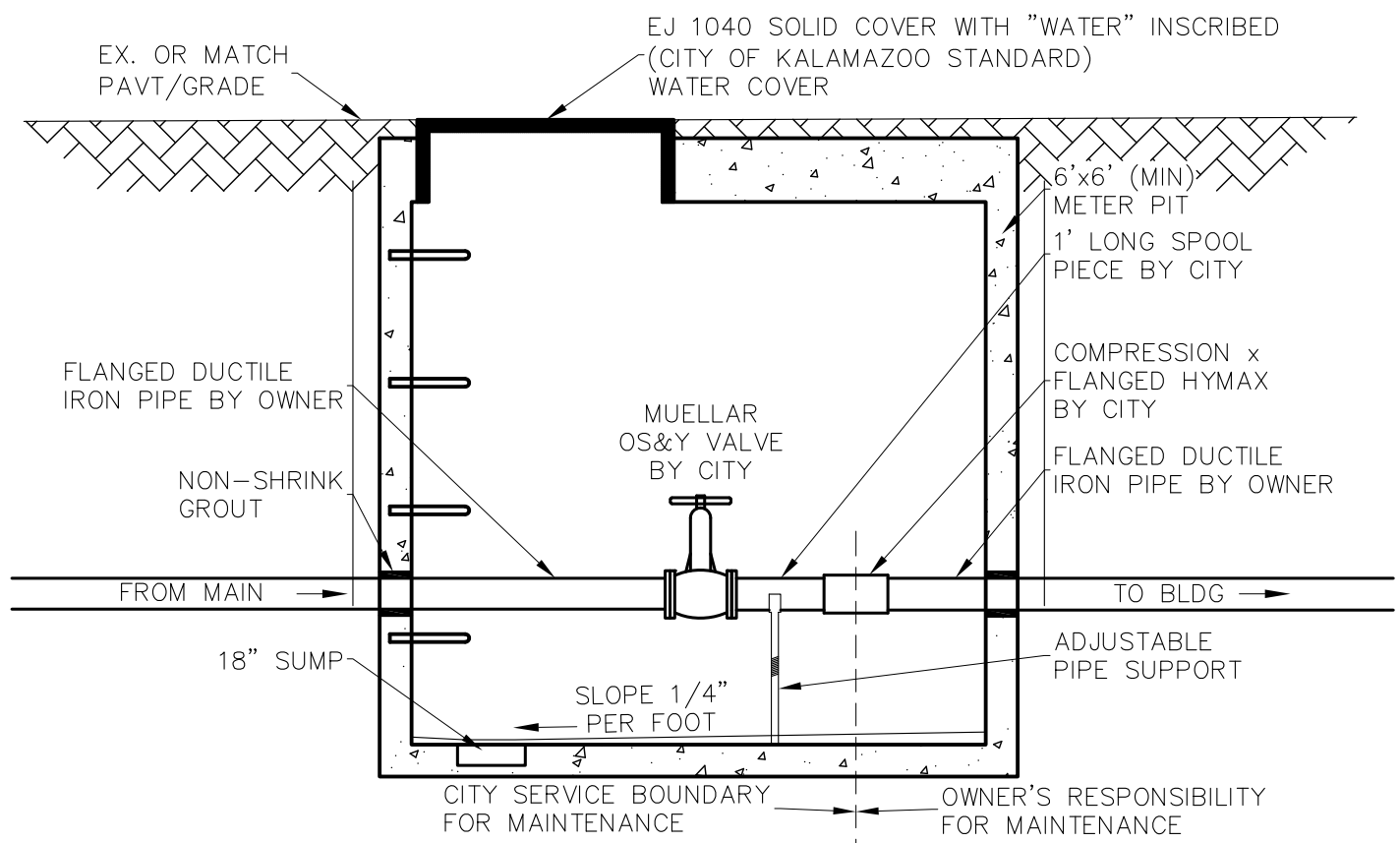
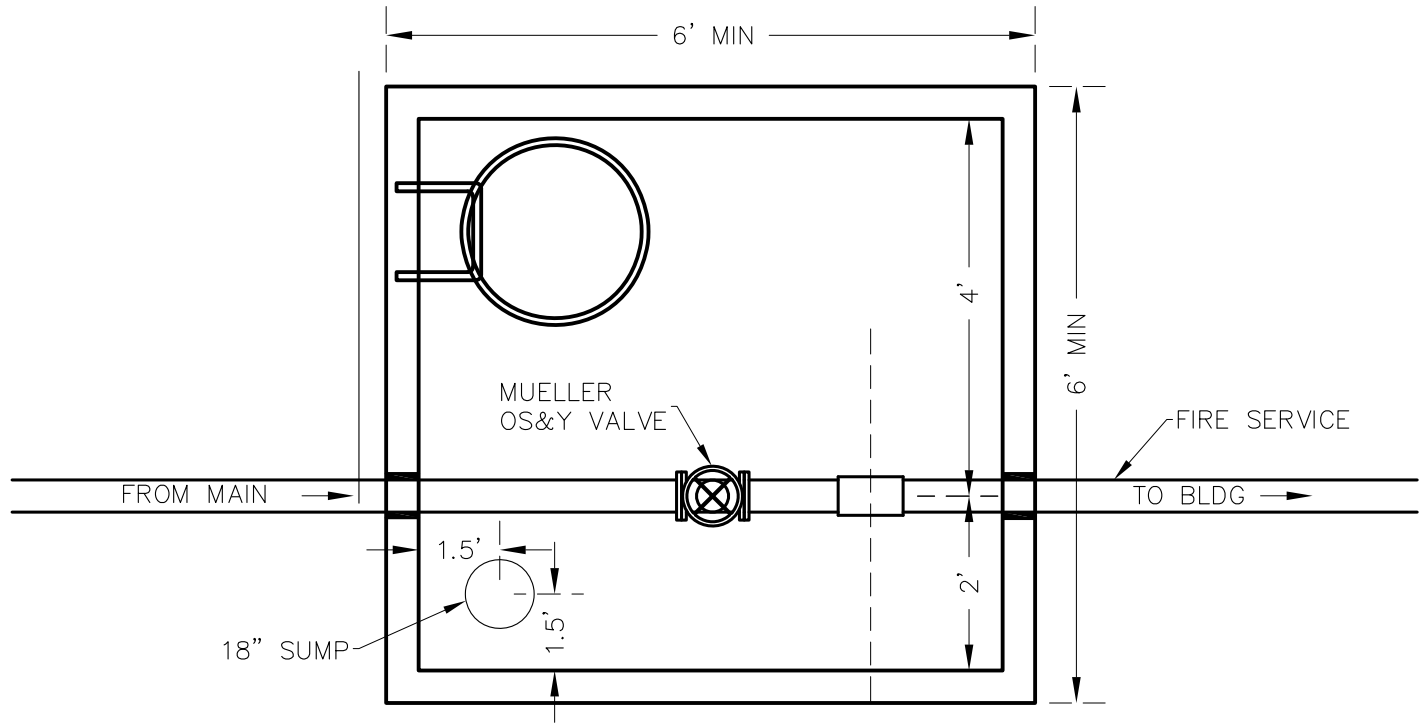
APPROVED BY _____

APPROVED BY _____

ACCEPTED BY _____

DATE

WS-16-A



	CITY OF KALAMAZOO Department Of Public Services		DATE
	FIRE SERVICE IN PIT DETAIL		
	RECOMMENDED BY	_____	
	APPROVED BY	_____	
	APPROVED BY	_____	
ACCEPTED BY	_____		



DRAWINGS/PLANS

**Balch Street (Park St. to Burdick St.)
Water Main Replacement**

Bid Reference #: 91244-025.0

June 2023

CITY OF KALAMAZOO

WATERMAIN REPLACEMENT

BALCH STREET - PARK TO BURDICK

Kalamazoo County, MI
05/26/23

OWNER

City of Kalamazoo
415 E Stockbridge Ave.
Kalamazoo, MI 49001

PLANS PREPARED BY:



hurley & stewart, llc
2800 s. 11th street
kalamazoo, michigan 49009
269.552.4960 fax 269.552.4961
www.hurleystewart.com

UTILITY CONTACTS:

CHARTER COMMUNICATIONS, 4176 COMMERCIAL AVENUE PORTAGE, MI 49002 (269) 459-8746 BRYAN.LONGCORE2@CHARTER.COM	CABLE	Q3 TECHNOLOGIES, LLC, 1005 FOSTER AVENUE KALAMAZOO, MI 49048 (269) 377-1308, TROY QUAKENBUSH TQUAKENBUSH@Q3-TECH.COM	
CONSUMERS ENERGY, 2500 EAST CORK STREET KALAMAZOO, MI 49001 (269) 337-2245, MR. ANDRE TAYLOR ANDRE.TAYLOR@CMSENERGY.COM	ELECTRIC	CTS TELECOM, 13800 EAST MICHIGAN AVENUE GALESBURG, MI 49053 (269) 746-3232, MR. TOM CADY TCADY@CTSTELECOM.COM	
CONSUMERS ENERGY, 2500 EAST CORK STREET KALAMAZOO, MI 49001 (26) 337-2366, MR. KYLE OAK KYLE.OAK@CMSENERGY.COM	GAS	CITY OF KALAMAZOO, 415 STOCKBRIDGE AVENUE KALAMAZOO, MI 49001 (269) 337-8558, DEBBIE JUNG JUNGDK@KALAMAZOOCITY.ORG	WATER
AT&T, 2919 MILLCORK STREET KALAMAZOO, MI 49001 (269) 384-4475, MR. TODD BERGHUIS TB1973@ATT.COM	TELEPHONE	CITY OF KALAMAZOO, 1415 NORTH HARRISON STREET KALAMAZOO, MI 49007 (269) 337-8551, MR. RYAN STOUGHTON STOUGHTONR@KALAMAZOOCITY.ORG	SEWER
CITY OF KALAMAZOO, 415 STOCKBRIDGE AVENUE KALAMAZOO, MI 49001 (269) 337-8601, MR. RON RIDENOUR RIDENOURR@KALAMAZOOCITY.ORG	FIBER OPTIC		

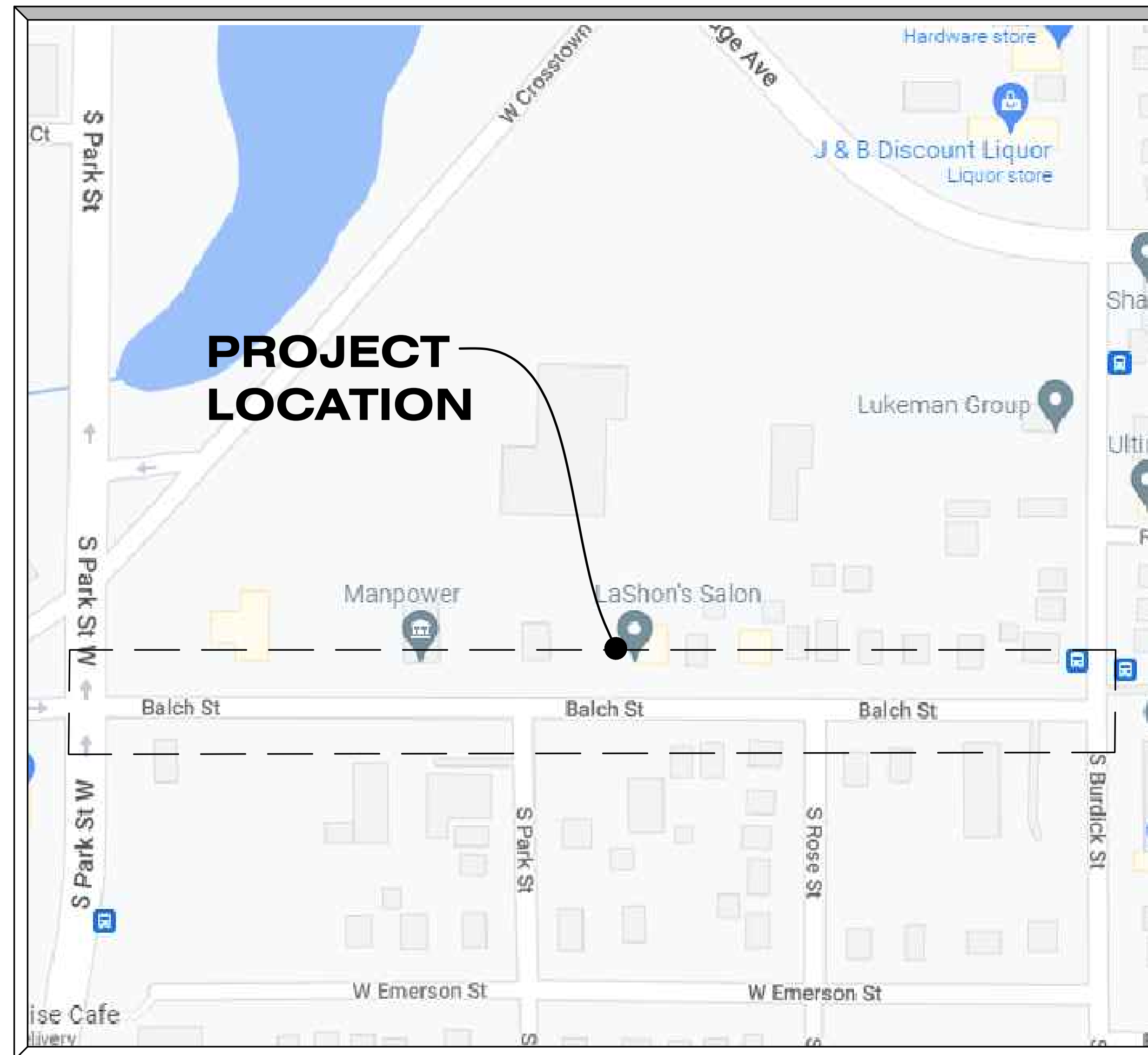
CONTACT FOR ROAD IMPROVEMENTS

IMPROVEMENTS TO KALAMAZOO WATER MAIN. CONSTRUCTION SERVICES FOR INSTALLATION OF 24" WATER MAIN IN PUBLIC RIGHT-OF-WAY, INSTALLATION AND CONNECTION OF PRIVATE SERVICES, LEAD SERVICE REMOVAL, EXISTING WATER MAIN REMOVAL, AND ABANDONMENT OF EXISTING WATER MAIN. PAVEMENT, DRIVEWAY, SIDEWALK, AND CURB REPLACEMENTS. ALL WATER MAIN AND SERVICE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF KALAMAZOO STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

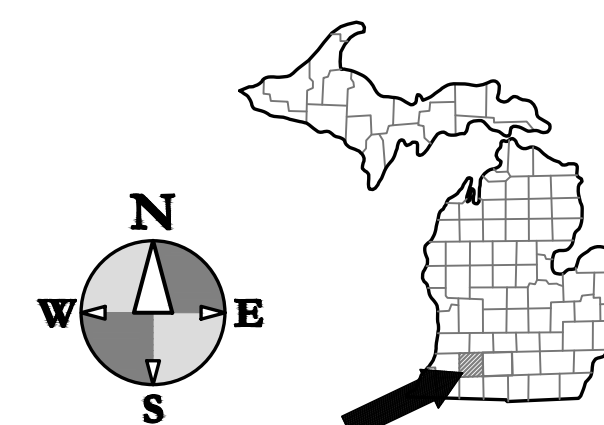


CITY OF KALAMAZOO
BALCH STREET
KALAMAZOO, MI 49001

DEBBIE JUNG SENIOR CIVIL ENGINEER
WATER RESOURCES DIVISION DATE



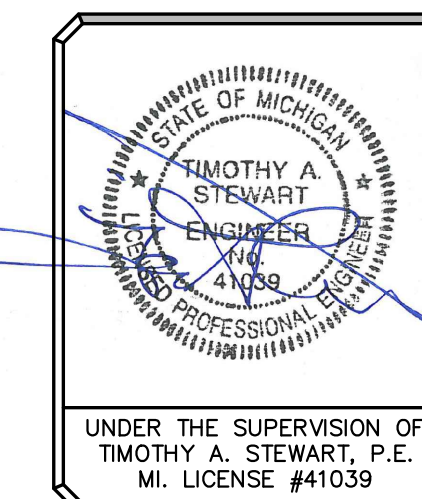
SITE LOCATION MAP
SCALE NOT SET



DRAWING INDEX

SHT #	DESCRIPTION
C-0	TITLE SHEET
S-1	TOPOGRAPHIC SURVEY
C-1	PROJECT NOTES & LEGEND
C-2	TYPICAL SECTIONS
C-3	REMOVAL PLAN
C-4	CONSTRUCTION PLAN & PROFILE POB - STA 6+00
C-5	CONSTRUCTION PLAN & PROFILE STA 6+00 - POE
C-6	SESC PLAN
C-7	CONSTRUCTION PLAN
C-8	SIDE STREET PROFILES
C-9	PHASE 1 & 3 MAINTENANCE OF TRAFFIC PLAN
C-10	PHASE 2 MAINTENANCE OF TRAFFIC PLAN

PRE-PURCHASED MATERIAL PROJECT
SEE SPECIAL PROVISION FOR PRE-PURCHASED
WATER MAIN MATERIALS FOR DETAILS.



EXISTING TOPOGRAPHY PROVIDED BY HURLEY & STEWART, LLC. ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.

