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

INVITATION FOR BIDS (IFB)

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

PROJECT NAME: Westnedge Ave (Vine-Michigan) **BID REFERENCE #: 91396-022.0**

IFB ISSUE DATE: March 7, 2025

BID DUE/OPENING DATE: March 27, 2025 @ 3:00 p.m. Local Time
Electronic Bids Will Not Be Accepted.

MAILING ADDRESS & INSTRUCTIONS

Mail To:
Purchasing Division
241 W. South Street
Kalamazoo, MI 49007

Questions for this IFB should be directed to:
Department Contact: Tom Palumbo, PE
Senior Civil Engineer
palumbot@kalamazoocity.org or
(269)337-8697

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 Bids 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

Table of Contents

STATEMENT OF NO BID 4
SECTION II BID AND AWARD 7
CERTIFICATION 12
SUB-CONTRACTING INFORMATION 13
5. Local? 13
6. BIDDER 13
SECTION V SPECIAL CONDITIONS 20
1. INTENT 20
2. SCOPE OF WORK 20
3. UNIT PRICING 20
4. TEMPORARY UTILITIES 20
5. PROGRESS SCHEDULE 21
6. LIQUIDATED DAMAGES 21
7. MAINTAINING TRAFFIC 22
8. COORDINATING 23
9. WORK HOURS 23
SECTION VI GENERAL CONDITIONS 24
1. PROJECT MANAGER'S STATUS 24
2. CONSTRUCTION SCHEDULE AND COORDINATION 24
3. PROTECTION OF WORK 24
4. PROTECTION OF PROPERTY 25
5. REMOVAL OF RUBBISH 25
6. BRICK SIDEWALK OR PAVEMENT REMOVAL 25
7. REMOVAL OF PERMANENT TRAFFIC SIGNS AND POSTS 25
8. PERMANENT TRAFFIC SIGN STAKING 25
9. LAWN SPRINKLER SYSTEMS 25
10. SALVAGING DRAINAGE STRUCTURE COVERS 25
11. REMOVING AND REPLACING CURB AND GUTTER 26
12. DRAINAGE INLET COVERS (K COVERS) 26
13. FLY ASH USE IN CONCRETE ITEMS 26
14. EXISTING WATER MAINS 26
15. GRADE INTERSECTIONS 26
16. UNDERGROUND UTILITIES 26
17. ADJUSTING MONUMENT BOXES 26

18. PAVEMENT REMOVAL QUANTITIES 26
19. COLD MILLING 26
20. SITE SECURITY 27
21. SITE ACCESS 27
22. MATERIALS INSPECTION AND RESPONSIBILITY 27
23. GUARANTEE 27
24. SAFETY 27
25. SPECIFICATIONS FOR CONSTRUCTION 27
26. QUANTITIES 27
27. PRICE 28
28. BASIS FOR PAYMENT 28
29. PAY ESTIMATES 28
30. PAYMENT TO CONTRACTOR 28
31. INSPECTION OF WORK 28
32. INSPECTION OF SITE 29
33. LAYING OUT OF WORK 29
34. SUPERVISION 29
35. TARDINESS 29
36. ADDITIONS 29
37. INSPECTION AND TESTING 29
38. QUESTIONS 29

APPENDIX A 36

NON-DISCRIMINATION CLAUSE FOR ALL CITY OF KALAMAZOO CONTRACTS 36

APPENDIX C PLAN DRAWINGS 40

APPENDIX D SPECIAL PROVISIONS 42

STATEMENT OF NO BID

NOTE: If you <u>DO NOT</u> 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.kalamazoocity.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.

Westnedge Ave (Vine-Michigan)

NO.	CODE	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED PRICE
1.	1027051	Mobilization, Max 10%	LSUM	1		
2.	2030011	Dr Structure, Rem	EA	4		
3.	2030015	Sewer, Rem, Less than 24 inch	FT	40		
4.	2040020	Curb and Gutter, Rem	FT	816		
5.	2040055	Sidewalk, Rem	SYD	513		
6.	2047011	Brick Paver, Rem	SYD	155		
7.	2047011	Pavt, Rem, Modified	SYD	231		
8.	2080020	Erosion Control, Inlet Protection, Fabric Drop	EA	35		
9.	3020010	Aggregate Base, 4 inch	SYD	18		
10.	4021110	Sewer, Cl V, 12 inch, Tr Det B	FT	40		
11.	4030200	Dr Structure, 24 inch dia	EA	4		
12.	4030280	Dr Structure, Adj, Add Depth	FT	30		
13.	4037050	Dr Structure Cover, Adj, Type 1, Modified	EA	21		
14.	4037050	Dr Structure Cover, Type S, Modified	EA	8		
15.	4037050	Gate Box, Adjust, Case 1, Modified	EA	30		
16.	5010002	Cold Milling HMA Surface	SYD	13,565		
17.	5010025	Hand Patching	TON	90		
18.	5012026	HMA, 4EMH	TON	1,568		
19.	8010007	Driveway, Nonreinf Conc, 8 inch	SYD	29		
20.	8020038	Curb and Gutter, Conc, Det F4	FT	816		
21.	8030010	Detectable Warning Surface	FT	244		
22.	8030044	Sidewalk, Conc, 4 inch	SFT	403		
23.	8030048	Sidewalk, Conc, 8 inch	SFT	306		
24.	8032002	Curb Ramp, Conc, 6 inch	SFT	5,977		
25.	8037010	Sidewalk, Porous, Modified	SFT	150		
26.	8107050	Salvage and Erect Sign	EA	2		
27.	8107050	Sign, Type III, Flush Mount Base	EA	3		
28.	8110231	Pavt Mrkg, Waterborne, 4 inch, White	FT	1,646		
29.	8110233	Pavt Mrkg, Waterborne, 6 inch, White	FT	4,430		
30.	8110343	Rem Spec Mrkg	SFT	25		
31.	8117001	Pavt Mrkg, Waterborne, 12 inch, Cross Hatching, White	FT	389		

NO.	CODE	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED PRICE
32.	8117001	Pavt Mrkg, Waterborne, 12 inch, Crosswalk	FT	1,588		
33.	8117001	Pavt Mrkg, Waterborne, 24 inch, Stop Bar	FT	221		
34.	8117001	Pavt Mrkg, Waterborne, 6 inch, Crosswalk	FT	642		
35.	8117050	Pavt Mrkg, Waterborne, Bike Thru Arrow Sym	EA	14		
36.	8117050	Pavt Mrkg, Waterborne, Bike, Small Sym	EA	14		
37.	8117050	Pavt Mrkg, Waterborne, Only	EA	2		
38.	8117050	Pavt Mrkg, Waterborne, Rt Turn Arrow Symbol	EA	2		
39.	8117050	Pavt Mrkg, Waterborne, Thru and Left Arrow Sym	EA	1		
40.	8117050	Pavt Mrkg, Waterborne, Thru Arrow Sym	EA	1		
41.	8120012	Barricade, Type III, High Intensity, Double Sided, Lighted, Fur	EA	20		
42.	8120013	Barricade, Type III, High Intensity, Double Sided, Lighted, Ope	EA	20		
43.	8120026	Pedestrian Type II Barricade, Temp	EA	6		
44.	8120035	Channelizing Device, 42 inch, Fluorescent, Furn	EA	350		
45.	8120036	Channelizing Device, 42 inch, Fluorescent, Oper	EA	350		
46.	8120130	Lighted Arrow, Type B, Furn	EA	1		
47.	8120131	Lighted Arrow, Type B, Oper	EA	1		
48.	8120170	Minor Traf Devices	LSUM	1		
49.	8120235	Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, White, Te	FT	5,409		
50.	8120236	Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, Yellow, Te	FT	2,519		
51.	8120245	Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Tem	FT	3,600		
52.	8120252	Plastic Drum, Fluorescent, Furn	EA	15		
53.	8120253	Plastic Drum, Fluorescent, Oper	EA	15		
54.	8120310	Sign Cover	EA	4		
55.	8120330	Sign, Portage, Changeable Message, Furn	EA	2		
56.	8120331	Sign, Portage, Changeable Message, Oper	EA	2		
57.	8120350	Sign, Type B, Temp, Prismatic, Furn	SFT	838		
58.	8120351	Sign, Type B, Temp, Prismatic, Oper	SFT	838		
59.	8120352	Sign, Type B, Temp, Prismatic, Spec, Furn	SFT	77		
60.	8120353	Sign, Type B, Temp, Prismatic, Spec, Oper	SFT	77		
61.	8120370	Traf Regulator Control	LSUM	1		
62.	8122251	Pedestrian Ramp, Temp	EA	4		
63.	8167011	Surface Restoration	SYD	112		

NO.	CODE	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED PRICE
64.	8180001	Power Company (Estimated Cost to Contractor)	DLR	1,000		
65.	8182046	Conduit, DB, 1, 1/2 inch	FT	200		
66.	8182050	Conduit, DB, 1, 3 inch	FT	20		
67.	8182056	Conduit, DB, 3, 3 inch	FT	20		
68.	8182059	Conduit, DB, 4, 3 inch	FT	10		
69.	8182238	Cable, Sec, 600V, 1, 3/C#6	FT	150		
70.	8182310	Hh, Round	EA	4		
71.	8182319	Hh, Round, 3 foot dia	EA	1		
72.	8182330	Hh, Rem	EA	1		
73.	8182366	Serv Disconnect	EA	2		
74.	8182367	Serv Disconnect, Rem	EA	2		
75.	8182387	Wood Pole, Fit Up, TS Cable Pole	EA	1		
76.	8200020	Case Sign, Rem	EA	2		
77.	8200022	Case Sign (LED), Two Way, 24 inch by 30 inch	EA	3		
78.	8200030	Controller and Cabinet, Rem	EA	2		
79.	8200045	Controller Fdn, Base Mtd	EA	2		
80.	8200100	Pedestal, Alum	EA	7		
81.	8200105	Pedestal, Fdn	EA	15		
82.	8200106	Pedestal Fdn, Rem	EA	2		
83.	8200110	Pedestal, Rem	EA	2		
84.	8200118	Pedestal, Pushbutton, Alum	EA	8		
85.	8200128	Push Button Station and Sign	EA	16		
86.	8200140	Span Wire	EA	2		
87.	8200141	Span Wire, Rem	EA	2		
88.	8200142	Span Wire Tether	EA	2		
89.	8200180	TS, Pedestrian, Bracket Arm Mtd, Rem	EA	6		
90.	8200181	TS, Pedestrian, Pedestal Mtd, Rem	EA	2		
91.	8200182	TS, Span Wire Mtd, Rem	EA	5		
92.	8200240	Pedestrian Signal System, Accessible	EA	2		
93.	8200313	TS, One Way Span Wire Mtd (LED)	EA	4		
94.	8200322	TS, Two Way Span Wire Mtd (LED)	EA	4		
95.	8200325	TS, Three Way Span Wire Mtd (LED)	EA	1		
96.	8200339	TS, Pedestrian, Two Way Bracket Arm Mtd (LED) Countdown	EA	3		
97.	8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	EA	4		
98.	8200347	TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	EA	3		
99.	8200378	Bracket, Truss, with 18 foot Arm	EA	3		
100.	8200388	Bracket, Truss, Rem	EA	2		
101.	8200396	Wireless Intercn, Closed Loop, Rem	EA	2		

NO.	CODE	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED PRICE
102.	8200458	TS Face, Bag	EA	20		
103.	8200459	TS Face, Bag, Rem	EA	20		
104.	8200460	Strain Pole, Steel, 6 bolt, 30 foot	EA	1		
105.	8200470	Strain Pole Fdn, 6 Bolt	FT	15		
106.	8200480	Casing	FT	12		
107.	8200501	Backplate, TS	EA	13		
108.	8207050	Controller Cabinet, Modified	EA	2		
109.	8207050	Controller, ATC Type, Classic	EA	2		
110.	8207050	Fiber Optic, Pigtail, Modified	EA	10		
111.	8207050	Modular Video Detection System	EA	2		
112.	8210001	Monument Box	EA	2		
113.	8210005	Monument Box Adj	EA	2		
114.	8210010	Monument Preservation	EA	2		
115.	8237050	Gate Valve Box, Top Section, Modified	EA	10		
GRAND TOTAL						

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.

After receipt of Notice to Proceed, work shall start within 90 days, unless otherwise agreed to by the Project Manager, and **shall be completed within 60 days of beginning, no later than September 1, 2025.**

Bidder/Contractor has examined and carefully studied the bidding documents and attachments, and acknowledges receipt of the following addenda:

Addendum No:_____ _____ _____ _____

Date: _____ _____ _____ _____

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 the 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

_____
November 2017 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: _____

Revised April 2008

SUB-CONTRACTING INFORMATION

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

INSTRUCTIONS:
Nature of Contract - State a brief description of the work or product that will be provided.
BIDDER – Provide the percentage of services or construction activity that will be provided by your firm.
Subcontractors:

- Provide the Name and Address for each subcontractor providing services or construction activities for this contract.
- Indicate with **YES** or **NO** under the "Local?" box if they qualify as a "Kalamazoo County bidder" (see local preference certification page)
- Provide the percentage for the dollar amount of the contract work they will be performing.

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

Nature of Contract:		
Subcontractor Name/Address	***5. Local?***	**% Of Total Contract**
6. BIDDER		

Does this List of Subcontractors need to be updated after the bid opening? **Yes __ No __**

REFERENCE QUESTIONNAIRE

Please answer the following questions completely.

1. Firm name: _____

2. Established: Year _____ Number of Employees: _____

3. Type of organization:

   a. Individual: _____ b. Partnership: _____
   c. Corporation: _____ d. Other: _____

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

   _____

   _____

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

   5.1 Company Name: _____

   Address: _____

   Phone: _____

   Contact: _____

   Type of work or contract: _____

   5.2 Company Name: _____

   Address: _____

   Phone: _____

   Contact: _____

   Type of work or contract: _____

   5.3 Company Name: _____

   Address: _____

   Phone: _____

   Contact: _____

   Type of work or contract: _____

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

Signed: _____ Name: _____
(type or print)

Title: _____ Date: _____

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

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

Tax Identification Number (Federal ID): _____

Remittance Address: _____

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: _____

NOTE: *This blanket addendum is for informational purposes only and does not need to be acknowledged by bidders in their submission.*

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 Department, 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
SPECIAL CONDITIONS

1. INTENT

It is the intent of these plans and specifications to provide for a general contractor who shall provide all labor, materials, tools and equipment necessary to perform in a professional manner for the **Westnedge Ave (Vine-Michigan)** project as described in the specifications and bid document.

2. SCOPE OF WORK

The scope of work for this project shall consist of 2-inch mill and resurface of roadway from Vine intersection going north approximately 0.5 miles, stopping just short of Michigan Ave. This includes the intersections of Vine, Dutton, Walnut, Cedar, Lovell, South, and Academy. The Michigan Ave intersection is NOT included in the scope of this project. The traffic signals at Vine and Lovell will be replaced, and sidewalk ramps at all intersections except South will be removed and reconstructed. Project also includes typical items such as SESC measures, temporary and permanent traffic control devices, drive entrances as needed, and structure adjusts.

All necessary traffic control, labor, materials, tools, equipment, and other items incidental to the work being performed shall be included in the Contractor's unit price for this contract. Such items will not be bid or paid for separately but shall be included in the overall unit price.

The bidder shall furnish all labor, supervision, supplies, tools, equipment, and other means necessary or proper for performing and completing the work. The bidder shall be responsible for the cleaning up of the job site and shall repair or restore all structures and property that may be damaged or disturbed during performance of the work to the satisfaction of the Public Services Department for the City of Kalamazoo. Drainage structure covers shall be salvaged and reused if in usable condition; otherwise, they shall be replaced. Where needed, all traffic control used for such operations as defined by the MMUTCD will be the responsibility of the bidder.

The bidder shall have all work completed within 60 calendar days of beginning work AND no later than September 1, 2025 (contractor shall be held to stricter/earlier deadline).

3. 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.

4. TEMPORARY UTILITIES

4.1 Temporary or construction water will NOT be available on the sites. The Contractor must provide for drinking water.

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

5. PROGRESS SCHEDULE

5.1 After receipt of notification by Contractor of Notice to Proceed work shall start no earlier than **April 1, 2025**.

5.2 Project shall have a final completion date within 60 days of start and no later than **September 1, 2025.**

5.3 Work of a similar nature may be added to this contract if agreed to by the City and the Contractor. In the event that work is added, the progress schedule for the existing 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.

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

5.5 The named sub contractor(s) for all items shall also be present at the scheduled meeting and be required to sign the Progress Schedule to indicate their approval of the scheduled dates of work set forth in the Progress Schedule. If unable to attend the scheduled meeting, the sub-contractor shall, at a minimum, sign the Progress Schedule to indicate their approval of the dates of work. MDOT Form 1130 shall be used for schedule submission and signature of all parties.

5.6 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 document. The Progress Schedule shall be coordinated with all aspects of the work occurring at the site.

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

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

5.9 Any request extension of the completion date and satisfactory documented evidence of unforeseen delays shall be submitted via MDOT Form 1100A – Extension of Contract Time.

5.10 MDOT Standard Specifications for Construction Section 501.03.I.1, Weather Limitations, shall apply.

6. LIQUIDATED DAMAGES

Liquidated Damages will be assessed per Section 108.10C of the MDOT Standard Specifications for Construction.

7. MAINTAINING TRAFFIC

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

7.2 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.

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

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

7.5 Protection of all pedestrian traffic shall be maintained at all times in accordance with the MMUTCD. Type II barricades and sidewalk detour signs shall be used in accordance with the MMUTCD at all intersections and ramps. Sidewalk detours shall direct pedestrians safely around closed sidewalk locations and shall be placed at the nearest pedestrian crossing locations still open to traffic.

7.6 Payment for furnishing and operating all temporary traffic control devices and traffic regulators shall be paid as pay items included in this contract and shall include all the temporary traffic control measures on all road segments.

7.7 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.

7.8 No work shall be allowed on the following dates:

4/18/25	Good Friday
5/26/25	Memorial Day Holiday
6/19/25	Juneteenth
7/4/25	Fourth of July Holiday
9/1/25	Labor Day Holiday
11/11/25	Veteran’s Day
11/27/25	Thanksgiving
12/25/25	Christmas
1/1/26	New Year’s Day

7.9 Milled surfaces will not be allowed on travel lanes for longer than 72 hours unless approved by the Project Manager. Any traffic surface within the construction area containing a drop off at the edge of a pavement greater than two (2) inches shall not be allowed to be opened to the public without proper wedging of the edges according to the COK standard detail. Any areas not conforming to the road levelness and profile shall be signed appropriately in accordance with the MMUTCD and best management practices.

7.10 Once work is initiated that includes lane restrictions or detours, that work shall be continuous until complete. If work is suspended for more than three (3) continuous working days all lane restrictions and detours shall be removed at the Contractor's expense.

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.

8. COORDINATING

The Contractor's attention is called to Article 104.08 of the MDOT Standard Specifications for Construction entitled "Cooperation by Contractor" and the special provisions contained within this contract.

9. WORK HOURS

All work shall be done between the hours of 7 am to 7 pm (Monday – Saturday). Work done outside of these times will be at the discretion of the Project Manager.

No work shall be done on Sunday, unless otherwise approved by the Project Manager in writing.

The Contractor shall conduct their work in such a manner that no excavations are left open overnight. If this is not possible, the Contractor shall provide and install a temporary fence to protect the excavation, at the Contractor's expense.

SECTION VI
GENERAL CONDITIONS

1. PROJECT MANAGER'S STATUS

The City Engineer (Engineer) or his/her duly authorized representative shall be the City's Project Manager and shall have the duties and responsibilities as provided in the contract.

The Project Manager shall have the authority to reject any work or materials which do not conform to the contract and to decide questions or interpretations which may arise from the contract documents.

The Contractor shall immediately report to the Project Manager any questionable or obvious error or omission which may be apparent in the contract documents and shall not proceed with work until the Project Manager has resolved the error or omission.

2. CONSTRUCTION SCHEDULE AND COORDINATION

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

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

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

2.4 The Contractor shall schedule all work to accommodate the City's schedule. In the event the 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.

2.5 The Contractor shall coordinate with other construction projects and contractors adjacent to the location of this project.

2.6 The Contractor shall notify, by door hanger/written flier (pre-approved by the Project Manager), affected residents and business of work and areas to be disturbed by construction at least 72 hours in advance. Work shall not commence until the affected residents/business have been notified and given advanced notice. The Contractor shall work to minimize impacts to those affected by the construction while still maintaining project schedule and objectives. For impacts to driveways or property access points that affect residents or businesses, resident/business shall be notified 24 hours in advance of the work taking place and coordinated with for parking and property access.

3. 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.

4. PROTECTION OF PROPERTY

4.1 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.

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

5. REMOVAL OF RUBBISH

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

6. BRICK SIDEWALK OR PAVEMENT REMOVAL

When brick is removed from City of Kalamazoo sidewalk or pavement it shall be salvaged, unless otherwise stated in the contract. Brick to be salvaged shall be placed within the right-of-way (ROW) for pickup by the City. Brick shall not be placed or stored on any pavement, sidewalk, bike, or pedestrian areas but in ROW green space only; salvaged brick shall not be placed on private property without written approval given by the owner.

7. REMOVAL OF PERMANENT TRAFFIC SIGNS AND POSTS

The Contractor shall notify the Project Manager five (5) working days in advance of the time permanent signs must be removed to accommodate the construction. The Contractor shall remove and salvage any permanent signs that must be removed for construction.

8. PERMANENT TRAFFIC SIGN STAKING

The City shall stake the field locations for the new permanent traffic signs that the Contractor shall install under this contract. The Contractor shall call MISS DIG to arrange for staking prior to sign installation.

9. LAWN SPRINKLER SYSTEMS

9.1 Owners of known lawn sprinkler systems shall be notified by the contractor a minimum of 72 hours in advance of any work to be done that will affect those systems. Modifications to the systems are the responsibility of the owners and are not a part of this contract.

9.2 Owners of lawn sprinkler systems that were unknown to the contractor at the beginning of work and uncovered during the work for this contract, shall be notified as soon as possible and no later than 24 hours after discovery of the system. The Contractor shall coordinate with the owner for placement outside the immediate work area until modifications can take place. Modifications to the systems are the responsibility of the owners and are not a part of this contract.

10. SALVAGING DRAINAGE STRUCTURE COVERS

The City of Kalamazoo reserves the right to salvage any drainage structure covers or portions thereof which are to be removed as a result of work done under this contract. Any covers which are to be salvaged will be identified by the City. The contractor will set those items identified aside for pick up by City personnel.

11. REMOVING AND REPLACING CURB AND GUTTER

When the contract provides for streets to be milled and resurfaced, or when the existing base course is to remain in place, and replacement of curb and gutter is called for, milling or other surface removal operations will not take place until placement of the new curb and gutter, and adjacent concrete base course has been completed.

12. DRAINAGE INLET COVERS (K COVERS)

In compliance with the Clean Water Act, all inlet covers must have on their backs reminders against dumping waste into the drains.

13. FLY ASH USE IN CONCRETE ITEMS

The use of fly ash, as described in Section 901.07 of the MDOT Standard Specifications for Construction, shall not be allowed.

14. EXISTING WATER MAINS

The Contractor will be responsible for any damage to the existing water mains during the work required under this contract. This includes but is not limited to the construction of the proposed storm sewers, catch basins, leaching basins, leaching trenches, subgrade under drains, subgrade undercutting, full depth repairs, or other miscellaneous work.

15. GRADE INTERSECTIONS

All intersections are to be considered as complete units and their grades determined before construction is started.