ISSUED FOR:
ADDENDUM #1
05/26/23

TOPOGRAPHIC SURVEY

LEGEND

	BENCH MARK		RISER
	SET MONUMENT		PIPE MARKER COMMUNICATIONS
	FOUND MONUMENT		PIPE MARKER FIBEROPTICS
	SET CAPPED IRON LIC. # 57885		PIPE MARKER ELECTRIC
	FOUND IRON		PIPE MARKER GAS
	SET CHISELED "X"		SIGN (SINGLE/DOUBLE)
	FOUND CHISELED "X"		MAILBOX
	CONTROL POINT		PARKING METER (SINGLE/DOUBLE)
	PLATTED		POST
	DESCRIBED		SOIL BORING
	MEASURED		FLAG
	RECORD		COLUMB
	CALCULATED		BOLLARD
	CURB CATCH BASIN		CONTOUR HIGHLIGHTED
	SQUARE CATCH BASIN		CONTOUR NORMAL
	ROUND CATCH BASIN		POWER LINE
	MANHOLE STORM		OVERHEAD UTILITY
	DOWN SPOUT		COMMUNICATION
	YARD DRAIN		ELECTRIC
	FLARED END SECTION		FIBEROPTIC
	MANHOLE SANITARY		GAS
	SANITARY CLEANOUT		SANITARY SEWER
	FIRE HYDRANT		STORMWATER
	FIRE DEPARTMENT CONNECTION		TELEPHONE
	WATER VALVE		WATER
	WATER METER		WETLAND MARKER
	WELL HEAD		UNKNOWN
	SPRINKLER CONTROL VALVE		TREE LINE
	SPRINKLER HEAD		FENCE
	MONITOR WELL		GUARD RAIL
	POST INDICATOR VALVE		DECIDUOUS TREE
	SPIGOT		CONIFEROUS TREE
	TRANSFORMER		BUSH
	YARD LIGHT		PAVEMENT
	HAND HOLE (ELECTRIC)		CONCRETE SURFACE
	LIGHT POLE		DETECTABLE WARNING
	(UTILITY, GUY, POWER) POLE		GRAVEL
	GUY WIRE		LANDSCAPING
	ELECTRIC MANHOLE		PAVERS
	ELECTRIC METER		
	AIR CONDITIONER		
	GAS METER		
	GAS VALVE		
	TELEPHONE MANHOLE		
	COMMUNICATION MANHOLE		

STRUCTURE DATA

- 1. STM MH
RIM = 765.76
- 2. STM CB
RIM = 765.88
INV. = 761.08
TOP OF PIPE = 762.68
(VERTICAL PIPE)
- 3. 2.0' BLOCK STM CB
RIM = 766.10
NO PIPES VISIBLE
WATER = 768.43
SUMP = 758.20
- 4. STM MH
RIM = 766.77
INV. 36" N OBLONG PIPE = 757.97
INV. 42" S RCP = 758.17
INV. 12" E CLAY = 758.17±
WATER = 758.17
SUMP = 758.07
- 5. SQUARE BLOCK UNKNOWN MH
RIM = 767.18
SUMP = 759.98
- 6. WATER MH
RIM = 766.68
- 7. 6.0' BRICK STM MH
RIM = 766.68
INV. 12" W = 760.73
INV. 12" SE CLAY = 760.53
INV. 4" N = 761.88
WATERMAIN E-W IRON TOP OF PIPE = 763.83
SEDIMENT = 760.48
- 8. 4.0' BRICK STM MH
RIM = 766.69
INV. E-W COP PLUGGED
INV. 12" NW CLAY = 760.74
WATER = 760.84
SUMP = 757.98
- 9. STM CB
RIM = 766.35
INV. = 759.80±
TOP OF PIPE = 763.75
(VERTICAL PIPE)
- 10. UNKNOWN MH
RIM = 767.54
- 11. 4.0' CONCRETE STM MH
RIM = 769.10
INV. 12" E CLAY = 760.94
WATER = 760.84
SUMP = 760.39
- 12. 4.0' CONCRETE STM MH
RIM = 766.54
INV. 12" W CLAY = 760.79
INV. 12" E CLAY = 760.84±
INV. 12" S CLAY = 760.89
BOTTOM = 760.82±
- 13. SAN MH
RIM = 766.88
INV. 30" E RCP = 755.33
INV. 30" W RCP = 755.43
INV. 8" SW CLAY = 759.38
- 14. 6.0' CONCRETE STM MH
RIM = 766.41
INV. 12" N RCP = 762.36
INV. 12" S RCP = 760.61
INV. E = 760.81±
INV. 12" W CLAY = 760.91
WATER = 760.98
SUMP = 760.41
- 15. 2.0' BLOCK STM CB
RIM = 766.25
INV. 12" N RCP = 760.40
INV. 4" W-SE (UNDERDRAIN)
INV. 6" SE PVC = 763.65±
WATER = 761.05
SUMP = 760.15
- 16. STM CB
RIM = 766.10
- 17. STM CB
RIM = 766.41
- 18. SAN MH
RIM = 768.32
INV. 30" E RCP = 755.02
INV. 30" W RCP = 755.12
INV. 15" N PVC = 755.92
- 19. 2.0' BLOCK STM CB
RIM = 769.02
INV. 12" E RCP = 764.52
SEDIMENT = 764.52
- 20. 6.0' BRICK STM MH
RIM = 769.10
INV. 12" W CLAY = 763.00
INV. 12" S CLAY = 763.10±
INV. 12" N RCP = 762.90
WATER = 764.95
SEDIMENT = 762.85
- 21. 2.0' BLOCK STM CB
RIM = 768.70
INV. 12" S RCP = 765.75
WATER = 765.70
SEDIMENT = 765.10
- 22. 6.0' CONCRETE STM MH
RIM = 769.12
INV. 30" S RCP = FULL OF SEDIMENT
INV. 12" W CLAY = 762.87±
INV. 12" E RCP = 762.99
WATER = 762.99
SEDIMENT = 762.77
- 23. SAN MH
RIM = 769.03
INV. 30" E RCP = 754.98
INV. 30" W RCP = 755.08
INV. S = 755.68
- 24. 2.0' BLOCK STM CB
RIM = 769.38
SEDIMENT = 767.58
- 25. 2.0' BLOCK STM CB
RIM = 769.27
INV. 12" W = 763.67
WATER = 763.52
SEDIMENT = 763.12
- 26. 2.0' BLOCK STM CB
RIM = 769.71
INV. 12" E RCP = 764.11
WATER = 764.06
SEDIMENT = 763.26
- 27. 6.0' BRICK STM MH
RIM = 768.84
WATERMAIN E-W IRON TOP OF PIPE = 766.44
INV. 12" W RCP = 763.64
INV. 12" E RCP = 763.54
SEDIMENT = 763.54
- 28. SAN MH
RIM = 769.64
INV. 8" E
INV. E = 758.24±
INV. W = 758.24±
- 29. SAN MH
RIM = 769.46
INV. 30" E RCP = 754.61
INV. 30" W RCP = 754.71
INV. 8" W = 755.96
- 30. STM MH
RIM = 766.45
INV. 12" E RCP = 761.35±
INV. 12" W RCP = 761.35
WATER = 761.70
SEDIMENT = 761.30
- 31. STM CB
RIM = 764.73
- 32. 4.0' BRICK STM MH
RIM = 764.93
INV. 12" N CONC. = 761.63
INV. 12" S IRON = 761.58
INV. 12" W CONC. = 761.58
INV. 12" SE CONC. = 761.48
INV. 12" SW IRON = 761.58
SEDIMENT = 760.62
- 33. SAN MH
RIM = 764.98
- 34. SAN MH
RIM = 764.96
- 35. STM MH
RIM = 764.97
INV. 24" N CLAY = 760.57
INV. 12" W CLAY = 761.37
INV. 12" S CLAY = 761.52
INV. 24" S CLAY = 760.77
INV. 12" E-W = 760.77
(ENCLOSED)
SEDIMENT = 760.62
- 36. STM CB
RIM = 765.14
INV. 6" N CPP = 763.49
INV. 6" S CPP = 763.49
INV. 10" VERTICAL PVC = 761.24
- 37. SAN MH
RIM = 765.38
- 38. 5.0' BRICK STM MH
RIM = 765.07
INV. 30" E = 759.77
INV. 30" S = 759.77
INV. 12" SW PLUGGED
WATER = 759.07
SEDIMENT = 759.82
- 39. SAN MH
RIM = 765.67
- 40. 2.0' BLOCK STM CB
RIM = 770.17
INV. OF PIPE = 764.52
TOP OF PIPE = 768.02
(VERTICAL PIPE)
- 41. 2.0' BLOCK STM CB
RIM = 764.73
INV. NE DROP = 761.03±
TOP OF PIPE = 763.18
- 42. 2.0' BLOCK STM CB
RIM = 766.35
INV. = 761.10
TOP OF PIPE = 763.50
(VERTICAL PIPE)
- 43. 2.0' BLOCK STM CB
RIM = 766.35
INV. 12" S RCP = 763.25
WATER = 763.25
SEDIMENT = 763.00
- 44. 4.0' BLOCK STM MH (NOT SHOWN)
RIM = 767.01
INV. 24" N RCP = 760.01
INV. 24" S RCP = 760.01
INV. 15" E CLAY = 761.01

SURVEYOR'S NOTES

- BASIS OF BEARINGS: MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83
- CONTOUR INTERVAL = 1 FOOT
- UTILITIES SHOWN ARE BASED ON FIELD LOCATION OF SURFACE EVIDENCE AND RECORDS PROVIDED BY OTHERS. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. ADDITIONAL UTILITIES MAY BE ENCOUNTERED. PRIOR TO ANY EXCAVATION THE CONTRACTOR SHALL CALL MISS DIG AT 1-800-482-7171.
- BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THE LAND DEPICTED IN THIS SURVEY LIES IN ZONE X. MAP 26077C01890, EFFECTIVE DATE 02/17/2010.
- NO WETLANDS ON SITE PER THE NATIONAL WETLANDS INVENTORY. A DELINEATION OF THE WETLANDS BY A QUALIFIED CONSULTANT WAS NOT PERFORMED AT THE TIME OF SURVEY.
- THIS IS NOT A BOUNDARY SURVEY. PARCEL LINES WERE TAKEN FROM THE CITY GIS WEBSITE AND ARE APPROXIMATE.
- AT THE TIME OF SURVEY SNOW WAS COVERING THE GROUND. SNOW COVER AND PLOWED SNOW MAY HAVE OBSTRUCTED SOME SITE FEATURES.

MISS DIG DESIGN TICKET DATA

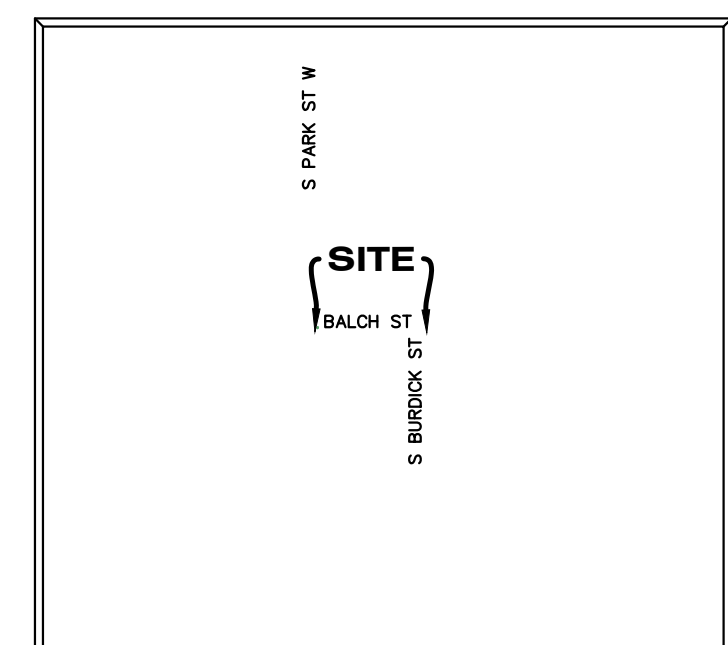
123.NET, INC. FIBER OPTICS - 248-431-4584 - 03/03/22 - NO RESPONSE
 AT&T TELEPHONE - PHILIP BARDOZC 269-384-4476 - 02/21/2022 - MAPS PROVIDED
 CHARTER COMMUNICATIONS CABLE TV - 800-778-9140 - 02/17/2022 - MAPS PROVIDED
 CHARTER COMMUNICATIONS FIBER OPTICS - 800-778-9140 - 02/17/2022 - MAPS PROVIDED
 CLUMAX TELEPHONE (CTS COMMUNICATIONS) FIBER OPTICS - 616-455-9840 - NO RESPONSE
 CABLE TV - 855-962-8525 - 03/03/22 - NO RESPONSE
 COMCAST FIBER OPTICS - ALESHA BAIBOOK 855-962-8525 - 03/01/22 - MAPS PROVIDED
 CONSUMERS ENERGY ELECTRIC - 248-877-7744 - 03/03/22 - NO RESPONSE
 CONSUMERS ENERGY GAS - CONSUMERS SIMS WEBSITE - MAPS PROVIDED - 02/28/2022
 KALAMAZOO CITY DPS POTABLE WATER - WILL EICHELBERGER 269-337-8727 - 02/24/2022 - MAPS PROVIDED
 KALAMAZOO CITY DPS SANITARY SEWER - WILL EICHELBERGER 269-337-8727 - 02/24/2022 - MAPS PROVIDED
 KALAMAZOO CITY DPS STORM SEWER - WILL EICHELBERGER 269-337-8727 - 02/24/2022 - MAPS PROVIDED
 KALAMAZOO CITY DPS TRAFFIC - WILL EICHELBERGER 269-337-8727 - 02/24/2022 - MAPS PROVIDED

SURVEY CONTROL

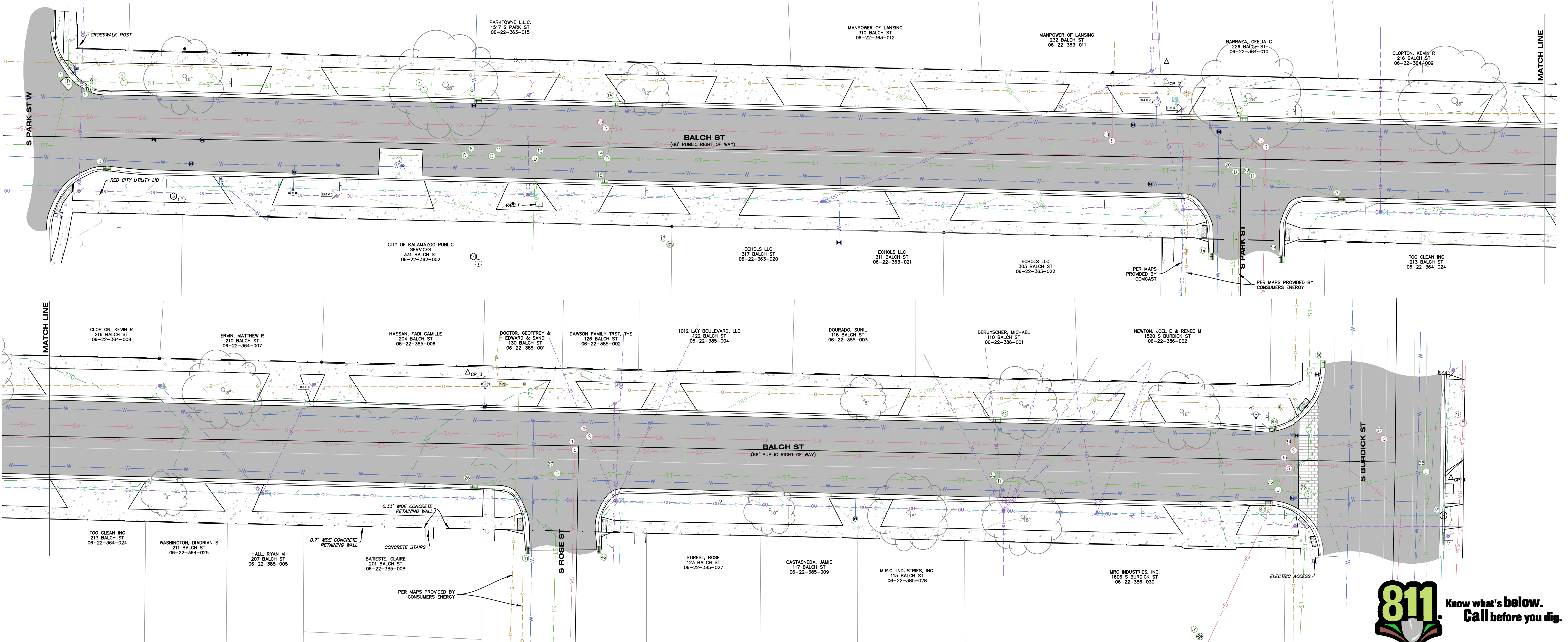
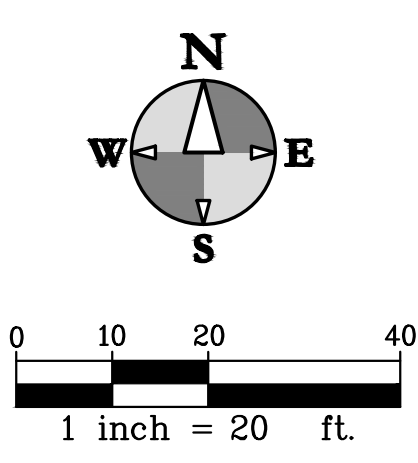
CP 1	N = 285262.92	E = 12793135.26	EL = 766.79
CP 2	N = 285251.04	E = 12793511.92	EL = 769.01
CP 3	N = 285243.48	E = 12793833.65	EL = 770.40
CP 4	N = 285200.93	E = 12794231.07	EL = 765.46

BENCHMARKS

- ELEVATIONS OF THIS SURVEY ARE BASED ON NAVD 88 AS DERIVED FROM GPS
- BM 1 EL = 768.14
RAILROAD SPIKE IN NORTH FACE OF UTILITY POLE ON THE SOUTH SIDE OF BALCH ST 120'± EAST OF S PARK ST
 - BM 2 EL = 771.02
CHISELED X IN NORTH BOLT ON HYDRANT ON THE NORTHWEST CORNER OF BALCH ST AND S PARK ST INTERSECTION.
 - BM 3 EL = 770.01
MAG NAIL IN NORTHEAST FACE OF UTILITY POLE ON THE NORTHWEST CORNER OF BALCH ST AND S PARK ST INTERSECTION.
 - BM 4 EL = 771.82
FOUND SPIKE IN SOUTH FACE OF UTILITY POLE ON THE NORTH SIDE OF BALCH ST 90'± WEST OF S ROSE ST.
 - BM 5 EL = 766.30
SPIKE IN SOUTHEAST FACE OF UTILITY POLE ON THE NORTHEAST CORNER OF BALCH ST AND S BURDICK ST.



SECTION 22 TOWN 02 S, RANGE 11 W,
CITY OF KALAMAZOO, KALAMAZOO COUNTY,
MICHIGAN
BALCH STREET



hurley & Stewart, LLC
 2800 s. 11th street
 Kalamazoo, Michigan 49009
 269.552.4960 fax 269.552.4961
 www.hurleyandstewart.com

Job No: 22-006D P.M.TAK DTL BDE QA/QC 07/01/22
 ISSUED FOR REVISIONS:
 #1 TOPOGRAPHIC SURVEY 03/03/22
 #2 ADDITIONAL TOPO 07/01/22

TOPOGRAPHIC SURVEY
 BALCH ST
 CITY OF KALAMAZOO

Sheet Title:
 Project:
 Client:

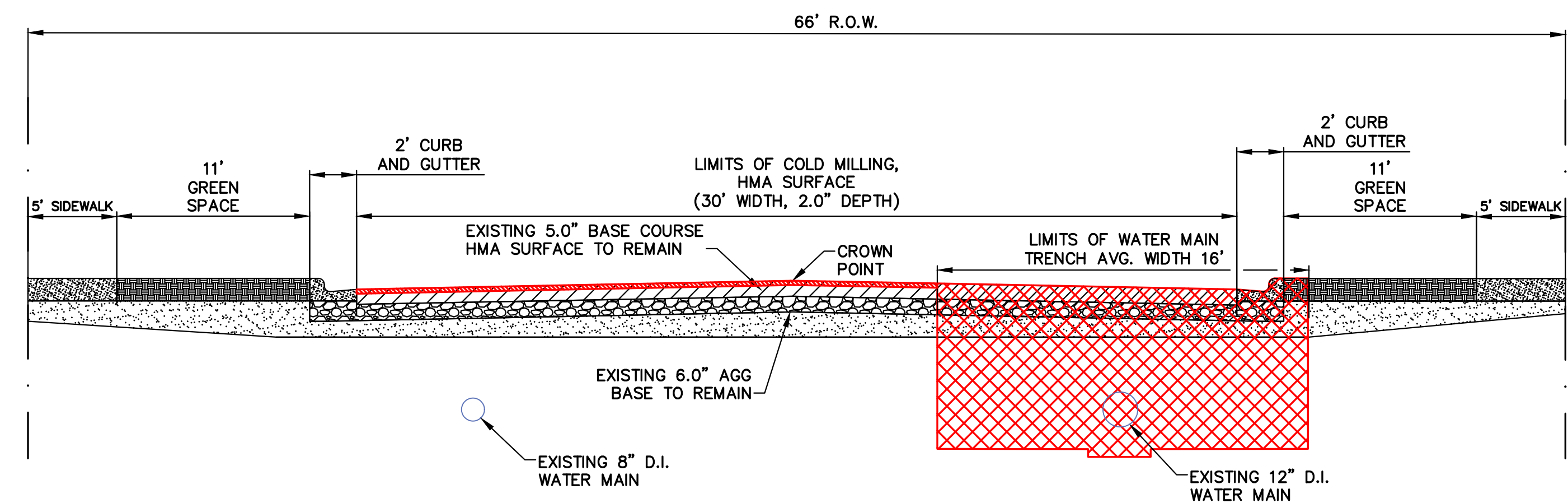
07/01/22
 Sheet
S-1



DRAWING LOCATION: H:\22-006D\Baldich\watermain\app\mch\FINAL DRAWINGS\C-2 Typical Sections.dwg LAST SAVED BY: WALK ON 1/6/2023

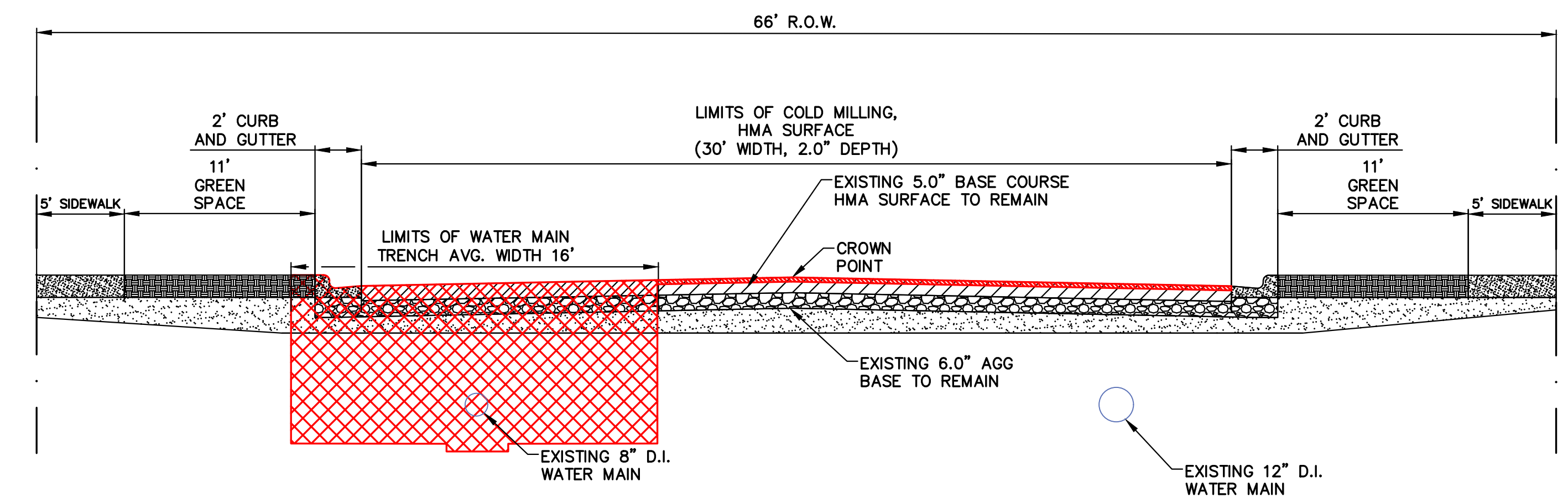
Job No.: 22-006D P.M.-APP. D.H.: N.R. Q.A./Q.C.: 05/26/23
 ISSUED FOR/REVISIONS:
 3 E.G.L.E. SUBMITTAL 10/17/22
 4 E.G.L.E. RESUBMITTAL 12/05/22
 5 IFB 04/06/23
 6 ADDENDUM #1 05/25/23
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TYPICAL SECTIONS
BALCH STREET - PARK TO BURDICK
CITY OF KALAMAZOO



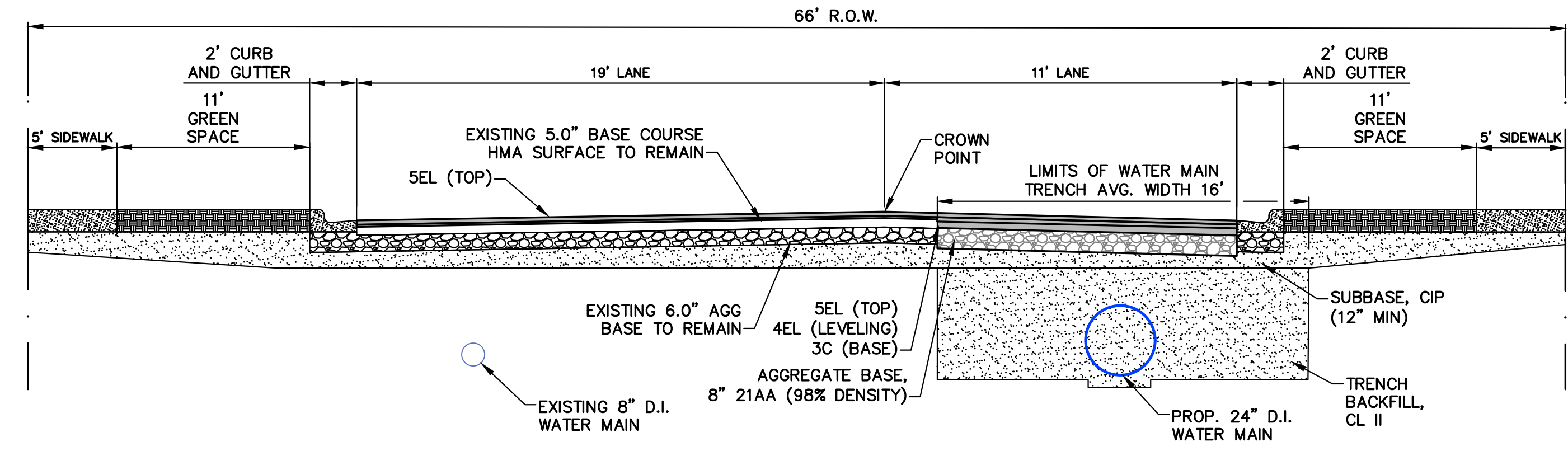
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NO SCALE
 APPLIES:
 POB TO STA. 1+25



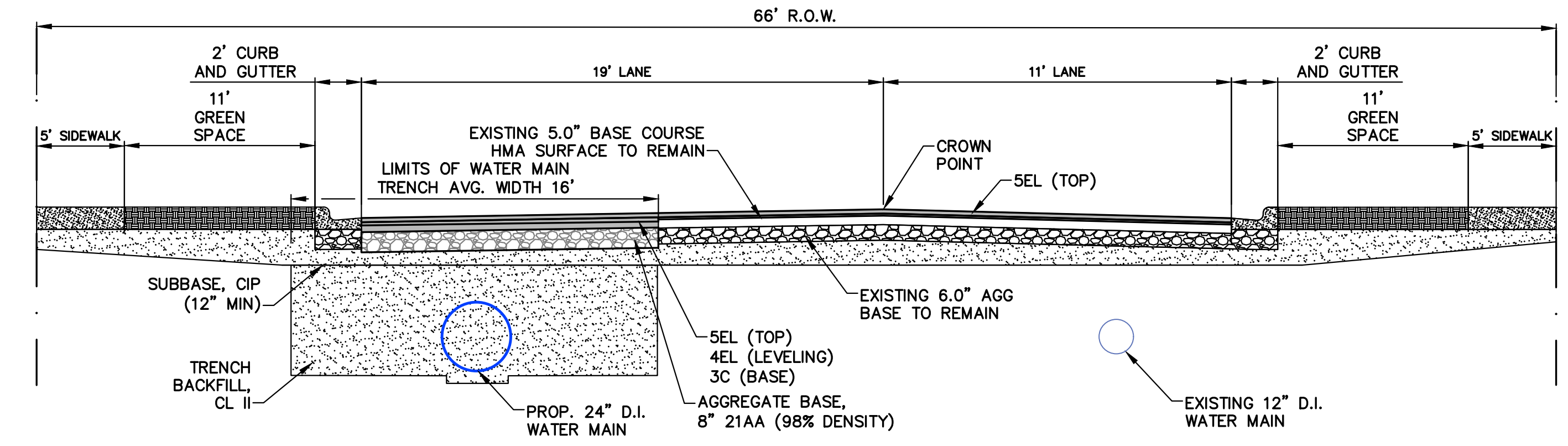
TYPICAL EXISTING AND REMOVALS SECTION

NO SCALE
 APPLIES:
 STA. 1+25 TO POE



TYPICAL PROPOSED SECTION

NO SCALE
 APPLIES:
 POB TO STA. 1+25



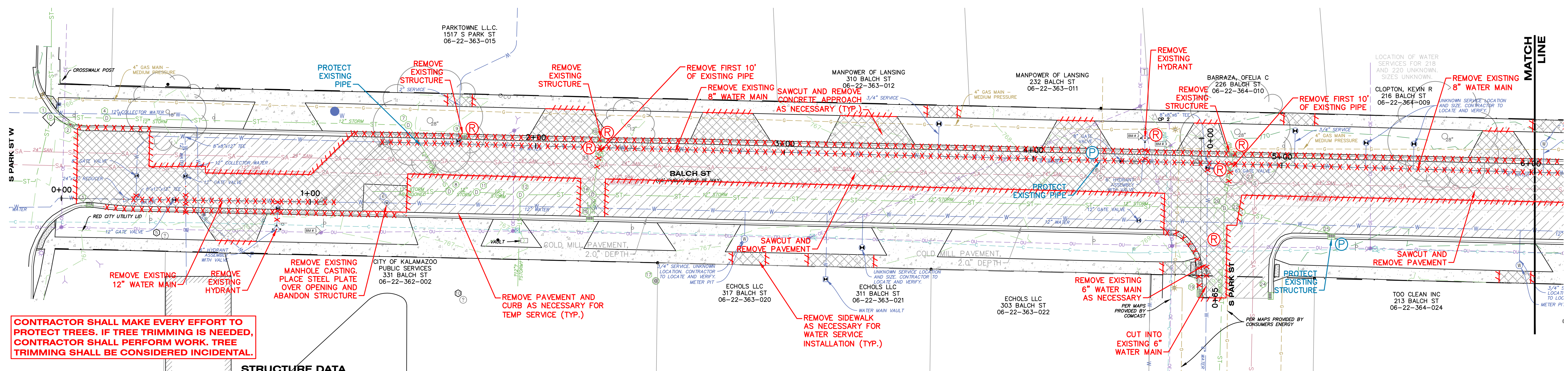
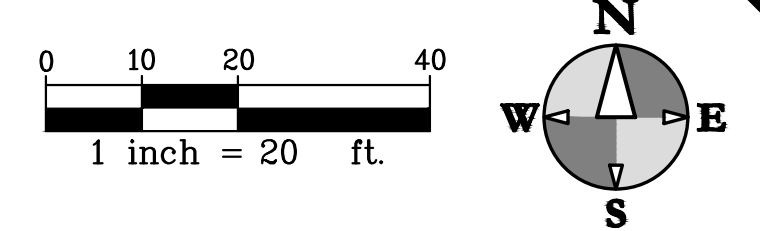
TYPICAL PROPOSED SECTION

NO SCALE
 APPLIES:
 STA. 1+25 TO POE

HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER SYD	PERFORMANCE GRADE	REMARKS
5EL	HMA, 5EL	220 LB	PG 64-28	TOP COURSE
4EL	HMA, 4EL	220 LB	PG 64-28	LEVELING COURSE
3C	HMA, 3C	275 LB	PG 64-28	BASE COURSE
SS-1H	* BOND COAT, SS-1H	0.10 GAL		FULL COVERAGE

* FOR INFORMATION ONLY



CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT TREES. IF TREE TRIMMING IS NEEDED, CONTRACTOR SHALL PERFORM WORK. TREE TRIMMING SHALL BE CONSIDERED INCIDENTAL.