16. UNDERGROUND UTILITIES

For protection of underground utilities, the Contractor shall dial Miss Dig at 1-800-482-7171 a minimum of 72 hours prior to excavating in the vicinity of utility lines. All "Miss Dig" participating members will thus be routinely notified. This does not relieve the Contractor of notifying utility owners who may not be part of the "Miss Dig" alert system.

17. ADJUSTING MONUMENT BOXES

It is the intent that all government corners on this project be preserved and that, where necessary, monument boxes be placed or adjusted whether shown or not.

18. PAVEMENT REMOVAL QUANTITIES

Pavement removal as called for in this proposal shall be at the discretion of the Project Manager. If, in his/her judgment, areas of pavement may be left in place or additional area added to provide the proper cross-section and base, adjustments can be made in the quantities.

19. COLD MILLING

In those locations where cold milling is called for and the existing curb is to remain in place, the cold milling item shall cover removal of all asphalt up to the face of the curb. Any materials which are left due to the inability of the cold milling machine to work immediately adjacent to the face of the curb will be removed to the depth indicated on the typical cross-section by other means approved by the Project Manager. Any extra work involved in removing said HMA material shall be considered incidental to the item of Cold Milling HMA Surface.

20. SITE SECURITY

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

21. SITE ACCESS

The City will provide fair and reasonable access to the job site within the working schedules of both parties.

22. MATERIALS INSPECTION AND RESPONSIBILITY

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

22.2 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.

22.3 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.

22.4 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 written notice has been mailed by the City to the Contractor that such materials, equipment or components have been rejected.

23. GUARANTEE

The Contractor shall guarantee all of his/her work for a period of one (1) year 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. SPECIFICATIONS FOR CONSTRUCTION

The items of work in this contract shall conform to the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, MDOT Supplemental Specifications, and/or the City of Kalamazoo Standard Specifications unless superseded by a Special Provision contained in this document.

26. QUANTITIES

The quantities shown on the Bid and Award pages are approximate only and may be subject to increase or decrease. No guarantee of maximum or minimum is given.

27. PRICE

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. Special attention of all bidders is called to this provision since if conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities, nor extra compensation allowed; provided the net monetary value of all such additive and subtractive changes in quantities of such items of work, i.e., difference in cost, shall not increase or decrease the original contract price by more than twenty five (25) percent. Some items of work might be increased beyond the 25% limitations as spelled out previously, upon mutual agreement.

28. BASIS FOR PAYMENT

Payment shall be based on the bid unit price for each work item and the approved constructed quantity for that work item. Due to potential differences in conditions between the plans and the field, final as built quantities may be different than contained in the bid document. The City does not guarantee quantities and will pay only for "as built" quantities approved by the Project Manager or his representative. Quantities in excess of those approved shall be at the Contractor's own expense, the City will not be responsible for excess quantities not approved. Should an item of work have to be redone, such as replacing new walk because the Contractor failed to adequately protect the wet concrete from rain or pedestrian or vehicular damage, such work shall be replaced at the Contractor's expense. Should changes in design result in the Project Manager directing the removal and reinstallation of already completed work prior to final completion and acceptance of the project, such removal and installation shall be paid for based on as-bid unit prices and the quantities removed and installed.

29. 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. Frequency of payment shall be monthly unless agreed to otherwise by the Project Manager, with the invoiced period ending on the last day of the month. However, if a different frequency is approved by the Project Manager, it shall not exceed bi-weekly invoicing.

30. PAYMENT TO CONTRACTOR

The Project Manager will be responsible for approving all measured quantities of work. Once measured quantities are approved, the Contractor shall submit a pay invoice to the City of Kalamazoo Attn: Accounts Payable at 241 West South Street, Kalamazoo MI, 49007 or apinvoice@kalamazoocity.org. The contractor is required to meet with the Project Manager to verify final constructed quantities within 60 days of project completion. In the event of a disagreement the Project Manager’s measured quantities shall be considered final.

31. INSPECTION OF WORK

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

32. 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, 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 failure to receive or examine any form or legal instrument, or to visit the site and acquaint himself/herself with the conditions there existing. No allowance shall be made subsequently in this connection on behalf of the Contractor for any negligence of his/her part. For inspection call the Public Services Department, Engineering Division.

33. LAYING OUT OF 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.

34. SUPERVISION

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

35. 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.

36. ADDITIONS

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

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 a Change Order has been approved.

37. INSPECTION AND TESTING

The Contractor shall give the 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.

38. QUESTIONS

Bidders shall address questions regarding the specifications to Tom Palumbo, Senior Civil Engineer, at palumbot@kalamazoocity.org and/or (269) 337-8697. (This does not relieve the requirements of **Page 5, Item 3**.) Questions regarding terms, conditions and other related bid requirements may be addressed to Kyle Dunn, Buyer, at (269) 337-8720 or dunnk@kalmazoocity.org.

SECTION VII
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 Manager. 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 Manager 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.

5. **INVOICING**

All original invoice(s) will be sent to the Financial Services Division, 241 W. South Street, Kalamazoo, MI 49007 or via email at apinvoice@kalamazoocity.org. The Finance Division processes payments after receipt of an original invoice from the Contractor and approval by the department. The City of Kalamazoo's policy is to pay invoice(s) within 30 days from the receipt of the original invoice, if the services or supplies are satisfactory and the proper paperwork and procedures have been followed**. In order to guarantee payment to the vendor on a timely basis, the vendor needs to receive a purchase order number before supplying the City of Kalamazoo with goods or services.** All original, and copies of original invoice(s), will clearly state which purchase order they are being billed against.

The City of Kalamazoo is a government municipality and therefore is tax exempt from all sales tax.

The vendor is responsible for supplying the Finance Division with a copy of their W9 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.

ANY CHANGES 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 negligent acts or omissions of the Contractor/Vendor or its employees, agents or officers, cause injury to person or property, the Contractor/Vendor shall indemnify and save harmless the City of Kalamazoo, its 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 mobile phone, 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.

16. **INSPECTION OF WORK SITE**

Before submitting bids or quotes for work, the Contractor shall be responsible for examining the work site and satisfying himself/herself as to the existing conditions under which he/she will be obligated to operate, or that in any way affects the work under this contract. No allowance shall be made subsequently, in behalf of the Contractor, for any negligence on his/her part.

17. **CONTRACT PERIOD, EXTENSIONS, CANCELLATION**

A. The contract shall be in effect for the term stated in the specifications.

B. The City may opt to extend this contract upon mutual agreement of both parties. The number of extensions shall be limited to that stated in the specifications.

C. The City may, from time to time, find it necessary to continue this contract on a month-to-month basis only, not to exceed a six (6) month period. Such month-to-month extended periods shall be by mutual agreement of both parties, with all provisions of the original contract or any extension thereof remaining in full force and effect.

D. All contracts, extensions and cost increases are subject to availability of funds and the approval of the City Commission (if required).

CONTRACT PERIOD, EXTENSIONS, CANCELLATION (*cont.*)

E. The City reserves the right to cancel the contract due to non-appropriation of funds by the City with thirty (30) days written notice.

F. Either party may terminate the contract (or any extension thereof) without cause at the end of any twelve (12) month term by giving written notice of such intent at least 60 days prior to the end of said twelve (12) month term.

G. All notices are in effect commencing with the date of mailing. Written notices may be delivered in person or sent by First Class mail; faxed or emailed to the last known address.

H. If cancellation is for default of contract due to non-performance, the contract may be canceled at any time (see Item 11, DEFAULT)

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

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

- ✓ Contractor or his/her subcontractor shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less than once a week and without subsequent deduction or rebate on any account the full amount, accrued at the time of payment, computed at wage rates as incorporated herein regardless of any contractual relationship which may be alleged to exist between the contractor or subcontractor and such laborers and mechanics;
- ✓ The scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work;
- ✓ The Prime Contractor and all subcontractors shall submit weekly certified payrolls documenting the hours worked and wages paid by work classification. **NOTE: Contractor shall not include Social Security numbers of employees on certified payrolls.**
- ✓ There may be withheld from the contractor's accrued payments the amount considered necessary by the City's Contracting Official to pay to laborers and mechanics employed by the contractor or any subcontractor on the work for the difference between the rates of wages required by the contract and the rates of wages received by such laborers and mechanics except those amounts properly deducted or refunded pursuant to the terms of the Davis-Bacon Act (USC, Title 40, Sec. 276a) and interpretations thereof.

Special Note: The City's requirements as it relates to prevailing wages **includes a meeting with the City's Purchasing Agent prior to starting work and the submission of weekly certified payrolls by prime contractors and all subcontractors.** The City will monitor certified payrolls, work progress, and may 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 the 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 WAGE RATES
(Heavy & Highway)
WESTNEDGE AVE (VINE-MICHIGAN)

Bid Reference #: 91396-022.0

March 2025

"General Decision Number: MI20250061 01/03/2025

Superseded General Decision Number: MI20240061

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)(1).

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:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 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 2025.
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:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 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 2025.

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	01/03/2025

CARP0525-006 06/01/2023

	Rates	Fringes
CARPENTER, Includes Form Work	$ 28.29	21.42

ELEC0131-006 06/01/2023

	Rates	Fringes
ELECTRICIAN	$ 38.29	19.47

ENGI0325-009 09/01/2024

POWER EQUIPMENT OPERATORS: Underground Construction (Including Sewer)

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 43.48	25.25
GROUP 2	$ 37.75	25.25
GROUP 3	$ 38.02	25.25
GROUP 4	$ 37.45	25.25

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

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ENGI0326-025 06/01/2024

EXCLUDES UNDERGROUND CONSTRUCTION

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1	$ 47.28	25.25
GROUP 2	$ 43.93	25.25
GROUP 3	$ 41.28	25.25
GROUP 4	$ 39.57	25.25
GROUP 5	$ 39.57	25.25
GROUP 6	$ 33.71	25.25
GROUP 7	$ 31.23	25.25

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 06/01/2024

	Rates	Fringes
IRONWORKER (REINFORCING)	$ 35.00	33.14
IRONWORKER (STRUCTURAL)	$ 35.55	33.14

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 06/01/2024

EXCLUDES OPEN CUT CONSTRUCTION

	Rates	Fringes
LABORER		
Common or General; Grade Checker; Mason Tender - Cement/Concrete	$ 28.56	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 06/01/2024

	Rates	Fringes
TRUCK DRIVER		
Lowboy/Semi-Trailer Truck...	$ 32.55	.75 + a+b
Tractor Haul Truck.....	$ 32.30	.75 + 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 ($17.75) or 13658 ($13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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) (iii)).

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was

updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

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END OF GENERAL DECISION"

"General Decision Number: MI20250001 01/03/2025

Superseded General Decision Number: MI20240001

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)(1).

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:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 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 2025.
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:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 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 2025.

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	01/03/2025

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 06/01/2024

STATEWIDE

	Rates	Fringes
Line Construction		
Groundman/Driver.....	$ 32.00	33%+7.31
Journeyman Signal Tech, Communications Tech, Tower Tech & Fiber Optic Splicers.	$ 47.35	33%+7.31
Journeyman Specialist.....	$ 54.45	33%+7.31
Operator A.....	$ 40.09	33%+7.31
Operator B.....	$ 37.46	33%+7.31

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 06/01/2024

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.....	$ 55.42	25.25
GROUP 2.....	$ 56.42	25.25
GROUP 3.....	$ 53.92	25.25
GROUP 4.....	$ 54.92	25.25
GROUP 5.....	$ 52.42	25.25
GROUP 6.....	$ 53.42	25.25

GROUP 7	$ 52.15	25.25
GROUP 8	$ 53.15	25.25
GROUP 9	$ 51.70	25.25
GROUP 10	$ 52.70	25.25
GROUP 11	$ 50.97	25.25
GROUP 12	$ 51.97	25.25
GROUP 13	$ 50.61	25.25
GROUP 14	$ 51.61	25.25
GROUP 15	$ 49.97	25.25
GROUP 16	$ 46.77	25.25
GROUP 17	$ 32.29	12.40
GROUP 18	$ 35.78	25.25

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 06/01/2024

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	$ 55.02	25.25
GROUP 2	$ 52.15	25.25
GROUP 3	$ 50.61	25.25
GROUP 4	$ 46.77	25.25
GROUP 5	$ 32.29	12.40
GROUP 6	$ 35.78	25.25
AREA 2		
GROUP 1	$ 55.02	25.25
GROUP 2	$ 52.15	24.25
GROUP 3	$ 50.61	25.25
GROUP 4	$ 46.77	25.25
GROUP 5	$ 32.29	12.40
GROUP 6	$ 35.78	25.25

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 09/01/2024

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	$ 43.48	25.25
GROUP 2	$ 38.75	25.25
GROUP 3	$ 38.02	25.25
GROUP 4	$ 37.45	25.25
GROUP 5	$ 27.85	12.10
AREA 2:		
GROUP 1	$ 43.48	25.25
GROUP 2	$ 38.75	25.25
GROUP 3	$ 38.02	25.25
GROUP 4	$ 37.45	25.25
GROUP 5	$ 27.85	12.10

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 06/01/2024

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	$ 43.71	25.25
GROUP 2	$ 42.56	25.25
GROUP 3	$ 35.83	25.25
GROUP 4	$ 35.27	25.25

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Paver Operator (5 bags or more); Slip Form Paver; Asphalt Paver (self propelled); Shovel (Excavator) installing utilities over 20 feet in depth.

Group 2: Asphalt plant operator; crane operator (does not include work on bridge construction projects when the crane operator is erecting structural components); Dragline operator; Shovel (Excavator) operator; Locomotive operator; Elevating grader operator; Pile driving operator; Roller operator (asphalt); Blade grader operator; Trenching machine operator (ladder or wheel type); Auto-grader; Self-propelled or tractor-drawn scraper; Conveyor loader operator (Euclid type); 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 planner (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); tractor operator (farm type with attachment); Wagon Drill operator; Boom or winch hoist truck operator.

GROUP 3: 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); End Loader operator (1 yard Capacity and over); Side boom tractor (type D or equivalent or larger; Endloader operator *under 1 yard capacity; Trencher (service).

GROUP 4: Boiler fire tender; Concrete Breaker; Oiler; Fire tender; Trencher (service); Flexplane operator; Cleftplane operator; Roller operator (other than asphalt); Curing equipment operator (self-propelled); Power bin operator; Plant drier operator (asphalt); Vibratory compaction equipment operator (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 05/01/2024

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	$ 40.90	25.00
Crane operator, main boom & jib 120' or longer	$ 47.37	25.00
Crane operator, main boom & jib 140' or longer	$ 47.37	24.60
Crane operator, main boom & jib 220' or longer	$ 48.26	25.00
Mechanic with truck and tools	$ 46.50	25.00
Oiler and fireman	$ 39.96	25.00
Regular operator	$ 44.72	25.00

ENGI0324-008 10/01/2023

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	$ 37.37	15.44
GROUP 2	$ 35.33	15.44

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

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ENGI0325-012 05/01/2024

	Rates	Fringes
Power equipment operators - gas distribution and duct installation work:		
GROUP 1	$ 37.98	25.25
GROUP 2	$ 34.75	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 06/01/2024

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	$ 39.91	32.32
General contracts less than $10,000,000	$ 39.91	32.32

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

IRON0025-002 06/01/2024

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, 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:	$ 35.55	33.14
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	$ 33.43	37.15

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

LABO0005-006 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. 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 LENAWEE 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
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

LABO0259-001 09/01/2024

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	$ 27.86	22.11
GROUP 2	$ 29.86	22.11
GROUP 3	$ 25.86	22.11
GROUP 4	$ 23.97	16.93
GROUP 5	$ 24.22	16.93
GROUP 6	$ 24.55	16.93
GROUP 7	$ 17.83	16.93
AREA 2		
GROUP 1	$ 30.00	17.45
GROUP 2	$ 32.00	17.45
GROUP 3	$ 28.00	17.45
GROUP 4	$ 29.57	16.93
GROUP 5	$ 25.76	16.93
GROUP 6	$ 26.07	16.93
GROUP 7	$ 25.57	16.93

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, aquafers, 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, tugger, 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.

LABO0334-001 09/01/2024

	Rates	Fringes
Laborers - open cut:		
ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES:		
GROUP 1	$ 27.71	22.11
GROUP 2	$ 29.71	22.11
GROUP 3	$ 25.87	22.11
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	$ 29.65	17.45
GROUP 2	$ 31.65	17.45
GROUP 3	$ 27.65	17.45
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	$ 27.84	17.45
GROUP 2	$ 29.84	17.45
GROUP 3	$ 25.84	17.45
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	$ 26.32	17.95
GROUP 2	$ 28.32	17.95
GROUP 3	$ 24.32	17.95
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	$ 26.09	18.45
GROUP 2	$ 28.09	18.45
GROUP 3	$ 24.09	18.45
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.

LABO0465-001 06/01/2024

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	$ 34.01	14.45
GROUP 2	$ 34.14	14.45
GROUP 3	$ 34.32	14.45
GROUP 4	$ 34.40	14.45
GROUP 5	$ 34.61	14.45
GROUP 6	$ 34.91	14.45
LABORER (AREA 2)		
GROUP 1	$ 31.87	14.45
GROUP 2	$ 32.07	14.45
GROUP 3	$ 32.31	14.45
GROUP 4	$ 32.66	14.45
GROUP 5	$ 32.53	14.45
GROUP 6	$ 32.87	14.45
LABORER (AREA 3)		
GROUP 1	$ 31.12	14.45
GROUP 2	$ 31.33	14.45
GROUP 3	$ 31.62	14.45
GROUP 4	$ 32.06	14.45
GROUP 5	$ 31.68	14.45

GROUP 6	$ 32.11	14.45
LABORER (AREA 4)		
GROUP 1	$ 32.02	14.45
GROUP 2	$ 31.73	14.45
GROUP 3	$ 32.52	14.45
GROUP 4	$ 32.96	14.45
GROUP 5	$ 32.58	14.45
GROUP 6	$ 33.01	14.45

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 04/01/2024

MICHIGAN STATEWIDE

	Rates	Fringes
LABORER (DISTRIBUTION WORK)		
Zone 1	$ 27.16	13.45
Zone 2	$ 25.42	13.45
Zone 3	$ 23.55	13.45

Zone 4	$ 22.92	13.45
Zone 5	$ 22.95	13.45

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 06/01/2024

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	$ 29.35	19.05

All other work, including maintenance of industrial plant	$ 29.35	19.05

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 06/01/2023

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	$ 33.00	18.51
ZONE 2	$ 31.50	18.51

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 06/01/2024

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	$ 32.55	.75 + a+b
Trucks under 8 cu. yds	$ 32.30	.75 + a+b
Trucks, 8 cu. yds. and over	$ 32.40	.75 + a+b
AREA 2		
Euclids, double bottoms and lowboys	$ 32.65	.75 + a+b
Trucks under 8 cu. yds	$ 32.40	.75 + a+b
Trucks, 8 cu. yds. and over	$ 32.50	.75 + 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

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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 ($17.75) or 13658 ($13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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) (iii)).

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates

in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination
b) an existing published wage determination

c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

==

END OF GENERAL DECISION"

APPENDIX C
PLAN DRAWINGS

THE CITY OF KALAMAZOO
DEPARTMENT OF PUBLIC SERVICES
ENGINEERING DIVISION

PLAN DRAWINGS

Rev 3/6/25

WESTNEDGE AVE (VINE-MICHIGAN)

Bid Reference #: 91396-022.0

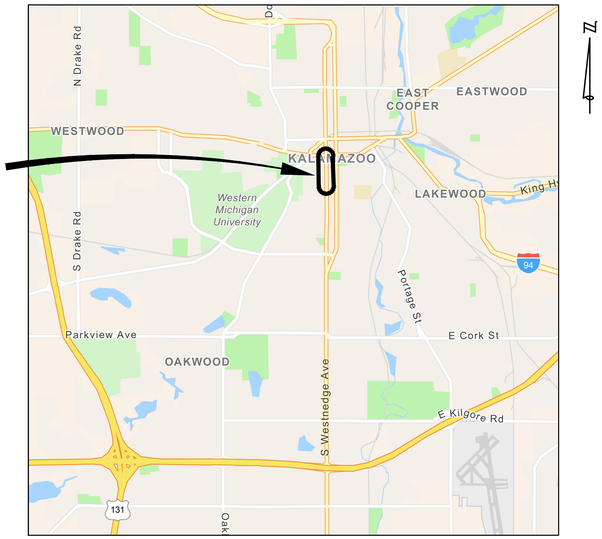
CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN

SOUTH WESTNEDGE PAVING
VINE STREET TO W MICHIGAN AVENUE

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	COVER SHEET
2	LEGEND
3	GENERAL NOTES
4	EXISTING TYPICAL CROSS SECTIONS
5	PROPOSED TYPICAL CROSS SECTIONS
6–8	REMOVAL & CONSTRUCTION PLANS
9–10	SOIL EROSION & SEDIMENTATION CONTROL PLANS
11–14	DETAILED GRADING
16–20	MAINTAINING TRAFFIC & STAGING
23–24	PAVEMENT MARKING & SIGNING PLANS
25–30	SIGNAL PLANS
31–73	SPECIAL DETAILS
74–75	CITY OF KALAMAZOO STANDARD DETAILS
76–77	SOIL BORING LOGS

M.D.O.T. STANDARD PLANS	
TITLE	PLAN NO.
DRAINAGE STRUCTURES	R–1–G
COVER K	R–15–G
CURB RAMP AND DETECTABLE WARNING DETAILS	R–28–J
DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS	R–29–I
CONCRETE CURB AND CONCRETE CURB & GUTTER	R–30–G
UTILITY TRENCHES	R–83–C

PROJECT AREA



LOCATION MAP
N.T.S.

APPLICATION DATE	PERMITS	APPROVAL DATE

GENERAL PROVISIONS

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE PROPOSAL AND ACCOMPANYING SPECIFICATIONS FOR THIS PROJECT INCLUDING THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION LOCAL AGENCY PROGRAMS GUIDELINES FOR GEOMETRICS DATED 7–24–2017. ALL WATER MAIN, SERVICE INSTALLATIONS AND ASSOCIATED WORK SHALL BE COMPLETED IN ACCORDANCE WITH CITY OF KALAMAZOO STANDARD SPECIFICATIONS FOR WATER MAIN AND SERVICE INSTALLATION 2021.

THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM THE BEST AVAILABLE DATA. THE CITY OF KALAMAZOO WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATIONS SHOWN. PURSUANT TO ACTS 173 & 174 OF THE P.A. OF 2013, AS A CONDITION OF THIS CONTRACT, NOTICE SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED IN ACCORDANCE WITH THIS CONTRACT, PHONE (800) 482–7171 (OR 811). UTILITY SERVICE CONNECTIONS ARE NOT SHOWN ON THE PLANS AND ARE NOT THE RESPONSIBILITY OF THE CITY OF KALAMAZOO.

THE ELEVATIONS SHOWN ON THESE PLANS ARE BASED ON NAVD 1988 VERTICAL DATUM.