STRUCTURE DATA

1. STM MH RIM = 765.76	8. 4.0' BRICK STM MH RIM = 766.69 INV. 12" N RCP = 762.36 INV. 12" W CLAY = 763.00 WATER = 760.84 SUMP = 757.98	14. 6.0' CONCRETE STM MH RIM = 766.41 INV. 12" N RCP = 762.36 INV. 12" W CLAY = 763.00 WATER = 760.84 SUMP = 760.41	20. 6.0' BRICK STM MH RIM = 769.10 INV. 12" W CLAY = 763.00 WATER = 763.52 SEDIMENT = 763.12	26. 2.0' BLOCK STM CB RIM = 769.27 INV. 12" W = 763.67 WATER = 763.52 SEDIMENT = 763.12	32. STM MH RIM = 766.45 INV. 12" E RCP = 761.35± INV. 12" W RCP = 761.35 INV. 12" N WATER = 761.70 SEDIMENT = 761.30	38. STM CB RIM = 765.14 INV. 6" N CPP = 763.49 INV. 6" S CPP = 763.49 INV. 10" VERTICAL PVC = 761.24	44. 2.0' BLOCK STM CB RIM = 764.73 INV. NE DROP = 761.03± TOP OF PIPE = 763.18
2. STM CB RIM = 765.88 INV. = 761.08 TOP OF PIPE = 762.68 (VERTICAL PIPE)	9. STM CB RIM = 766.35 INV. = 759.80± TOP OF PIPE = 763.75 (VERTICAL PIPE)	15. 2.0' BLOCK STM CB RIM = 766.25 INV. 12" N RCP = 760.40 INV. 4" W-SE (UNDERDRAIN) WATER = 760.91 SUMP = 760.41	21. 2.0' BLOCK STM CB RIM = 768.70 INV. 12" W RCP = 765.75 WATER = 765.70 SEDIMENT = 765.10	27. 2.0' BLOCK STM CB RIM = 769.71 WATER = 764.06 SEDIMENT = 763.26	33. STM CB RIM = 764.73	39. 5.0' BRICK STM MH RIM = 765.07 INV. 30" N = 759.77 INV. 30" S = 759.77 INV. 12" SW PLUGGED WATER = 763.25 SEDIMENT = 763.00	45. 2.0' BLOCK STM CB RIM = 764.75 INV. = 761.10 TOP OF PIPE = 763.50 (VERTICAL PIPE)
3. 2.0' BLOCK STM CB RIM = 764.43 WATER = 758.20 TOP OF PIPE = 762.68	10. UNKNOWN MH RIM = 767.54	16. STM CB RIM = 766.10	22. 6.0' CONCRETE STM MH RIM = 769.12 INV. 30" S RCP = FULL OF SEDIMENT INV. 12" W CLAY = 762.87± INV. 12" E RCP = 762.99 WATER = 762.99 SEDIMENT = 762.77	28. SAN MH RIM = 769.64 INV. 8" E INV. E = 758.24± INV. W = 758.24±	34. SAN MH RIM = 764.98	40. 2.0' BLOCK STM CB RIM = 765.38	46. 2.0' BLOCK STM CB RIM = 770.17 INV. = 764.52 TOP OF PIPE = 768.02 (VERTICAL PIPE)
4. 2.0' BLOCK STM CB RIM = 764.77 INV. 36" N OBLONG PIPE = 757.97 INV. 42" S RCP = 758.17 INV. 12" E CLAY = 758.17± WATER = 758.17 SUMP = 758.07	11. 4.0' CONCRETE STM MH RIM = 766.84 INV. 12" W CLAY = 760.94 WATER = 760.84 SUMP = 760.39	17. STM CB RIM = 766.41	23. SAN MH RIM = 769.03 INV. 24" E RCP = 754.98 INV. 24" W RCP = 755.08 INV. S = 755.68	30. SAN MH RIM = 769.46 INV. 27" E RCP = 754.61 INV. 24" W RCP = 754.71 INV. 8" W = 755.96	35. SAN MH RIM = 764.96	41. 2.0' BLOCK STM CB RIM = 769.74 INV. E-W = 764.94± TOP OF PIPE = 766.94 (VERTICAL PIPE)	47. 4.0' BLOCK STM MH (NOT SHOWN) RIM = 767.01 INV. 24" N RCP = 760.01 INV. 24" S RCP = 760.01 INV. 15" E CLAY = 761.01
5. STM MH RIM = 766.77 INV. 36" N OBLONG PIPE = 757.97 INV. 42" S RCP = 758.17 INV. 12" E CLAY = 758.17± WATER = 758.17 SUMP = 758.07	12. 4.0' CONCRETE STM MH RIM = 766.54 INV. 12" W CLAY = 760.79 INV. 12" E CLAY = 760.84± INV. 12" W RCP = 760.89 BOTTOM = 760.82±	18. SAN MH RIM = 768.32 INV. 24" E RCP = 755.02 INV. 24" W RCP = 755.12 INV. 15" N PVC = 755.92	24. 2.0' BLOCK STM CB RIM = 769.38 SEDIMENT = 767.58	31. SAN MH RIM = 769.38 INV. 27" E RCP = 754.61 INV. 24" W RCP = 754.71 INV. 8" W = 755.96	36. STM MH RIM = 764.97 INV. 24" N CLAY = 760.57 INV. 12" E CLAY = 761.37 INV. 12" W CLAY = 761.52 INV. 24" S CLAY = 760.77 INV. 12" E-W = 760.77 (ENCLOSED) SEDIMENT = 760.62	42. 2.0' BLOCK STM CB RIM = 769.74 INV. E-W = 764.94± TOP OF PIPE = 766.94 (VERTICAL PIPE)	
6. 6.0' BRICK STM MH RIM = 766.68 INV. 12" W = 760.73 INV. 24" E RCP = 760.53 INV. 4" N = 761.88 WATERMAIN E-W IRON TOP OF PIPE = 763.83 SEDIMENT = 760.48	13. SAN MH RIM = 766.38 INV. 24" E RCP = 755.33 INV. 24" W RCP = 755.43 INV. 8" SW CLAY = 759.38	19. 2.0' BLOCK STM CB RIM = 769.02 INV. 12" E RCP = 764.52 SEDIMENT = 764.52		37. SAN MH RIM = 769.46 INV. 27" E RCP = 754.61 INV. 24" W RCP = 754.71 INV. 8" W = 755.96	37. SAN MH RIM = 765.67		

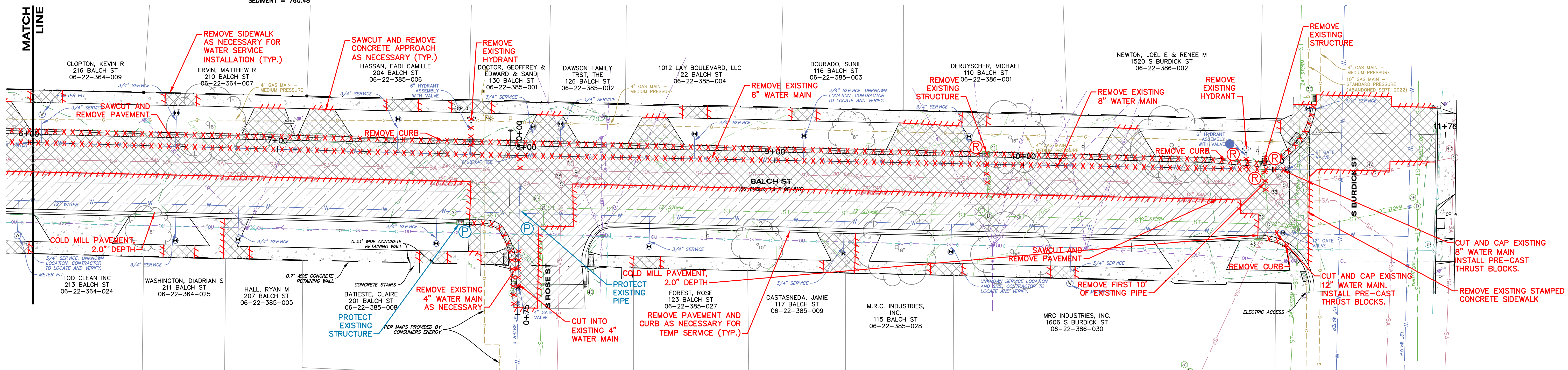
REMOVALS LEGEND

- XXXXXX CURB REMOVAL
- //// SAWCUT
- 2.0" COLD MILLING
- FULL DEPTH PAVEMENT/
SIDEWALK REMOVAL
- UTILITY LINE REMOVAL
- TREE REMOVAL
- (R) REMOVE
- (P) PROTECT
- (S) SALVAGE
- BM #xx BENCHMARK



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FIELD WORK PERFORMED BY:
HURLEY & STEWART, LLC



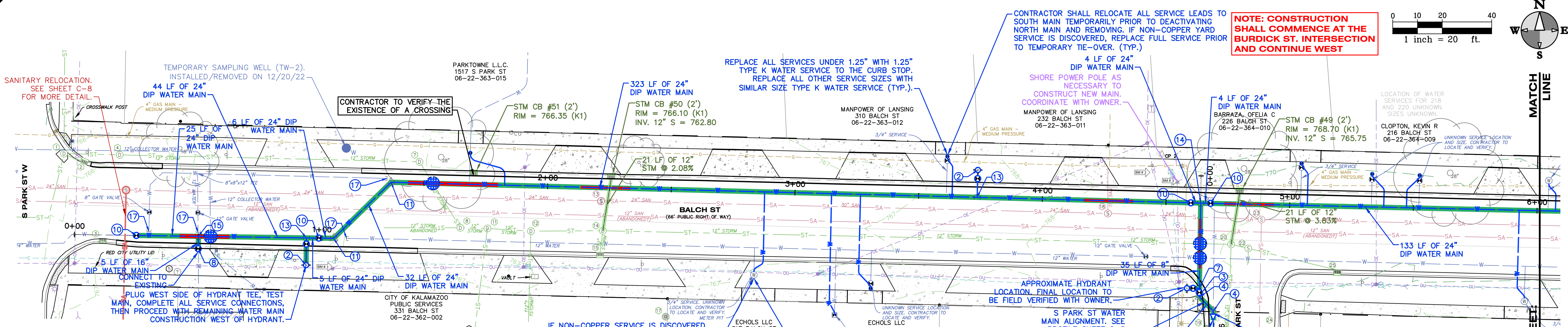
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Sheet Title: **REMOVAL PLAN - PARK TO BURDICK**
 Project: **BALCH STREET - PARK TO BURDICK**
 Client: **CITY OF KALAMAZOO**
 Date: 05/26/23
 Sheet: **C-3**

Job No.: 22-006D P.M.-APP. D.R.H.-N.R. O.A./C.C. 05/26/23
 ISSUED FOR/REVISIONS:
 3. E-FILE SUBMITTAL 10/17/22
 4. E-FILE RESUBMITTAL 12/05/22
 5. IFB 04/06/23
 6. ADDENDUM #1 05/25/23
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DRAWING LOCATION: H:\22-0068 (Balch St Watermain Replacement)\FINAL DRAWINGS\4-Construction Plan & Profile.dwg - Date: 04/09/2023 - 10:50:00 AM - User: JST



WATER MAIN FITTING SCHEDULE

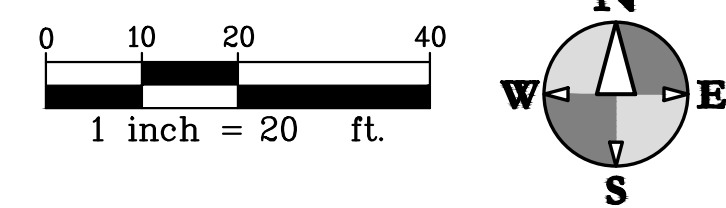
FITTING NUMBER	DESCRIPTION	TOTAL THIS SHEET	FITTING NUMBER	DESCRIPTION	TOTAL THIS SHEET
1	PLUG	0	10	24\"/>	

LEGEND

- POLYETHYLENE WATERMAIN ENCASEMENT
- CENTER FULL STICK OF PIPE TO EXISTING UTILITY WHEN CROSSING OR PASSING (TYP.)
- DEFLECT WATER MAIN UNDER/OVER PIPE CONFLICT (SEE DETAIL)
- LOWER WATER MAIN UNDER CONFLICT, MAINTAIN MIN 6\"/>

NOTE:
CONTRACTOR RESPONSIBLE FOR VERIFYING FITTINGS. AMOUNTS DO NOT TAKE INTO CONSIDERATION VERTICAL DEFLECTIONS.

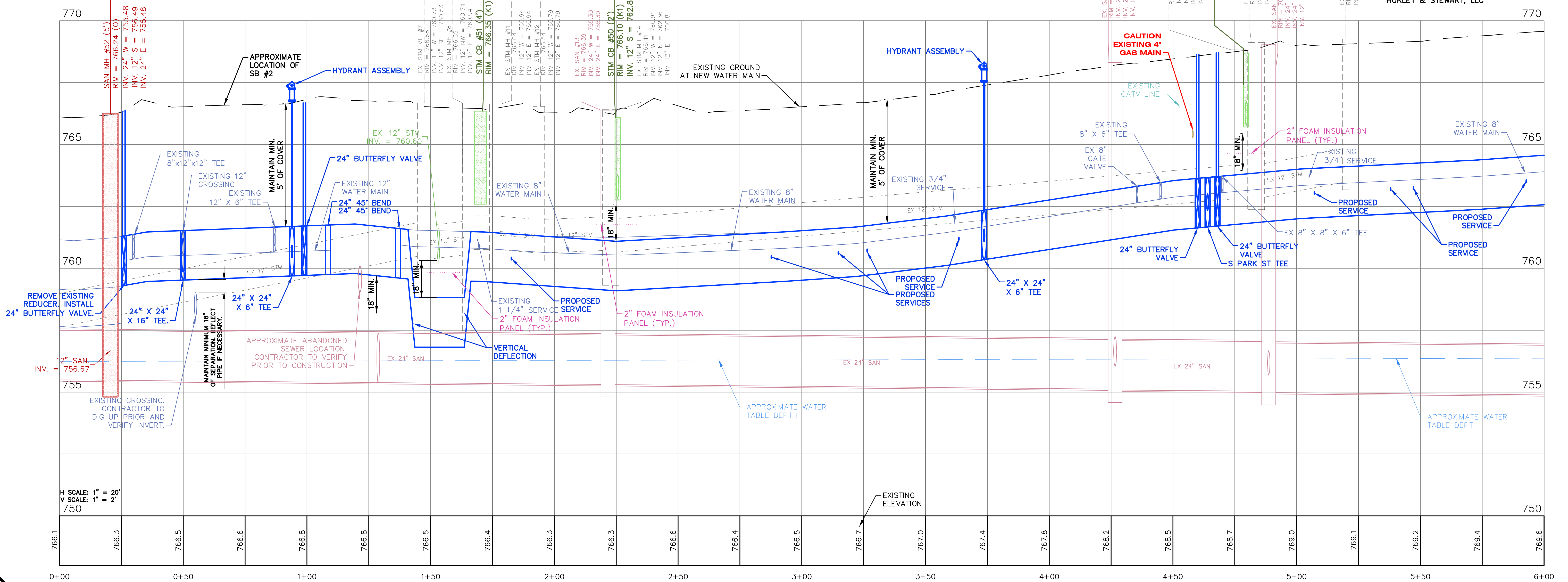
NOTE: CONSTRUCTION SHALL COMMENCE AT THE BURDICK ST. INTERSECTION AND CONTINUE WEST



CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT TREES. IF TREE TRIMMING IS NEEDED, CONTRACTOR SHALL PERFORM WORK. TREE TRIMMING SHALL BE CONSIDERED INCIDENTAL.



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FIELD WORK PERFORMED BY:
HURLEY & STEWART, LLC



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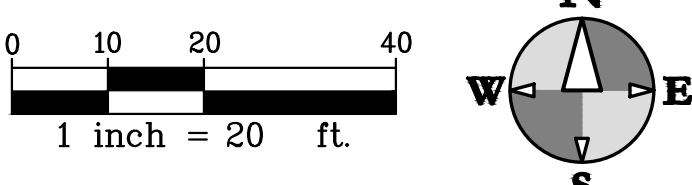
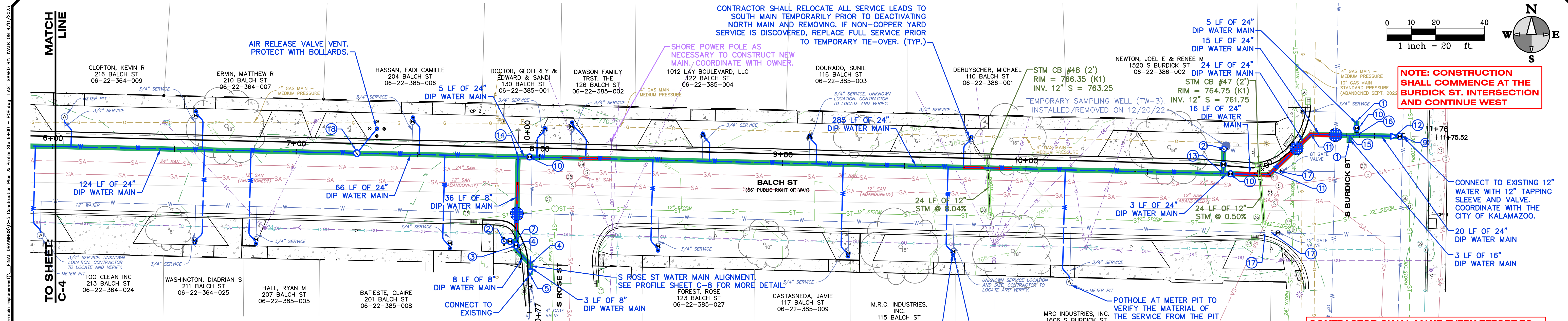
ISSUED FOR PREVISIONS:
10/17/22
12/05/22
04/06/23
05/25/23

Job No.: 22-0068 P.M.A.B.P. D.H.N.R. O.A./C.C. 05/26/23
3 E.C.L.E. SUBMITTAL
4 E.C.L.E. RESUBMITTAL
5 I.F.B.
6 ADDENDUM #1

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Sheet Title: **CONSTRUCTION PLAN & PROFILE POB - STA 6+00**
Project: **BALCH STREET - PARK TO BURDICK**
Client: **CITY OF KALAMAZOO**

05/26/23
Sheet **C-4**



NOTE: CONSTRUCTION SHALL COMMENCE AT THE BURDICK ST. INTERSECTION AND CONTINUE WEST

CONNECT TO EXISTING 12\"/>

CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT TREES. IF TREE TRIMMING IS NEEDED, CONTRACTOR SHALL PERFORM WORK. TREE TRIMMING SHALL BE CONSIDERED INCIDENTAL.

WATER MAIN FITTING SCHEDULE

FITTING NUMBER	DESCRIPTION	TOTAL THIS SHEET	FITTING NUMBER	DESCRIPTION	TOTAL THIS SHEET
1	PLUG	2	10	24\"/>	3
2	FIRE HYDRANT ASSEMBLY W/ 6\"/>	2	11	24\"/>	2
3	8\"/>	1	12	24\"/>	1
4	8\"/>	2	13	24\"/>	1
5	8\"/>	1	14	24\"/>	1
6	8\"/>	0	15	24\"/>	1
7	8\"/>	1	16	24\"/>	1
8	12\"/>	0	17	CUT AND PLUG	3
9	12\"/>	1	18	AIR RELEASE VALVE	1

LEGEND

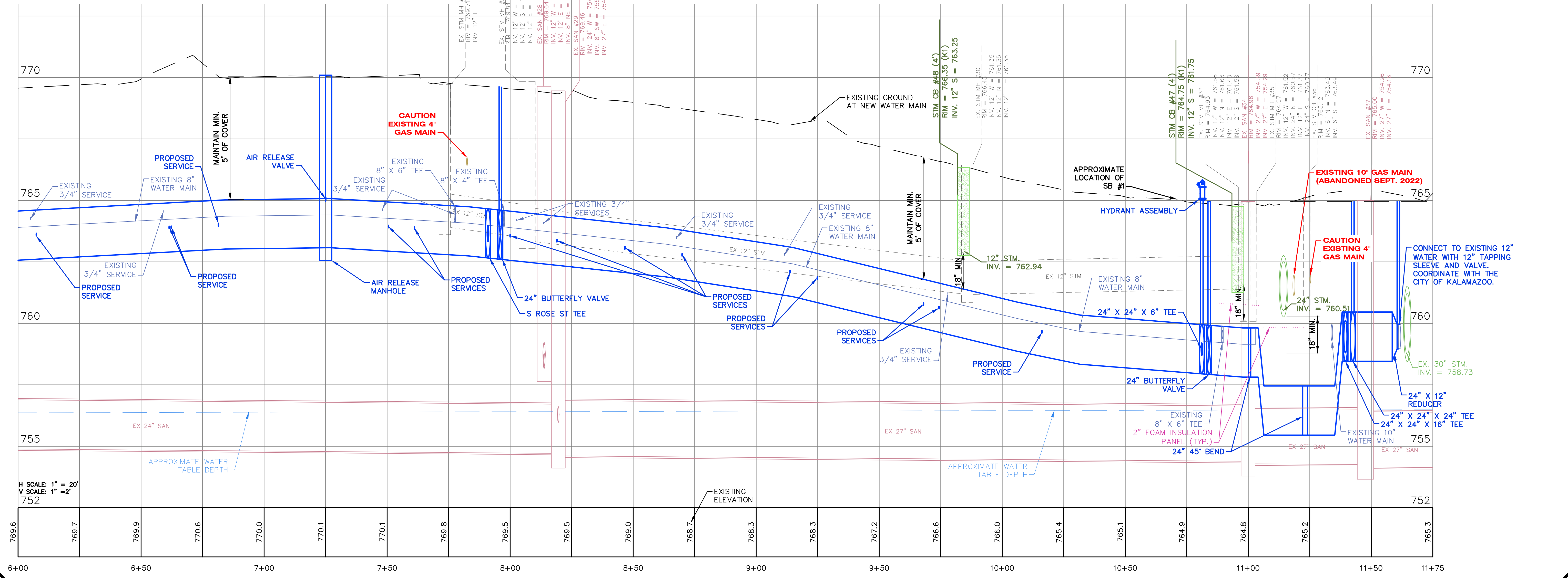
- POLYETHYLENE WATERMAIN ENCASEMENT
- CENTER FULL STICK OF PIPE TO EXISTING UTILITY WHEN CROSSING OR PASSING (TYP)
- DEFLECT WATER MAIN UNDER/OVER PIPE CONFLICT (SEE DETAIL)
- LOWER WATER MAIN UNDER CONFLICT, MAINTAIN MIN 6\"/>

NOTE: CONTRACTOR RESPONSIBLE FOR VERIFYING FITTINGS. AMOUNTS DO NOT TAKE INTO CONSIDERATION VERTICAL DEFLECTIONS.



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FIELD WORK PERFORMED BY:
HURLEY & STEWART, LLC



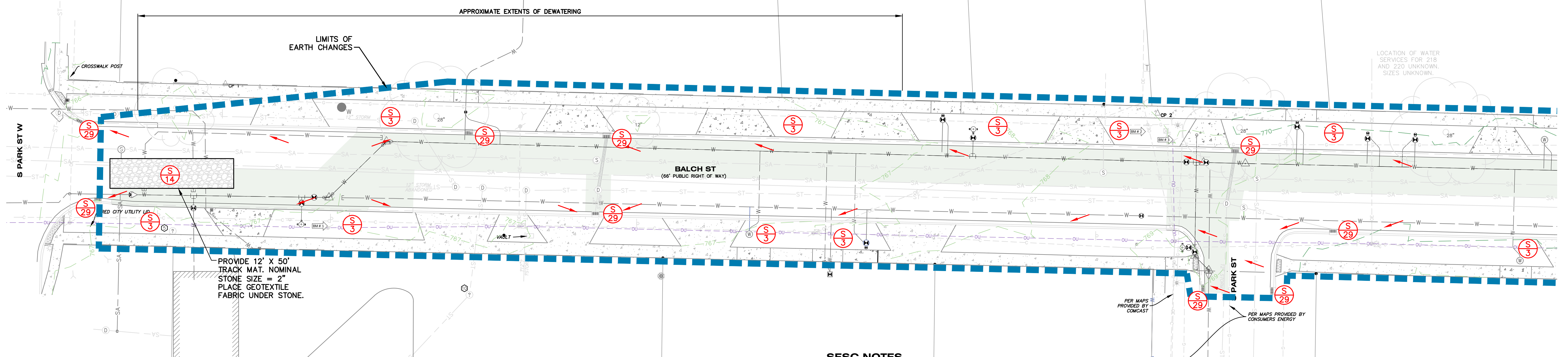
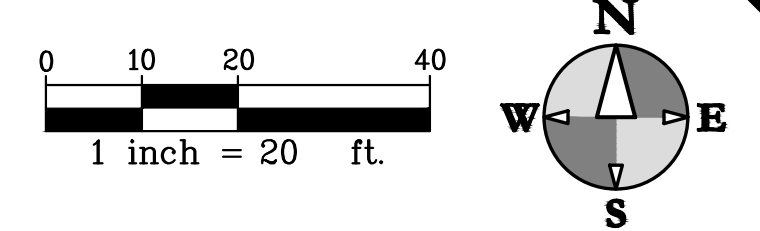
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 ISSUED FOR PREVISIONS: 10/17/22
 3. E.G.L. SUBMITTAL 12/05/22
 4. E.G.L. RESUBMITTAL 04/06/23
 5. IFB 05/25/23
 6. ADDENDUM #1

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Sheet Title: **CONSTRUCTION PLAN & PROFILE STA 6+00 - POE**
 Project: **BALCH STREET - PARK TO BURDICK**
 Client: **CITY OF KALAMAZOO**

05/26/23
 Sheet **C-5**

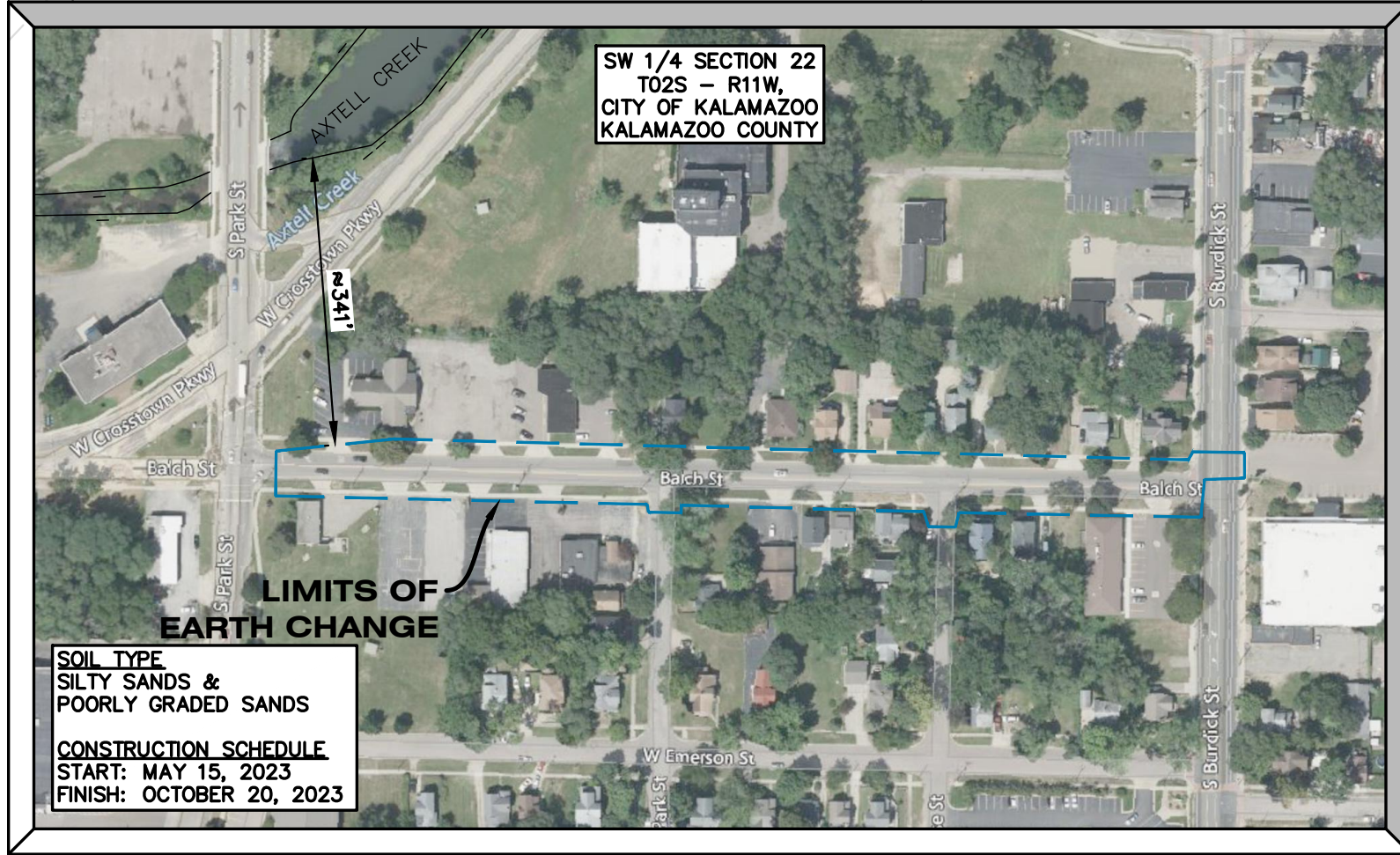
DRAWING LOCATION: N:\22-006D\Kalamazoo\watermain_replacement\FINAL DRAWINGS\C-6 SESC Measures LAST SAVED BY: WALK ON 1/17/2023



PROVIDE 12' X 50' TRACK MAT. NOMINAL STONE SIZE = 2" PLACE GEOTEXTILE FABRIC UNDER STONE.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
3	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
14	STABILIZED CONSTRUCTION ACCESS		Used at every point where construction traffic enters or leaves a construction site.
26	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
29	INLET PROTECTION FABRIC DROP		Use at stormwater inlets, especially at construction sites.



SITE LOCATION MAP
SCALE: 1" = 200'

SESC NOTES

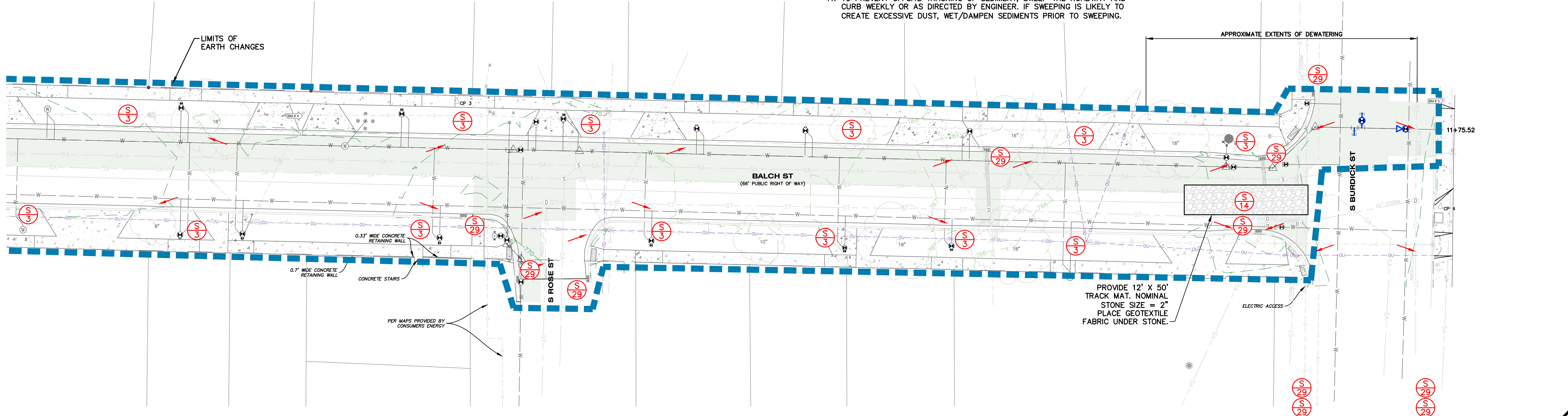
- ALL WORK WILL COMPLY WITH THE PROVISIONS OF THE SOIL EROSION AND SEDIMENTATION CONTROL ACT (PA 347 OF 1972 AS AMENDED) ADMINISTERED BY THE CITY OF KALAMAZOO.
- AVOID UNNECESSARY DISTURBING OR REMOVING EXISTING VEGETATED TOPSOIL OR EARTH COVER. THESE AREAS ACT AS SEDIMENT FILTERS.
- CONTRACTOR SHALL REFER TO MDT SESC MANUAL FOR INSTALLATION SPECIFICATIONS FOR ALL TEMPORARY SESC MEASURES. TEMPORARY SOIL EROSION PROTECTION SHALL REMAIN IN PLACE UNTIL SITE IS ESTABLISHED.
- DIRECT ALL DEWATERING DISCHARGE TO EXISTING CATCH BASINS. ENSURE INLET PROTECTION IS IN PLACE PRIOR TO DEWATERING.
- INSTALL INLET PROTECTION AT ALL STORM SEWER STRUCTURES DURING CONSTRUCTION.
- NO SITE WORK SHALL BEGIN UNTIL THE SESC MEASURES ARE INSTALLED.
- THE CONTRACTOR SHALL SERVE AS THE CERTIFIED STORM WATER OPERATOR FOR THE PROJECT AND SHALL PROVIDE COPIES OF ALL INSPECTION REPORTS AND RECOMMENDATIONS TO THE ENGINEER.
- PROVIDE SILT SACKS IN EACH CATCH BASIN UNTIL SITE IS STABILIZED.
- CLEAN ADJACENT ROADWAYS AS DIRECTED BY ENGINEER. THIS IS CONSIDERED INCIDENTAL TO THE PROJECT.
- WATER SITE AS DIRECTED BY ENGINEER TO PREVENT AIR BORNE SEDIMENT TRANSFER. THIS IS CONSIDERED INCIDENTAL TO THE PROJECT.
- TO PREVENT OFFSITE TRACKING OF SEDIMENT, SWEEP THE ROADWAY AND CURB WEEKLY OR AS DIRECTED BY ENGINEER. IF SWEEPING IS LIKELY TO CREATE EXCESSIVE DUST, WET/DAMPEN SEDIMENTS PRIOR TO SWEEPING.

SESC PLAN LEGEND

- DRAINAGE DIRECTION
- PROPOSED SILT FENCE
- BENCH MARK
- SOIL EROSION MEASURE
- SEDIMENT CONTROL MEASURE
- LIMITS OF CONSTRUCTION



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PROVIDE 12' X 50' TRACK MAT. NOMINAL STONE SIZE = 2" PLACE GEOTEXTILE FABRIC UNDER STONE.