CITY OF KALAMAZOO
ELECTED OFFICIALS

DAVID ANDERSON
• MAYOR •

JEANNE HESS
• VICE MAYOR •

DON CONNEY
QIANNA DECKER
STEPHANIE HOFFMAN
CHRIS PRAEDEL
ALONZO WILSON
• COMMISSIONERS •

JAMES RITSEMA
• CITY MANAGER •

CONTRACT FOR:
0.5 MILES OF HMA MILL AND OVERLAY, CURB AND GUTTER REPAIRS, ADA IMPROVEMENTS, SIGNAL IMPROVEMENTS, PAVEMENT MARKINGS AND RESTORATION

OHM
Advancing Communities
34000 Plymouth Road | Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427

PREPARED UNDER THE SUPERVISION OF:

STATE OF MICHIGAN
THOMAS J. LENTNER
ENGINEER
No. 6201051096
LICENSED PROFESSIONAL ENGINEER

6201051096
Registration No.

THOMAS LENTNER, P.E. — Date

CITY OF KALAMAZOO APPROVAL:

DENNIS RANDOLPH — Date

REVISIONS

03–05–2025 BID SET

PROJECT NO.	SHEET NO.
0039–22–0050	1 OF 77

WATER & SEWER UTILITY SYMBOLS

EXISTING

- ST — STORM MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- CULVERT
- CULVERT W/O END SECTION
- CULVERT W/END SECTION
- S — SANITARY MANHOLE
- CO — CLEAN OUT
- GW — GATE VALVE & WELL
- GATE VALVE & BOX
- W — WATER STOP BOX
- FIRE HYDRANT
- MP — METER PIT
- WATER METER
- SH — SPRINKLER HEAD
- IRRIGATION VALVE

PROPOSED

- STORM MANHOLE
- INLET/CATCH BASIN
- CULVERT END SECTION
- SANITARY MANHOLE
- GV&W — GATE VALVE & WELL
- GV&B — GATE VALVE & BOX
- TSV&W — TAPPING SLEEVE VALVE & WELL
- TSV&B — TAPPING SLEEVE VALVE & BOX
- FIRE HYDRANT

REAL ESTATE SYMBOLS

- CONTIGUOUS PROPERTY SYMBOL
- XXXX — PARCEL NUMBER BOX
- NO ROW IMPACTS

MISCELLANEOUS UTILITY SYMBOLS

EXISTING

- GUY WIRE
- GP — GUY POLE
- U — UTILITY POLE
- UL — UTILITY POLE W/LIGHT
- LIGHT/DECOR LAMP POLE
- FL — FLOOD LIGHT
- GAS VALVE
- GAS VENT
- GAS METER
- GAS RISER
- TRAFFIC SIGNAL
- PEDESTRIAN RISER
- TRANSFORMER PAD
- U — PRIVATE UTILITY MANHOLE
- RAILROAD CROSSING
- ELECTRIC METER
- PB — PHONE BOOTH
- TS — TRAFFIC SIGNAL CONTROLLER
- HAND HOLE
- E — ELECTRIC RISER
- T — TELEPHONE RISER
- C — CABLE TV RISER
- W — MONITORING WELL
- UNDERGROUND MARKER

MISCELLANEOUS SYMBOLS

EXISTING

- RIPRAP
- SIGN
- FLOW DIRECTION
- STUMP
- WETLAND
- CONIFEROUS TREE
- DECIDUOUS TREE

  CL 1 1" TO 5"
  CL 2 6" TO 17"
  CL 3 18" TO 35"
  CL 4 36" AND UP
- CONIFEROUS SHRUB
- DECIDUOUS SHRUB
- SB# — SOIL BORING
- SECTION CORNER
- MON — MONUMENT
- IRON ROD/PIPE
- PK — PK NAIL
- BM# — BENCHMARK
- TP# — TRAVERSE POINT
- MAIL/NEWSPAPER BOX
- FP — FLAG POLE
- POST
- HAZARDOUS OR FLAMMABLE MATERIAL — USED WITH UNDERGROUND GAS & ELECTRICAL LINES
- CAUTION – CRITICAL UNDERGROUND UTILITY — USED WITH TELEPHONE & FIBER OPTIC LINES

PROPOSED

- RIPRAP
- SIGN
- FLOW DIRECTION
- XX WM, XX SAN, XXX STM — STRUCTURE NUMBER
- ADA SIDEWALK RAMP

UTILITY PATTERN

EXISTING

- ELEC — ELECTRICAL *
- 6" (COMPANY) GAS — GAS\OIL
- (COMPANY) CABLE/TEL — CABLE/TELEPHONE *
- FIBER OPTIC — FIBER OPTIC *
- 12" WM — WATER
- 12" SAN — SANITARY
- 12" STM — STORM

PROPOSED

- 12" — STORM/SANITARY/WATER
- 12" — PRIMARY UTILITY WILL HAVE A CONTINUOUS LINESTYLE, WITH THE SECONDARY UTILITY MATCHING ITS RESPECTIVE EXISTING UTILITY LINESTYLE

*O.H. = OVERHEAD , U.G. = UNDERGROUND

ROW PATTERN

EXISTING

- ROW — ROW
- SECTION
- PROPERTY/PARCEL

PROPOSED

- ROW — ROW

TOPO PATTERN

EXISTING

- HEDGE/TREE
- FENCE
- GUARDRAIL
- CENTERLINE OF DITCH
- RAILROAD
- WETLAND/EDGE OF WATER

PROPOSED

- GRADING LIMIT (SLOPE STAKE)
- CENTERLINE OF DITCH
- GUARDRAIL
- FENCE

REMOVAL LEGEND

- SIDEWALK REMOVAL
- PAVEMENT REMOVAL
- COLD MILLING HMA SURFACE
- HMA BASE CRUSHING AND SHAPING
- EXCAVATION, EARTH, MODIFIED
- CURB AND GUTTER, REM
- TREE, REM
- S-XXXXXX — SALVAGE
- B-XXXXXX — BULKHEAD
- A-XXXXXX — ABANDON
- R-XXXXXX — REMOVE
- ADJ-XXXXXX — ADJUST
- REL-XXXXXX — RELOCATE
- REC-XXXXXX — RECONSTRUCT
- R B/O-XXXXXX — REMOVE BY OTHERS
- ADJ B/O-XXXXXX — ADJUST BY OTHERS
- REL B/O-XXXXXX — RELOCATE BY OTHERS

IF NECESSARY FOR CLARITY

- (S) — SALVAGE
- (B) — BULKHEAD
- (A) — ABANDON
- (C) — CLEARING
- (R) — REMOVE
- (REL) — RELOCATE
- (REC) — RECONSTRUCT
- (REL B/O) — RELOCATE BY OTHERS
- (ADJ B/O) — ADJUST BY OTHERS

SPECIAL LEGEND

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

REVISIONS:
03-05-2025 BID SET

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H:	NTS V: N/A	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
LEGEND

SHEET 2 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_MichiganDrawings\Civil\Misc\220050LEG.dwg Mar 05, 2025 - 11:00am

GENERAL PROVISIONS

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) 2020 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION EXCEPT AS NOTED HEREIN AND IN THE PROPOSAL BOOK.

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER TO COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES FOR NOISE LEVELS, VIBRATIONS, OR ANY OTHER RESTRICTIONS WHILE REMOVING PAVEMENT OR FOR ANY OTHER CONSTRUCTION OPERATIONS WITHIN THIS CONTRACT TO BE INCLUDED IN THE RESPECTIVE ITEM OF WORK.

THE CONTRACTOR SHALL NOT ENTER UPON PRIVATE PROPERTY FOR ANY PURPOSE WITHOUT OBTAINING WRITTEN PERMISSION, NOTIFYING THE ENGINEER, AND HE/SHE SHALL BE RESPONSIBLE FOR PRESERVATION OF ALL PUBLIC PROPERTY, TREES, MONUMENTS, ETC. ALONG AND ADJACENT TO THE STREET AND/OR RIGHT OF WAY, AND SHALL USE EVERY PRECAUTION NECESSARY TO PREVENT DAMAGE OR INJURY THERETO. HE/SHE SHALL USE SUITABLE PRECAUTIONS TO PREVENT DAMAGE TO PIPES, CONDUITS, AND OTHER UNDERGROUND STRUCTURES AND SHALL PROTECT CAREFULLY FROM DISTURBANCE OR DAMAGE ALL MONUMENTS AND PROPERTY MARKERS UNTIL THE ENGINEER OR AUTHORIZED AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION AND SHALL NOT REMOVE THEM UNTIL DIRECTED.

THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE ENGINEER, LOCAL FIRE, POLICE, HOSPITAL, AND EMERGENCY AGENCIES 72 HOURS IN ADVANCE OF PROPOSED ROAD CLOSURES.

THE CONTRACTOR AND/OR HIS SUBCONTRACTOR SHALL NOTIFY "MISS DIG", LOCAL SEWER, FIRE AND POLICE DEPARTMENTS 72 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.

UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 74, 2013, THE CONTRACTOR SHALL DIAL 1-800-482-7171 (OR 811) A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

NO UTILITIES WILL BE RELOCATED AS A PART OF THIS PROJECT. THE CONTRACTOR SHALL WORK AROUND ALL EXISTING UTILITIES.

OWNERS OF PUBLIC UTILITIES WILL NOT BE REQUIRED TO MOVE ADDITIONAL POLES AND STRUCTURES THAT ARE NOT WITHIN GRADING OR STRUCTURE LIMITS IN ORDER TO FACILITATE THE OPERATION OF CONSTRUCTION EQUIPMENT, UNLESS IT IS DETERMINED BY THE ENGINEER THAT SUCH POLE LINE OR STRUCTURES CONSTITUTE A HAZARD TO THE PUBLIC OR ARE EXTRAORDINARILY DANGEROUS TO THE CONTRACTOR'S OPERATIONS.

THE FOLLOWING UTILITY COMPANIES HAVE FACILITIES WITHIN THE PROJECT LIMITS:

ELECTRIC:

CONSUMERS ENERGY
2500 E. CORK STREET
KALAMAZOO, MI 49001
ATTN: ANDRE TAYLOR
PH: (269) 337-2245

GAS:

CONSUMERS ENERGY
2500 E. CORK STREET
KALAMAZOO, MI 49001
ATTN: KYLE OAK
PH: (269) 337-2366

TELEPHONE:

AT&T
2919 MILLCORK STREET
KALAMAZOO, MI 49001
ATTN: PHIL BARDOCZ
PH: (269) 823-3339
ATTN: CARRIE DeMOTT
PH: (269) 384-4472

CABLE:

CHARTER COMMUNICATIONS
4176 COMMERCIAL DRIVE
PORTAGE, MI 49002
ATTN: GARY WILSON
PH: (269) 792-0638

SANITARY:

CITY OF KALAMAZOO
1415 N. HARRISON STREET
KALAMAZOO, MI 49007
ATTN: RYAN STOUGHTON
PH: (269) 337-8736

TRAFFIC:

CITY OF KALAMAZOO PUBLIC WORKS
415 E. STOCKBRIDGE AVE.
KALAMAZOO, MI 49001
ATTN: ANTHONY LADD, P.E.
PH: (269) 337-8215

FIBER:

ZAYO GROUP
240 E. SOUTH STREET
LANSING, MI 48910
ATTN: ANTHONY MORIO
PH: (850) 420-2505

WATER:

CITY OF KALAMAZOO
415 E. STOCKBRIDGE AVE.
KALAMAZOO, MI 49001
ATTN: ERIC SAJTAR

MAINTAINING TRAFFIC/TRAFFIC CONTROL

THE CONSTRUCTION INFLUENCE AREA (CIA) SHALL CONSIST OF THE WIDTH OF THE PROPOSED RIGHT-OF-WAY FROM THE PROJECT POINT OF BEGINNING TO THE POINT OF ENDING, CONNECTING SIDE STREETS, AND A SUFFICIENT DISTANCE BEFORE AND AFTER THE PROJECT TO WARN MOTORISTS OF THE CONSTRUCTION AHEAD, AS WELL AS THE POSTED DETOUR ROUTE AS SHOWN ON THE DETOUR SHEET.

THE CONTRACTOR SHALL MAINTAIN THE PEDESTRIAN ACCESS THROUGHOUT THE ENTIRE PROJECT AT ALL TIMES DURING CONSTRUCTION. AREAS OF SIDEWALK THAT ARE SHOWN TO BE REMOVED AND REPLACED SHALL BE MAINTAINED WITH A TEMPORARY HARD SURFACE. PEDESTRIAN ACCESS TO ALL RESIDENCES AND BUSINESSES SHALL BE ALLOWED AT ALL TIMES DURING CONSTRUCTION. PAYMENT FOR MAINTAINING PEDESTRIAN ACCESS IS INCLUDED IN THE MAINTAINING TRAFFIC PAY ITEMS AND WILL NOT BE PAID FOR SEPARATELY.

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER THAT LOCAL TRAFFIC AND EMERGENCY VEHICLES SHALL HAVE ACCESS WITHIN THE PROJECT AT ALL TIMES IN A MANNER APPROVED BY THE ENGINEER. ALL EMERGENCY RESPONSE, ROAD COMMISSION, MUNICIPALITIES, SCHOOL BUS GARAGES, OR OTHER NECESSARY AGENCIES SHALL BE NOTIFIED A MINIMUM OF FIVE DAYS IN ADVANCE OF IMPLEMENTING THE ROAD CLOSURE A. THIS SHALL BE INCLUDED IN THE COST OF THE PROJECT.

MAINTENANCE GRAVEL (TON) FOR MAINTAINING LOCAL TRAFFIC HAS BEEN INCLUDED IN THE PROJECT TO BE USED AS DIRECTED BY THE ENGINEER TO MAINTAIN VEHICULAR AND PEDESTRIAN TRAFFIC ALONG THE PROJECT, DRIVEWAYS, AND STREET APPROACHES.

GRADES FOR INTERSECTIONS

ALL INTERSECTIONS ARE TO BE CONSIDERED AS COMPLETE UNITS AND THEIR GRADES DETERMINED BEFORE CONSTRUCTION IS STARTED. THE NORMAL EDGE OF PAVEMENT GRADE ADJACENT TO THE SIDE ROAD INTERSECTION SHALL BE CARRIED ACROSS THE INTERSECTION WHEREVER POSSIBLE. THE SIDE ROAD APPROACH GRADE AND CROWN SHALL BE ESTABLISHED TO PROVIDE FOR DRAINAGE AND TO ASSURE SUITABLE RIDEABILITY OF THE SIDE ROAD.

PAVEMENT REMOVAL QUANTITIES

PAVEMENT REMOVAL AS SHOWN ON THE PLANS WILL BE AT THE DISCRETION OF THE ENGINEER. IF IN HIS/HER JUDGEMENT, AREAS OF PAVEMENT MAY BE LEFT IN PLACE, OR ADDITIONAL AREAS ADDED TO PROVIDE THE PROPER CROSS-SECTION AND BASE, CHANGES WILL BE MADE TO THE QUANTITIES.

SOIL EROSION MEASURES

APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTH-DISTURBING ACTIVITIES. PLACE TURF ESTABLISHMENT ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODABLE SLOPES AS DIRECTED BY THE ENGINEER.

ALL SOIL EROSION AND SEDIMENTATION MUST BE CONTROLLED AND CONTAINED ON SITE.

SOIL EROSION AND SEDIMENTATION CONTROL: IN ADDITION TO THE GENERAL SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS IN THE PROPOSAL, THE FOLLOWING MEASURES SHALL BE INCORPORATED INTO THIS PROJECT:

1. THE CONTRACTOR SHALL CONDUCT HIS OR HER OPERATIONS IN SUCH A MANNER AS TO MINIMIZE THE AREAS LEFT BARREN DURING CONSTRUCTION AND TO DISTURB ONLY THOSE AREAS ABSOLUTELY REQUIRED FOR THE CONSTRUCTION OF THE PROJECT.
2. EROSION CONTROL ITEMS SHALL BE INSTALLED AND MAINTAINED ACCORDING TO THE MDOT STANDARD PLANS AND SHALL BE REMOVED WHEN THEY ARE NO LONGER EFFECTIVE AS DETERMINED BY THE ENGINEER. NO SEPARATE PAYMENT SHALL BE ALLOWED FOR EITHER MAINTENANCE OR REMOVAL OF THE EROSION CONTROL ITEMS.
3. THE CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED IN STORM SEWERS AND DRAINAGE STRUCTURES CONSTRUCTED WITH THE PROJECT WHEN SUCH SEDIMENT EXCEEDS 1/2 OF THE SUMP DEPTH. THE ENGINEER WILL INSPECT SUMPS AFTER STORMS AND DIRECT THE CONTRACTOR TO CLEAN OUT TO PROVIDE FOR SEDIMENT COLLECTIONS. CLEANING SUMPS FOR SEDIMENTATION CONTROL SHALL NOT BE PAID FOR SEPARATELY.
4. THE CONTRACTOR SHALL FOLLOW ALL ENTITIES HAVING JURISDICTION FOR SOIL EROSION AND SEDIMENTATION CONTROL FOR ALL MATERIALS DISPOSED OF OFF THE PROPERTY.

ALL AREAS DISTURBED BY THE CONTRACTOR AND/OR HIS OR HER SUBCONTRACTOR BEYOND THE GRADING LIMITS OF THIS PROJECT SHALL BE RESTORED WITH THE USE OF SOD OR HYDROSEED AS DIRECTED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS ACTIVITY.

SAWCUTTING

PAYMENT FOR SAWCUTTING REQUIRED THROUGHOUT THIS PROJECT SHALL BE INCLUDED IN REMOVAL ITEMS AND WILL NOT BE PAID FOR SEPARATELY.

DRAINAGE STRUCTURES

ALL OFFSETS AND GRADES FOR PROPOSED STRUCTURES ARE TO THE PROPOSED CENTER OF CASTING.

ILLICIT CONNECTIONS TO STORM WATER SYSTEM

CONNECTIONS TO EXISTING STORM CONVEYANCE SYSTEMS NOT SHOWN ON THE PLANS MUST BE RECONNECTED WITH MINIMAL INTERRUPTION IN SERVICE. SIZE, TYPE AND LOCATION BY STATION AND OFFSET AND ANY SUSPECT ILLICIT DISCHARGE OBSERVED SHALL BE REPORTED TO THE ENGINEER PRIOR TO RECONNECTING. CONTRACTOR SHALL PROCEED AS DIRECTED BY THE ENGINEER.

PAVING

EXCAVATION OR FILL AS REQUIRED TO PREPARE DRIVE APPROACHES, SIDEWALK AND SIDEWALK RAMPS INCLUDED IN "Curb Ramp, Conc, 6 inch".

ANY RANDOM, IRREGULARLY CRACKED NEW CONCRETE CURB AND GUTTER THAT OCCURS BEFORE THE TOP COURSE OF PAVEMENT IS INSTALLED SHALL BE REMOVED AND REPLACED AT THE SOLE EXPENSE OF THE CONTRACTOR PRIOR TO PLACING THE TOP COURSE.

SIDEWALK AND SIDEWALK RAMP GRADES

ALL SIDEWALK AND CURB RAMP GRADES SHALL BE FORMED ACCORDING TO STANDARD PLAN R-28 SERIES AS SHOWN ON THE PLANS. PRIOR TO CONSTRUCTING THE SIDEWALK AND SIDEWALK RAMPS, THE ENGINEER WILL VERIFY THE GRADES ON THE FORMS SET AND AUTHORIZE THE CONSTRUCTION OF THE SIDEWALK AND CURB RAMPS.

ALL CURB RAMPS ON THIS PROJECT SHALL BE OF 6 INCH THICKNESS UNLESS OTHERWISE NOTED.

DETECTABLE WARNING SURFACES

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PROPOSED PLATES AND THE CITY SHALL REVIEW AND APPROVE IN WRITING PRIOR TO THE CONTRACTOR ORDERING AND INSTALLING THE PLATES. PLATE STYLE AND MATERIAL WILL BE DISCUSSED IN DETAIL AT THE PRECONSTRUCTION MEETING. ALL COORDINATION SHALL BE INCLUDED IN THE DETECTABLE WARNING SURFACE PAY ITEM AND WILL NOT BE PAID FOR SEPARATELY.

EARTHWORK

EARTHWORK QUANTITIES ARE ESTIMATED BY THE AVERAGE END AREA METHOD BASED UPON GROUND SURVEY INFORMATION. ALL EARTHWORK ITEMS WILL BE INCLUDED IN THE "Station Grading" PAY ITEMS AND WILL NOT BE PAID FOR SEPARATELY.

ALL EXCAVATION UNDER OR WITHIN 5 FEET OF THE PAVEMENT SECTION SHALL BE BACKFILLED AND COMPACTED WITH CLASS II SAND WITHIN THE PAVED SECTION AND A 1:1 INFLUENCE OUTSIDE THE PAVED SECTION.

THROUGHOUT THE DURATION OF CONSTRUCTION, NO UNDERCUTS WILL BE LEFT OVERNIGHT NEXT TO THE EDGE OF THE TRAVELED WAY.

EXCAVATION OF TRENCHES OVER 5' DEEP WITHIN 10' OF THE EDGE OF THE TRAVELED PAVEMENT SHALL NOT BE LEFT OPEN OVERNIGHT.

BACKFILL BEHIND ALL PROPOSED CURB IN ACCORDANCE WITH THE MDOT STANDARD SPECIFICATIONS OF CONSTRUCTION. WORK IS INCLUDED IN THE "Station Grading" PAY ITEM.

MISCELLANEOUS

RUBBISH COLLECTION SHALL NOT BE INTERFERED WITH BY CONTRACTOR'S OPERATIONS. IF ACCESS TO CERTAIN AREAS IS BLOCKED BY CONTRACTOR OPERATIONS, HE/SHE SHALL TRANSPORT THE RUBBISH THEMSELVES TO A LOCATION ACCESSIBLE TO COLLECTION CREWS.

AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REPAIR OR REPLACE ANY MAILBOXES OR THEIR SUPPORTS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS ACTIVITY.

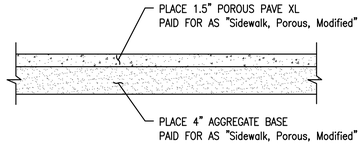
ANY SEWER CLEANOUTS AND/OR CURB STOP BOXES LOCATED IN SIDEWALKS, DRIVEWAYS, OR ANY OTHER AREAS DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO MEET PROPOSED ELEVATIONS. PVC PIPE SHALL BE PLACED AROUND CLEANOUT AND STOPS PRIOR TO PLACING NEW CONCRETE OR HMA MATERIAL IF LOCATED WITHIN A DRIVEWAY OR SIDEWALK. ANY ADDITIONAL CURB STOP BOXES THAT NEED TO BE REPLACED SHALL BE COORDINATED WITH THE ENGINEER AND CITY TO ENSURE CITY APPROVED STOP BOXES ARE USED. PAYMENT FOR ADJUSTING, PVC SLEEVES, AND NEW STOP BOXES SHALL BE INCLUDED IN THE DRIVEWAY AND SIDEWALK PAY ITEMS AND WILL NOT BE PAID FOR SEPARATELY.

REPLACING AND ADJUSTING MONUMENT BOXES

ALL GOVERNMENT CORNERS ON THIS PROJECT SHALL BE PRESERVED WHETHER SHOWN OR NOT. IT MAY BE NECESSARY TO PLACE OR ADJUST MONUMENT BOXES AS REQUIRED. WORK FOR ADJUSTING, REPLACING AND/OR PLACING NEW MONUMENTS SHALL BE COMPLETED IN ACCORDANCE WITH MDOT STANDARDS AND WILL BE PAID FOR BY THE ASSOCIATED CONTRACT ITEM.

EXISTING WATER MAINS AND SEWERS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PROPERLY IDENTIFIED EXISTING WATER MAINS AND/OR EXISTING SEWERS DURING THE CONSTRUCTION OF THIS PROJECT.