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Job No. 22-006D P.M.-R.P. Drt: N.R. QA/QC: 05/26/23

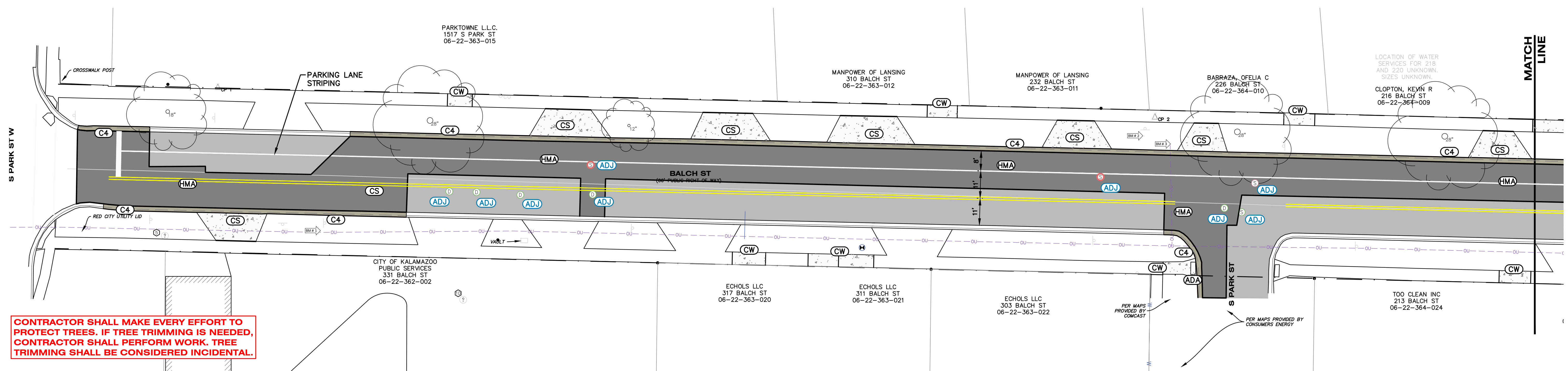
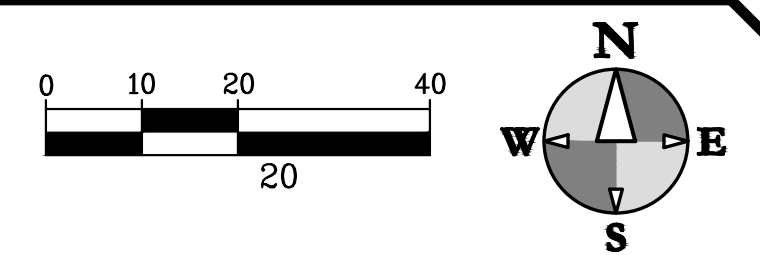
ISSUED FOR/REVISIONS:	DATE
3 EGLE SUBMITTAL	10/17/22
4 EGLE RESUBMITTAL	12/05/22
5 IFB	04/06/23
6 ADDENDUM #1	05/25/23

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SESC PLAN
BALCH STREET - PARK TO BURDICK
CITY OF KALAMAZOO

Sheet Title:
Project:
Client:

05/26/23
Sheet
C-6

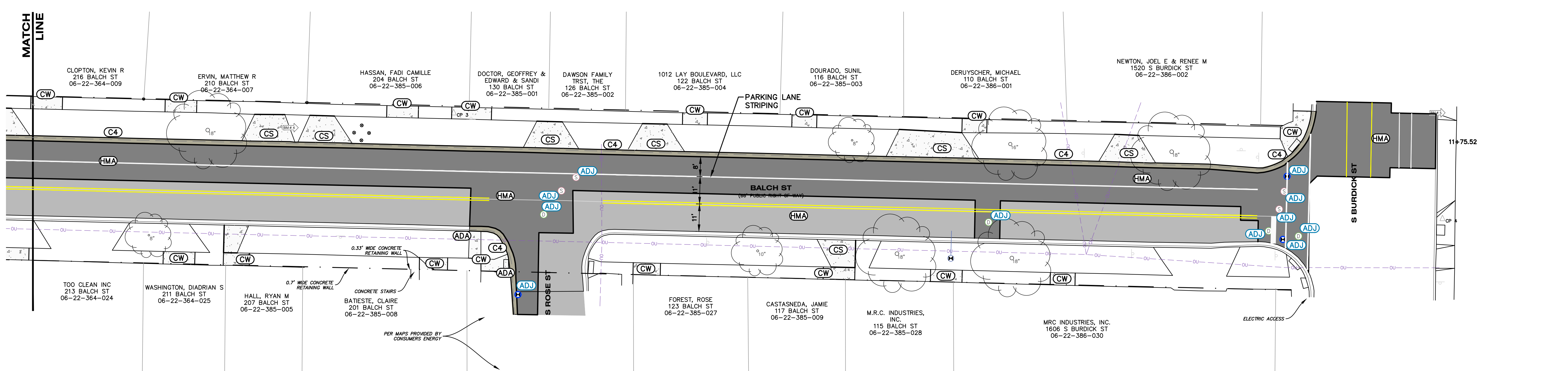


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- LEGEND**
- HMA 2" TOP COURSE (SEE TYPICAL SECTIONS)
 - HMA FULL DEPTH PAVEMENT (SEE TYPICAL SECTIONS)
 - C4 C4 CONCRETE CURB AND GUTTER
 - CS CONCRETE WALK
 - CS CONCRETE SURFACE
 - PAVEMENT STRIPING (SEE MAINTAINING TRAFFIC SPEC)
 - ADA ADA RAMP (SEE DETAIL)
 - ADJ-X ADJUST COVER. CASTING TYPE FOLLOWS DASH.



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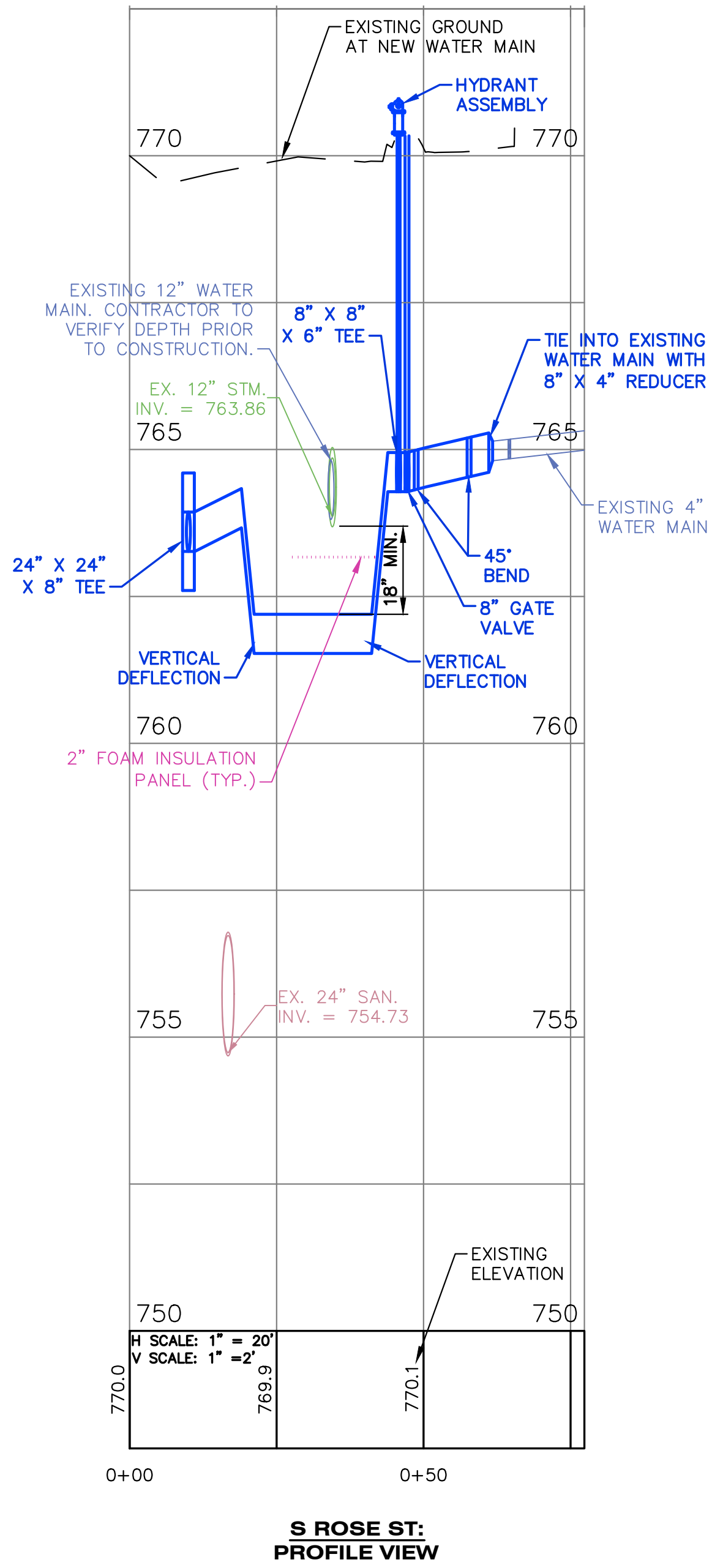
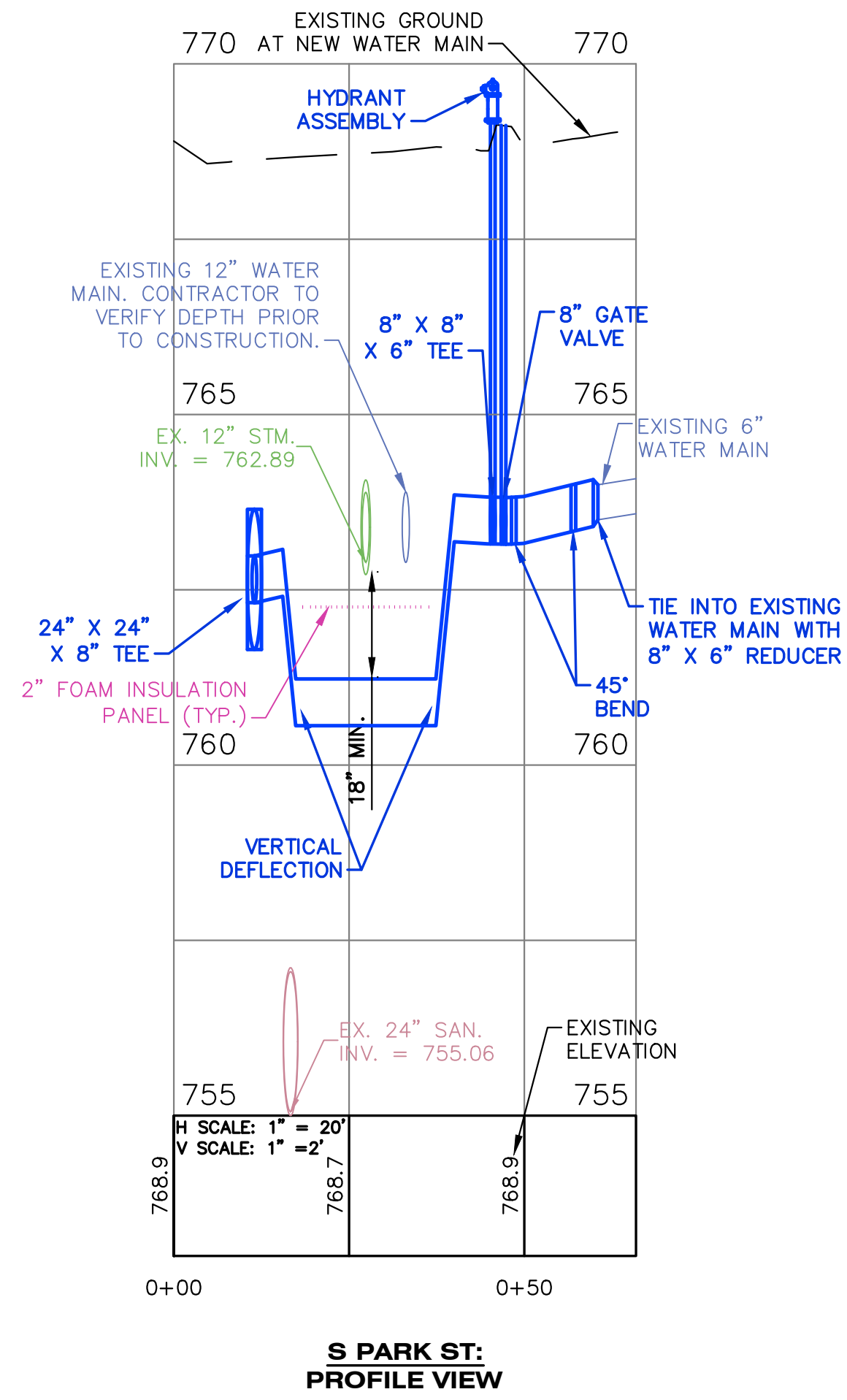
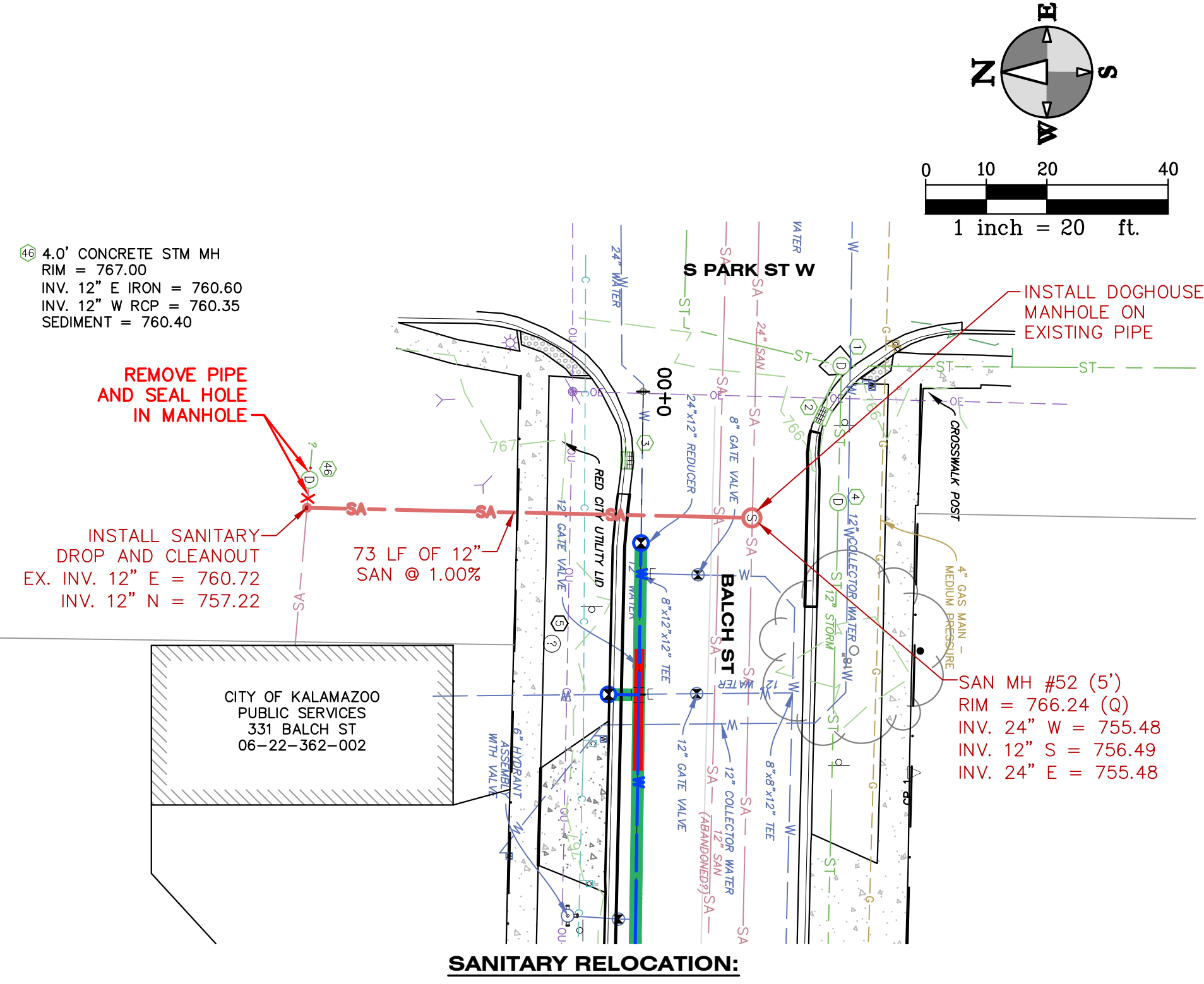
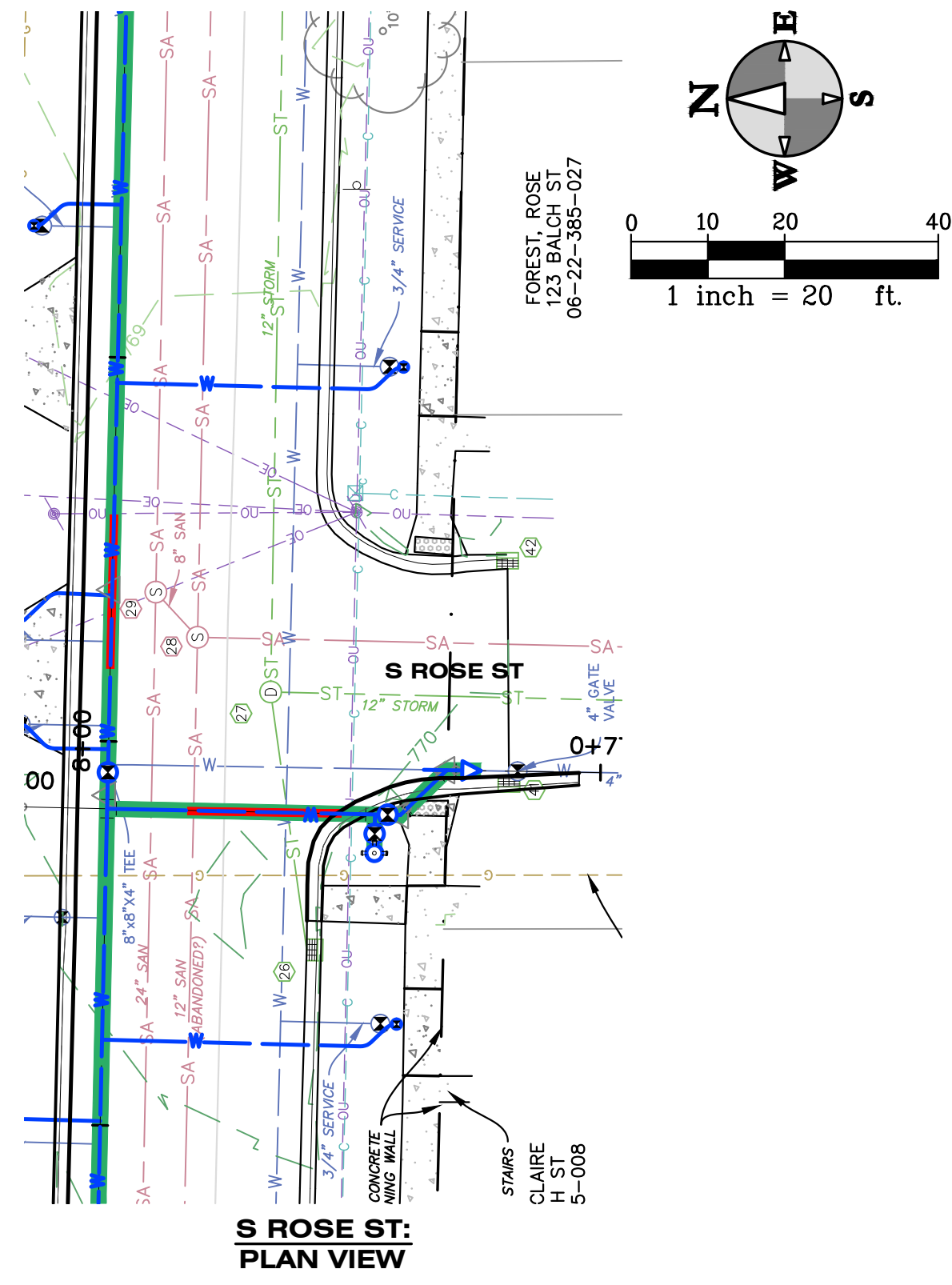
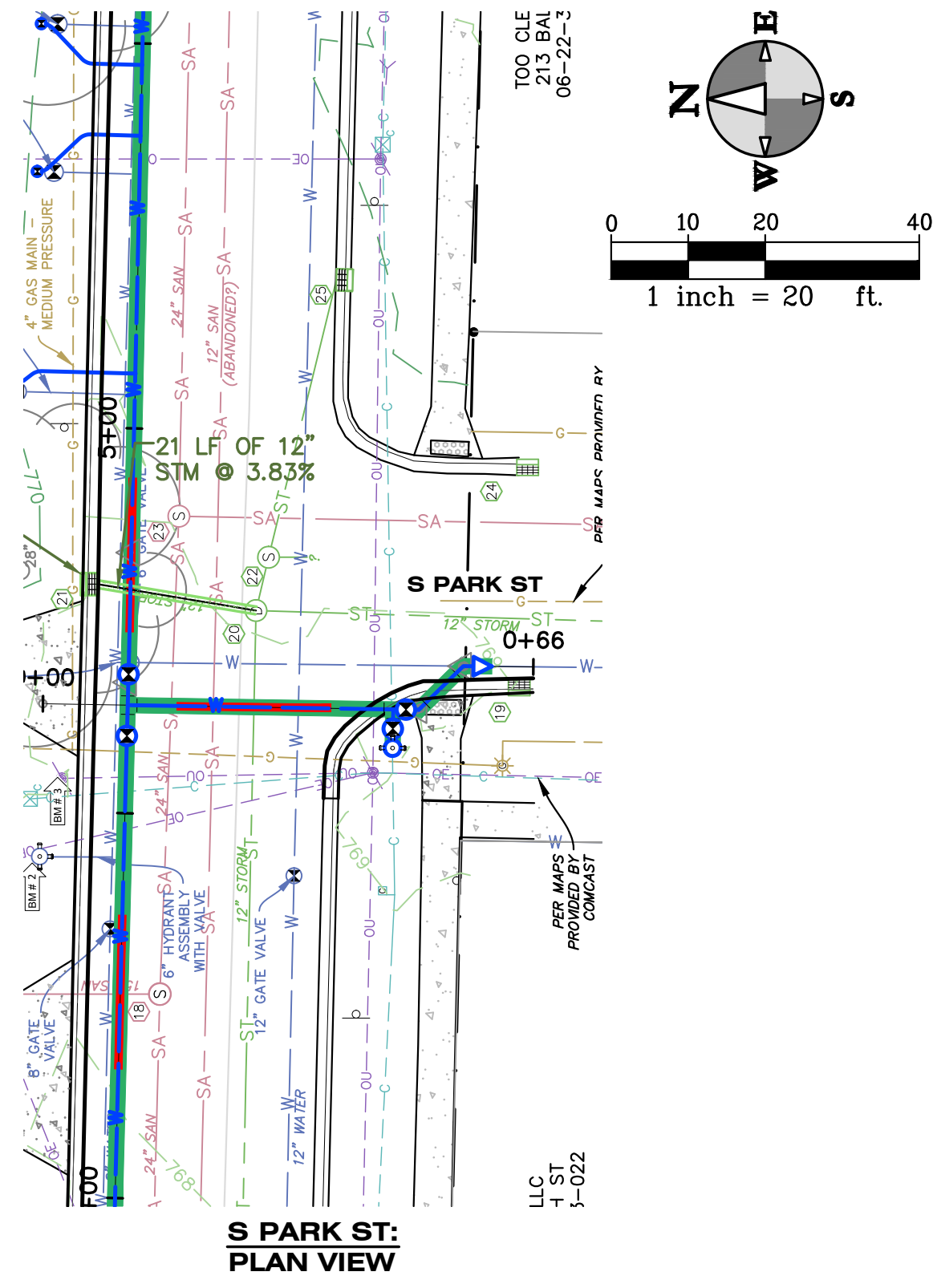
hurley & stewart