POROUS PAVE XL DETAIL

NOT TO SCALE

COLOR: REDWOOD

QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
1	LSUM	Mobilization, Max 10%
4	Ea	Dr Structure, Rem
40	Ft	Sewer, Rem, Less than 24 inch
40	Ft	Sewer, Cl V, 12 inch, Tr Det B
4	Ea	Dr Structure, 24 inch dia
30	Ft	Dr Structure, Adj, Add Depth
8	Ea	Dr Structure Cover, Type S, Modified
37	Ton	Hand Patching
260	Sft	Sidewalk, Conc, 4 inch
3	Ea	Sign, Type III, Flush Mount Base
112	Syd	Surface Restoration
2	Ea	Monument Box
2	Ea	Monument Box Adj
10	Ea	Gate Valve Box, Top Section, Modified

NOTE: SEWER QUANTITIES TO BE USED AT THE DIRECTION OF THE ENGINEER

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34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

REVISIONS:
03-05-2025 BID SET

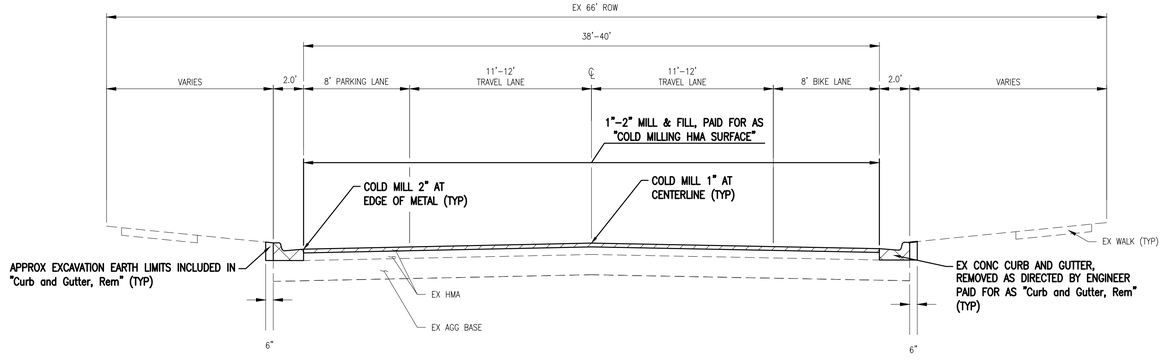
DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
08-29-2023	0092-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H:	N/A	NAD83	NAVD88
							V:	N/A		

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

GENERAL NOTES

SHEET 3 OF 77

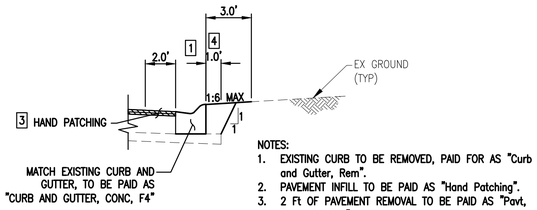
DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_MichiganDrawings\Civil\Misc\220050NOT.dwg Mar 05, 2025 - 11:00am



EXISTING TYPICAL CROSS SECTION

APPLIES: P.O.B. TO STA 106+36

NOTES:
1. COLD MILLING TO BE 2" MAXIMUM.
2. CURB REMOVALS ARE AS DIRECTED BY ENGINEER.
3. DRIVEWAY REMOVALS TO BE PAID AS "Pavt, Rem, Modified"
4. ADDITIONAL CONCRETE REMOVAL FOR EXISTING SQUARE CONCRETE MANHOLE COLLARS ARE INCIDENTAL TO PAY ITEM "Dr Str Cover, Adj, Type 1, Modified".
5. WHEN EXISTING CONCRETE COLLARS ARE SQUARE, PLACE "Hand Patching" AS DIRECTED BY ENGINEER TO FILL IN SQUARE HOLE TO MEET SPECIAL PROVISION FOR STRUCTURE ADJUSTMENTS. COORDINATE WITH ENGINEER IF DEVIATION FROM TYPICALS IS REQUIRED FOR TRENCH WIDTHS.



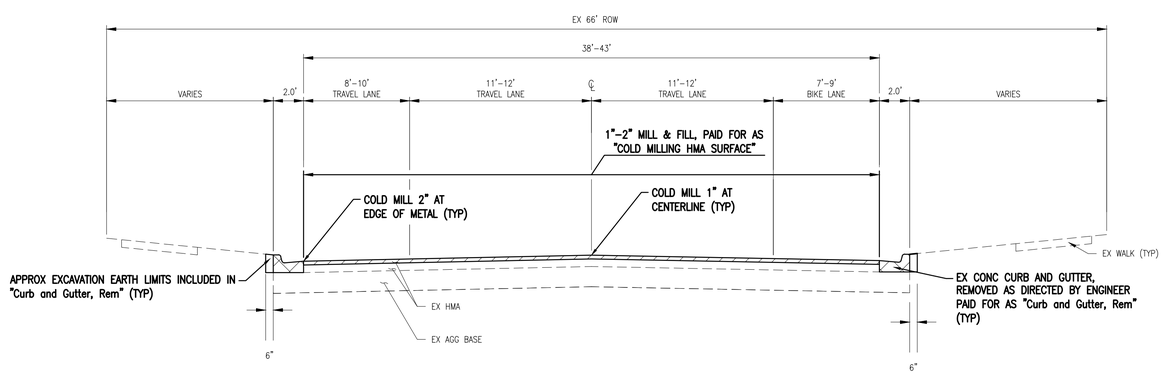
NOTES:
1. EXISTING CURB TO BE REMOVED, PAID FOR AS "Curb and Gutter, Rem".
2. PAVEMENT INFILL TO BE PAID AS "Hand Patching".
3. 2 Ft OF PAVEMENT REMOVAL TO BE PAID AS "Pavt, Rem, Modified".
4. "Earth Ex" AND "Embankment" FOR CURB AND GUTTER IS INCLUDED IN "Curb and Gutter, Rem".

FULL DEPTH HMA CURB AND GUTTER REPAIR DETAIL

AS DIRECTED BY ENGINEER

EXISTING TYPICAL CROSS SECTION

APPLIES: STA 106+36 TO STA 109+00



EXISTING TYPICAL CROSS SECTION

APPLIES: STA 109+00 TO P.O.E.

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Livonia, MI 48150
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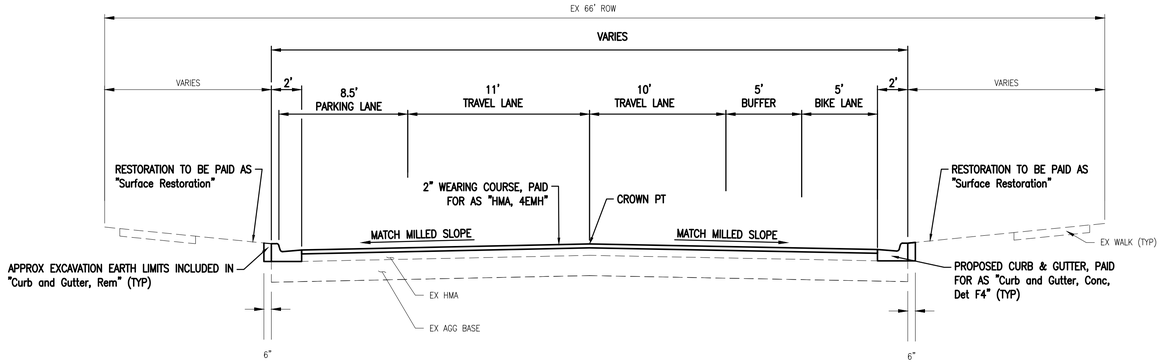
REVISIONS:
03-05-2025 BID SET

DATE 09-24-2023 | PROJ NUMBER 0039-22-0060 | ENG TL | PROJ MGR MM | CADD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP KALAMAZOO | SCALE H: 1"=5' V: N/A | HORIZ DATUM NAD83 | VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

EXISTING TYPICAL CROSS SECTIONS

SHEET 4 OF 77

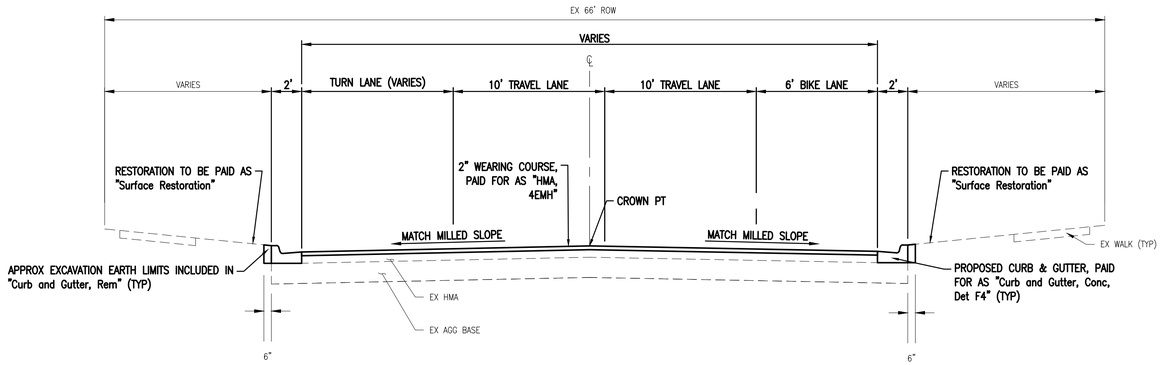


PROPOSED TYPICAL CROSS SECTION

APPLIES: P.O.B. TO STA 106+36

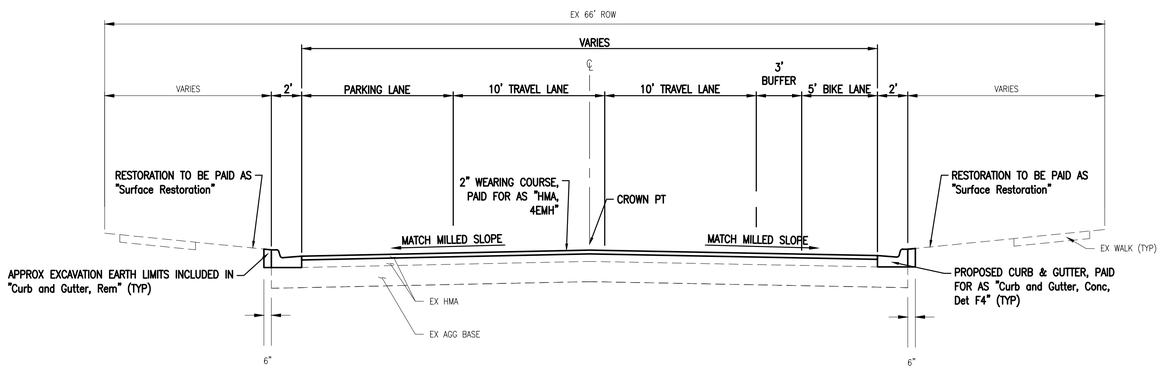
NOTE:

1. LONGITUDINAL PAVEMENT JOINTS TO BE ALIGNED WITH LANE LINES OR CENTERED IN WHEEL PATHS OR AS DIRECTED BY ENGINEER.



PROPOSED TYPICAL CROSS SECTION

APPLIES: STA 106+36 TO STA 109+00



PROPOSED TYPICAL CROSS SECTION

APPLIES: STA 109+00 TO P.O.E.

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Livonia, MI 48150
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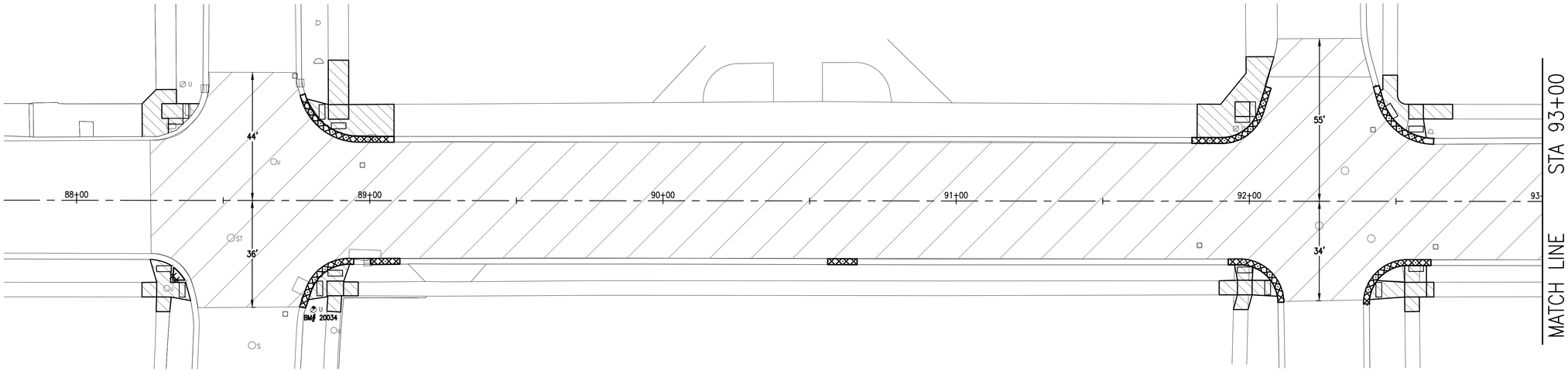
REVISIONS:
03-05-2025 BID SET

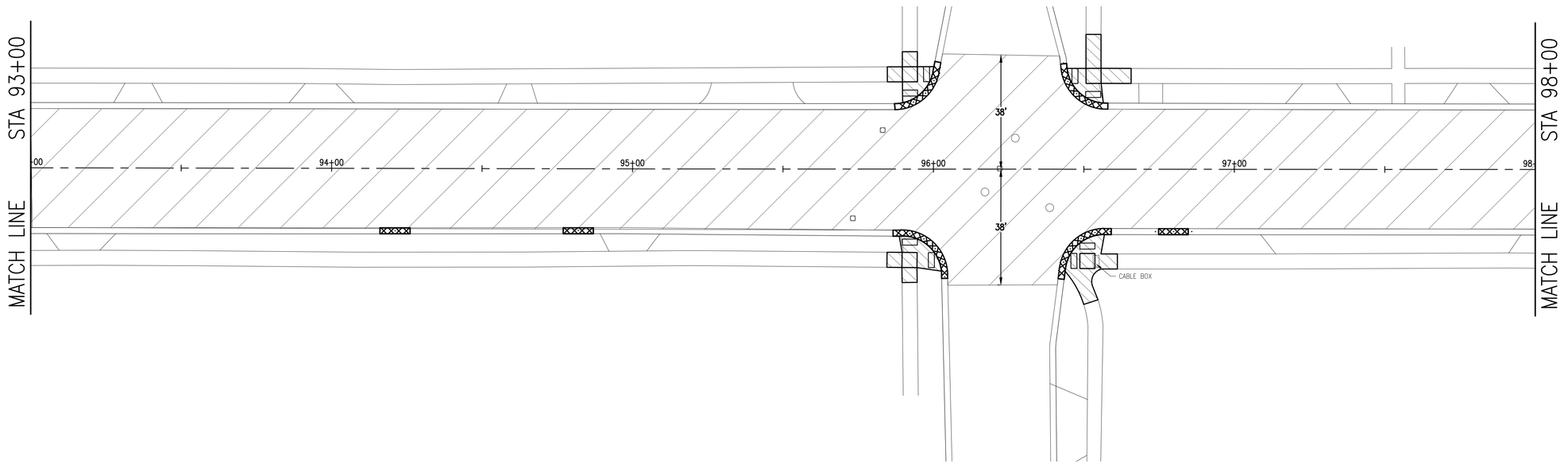
DATE 03-04-2025
PROJ NUMBER 0039-22-0060
ENG TL
PROJ MGR MM
CADD PR
COUNTY KALAMAZOO
CITY/VILLAGE/TOWNSHIP KALAMAZOO
SCALE H: 1"=5' V: N/A
HORIZ DATUM NAD83
VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
PROPOSED TYPICAL CROSS SECTIONS

SHEET 5 OF 77

S WESTNEDGE AVENUE
(R.O.W. VARIES)





QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
321	Ft	Curb and Gutter, Rem
271	Syd	Sidewalk, Rem
72	Syd	Pavt, Rem, Modified
5	Ea	Dr Structure Cover, Adj, Type 1, Modified
10	Ea	Gate Box, Adjust, Case 1, Modified
4789	Syd	Cold Milling HMA Surface
25	Ton	Hand Patching
554	Ton	HMA, 4EMH
321	Ft	Curb and Gutter, Conc, Det F4
124	Ft	Detectable Warning Surface
2922	Sft	Curb Ramp, Conc, 6 inch
1	Ea	Monument Preservation

CONC REM SCHEDULE

STATION	OFFSET	Pavt, Rem, Modified (Syd)	Sidewalk, Rem (Syd)	Curb and Gutter, Rem (Ft)
88+23	L	0	28	
88+23	R	0	25	
88+75	L	8	28	34
88+75	R	6	17	26
89+00	R	2		10
90+56	R	2		10
91+81	L	8	41	36
91+91	R	6	14	28
92+40	L	6	19	28
92+38	R	6	19	27
94+16	R	2		10
94+77	R	2		10
95+89	R	6	17	28
95+89	L	5	17	24
96+40	R	5	23	22
96+42	L	5	23	18
96+74	R	2		10
	Totals:	72	271	321

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GRAPHIC SCALE: HALF FULL 0 10 20 40 60 — 40 feet 20 feet — VERT HALF: 1"=8' VERT FULL: 1"=4'
HALF: 11x17
FULL: 22x34

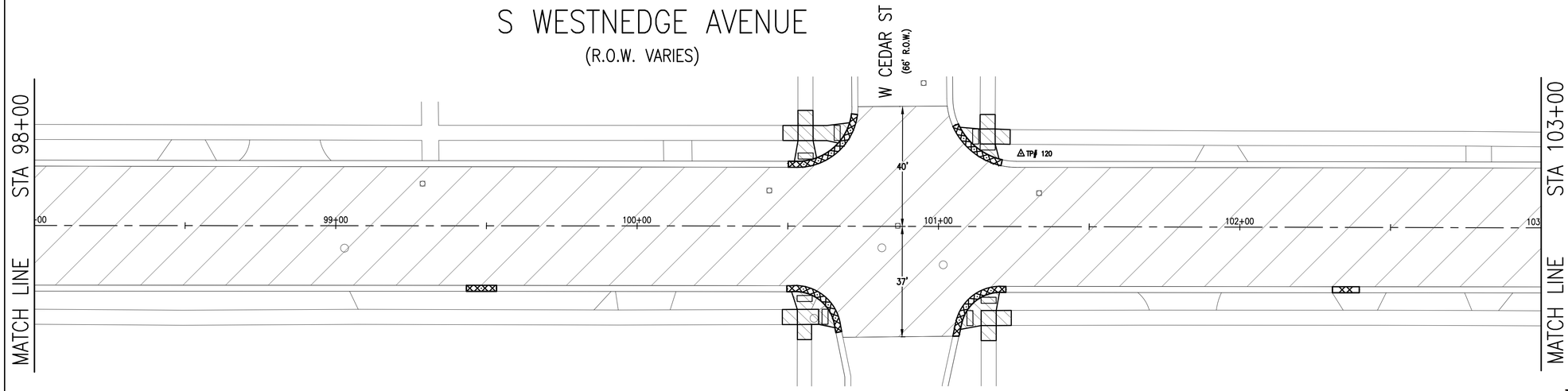
REVISIONS:
03-05-2025 BID SET

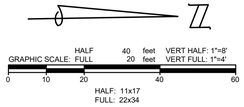
DATE 09-29-2023
PROJ NUMBER 003-22-0050
ENG TL
PROJ MGR MM
CADD PR
COUNTY KALAMAZOO
CITY/VILLAGE/TOWNSHIP KALAMAZOO
SCALE H: 1"=40' V: 1"=4'
HORIZ DATUM NAD83
VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
CONSTRUCTION PLAN
P.O.B. TO STA 98+00

SHEET 6 OF 77

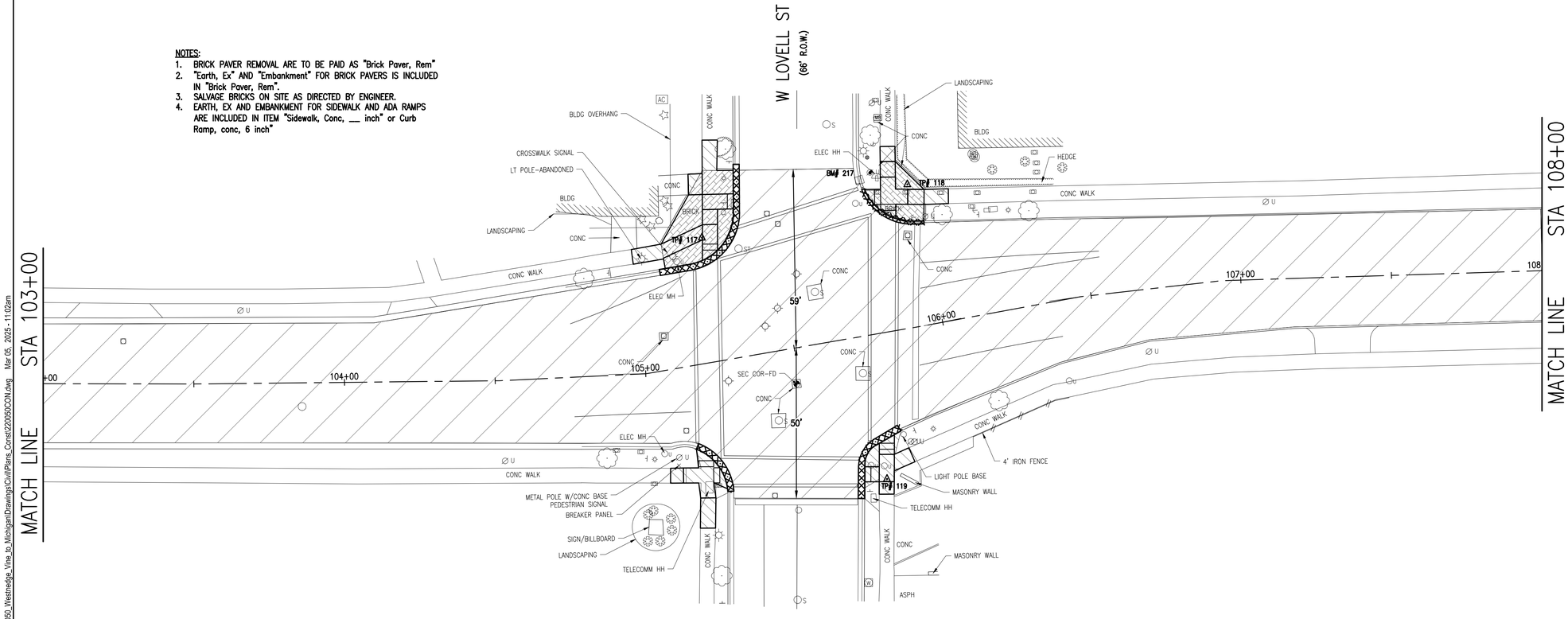
DRAWING PATH: P:\0000_0\0003922\0050_Westnedge_Vine_to_Michigan\Drawings\Civil\Plans_Const\220050CON.dwg Mar 05, 2025 - 11:02am





NOTES:

1. BRICK PAVER REMOVAL ARE TO BE PAID AS "Brick Paver, Rem"
2. "Earth, Ex" AND "Embankment" FOR BRICK PAVERS IS INCLUDED IN "Brick Paver, Rem".
3. SALVAGE BRICKS ON SITE AS DIRECTED BY ENGINEER.
4. EARTH, EX AND EMBANKMENT FOR SIDEWALK AND ADA RAMPS ARE INCLUDED IN ITEM "Sidewalk, Conc, __ inch" or Curb Ramp, conc, 6 inch"



QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
241	Ft	Curb and Gutter, Rem
122	Syd	Sidewalk, Rem
82	Syd	Brick Paver, Rem
54	Syd	Pavt, Rem, Modified
6	Syd	Aggregate Base, 4 inch
7	Ea	Dr Structure Cover, Adj, Type 1, Modified
10	Ea	Gate Box, Adjust, Case 1, Modified
5167	Syd	Cold Milling HMA Surface
18	Ton	Hand Patching
597	Ton	HMA, 4EMH
241	Ft	Curb and Gutter, Conc, Det F4
80	Ft	Detectable Warning Surface
1925	Sft	Curb Ramp, Conc, 6 inch
50	Sft	Sidewalk, Porous, Modified
2	Ea	Salvage and Erect Sign
1	Ea	Monument Preservation

CONC REM SCHEDULE

STATION	OFFSET	Pavt, Rem, Modified (Syd)	Sidewalk, Rem (Syd)	Brick Paver, Rem (Syd)	Curb and Gutter, Rem (Ft)
99+43	R	2			10
100+50	R	6	20		25
100+50	L	7	15		32
101+04	R	6	16		25
101+04	L	4	17		20
105+05	L	11	10	56	50
105+16	R	4	12		20
105+70	L	6	10	26	26
105+70	R	7	22		33
	Totals:	54	122	82	241

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REVISIONS:
03-05-2025 BID SET

DATE 09-29-2023 | PROJ NUMBER 0039-22-0050 | ENG TL | PROJ MGR MM | CADD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP KALAMAZOO | SCALE H: 1"=40' V: 1"=4' | HORIZ DATUM NAD83 | VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
CONSTRUCTION PLAN
STA 98+00 TO STA 108+00

SHEET 7 OF 77

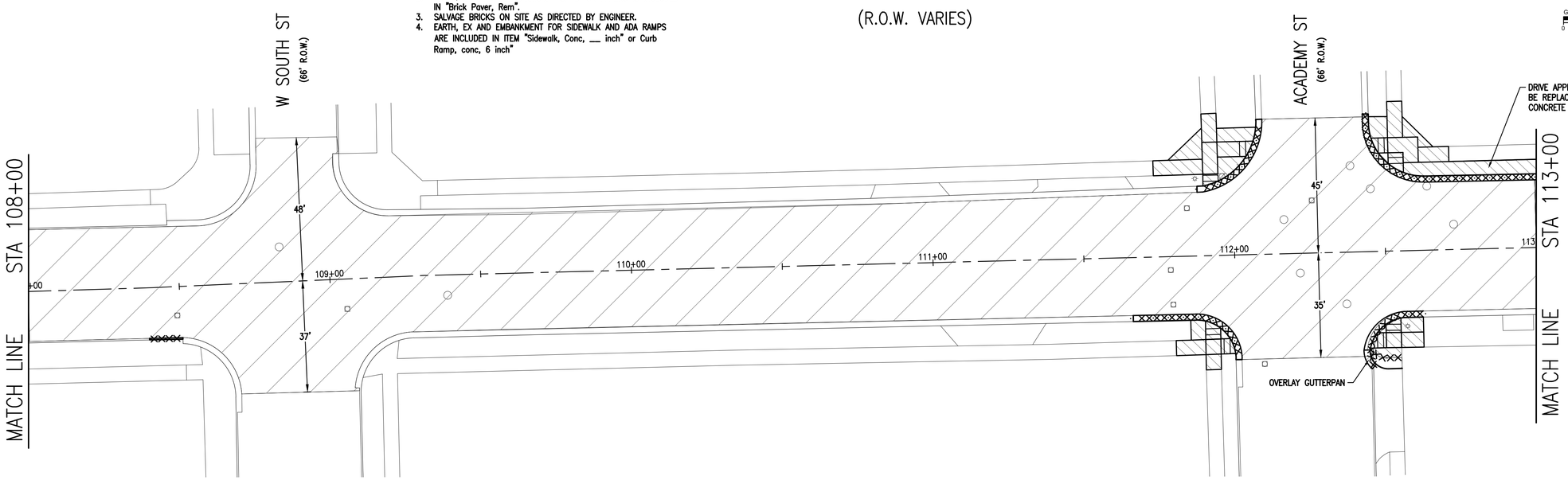
DRAWING PATH: P:\0000_0100\039220050_Westnedge_Vine_to_MichiganDrawings\Civil\Plans_Const\220050CON.dwg Mar 05, 2025 - 11:02am

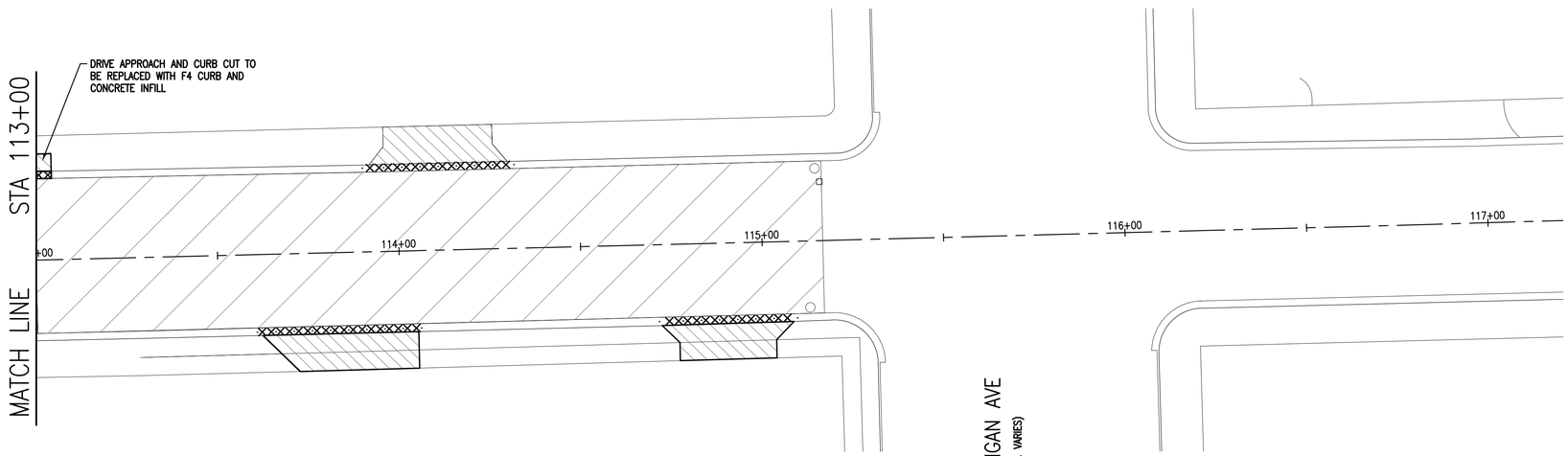
NOTES:

1. BRICK PAVER REMOVAL ARE TO BE PAID AS "Brick Paver, Rem"
2. "Earth, Ex" AND "Embankment" FOR BRICK PAVERS IS INCLUDED IN "Brick Paver, Rem".
3. SALVAGE BRICKS ON SITE AS DIRECTED BY ENGINEER.
4. EARTH, EX AND EMBANKMENT FOR SIDEWALK AND ADA RAMPS ARE INCLUDED IN ITEM "Sidewalk, Conc, __ inch" or Curb Ramp, conc, 6 inch"

S WESTNEDGE AVENUE

(R.O.W. VARIES)





GRAPHIC SCALE: HALF 0 10 20 40 60 (HALF: 11x17, FULL: 22x34) — HALF 40 feet VERT HALF: 1"=8', FULL 20 feet VERT FULL: 1"=4'

QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
254	Ft	Curb and Gutter, Rem
120	Syd	Sidewalk, Rem
73	Syd	Brick Paver, Rem
105	Syd	Pavt, Rem, Modified
12	Syd	Aggregate Base, 4 inch
9	Ea	Dr Structure Cover, Adj, Type 1, Modified
10	Ea	Gate Box, Adjust, Case 1, Modified
3609	Syd	Cold Milling HMA Surface
10	Ton	Hand Patching
417	Ton	HMA, 4EMH
29	Syd	Driveway, Nonreinf Conc, 8 inch
254	Ft	Curb and Gutter, Conc, Det F4
40	Ft	Detectable Warning Surface
153	Sft	Sidewalk, Conc, 4 inch
306	Sft	Sidewalk, Conc, 8 inch
1130	Sft	Curb Ramp, Conc, 6 inch
100	Sft	Sidewalk, Porous, Modified

CONC REM SCHEDULE

STATION	OFFSET	Pavt, Rem (Syd)	Sidewalk, Rem (Syd)	Brick Paver, Rem (Syd)	Curb and Gutter, Rem (Ft)
108+38	R	2			10
111+70	R	10	19		45
111+88	L	7		39	32
112+42	R	6	20		25
112+42	L	16		33	72
112+72	L	20	17		
113+64	R	24	17		45
113+98	L	15	13		
114+79	R	20	17		25
Totals:		120	103	72	254

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OHM-ADVISORS.COM

REVISIONS:
03-05-2025 BID SET

DATE 03-24-2023 | PROJ NUMBER 0039-22-0050 | ENG TL | PROJ MGR MM | CADD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP CITY OF KALAMAZOO | SCALE H 1"=40' V 1"=4' | HORIZ DATUM NAD83 | VERT DATUM NAVD88

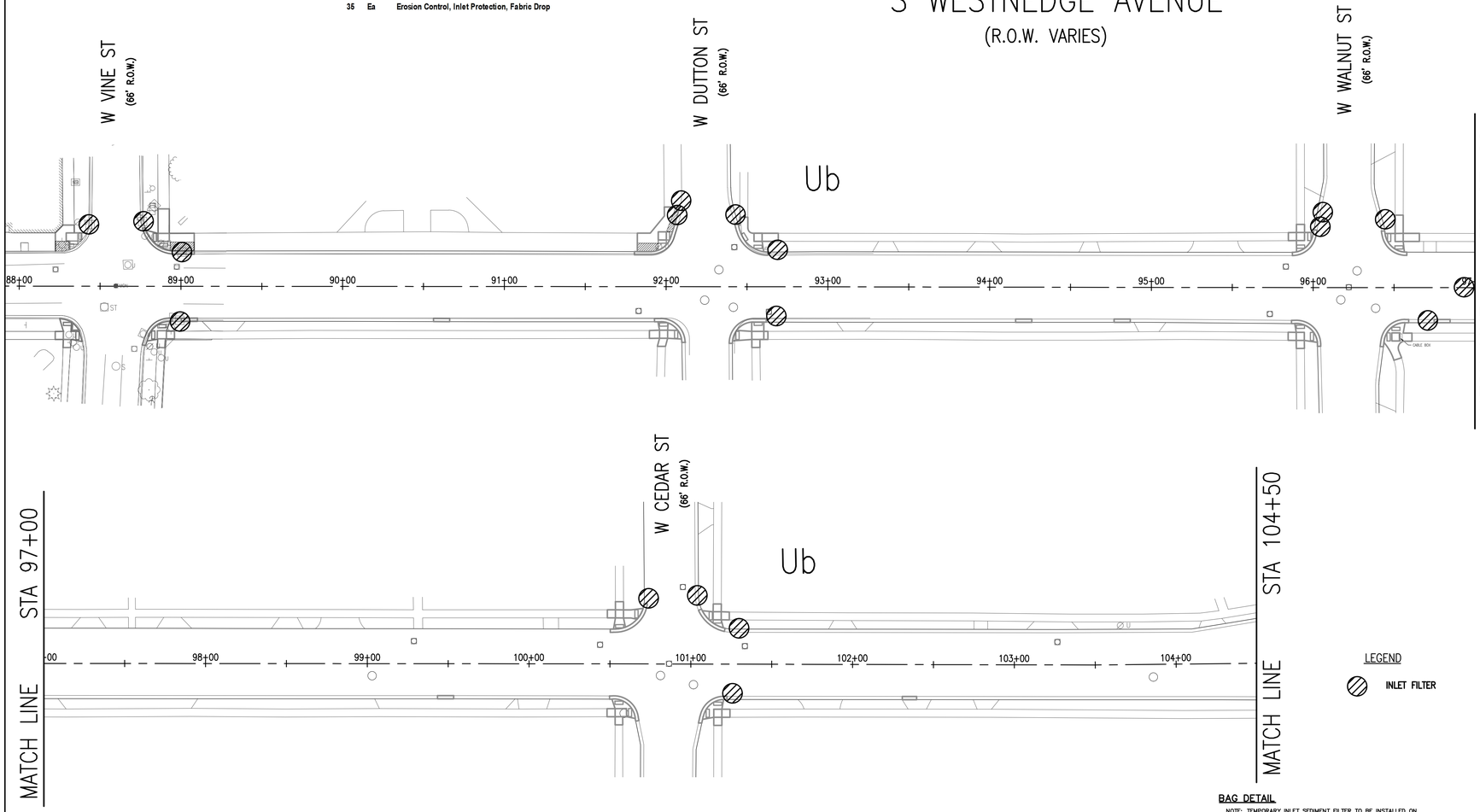
CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
CONSTRUCTION PLAN
STA 108+00 TO P.O.E.

SHEET 8 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Plans_Const\220050CON.dwg Mar 05, 2025 - 11:02am

QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
35	Ea	Erosion Control, Inlet Protection, Fabric Drop



LEGEND

INLET FILTER

APPLICANT

CITY OF KALAMAZOO
415 STOCKBRIDGE AVE.
KALAMAZOO, MI 49901
(269)-337-8215

GRAPHIC SCALE: FULL HALF 0 20 40 80 120 — 80 feet 40 feet — VERT HALF: 1"=8' VERT FULL: 1"=4"
HALF: 11x17
FULL: 22x34

SITE DATA

SOIL TYPES:	Ub
TEMPORARY SOIL EROSION MEASURES:	INLET PROTECTION, FABRIC DROP
PROXIMITY TO LAKES AND STREAMS:	–
PERMANENT SOIL EROSION MEASURES:	3" TOPSOIL STABILIZED WITH HYDROSEED
SITE SIZE	–
AREA OF DISTURBANCE:	–
IMPACTED AREA:	ALL WORK WILL OCCUR WITHIN THE EXISTING ROAD RIGHT-OF-WAY
LEGAL DESCRIPTION:	N/A – PUBLIC ROAD RIGHT OF WAY

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL ACT OF THE STATE OF MICHIGAN, PART 91 OF ACT 451, OF THE PUBLIC ACTS OF 1994 AND THE REQUIREMENTS OF CITY OF KALAMAZOO.
2. THE CONTRACTOR SHALL CONDUCT OPERATIONS IN A MANNER THAT WILL REDUCE ACCELERATED EROSION TO THE PRACTICAL MINIMUM AND PREVENT DAMAGING SILTATION TO EXISTING SEWERS AND WATER COURSES LEADING FROM THE WORK SITE.
3. THE CONTRACTOR SHALL CONDUCT WORK IN SUCH A MANNER AS TO PREVENT THE ENTRY OF FUELS, OILS, BITUMINOUS MATERIALS, CHEMICALS, SEWERAGE OR OTHER HARMFUL MATERIALS INTO NEARBY LAKES AND STREAMS.
4. WASTE DISPOSAL AREAS SHALL BE SELECTED BY THE CONTRACTOR WITH FULL CONSIDERATION OF EROSION AND SEDIMENT CONTROL, SELECTION OF DISPOSAL SITE, AND CONTROL OF OPERATIONS, AND THE RESTORATION OF SAID AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. EXCAVATION FROM THE RIGHT-OF-WAY, CHANNELS, OR OTHER MATERIAL SHALL NOT BE DEPOSITED IN OR NEAR RIVERS, STREAMS OR PONDS WHERE IT MAY ENTER THE WATERWAY.
6. AT THE COMPLETION OF EACH DAY'S CONSTRUCTION, CARE SHALL BE TAKEN TO ENSURE THAT MINIMAL EROSION WILL OCCUR IN TRENCHES AND TO STOCKPILED MATERIALS UNTIL RESUMPTION OF WORK
7. CONTRACTOR SHALL CONFINE OPERATIONS TO THE MINIMUM AMOUNT OF WORKING SPACE PRACTICAL TO MINIMIZE SOIL EROSION.
8. THE PROJECT WILL BE CONTINUALLY INSPECTED BY THE ENGINEER FOR EROSION CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR IMMEDIATELY UPON NOTICE OF SUCH DEFICIENCIES. FAILURE TO CORRECT THE DEFICIENCIES MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER AND THERE WILL BE NO CONTRACT TIME EXTENSION GRANTED FOR THIS TYPE OF STOPPAGE.
9. TEMPORARY SOIL EROSION CONTROL MEASURES CONSISTING OF MULCHING, SILT SACK AND TARPING SHALL BE IMPLEMENTED THROUGHOUT THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT, AND SHALL BE REMOVED BY THE CONTRACTOR AFTER THE PERMANENT SOIL EROSION MEASURES HAVE BEEN COMPLETED.
10. STRAW MULCH WITH NETTING TIE DOWN, HIGH VELOCITY MULCH BLANKET OR OTHER APPROVED MULCH SHALL BE PLACED ON DISTURBED SLOPES WHERE DIRECTED BY THE ENGINEER.
11. PERMANENT SOIL EROSION MEASURES CONSISTING OF THM MIXTURE SEED AND MULCH BLANKET SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS OF FINAL GRADING. IN THE EVENT IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE THE AREA DUE TO SITE CONDITIONS AND/OR SEASONAL LIMITATIONS, THE TEMPORARY MEASURES SHALL REMAIN IN FORCE AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS IT IS PRACTICAL TO COMPLETE THE PERMANENT SOIL EROSION CONTROL MEASURES.
12. THE ENGINEER SHALL HAVE FULL AUTHORITY TO TEMPORARILY SUSPEND WORK IN THE EVENT THAT ANY OF THE ABOVE REQUIREMENTS ARE NOT BEING MET BY THE CONTRACTOR, OR IF CONDITIONS INDICATE THAT ADDITIONAL TEMPORARY CONTROL MEASURES ARE WARRANTED, IN THE OPINION OF THE ENGINEER.
13. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL INLET FILTERS AT ALL INLETS IN THE CONSTRUCTION AREA PER STANDARD SPECIFICATION DETAIL DRAWING SI-4, INLET FILTER. ALL OTHER SESC MEASURES TO BE IN PLACE PRIOR TO START OF EARTH DISTURBANCE ACTIVITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE TEMPORARY ROAD SURFACE AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL THE FULL COMPLETION OF THE PROJECT.
15. ALL WORK TO BE COMPLETED WITHIN EXISTING RIGHT-OF-WAY AND/OR EASEMENTS.

TEMPORARY EROSION CONTROLS MAINTENANCE PLAN

MEASURE	MAINTENANCE SCHEDULE
	INLET PROTECTION INSTALL AT THE START OF CONSTRUCTION PER PLAN. INSPECT WEEKLY OR AFTER EACH RAIN EVENT. REMOVE ACCUMULATED SEDIMENTS. PAID FOR AS: Erosion Control, Inlet Protection, Fabric Drop
DUST CONTROL	WATER SHALL BE APPLIED TO EXPOSED AREAS BY THE CONTRACTOR IN THE EVENT OF EXCESSIVE AIRBORNE DUST. DUST CONTROL SHALL BE APPLIED AS DIRECTED BY THE ENGINEER OR CITY PERSONNEL. PAID FOR AS: Minor Traf Devices

PERMANENT EROSION CONTROL PROGRAM PROPOSAL

THE CITY OF KALAMAZOO WILL BE RESPONSIBLE FOR THE MAINTENANCE OF PERMANENT SOIL EROSION CONTROL MEASURES

PAVEMENT (PERM)	PAVEMENT SHALL BE PLACED AT THE COMPLETION OF THE GRADING WORK. NEW PAVEMENT SHALL BE SWEPT AS DIRECTED BY THE ENGINEER.
*VEGETATION (PERM)	TOPSOIL SHALL BE PLACED UPON THE COMPLETION OF THE ROADWAY CONSTRUCTION. HYDROSEED SHALL BE WATERED AND MULCH MAINTAINED UNTIL VIGOROUS TURF GROWTH HAS BEEN ESTABLISHED. PAID FOR AS: Surface Restoration

SURFACE RESTORATION

A. GRASS SEED: FRESH, CLEAN, DRY, NEW-CROP SEED COMPLYING WITH AOSA'S "JOURNAL OF SEED TECHNOLOGY; RULES FOR TESTING SEEDS" FOR PURITY AND GERMINATION TOLERANCES.

B. SEED SHALL MEET THE FOLLOWING REQUIREMENTS (PERCENT MIXTURE PROPORTIONS BY WEIGHT).

1. MAINTAINED LAWN AREAS

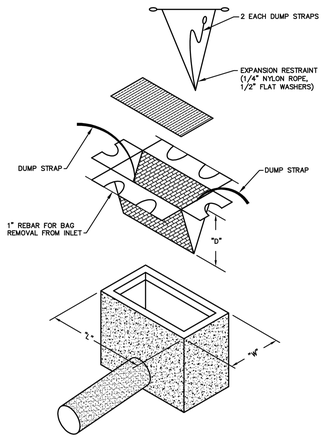
a. SEED: MDOT TYPE THM MIX (20% PERENNIAL RYE, 30% KENTUCKY BLUE, 50% RED FESCUE) APPLIED AT 220 lbs./ACRE

C. SEED SHALL HAVE NOT LESS THAN 95 PERCENT GERMINATION, NOT LESS THAN 85 PERCENT PURE SEED, AND NOT MORE THAN 0.5 PERCENT WEED SEED.

D. ALL GRASS SEEDING SHALL MEET THE REQUIREMENTS FOR PURITY AND GERMINATION AS CALLED FOR IN THE MDOT STANDARD SPECIFICATION FOR CONSTRUCTION TABLE 917-1 FOR SEED MIXTURES. SEED SHALL BE DELIVERED IN DURABLE CONTAINERS WHICH SHOW THE MANUFACTURER'S NAME, LOT NUMBER, WEIGHT, CONTENTS, PURITY, AND GERMINATION. TURF ESTABLISHMENT SHALL CONFORM TO MDOT SECTION 816. ANY LAWNS DAMAGED THAT ARE PLANTED WITH GRASS OTHER THAN THAT SPECIFIED IN THESE SPECIFICATIONS MUST BE RESTORED TO PRE-EXISTING CONDITIONS. LANDSCAPING AND ASSOCIATED VEGETATION (PLANTS, GRASSES, SHRUBS, ETC.), STONE, MULCH, ETC. MUST BE REPLACED TO PRE-CONSTRUCTION CONDITIONS OR BETTER. THIS DOES NOT INCLUDE TREES THAT ARE REQUIRED TO BE REMOVED AS PROVIDED IN THESE SPECIFICATIONS.

BAG DETAIL

NOTE: TEMPORARY INLET SEDIMENT FILTER TO BE INSTALLED ON ALL PAVED CATCH BASINS OR STORM INLETS. INLET FILTER TO BE SIMILAR TO "STREAMGUARD" AS MANUFACTURED BY STORMWATER SERVICES CORP. (208-767-0441) OR "SILTSACK" AS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS, INC., (800-448-3636). CLEAN FILTER AS NEEDED.



SILTSACK SEDIMENT FILTER DETAIL

Know what's **below.** **Call** before you dig.

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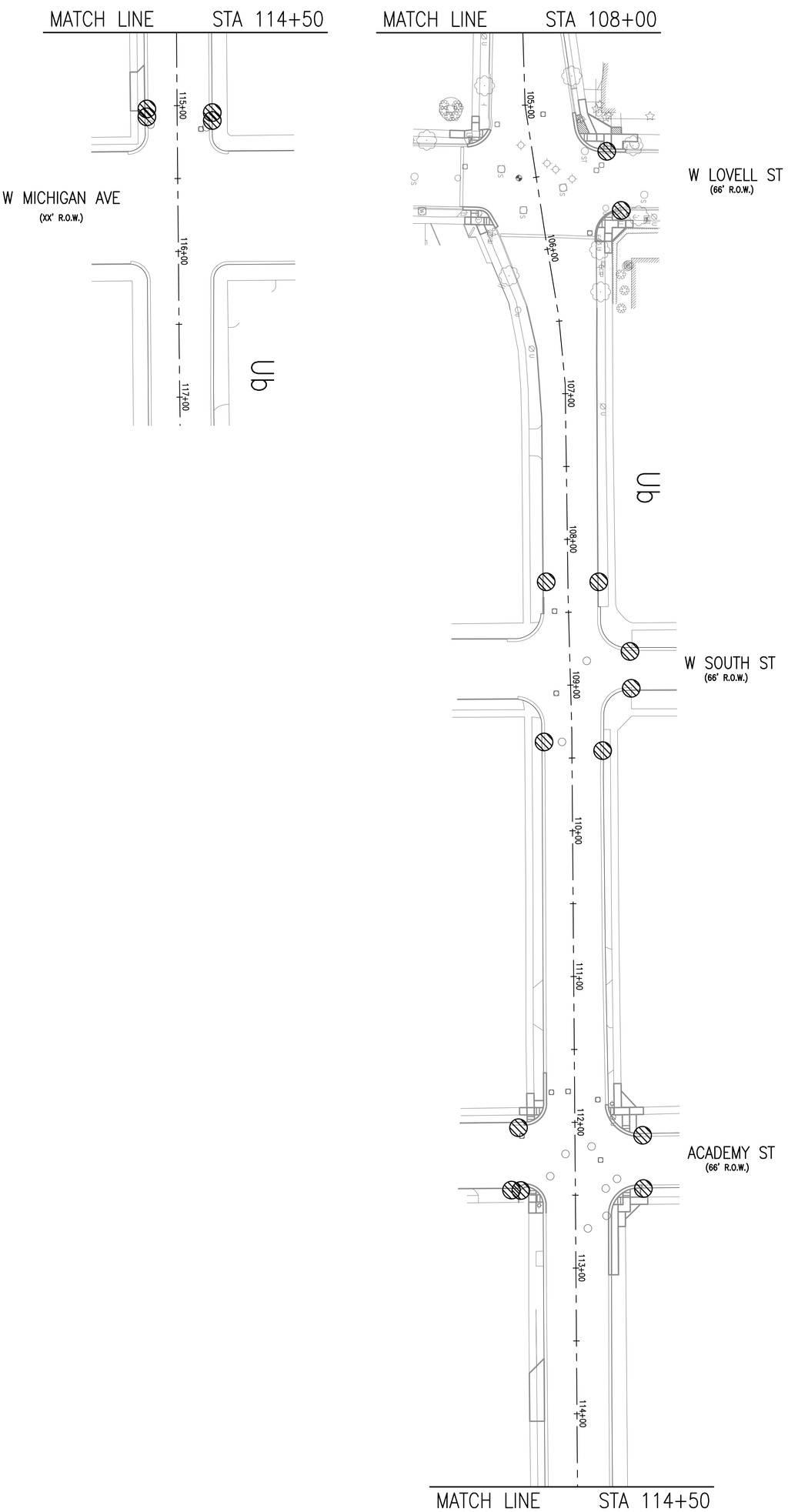
REVISIONS:
03-05-2025 BID SET

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H 1"=40' V 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
SOIL EROSION AND SEDIMENTATION CONTROL
P.O.B. TO STA 104+50

SHEET 9 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Misc\220050SEC.dwg Mar 05, 2025 - 11:02am



Know what's below. Call before you dig. 811

SHEET	DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
10 OF 77	09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: 1"=40'	V: 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO

S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

SOIL EROSION AND SEDIMENTATION CONTROL

STA 108+00 TO P.O.E.

REVISIONS:

03-05-2025 BID SET

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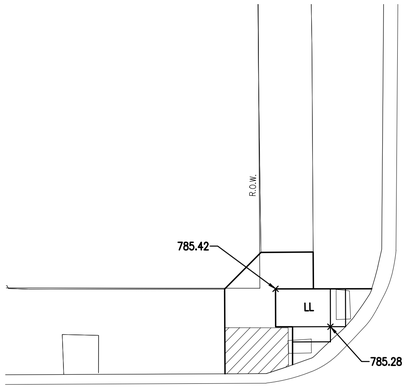
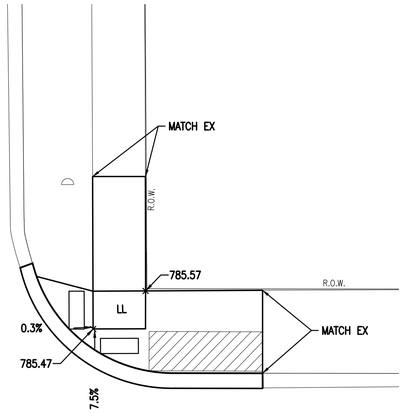
S WESTNEDGE AVENUE
(R.O.W. VARIES)

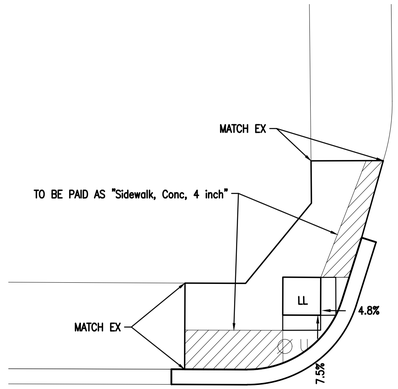
GRAPHIC SCALE: HALF 20 feet VERT HALF: 1"=8'
FULL 10 feet VERT FULL: 1"=4'
0 5 10 20 30
HALF: 11x17
FULL: 22x34

NOTE:
1. FURNITURE ZONE CONCRETE TO BE PAID AS "Sidewalk, Conc, 4 inch"

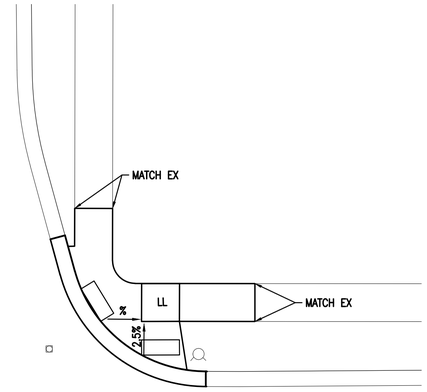
W VINE ST
(66' R.O.W.)

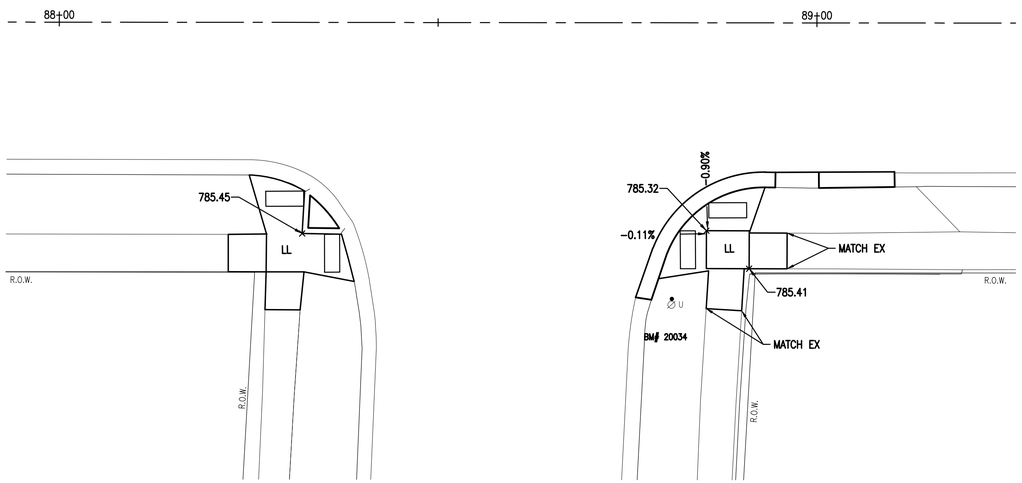




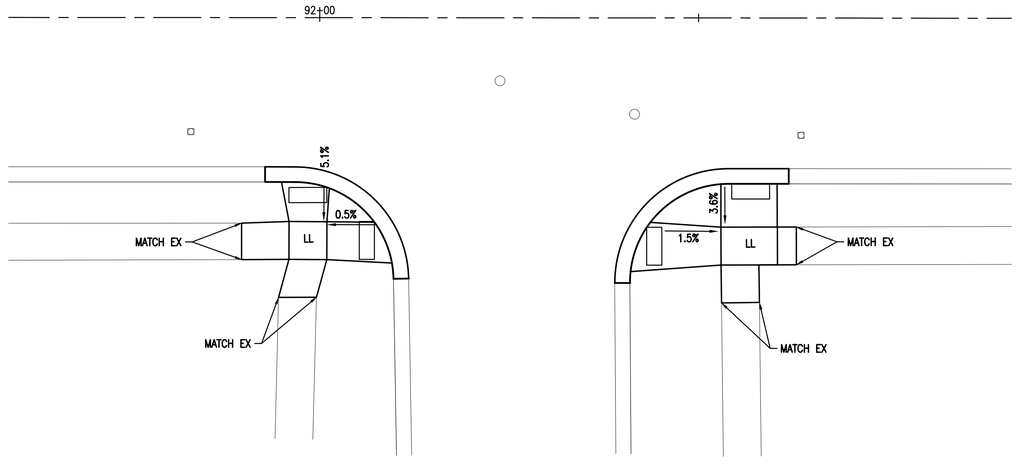


W DUTTON ST
(66' R.O.W.)





S WESTNEDGE AT W VINE ST
SCALE: 1"=10'



S WESTNEDGE AT W DUTTON ST
SCALE: 1"=10'

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03-05-2025 BID SET

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09-24-2023	0035-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED		NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
DETAILED GRADING

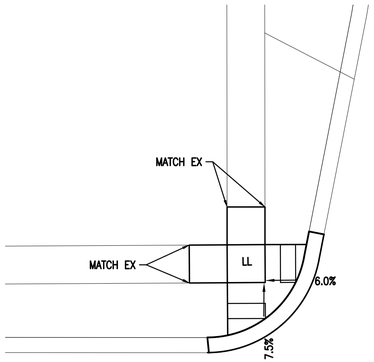
SHEET 11 OF 77

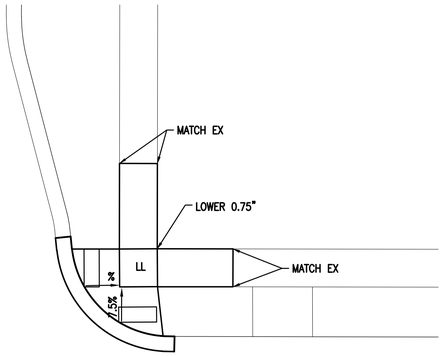
DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Grading\220050GRD.dwg Mar 05, 2025 - 11:03am

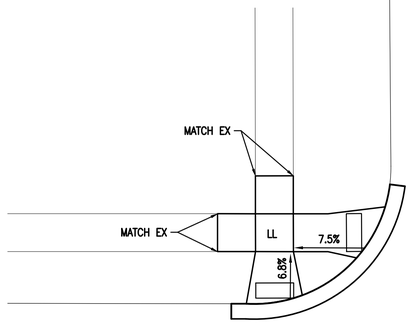
S WESTNEDGE AVENUE
(R.O.W. VARIES)

GRAPHIC SCALE: HALF 20 feet VERT HALF: 1"=8'
FULL 10 feet VERT FULL: 1"=4'
0 5 10 20 30
HALF: 11x17
FULL: 22x34

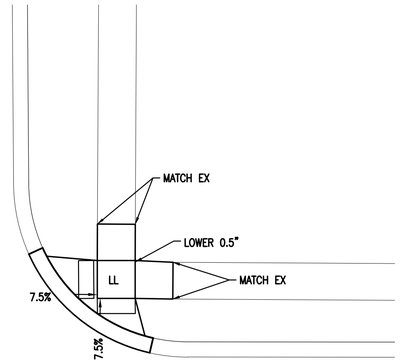
W WALNUT ST
(66' R.O.W.)

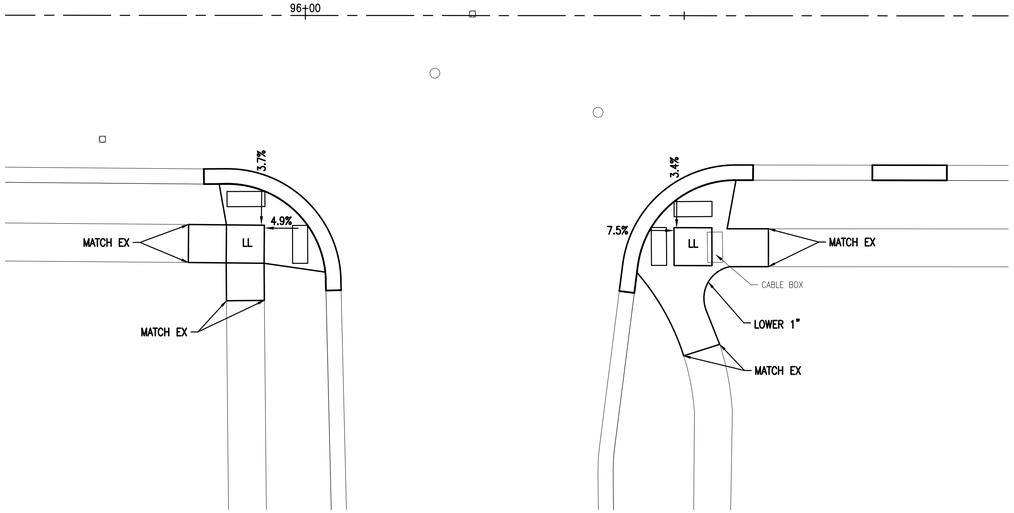




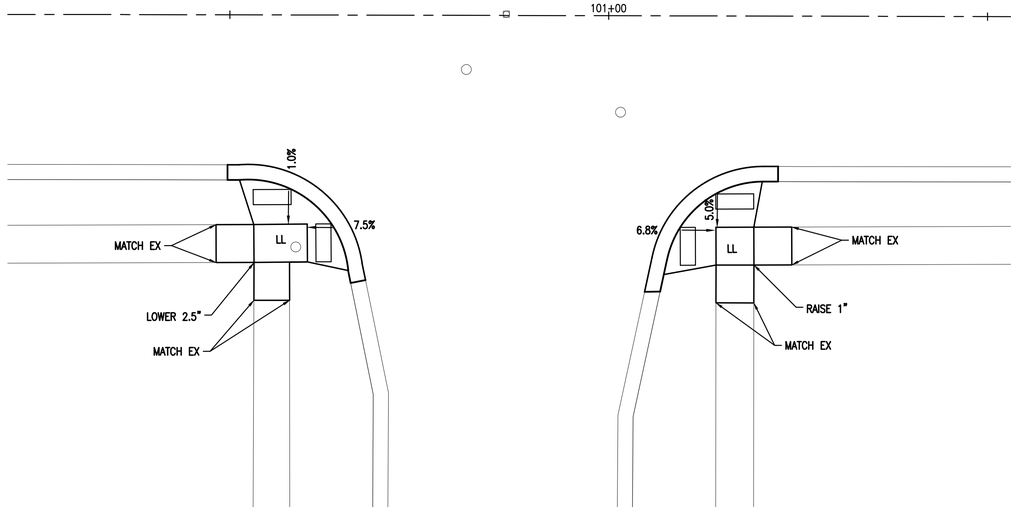


W CEDAR ST
(66' R.O.W.)





S WESTNEDGE AT W WALNUT ST
SCALE: 1"=10'



S WESTNEDGE AT W CEDAR ST
SCALE: 1"=10'

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DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	V: N/A	HORIZ DATUM	VERT DATUM
09-25-2023	0035-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED		NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
DETAILED GRADING

SHEET 12 OF 77

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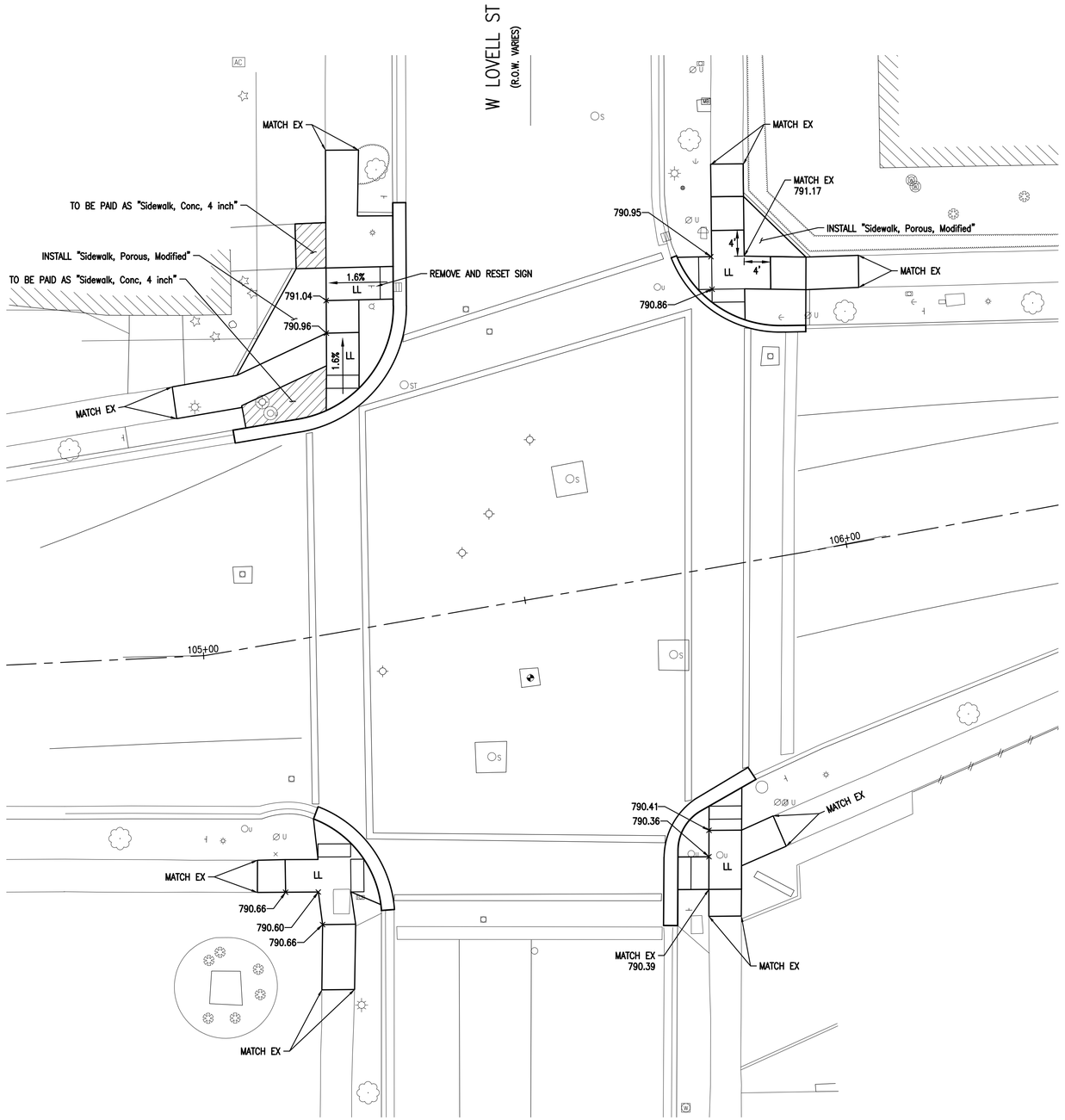
S WESTNEDGE AVENUE
(R.O.W. VARIES)



S WESTNEDGE AT W LOVELL ST
SCALE: 1"=10'

GRAPHIC SCALE: HALF FULL 0 5 10 20 30
20 feet 10 feet
VERT HALF: 1"=8'
VERT FULL: 1"=4'
HALF: 11x17
FULL: 22x34

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09-24-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED	V: N/A	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
DETAILED GRADING

SHEET 13 OF 77

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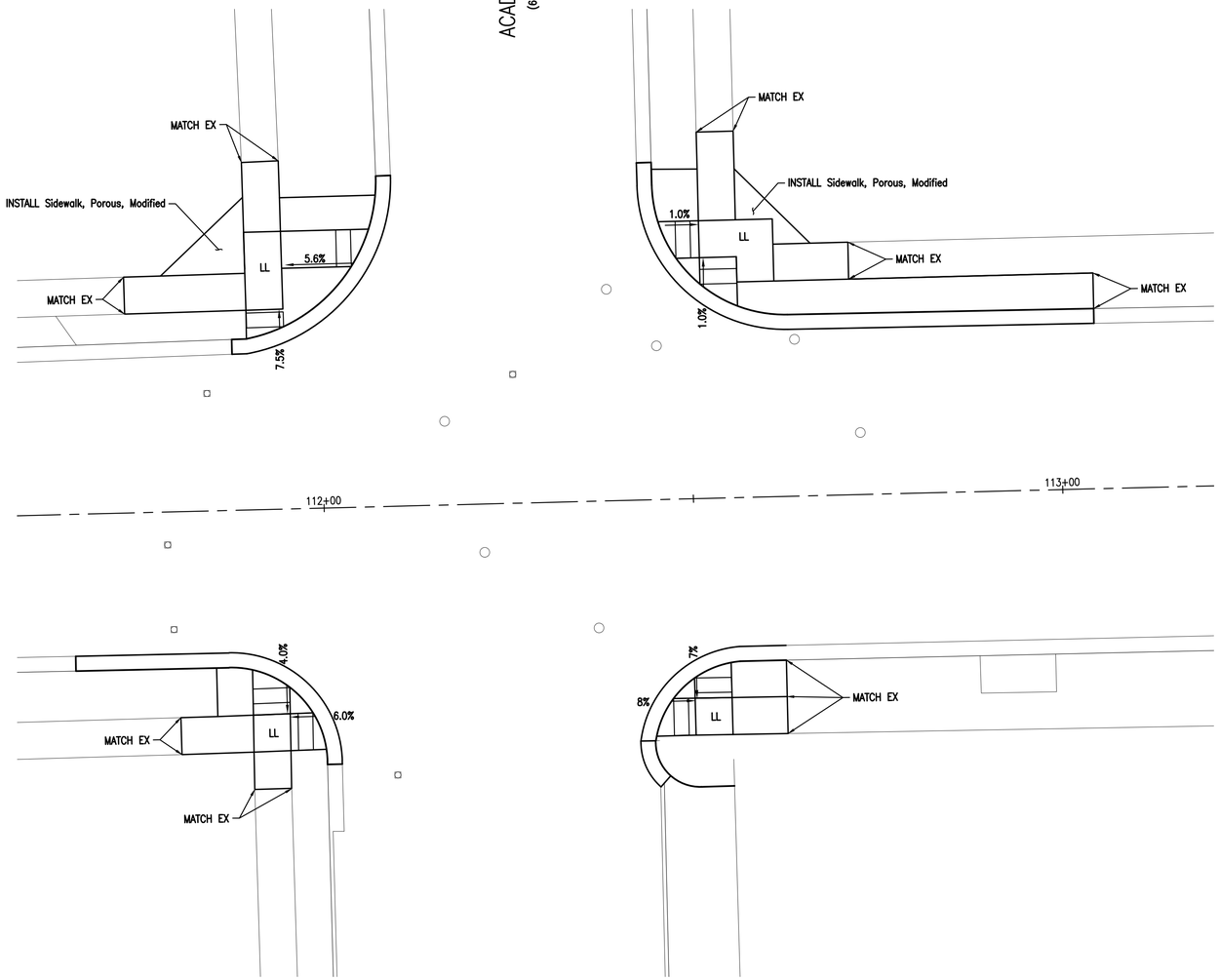
S WESTNEDGE AVENUE
(R.O.W. VARIES)

ACADEMY ST
(66' R.O.W.)