Job No.: 22-006D P.M.-APP. Dkt. Liv. QA/QC: 05/26/23
ISSUED FOR/REVISIONS:
3 EGLE SUBMITTAL 10/17/22
4 EGLE RESUBMITTAL 12/05/22
5 IFB 04/06/23
6 ADDENDUM #1 05/25/23
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CONSTRUCTION PLAN
BALCH STREET - PARK TO BURDICK
CITY OF KALAMAZOO

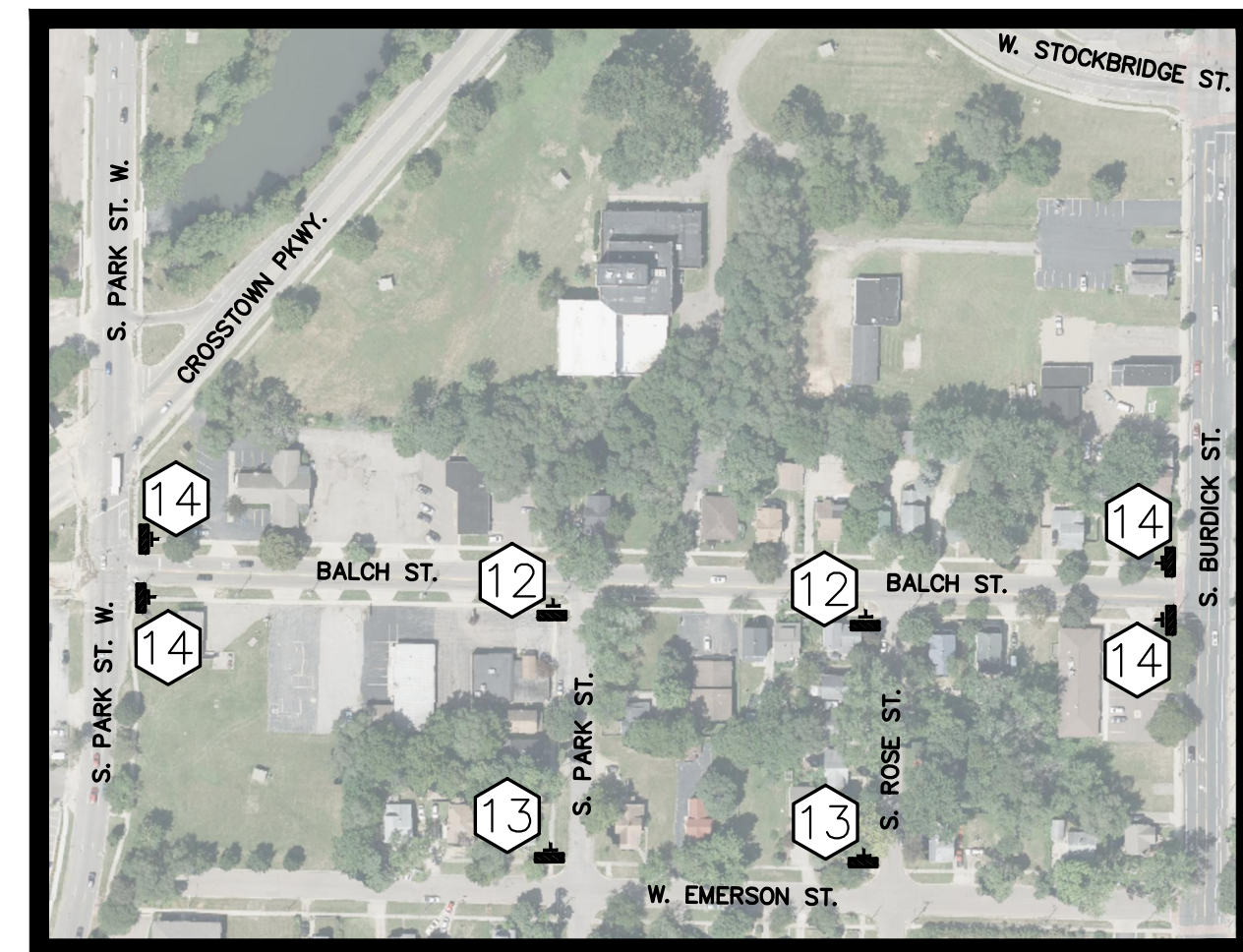
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05/26/23
Sheet
C-7

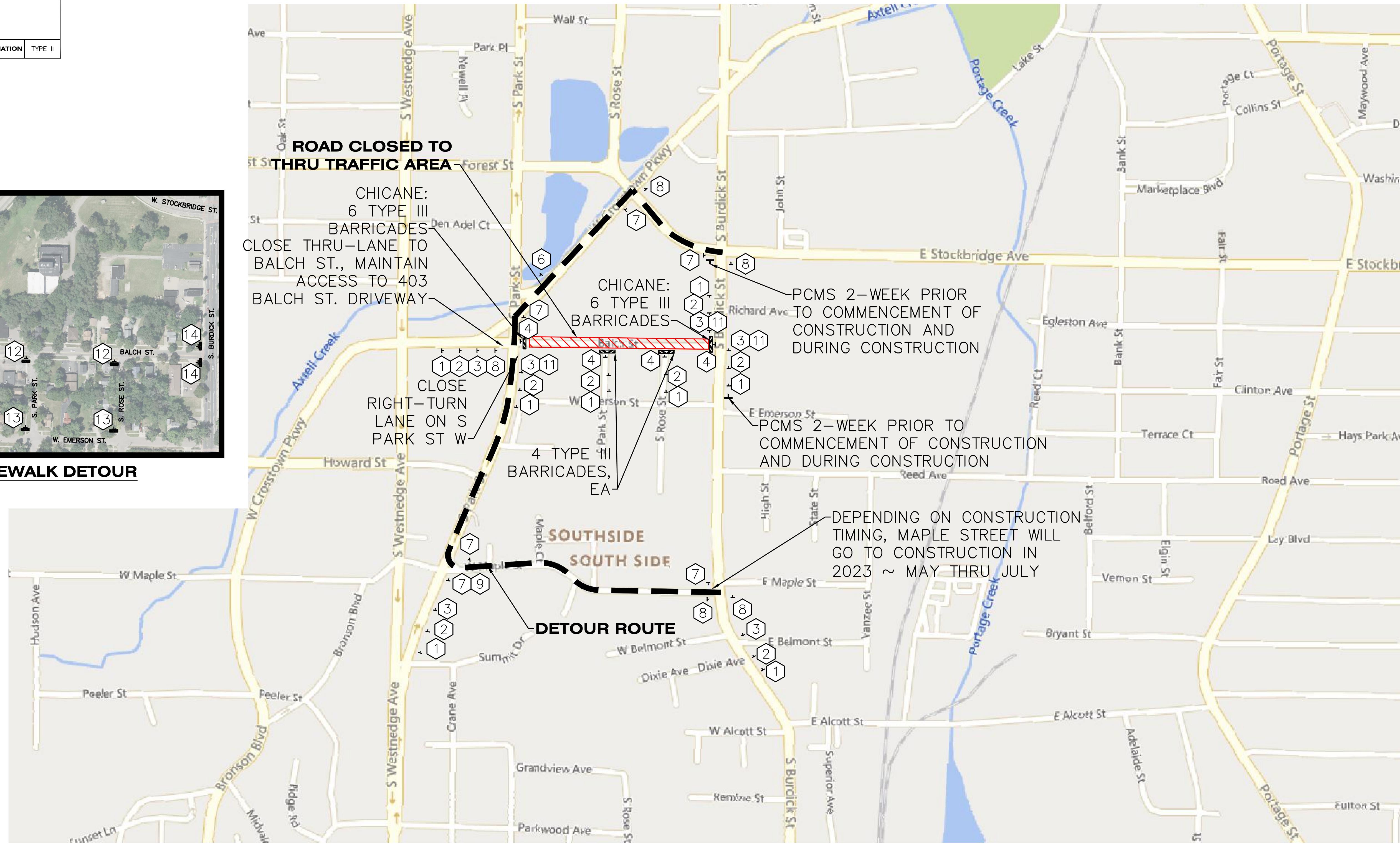


DRAWING LOCATION: N-122-0066 (North St. Watermain Rehabilitation) - FINAL DRAWINGS - Phase 1 & 3 Maintenance of Traffic Plan - LAST SAVED BY: WALK ON 3/14/2023

<p>1 ROAD WORK AHEAD</p> <p>QTY: 8 SIZE: 48"x48" (16 SFT) TOTAL AREA: 128 SFT</p> <p>DESIGNATION W20-1</p>	<p>2 ROAD CLOSED AHEAD</p> <p>QTY: 8 SIZE: 48"x48" (16 SFT) TOTAL AREA: 128 SFT</p> <p>DESIGNATION W20-3</p>	<p>3 DETOUR AHEAD</p> <p>QTY: 6 SIZE: 48"x48" (16 SFT) TOTAL AREA: 96 SFT</p> <p>DESIGNATION W20-2</p>	<p>4 ROAD CLOSED TO THRU TRAFFIC</p> <p>QTY: 4 SIZE: 60"x30" (13 SFT) TOTAL AREA: 52 SFT</p> <p>DESIGNATION R11-4</p>	<p>5 ROAD CLOSED</p> <p>QTY: 0 SIZE: 48"x30" (10 SFT) TOTAL AREA: 0 SFT</p> <p>DESIGNATION R11-2</p>	<p>6 BALCH ST</p> <p>QTY: 1 SIZE: 36"x12" (3 SFT) TOTAL AREA: 3 SFT</p> <p>DESIGNATION W20-12P</p>	<p>7 DETOUR</p> <p>QTY: 7 SIZE: 30"x24" (5 SFT) TOTAL AREA: 35 SFT</p> <p>DESIGNATION M4-9R</p>	<p>8 DETOUR</p> <p>QTY: 5 SIZE: 30"x24" (5 SFT) TOTAL AREA: 25 SFT</p> <p>DESIGNATION M4-9L</p>	<p>9 DETOUR</p> <p>QTY: 3 SIZE: 30"x24" (5 SFT) TOTAL AREA: 15 SFT</p> <p>DESIGNATION M4-9U</p>	<p>10 ROAD CLOSED AHEAD</p> <p>QTY: 0 SIZE: 48"x48" (16 SFT) TOTAL AREA: 0 SFT</p> <p>DESIGNATION W20-3</p>	
<p>11 BALCH ST</p> <p>QTY: 8 SIZE: 36"x12" (3 SFT) TOTAL AREA: 24 SFT</p> <p>DESIGNATION W20-12P</p>	<p>12 DETOUR</p> <p>QTY: 7 SIZE: 36"x12" (3 SFT) TOTAL AREA: 21 SFT</p> <p>DESIGNATION W20-12P</p>	<p>13 BALCH ST</p> <p>QTY: 5 SIZE: 36"x12" (3 SFT) TOTAL AREA: 15 SFT</p> <p>DESIGNATION W20-12P</p>	<p>14 BALCH ST</p> <p>QTY: 3 SIZE: 36"x12" (3 SFT) TOTAL AREA: 9 SFT</p> <p>DESIGNATION W20-12P</p>	<p>15 BALCH ST</p> <p>QTY: 0 SIZE: 36"x12" (3 SFT) TOTAL AREA: 0 SFT</p> <p>DESIGNATION W20-12P</p>	<p>16 BALCH ST</p> <p>QTY: 3 SIZE: 36"x12" (3 SFT) TOTAL AREA: 9 SFT</p> <p>DESIGNATION W20-12P</p>	<p>17 BALCH ST</p> <p>QTY: 0 SIZE: 36"x12" (3 SFT) TOTAL AREA: 0 SFT</p> <p>DESIGNATION W20-12P</p>	<p>18 BALCH ST</p> <p>QTY: 0 SIZE: 36"x12" (3 SFT) TOTAL AREA: 0 SFT</p> <p>DESIGNATION W20-12P</p>	<p>19 BALCH ST</p> <p>QTY: 0 SIZE: 36"x12" (3 SFT) TOTAL AREA: 0 SFT</p> <p>DESIGNATION W20-12P</p>	<p>20 BALCH ST</p> <p>QTY: 0 SIZE: 36"x12" (3 SFT) TOTAL AREA: 0 SFT</p> <p>DESIGNATION W20-12P</p>	
<p>21 BARRICADE, HIGH INTENSITY, LIGHTED</p> <p>QTY: 20 DESIGNATION TYPE III</p>	<p>22 DETOUR</p> <p>QTY: 3 SIZE: 24"x24" (4 SFT) TOTAL AREA: 12 SFT</p> <p>DESIGNATION R3-1 R3-2</p>	<p>23 SIDEWALK CLOSED</p> <p>QTY: 2 SIZE: 30"x18" (3.75 SFT) TOTAL AREA: 7.5 SFT</p> <p>DESIGNATION W20-3</p>	<p>24 SIDEWALK CLOSED AHEAD</p> <p>QTY: 2 SIZE: 24"x12" (2 SFT) TOTAL AREA: 4 SFT</p> <p>DESIGNATION R9-11 (L OR R)</p>	<p>25 SIDEWALK CLOSED</p> <p>QTY: 4 SIZE: 24"x12" (2 SFT) TOTAL AREA: 8 SFT</p> <p>DESIGNATION R9-11A (L OR R)</p>	<p>26 BARRICADE, HIGH INTENSITY, LIGHTED</p> <p>QTY: 8 DESIGNATION TYPE II</p>					