S WESTNEDGE AT ACADEMY STT
SCALE: 1"=10'

GRAPHIC SCALE: HALF 20 feet VERT HALF: 1"=8'
FULL 10 feet VERT FULL: 1"=4'
0 5 10 20 30
HALF: 11x17
FULL: 22x34

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DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED	V: N/A	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
DETAILED GRADING

SHEET 14 OF 77

Know what's **below.**
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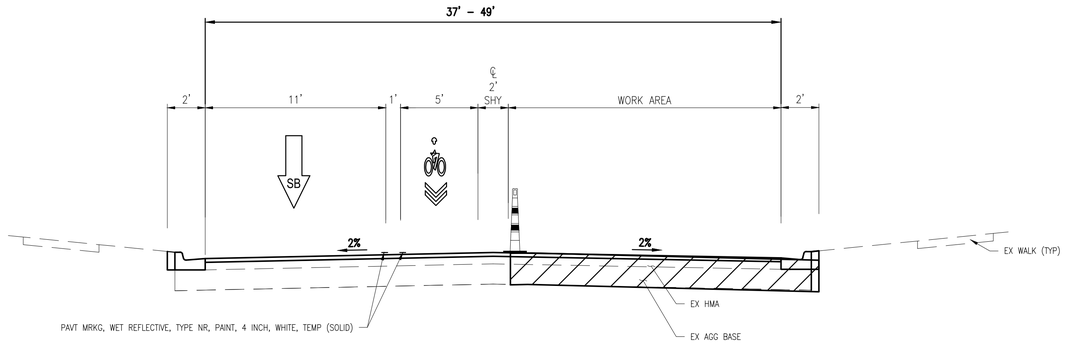
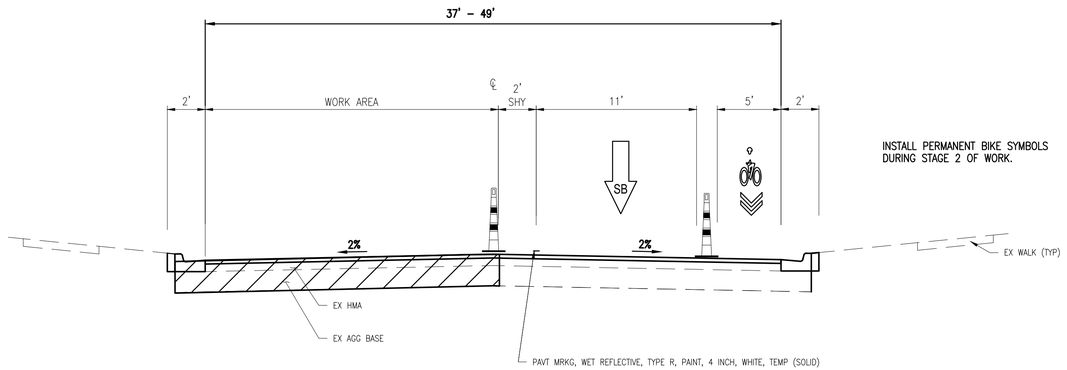


TYPICAL CROSS SECTION

APPLIES: P.O.B. TO P.O.E

STAGE 1



TYPICAL CROSS SECTION

APPLIES: P.O.B. TO P.O.E

STAGE 2

STAGE 1

1. MERGE SB WESTNEDGE FROM TWO LANES TO ONE THRU LANE. MAINTAIN TRAFFIC ON THE WEST CURB LANES; LANE WIDTH 11' AND BIKE LANE 5'.
2. FOR SIGNALIZED INTERSECTIONS (WESTNEDGE AT LOVELL ST AND SOUTH ST), MILL ½ AT TIME, MAINTAINING ACCESS PER MOT DETAILS.
3. WHEN WORKING THROUGH THE VINE STREET INTERSECTION, MAINTAIN WB TRAFFIC AT ALL TIMES AND DETOUR EB TRAFFIC AS SHOWN ON THE DETOUR MAP.

STAGE 2

1. MERGE SB WESTNEDGE FROM TWO LANES TO ONE THRU LANE. MAINTAIN TRAFFIC ON THE EAST CURB LANES; LANE WIDTH 11' AND BIKE LANE 5'.
2. FOR SIGNALIZED INTERSECTIONS (WESTNEDGE AT LOVELL ST AND SOUTH ST), MILL ½ AT TIME, MAINTAINING ACCESS PER MOT DETAILS.
3. WHEN WORKING THROUGH THE VINE STREET INTERSECTION, MAINTAIN WB TRAFFIC AT ALL TIMES AND DETOUR EB TRAFFIC AS SHOWN ON THE DETOUR MAP.

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REVISIONS:
03-05-2025 BID SET

DATE 09-29-2023 | PROJ NUMBER 0039-22-0050 | ENG TL | PROJ MGR MM | CADD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP KALAMAZOO | SCALE H: 1"=40' V: 1"=4' | HORIZ DATUM NAD83 | VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING

STAGE 1 & 2

SHEET 15 OF 77

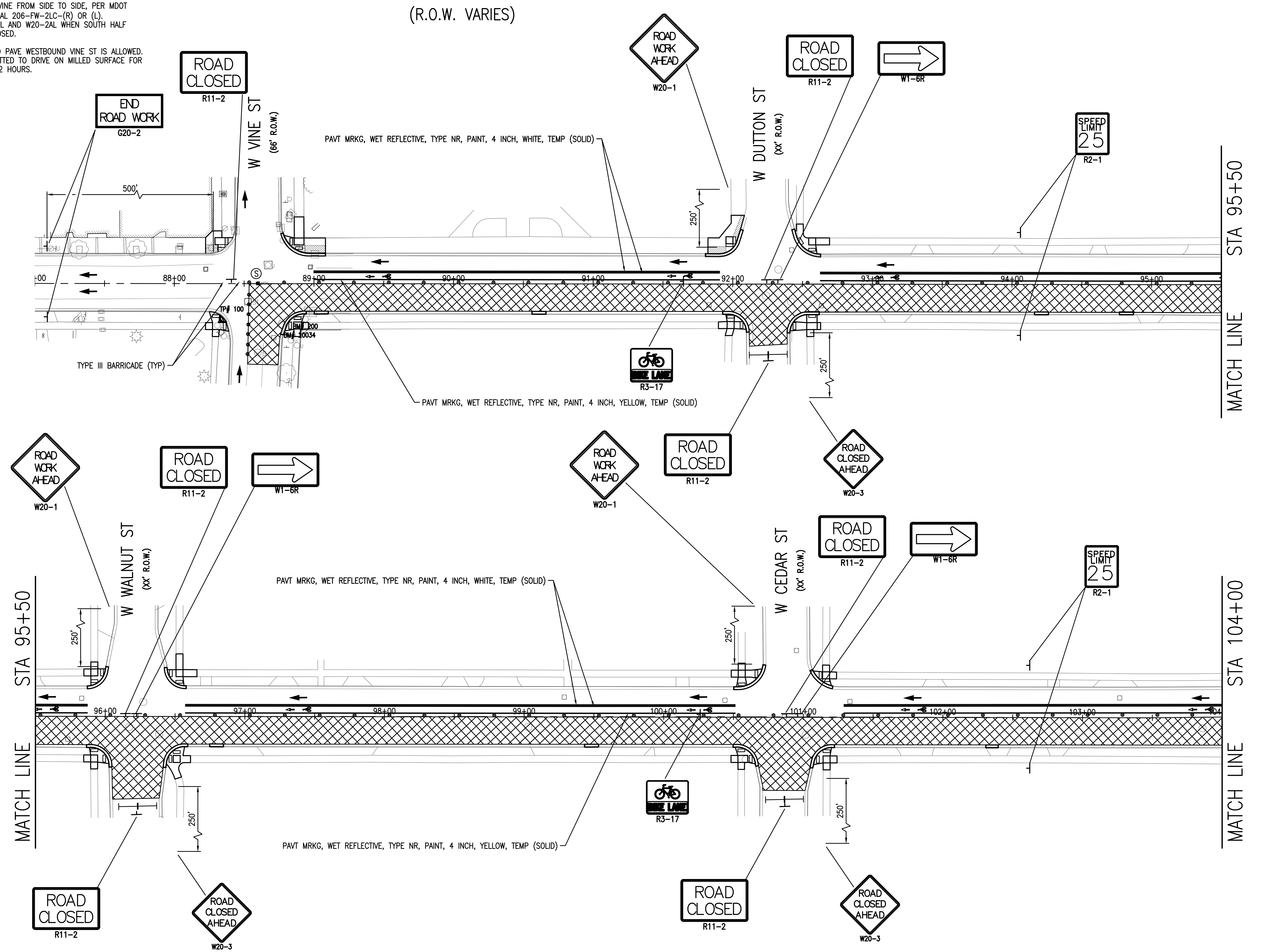
Know what's below. Call before you dig.

CONSTRUCT VINE ST APPROACH ONE HALF AT A TIME BY MERGING WB VINE TO ONE LANE REMOVING ON STREET PARKING AS NEEDED. CLOSE AND DETOUR EB VINE AT ALL TIMES.
CONSTRUCT THE WESTERN APPROACH IN TWO STAGES BY SHIFTING WB VINE FROM SIDE TO SIDE, PER MDOT MAINTAINING TYPICAL 206–FW–2LC–(R) OR (L). SUBSTITUTE W4–2L AND W20–2AL WHEN SOUTH HALF APPROACH IS CLOSED.

FLAG CONTROL TO PAVE WESTBOUND VINE ST IS ALLOWED. TRAFFIC IS PERMITTED TO DRIVE ON MILLED SURFACE FOR A MAXIMUM OF 72 HOURS.

S WESTNEDGE AVENUE

(R.O.W. VARIES)



HALF 80 feet
GRAPHIC SCALE: FULL 40 feet
0 20 40 80 120
HALF: 11x17
FULL: 22x34

LEGEND

- WORK ZONE
- EXISTING ROADWAY
- CHANNELIZING DRUM, 42 INCH, FLUORESCENT
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- LIGHTED ARROW, TYPE C
- TRAFFIC SIGNAL

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REVISIONS: 03-05-2025 BID SET

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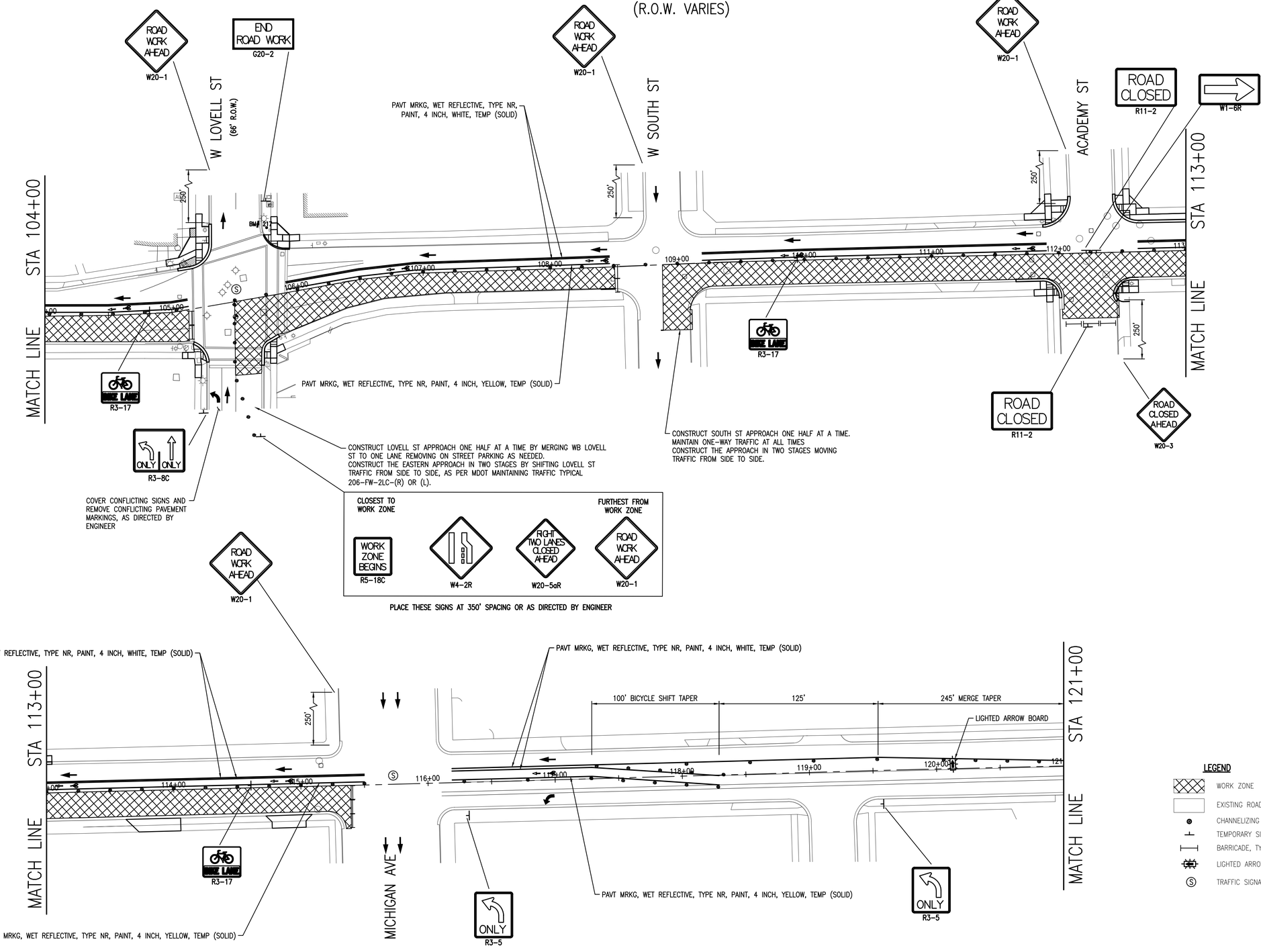
09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED V: 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
STAGE 1
P.O.B TO STA 104+00

SHEET 16 OF 77

S WESTNEDGE AVENUE

(R.O.W. VARIES)



GRAPHIC SCALE: HALF 80 feet, FULL 40 feet
0 20 40 80 120
HALF: 11x17
FULL: 22x34

LEGEND

- WORK ZONE
- EXISTING ROADWAY
- CHANNELIZING DRUM, 42 INCH, FLUORESCENT
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- LIGHTED ARROW, TYPE C
- TRAFFIC SIGNAL

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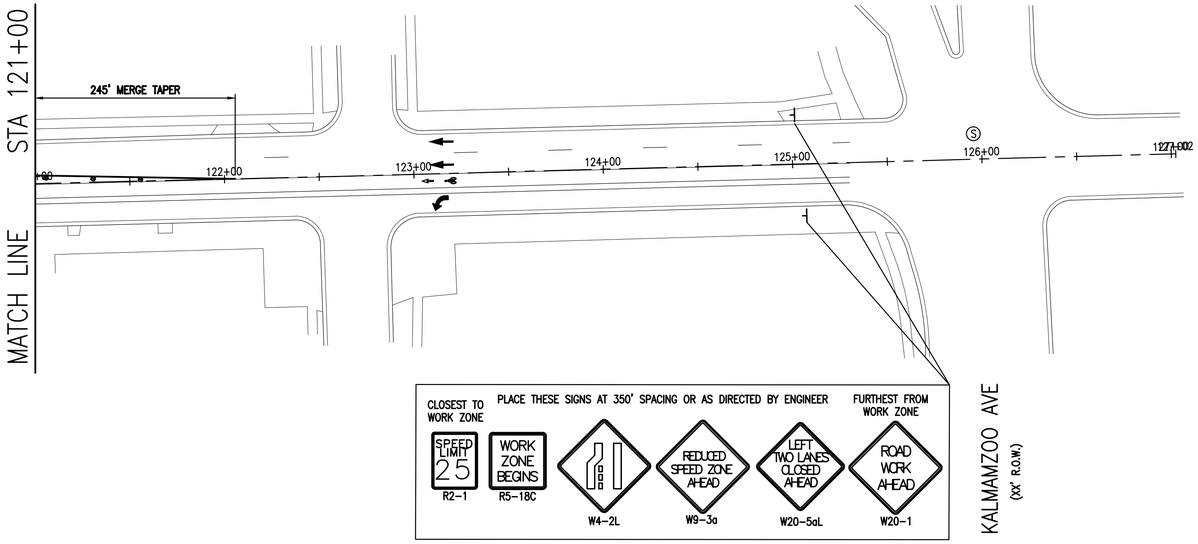
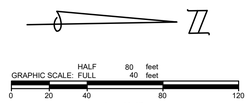
CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
STAGE 1
STA 104+00 TO P.O.E

SHEET 17 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Stage1\220050STG.dwg Mar 05, 2025 - 11:04am

S WESTNEDGE AVENUE
(R.O.W. VARIES)





LEGEND

- WORK ZONE
- EXISTING ROADWAY
- PLASTIC DRUM, HIGH INTENSITY
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- LIGHTED ARROW, TYPE C
- TRAFFIC SIGNAL

811 Know what's **below.** **Call** before you dig.

OHM
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34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

REVISIONS:
03-05-2025 BID SET

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HORIZ DATUM	VERT DATUM
09-24-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED	V: 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
STAGE 1
STA 121+00 TO P.O.E.

SHEET 18 OF 77

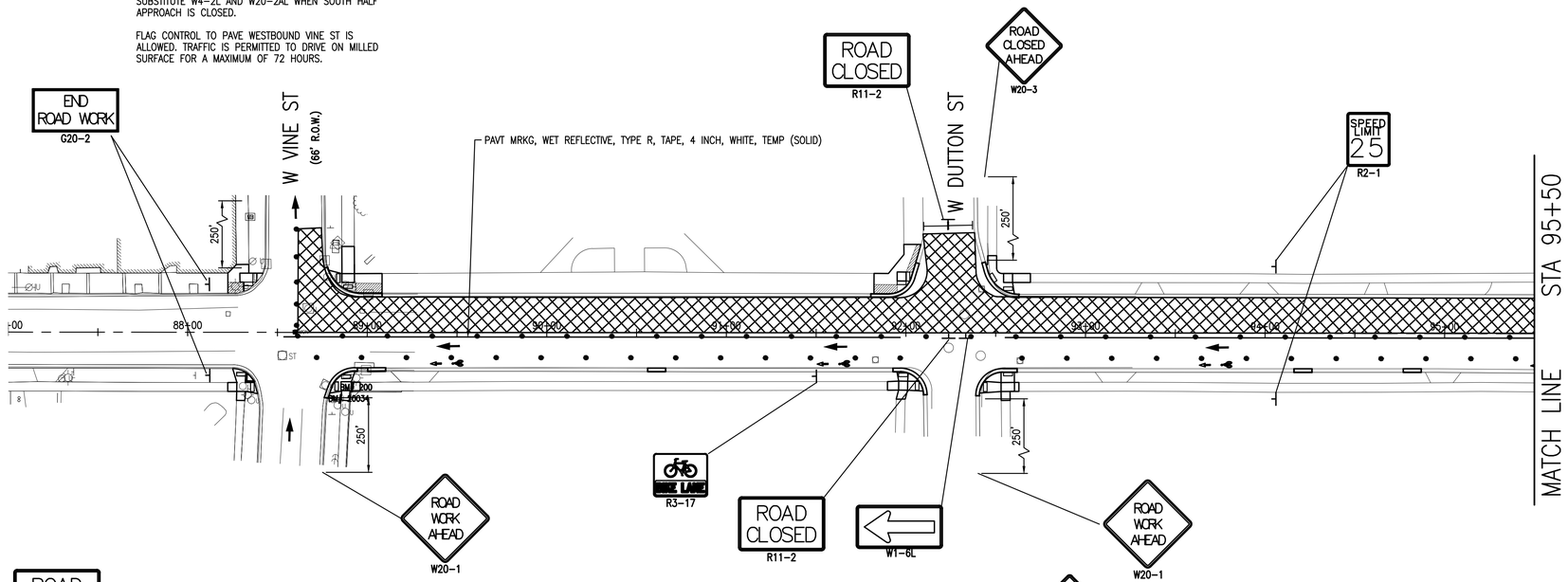
DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Stage\220050STG.dwg Mar 05, 2025 - 11:04am

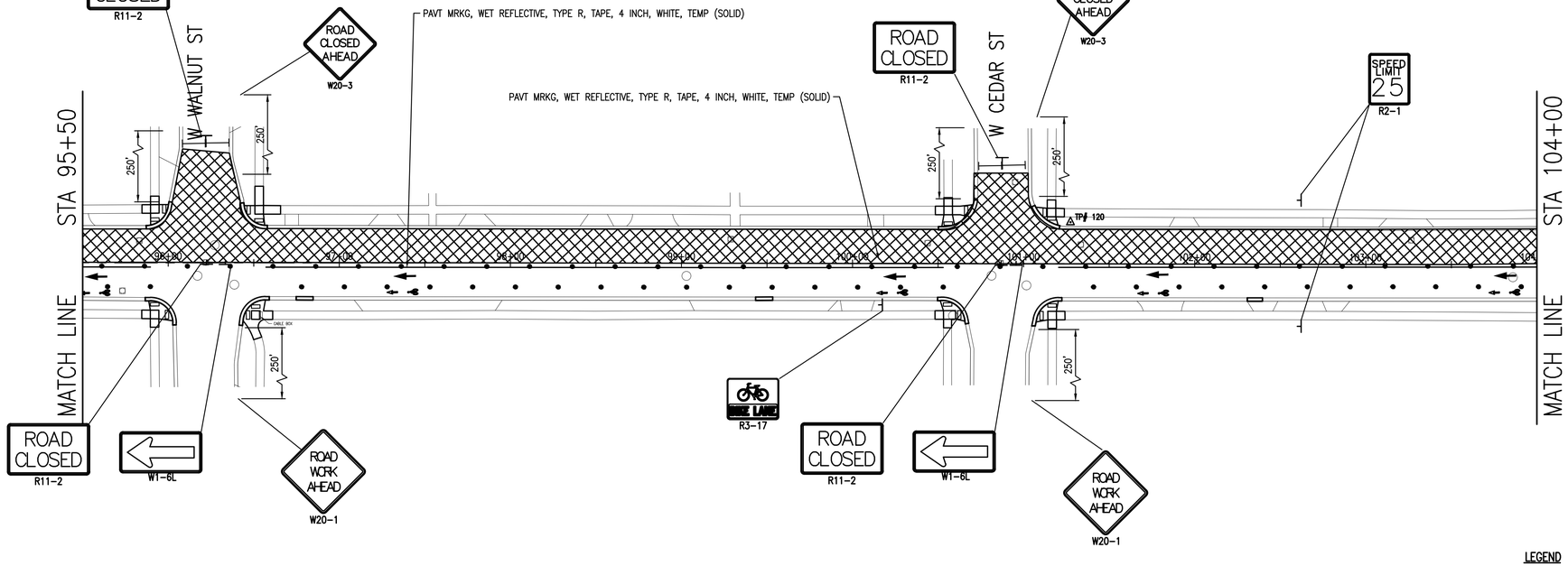
CONSTRUCT VINE ST APPROACH ONE HALF AT A TIME BY MERGING WB VINE TO ONE LANE REMOVING ON STREET PARKING AS NEEDED. CLOSE AND DETOUR EB VINE AT ALL TIMES.
CONSTRUCT THE EASTERN APPROACH IN TWO STAGES BY SHIFTING WB VINE FROM SIDE TO SIDE, PER MDOT MAINTAINING TYPICAL 206-FW-2LC-(R) OR (L). SUBSTITUTE W4-2L AND W20-2AL WHEN SOUTH HALF APPROACH IS CLOSED.