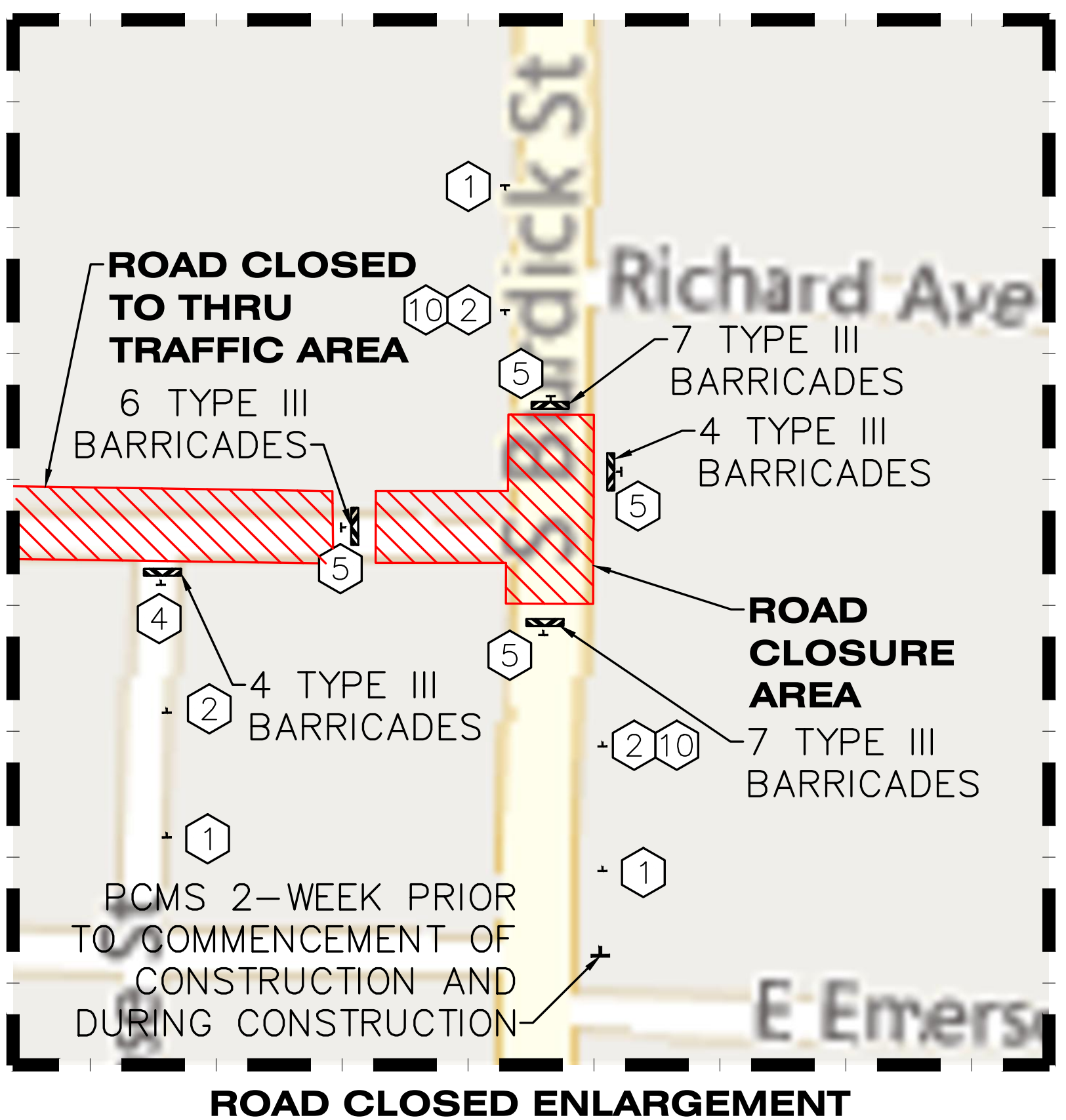
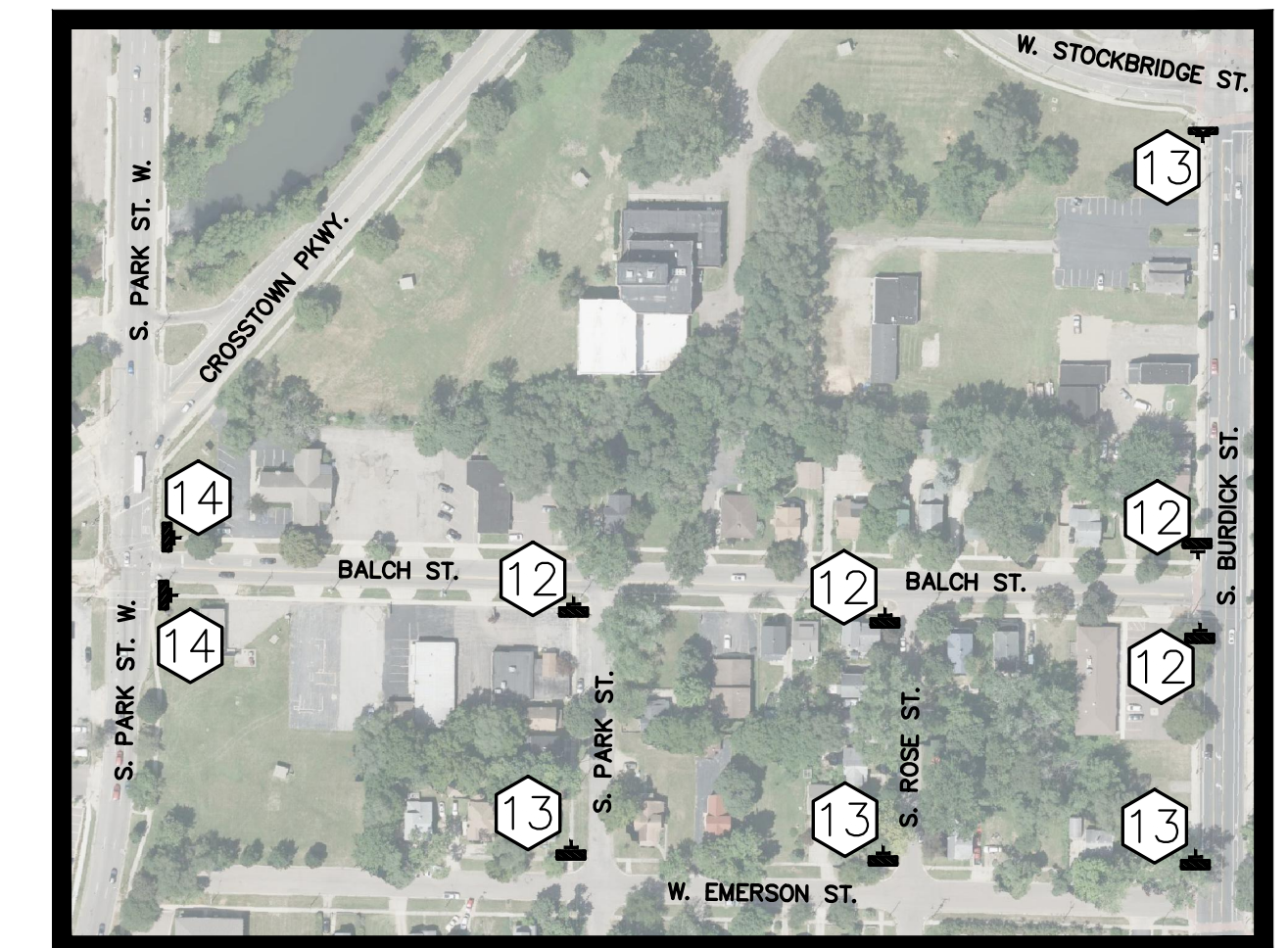
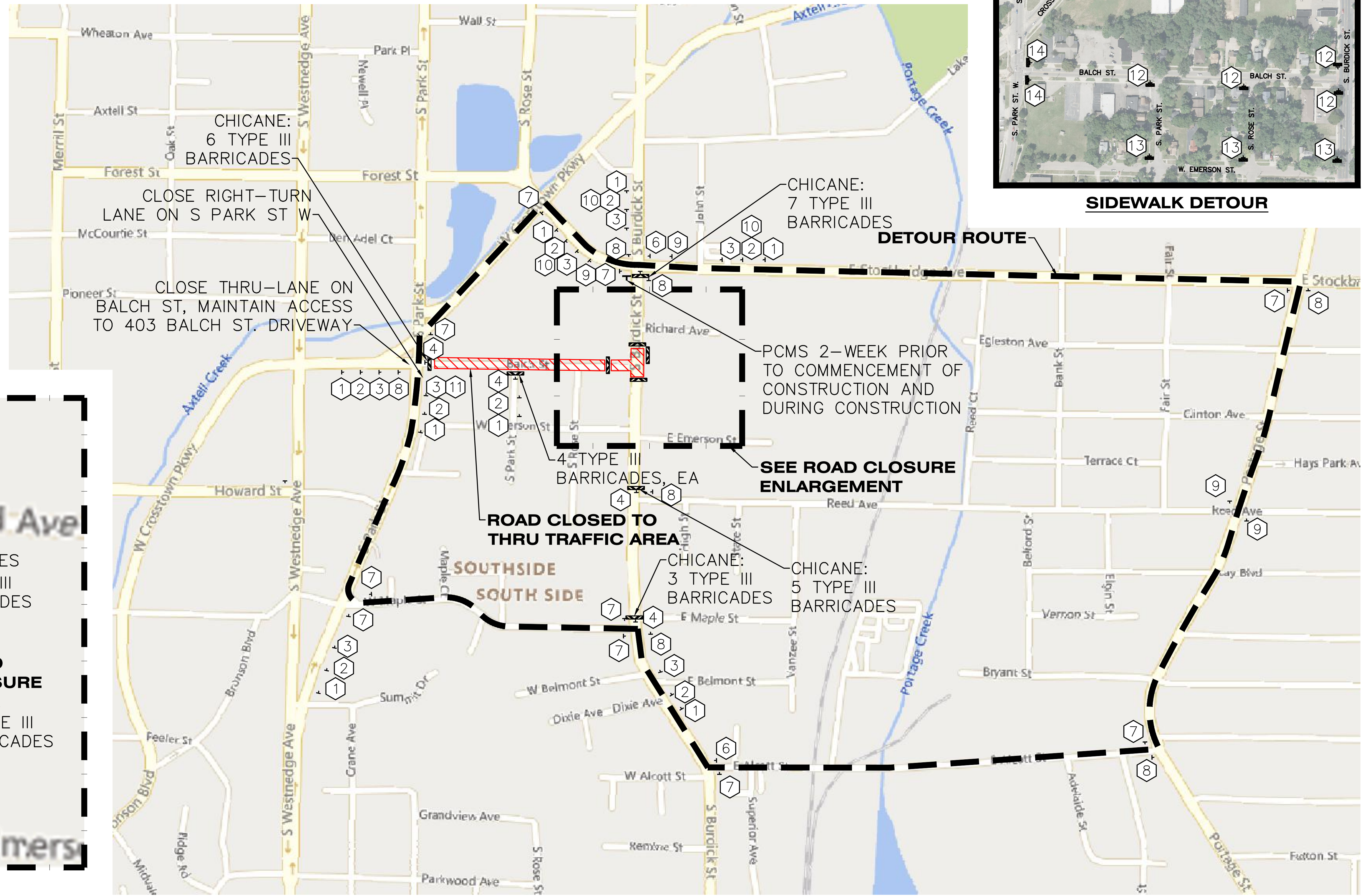


SIDEWALK DETOUR



DRAWING LOCATION: N-122-0066 (North St. Watermain Replacement) - FINAL DRAWINGS-C-10 Phase 2 Maintenance of Traffic Plan - LAST SAVED BY: WALL ON 3/14/2023

<p>1 ROAD WORK AHEAD</p> <p>QTY: 11 SIZE: 48"x48" (16 SFT) TOTAL AREA: 176 SFT</p> <p>DESIGNATION W20-1</p>	<p>2 ROAD CLOSED AHEAD</p> <p>QTY: 11 SIZE: 48"x48" (16 SFT) TOTAL AREA: 176 SFT</p> <p>DESIGNATION W20-3</p>	<p>3 DETOUR AHEAD</p> <p>QTY: 7 SIZE: 48"x48" (16 SFT) TOTAL AREA: 112 SFT</p> <p>DESIGNATION W20-2</p>	<p>4 ROAD CLOSED TO THRU TRAFFIC</p> <p>QTY: 4 SIZE: 60"x30" (13 SFT) TOTAL AREA: 52 SFT</p> <p>DESIGNATION R11-4</p>	<p>5 ROAD CLOSED</p> <p>QTY: 4 SIZE: 48"x30" (10 SFT) TOTAL AREA: 40 SFT</p> <p>DESIGNATION R11-2</p>	<p>6 END DETOUR</p> <p>QTY: 2 SIZE: 24"x18" (3 SFT) TOTAL AREA: 9 SFT</p> <p>DESIGNATION M4-8A</p>	<p>7 DETOUR</p> <p>QTY: 10 SIZE: 30"x24" (5 SFT) TOTAL AREA: 55 SFT</p> <p>DESIGNATION M4-9R</p>	<p>8 DETOUR</p> <p>QTY: 7 SIZE: 30"x24" (5 SFT) TOTAL AREA: 35 SFT</p> <p>DESIGNATION M4-9L</p>	<p>9 DETOUR</p> <p>QTY: 4 SIZE: 30"x24" (5 SFT) TOTAL AREA: 20 SFT</p> <p>DESIGNATION M4-9U</p>	<p>10 ROAD CLOSED AHEAD</p> <p>QTY: 5 SIZE: 48"x48" (16 SFT) TOTAL AREA: 80 SFT</p> <p>DESIGNATION W20-3</p>				
<p>BALCH ST</p> <p>DESIGNATION W20-12P</p>		<p>DETOUR</p> <p>DESIGNATION M4-10 (L OR R)</p>		<p>BALCH ST</p> <p>DESIGNATION W20-12P</p>		<p>BALCH ST</p> <p>DESIGNATION W20-12P</p>		<p>BALCH ST</p> <p>DESIGNATION W20-12P</p>		<p>BALCH ST</p> <p>DESIGNATION W20-12P</p>		<p>BURDICK ST</p> <p>DESIGNATION W20-12P</p>	
<p>11 BARRICADE, HIGH INTENSITY, LIGHTED</p> <p>QTY: 51 DESIGNATION TYPE III</p>	<p>11</p> <p>QTY: 1 SIZE: 24"x24" (4 SFT) TOTAL AREA: 4 SFT</p> <p>DESIGNATION R3-1 R3-2</p>	<p>12</p> <p>QTY: 4 SIZE: 30"x18" (3.75 SFT) TOTAL AREA: 15 SFT</p> <p>DESIGNATION W20-3</p>	<p>13</p> <p>QTY: 4 SIZE: 24"x12" (2 SFT) TOTAL AREA: 8 SFT</p> <p>DESIGNATION R9-11 (L OR R)</p>	<p>14</p> <p>QTY: 2 SIZE: 24"x12" (2 SFT) TOTAL AREA: 4 SFT</p> <p>DESIGNATION R9-11A (L OR R)</p>									
<p>12</p> <p>QTY: 10 BARRICADE, HIGH INTENSITY, LIGHTED</p> <p>DESIGNATION TYPE II</p>													



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Job No. 22-0066 P.M.-APP. Draft Date: 04/05/2023
ISSUED FOR PREVISIONS: 10/17/22
3 EGLE SUBMITTAL 12/05/22
4 EGLE RESUBMITTAL 04/06/23
5 IFB 05/25/23
6 ADDENDUM #1 05/25/23
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PHASE 2 MAINTENANCE OF TRAFFIC PLAN
BALCH STREET - PARK TO BURDICK
CITY OF KALAMAZOO

Sheet Title:
Project:
Client:

05/26/23
Sheet

C-10