FLAG CONTROL TO PAVE WESTBOUND VINE ST IS ALLOWED. TRAFFIC IS PERMITTED TO DRIVE ON MILLED SURFACE FOR A MAXIMUM OF 72 HOURS.

S WESTNEDGE AVENUE

(R.O.W. VARIES)





LEGEND

- WORK ZONE
- EXISTING ROADWAY
- CHANNELIZING DRUM, 42 INCH, FLUORESCENT
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- LIGHTED ARROW, TYPE C

Know what's **below.** **Call** before you dig. 811

GRAPHIC SCALE: HALF 80 feet, FULL 40 feet
0 20 40 80 120
HALF: 11x17
FULL: 22x34

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REVISIONS:
03-05-2025 BID SET

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORZ DATUM	VERT DATUM
09-29-2023	0039-22-0060	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED V: 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

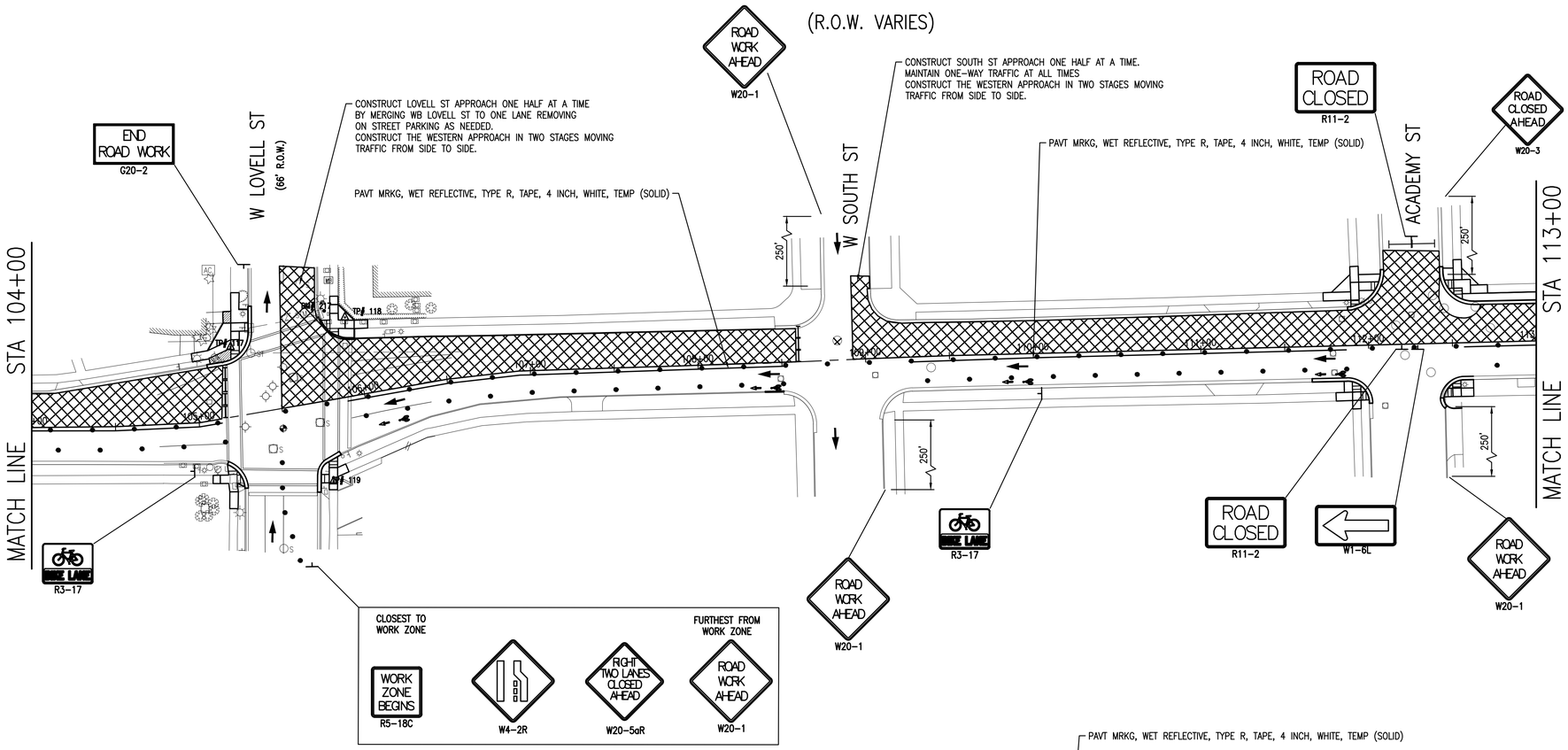
STAGE 2
P.O.B TO STA 104+00

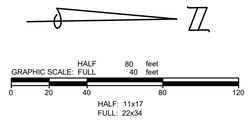
SHEET 19 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Stage\220050STG2.dwg Mar 05, 2025 - 11:04am

S WESTNEDGE AVENUE

(R.O.W. VARIES)

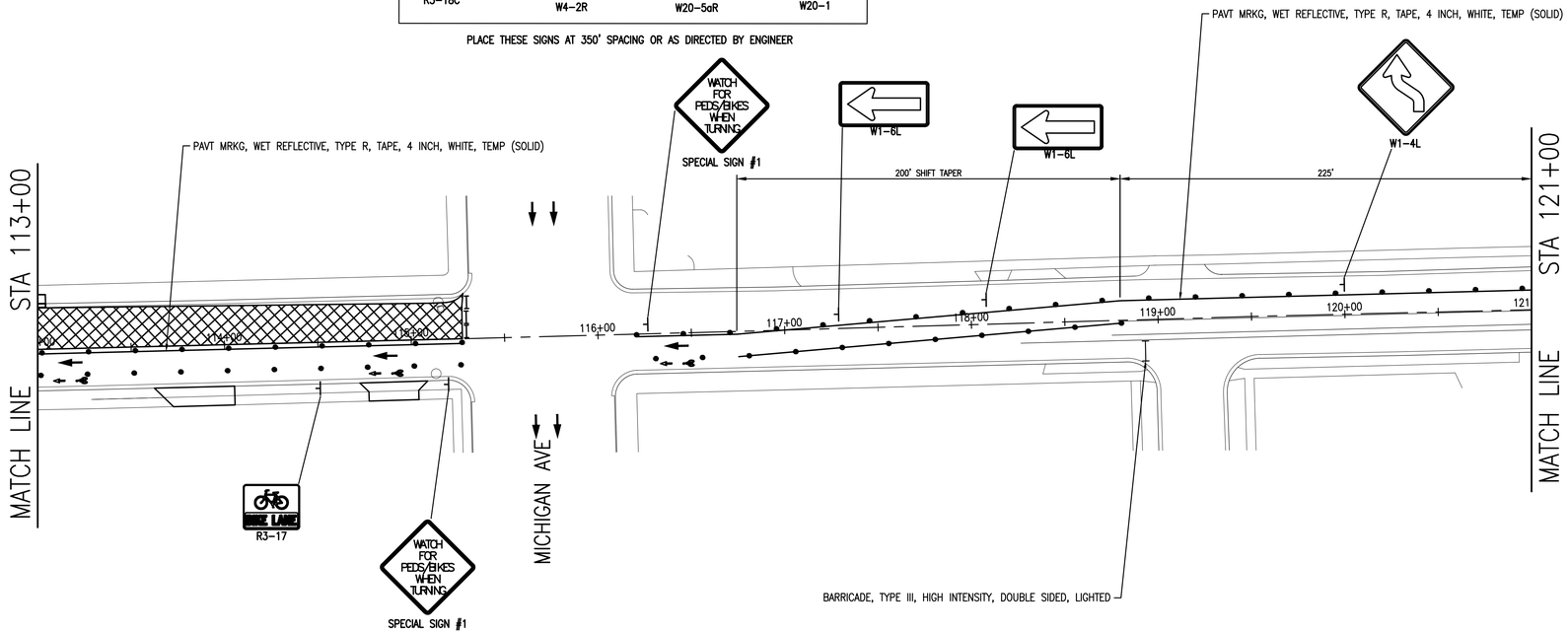




CLOSEST TO WORK ZONE

FURTHEST FROM WORK ZONE

PLACE THESE SIGNS AT 350' SPACING OR AS DIRECTED BY ENGINEER



LEGEND

- WORK ZONE
- EXISTING ROADWAY
- CHANNELIZING DRUM, 42 INCH, FLUORESCENT
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- LIGHTED ARROW, TYPE C

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REVISIONS:
03-05-2025 BID SET

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORZ DATUM	VERT DATUM
09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED V: 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

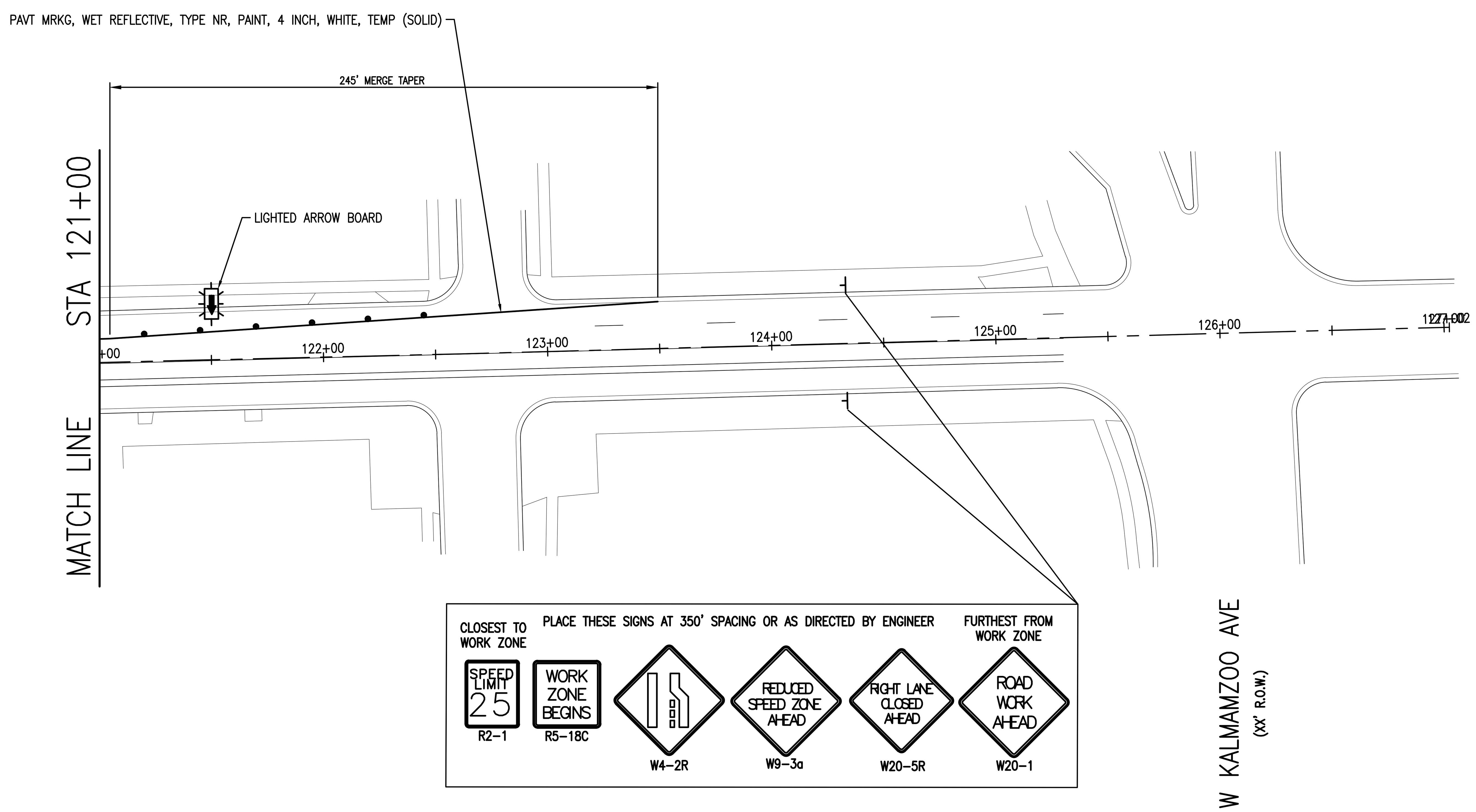
STAGE 2
STA 104+00 TO P.O.E

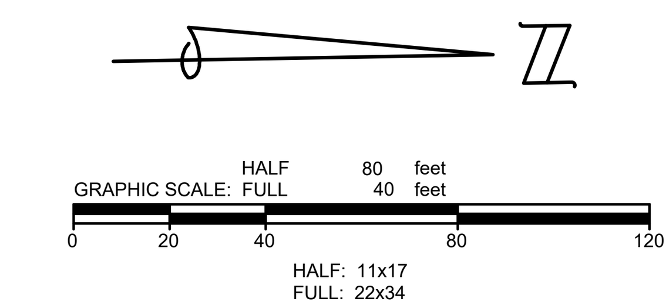
SHEET 20 OF 77

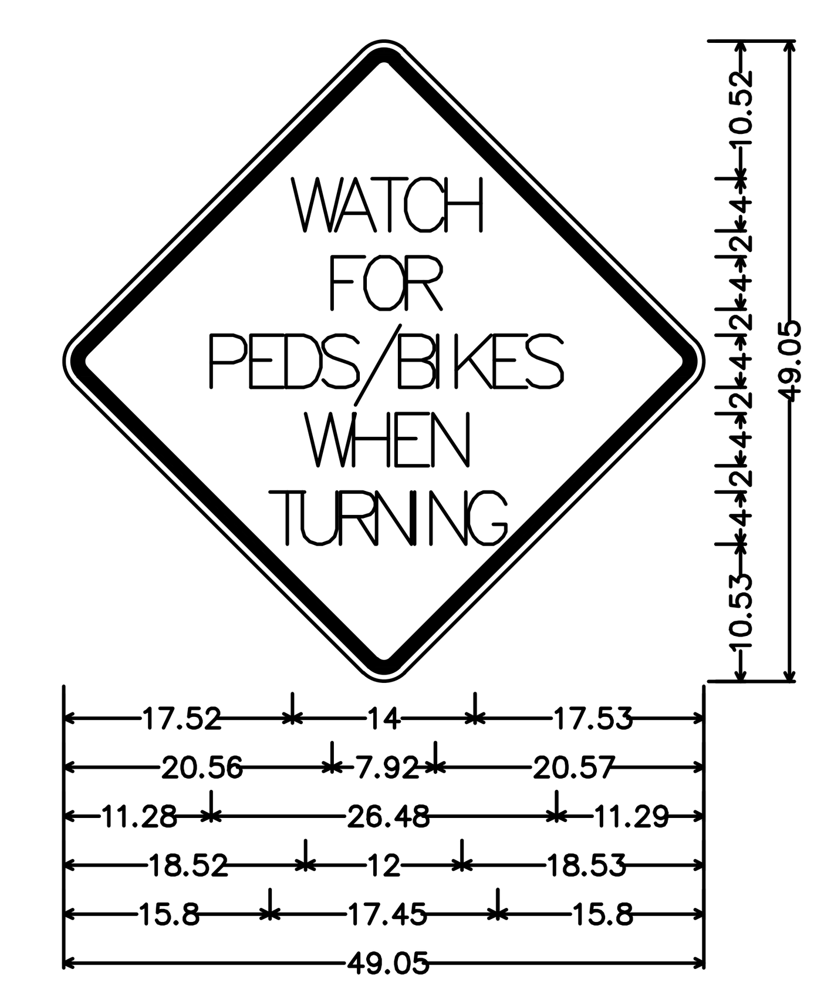
DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Stage2\220050STG2.dwg Mar 05, 2025 - 11:04am

S WESTNEDGE AVENUE

(R.O.W. VARIES)







W9-3a_36x36;
36.00" across sides 2.25" Radius, 0.88" Border, 0.63" Indent, Black on Orange;
"WATCH", C 2K specified length;
"FOR", C 2K;
"PEDS/BIKES", C 2K specified length;
"WHEN", C 2K specified length;
"TURNING", C 2K specified length;

LEGEND

- WORK ZONE
- EXISTING ROADWAY
- PLASTIC DRUM, HIGH INTENSITY
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- LIGHTED ARROW, TYPE C

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REVISIONS: 03-05-2025 BID SET

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09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED V: 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO

S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

STAGE 2

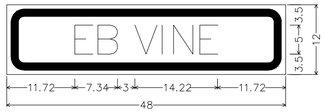
STA 121+00 TO P.O.E.

FOR INFORMATION ONLY

SIGNING LEGEND					
SIGN	SIGN CODE	SIZE	NUMBER REQUIRED	AREA (SFT)	TOTAL (SFT)
END DETOUR	M4-8a	24"x18"	1	3	3
DETOUR	M4-9L	30"x24"	6	5	30
DETOUR	M4-9kL	30"x30"	1	6.25	6.25
DETOUR	M4-9R	30"x24"	2	5	10
DETOUR	M4-9kR	30"x24"	1	6.25	6.25
DETOUR	M4-9j	30"x24"	2	5	10
DETOUR	M4-10R	48"x18"	1	6	6
ROAD CLOSED	R11-2	48"x30"	1	10	10
ROAD CLOSED TO THRU TRAFFIC	R11-4	60"x30"	1	12.5	12.5
DETOUR AHEAD	W20-2	48"x48"	1	16	16
ROAD CLOSED AHEAD	W20-3	48"x48"	1	16	16
EB VINE	SS-A	48"x12"	2	4	8
EB VINE	SS-B	36"x12"	13	3	39
EB VINE STREET CLOSED AT WESTNEDGE AVE / FOLLOW DETOUR	SS-C	72"x48"	1	24	24

SIGN DETAILS

SS-A

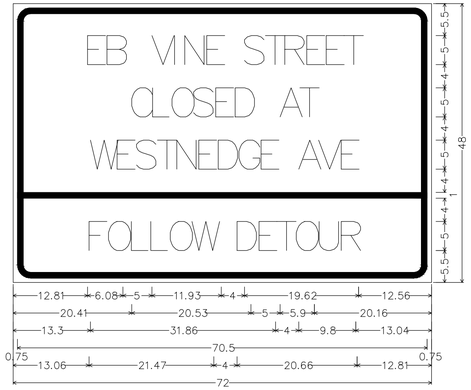


SS-A;
3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
"EB", D; "VINE", D;

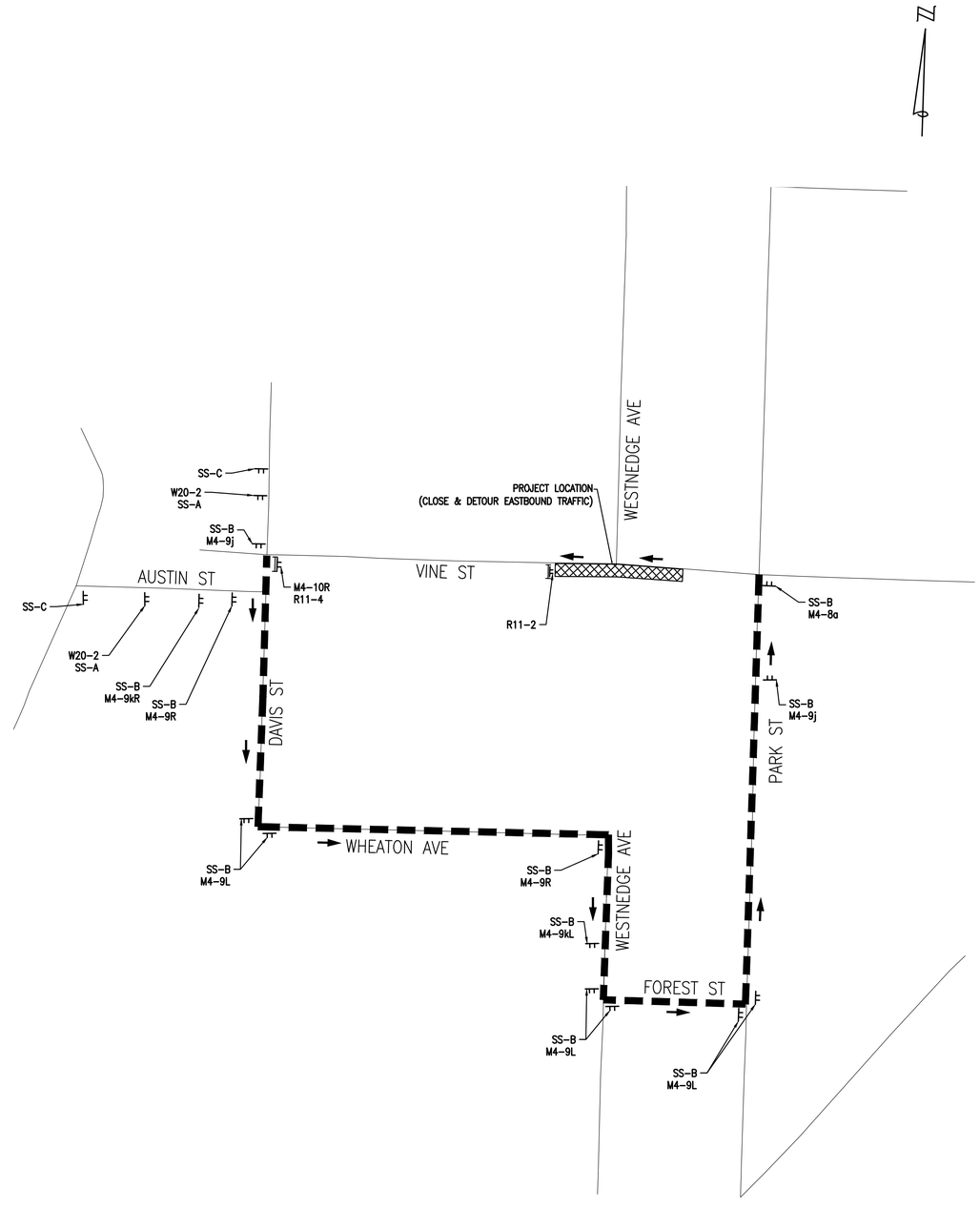
SS-B

SS-B;
1.50" Radius, 0.63" Border, 0.38" Indent, Black on Orange;
"EB", D; "VINE", D;

SS-C



SS-C
3.00" Radius, 1.00" Border, 0.75" Indent, Black on Orange;
"EB VINE", C; "STREET", C; "CLOSED", C; "AT", C; "WESTNEDGE", C;
"AVE", C; "FOLLOW", C; "DETOUR", C;



STAGE 1

1. WHEN WORKING THROUGH THE VINE STREET INTERSECTION, MAINTAIN WB TRAFFIC AT ALL TIMES AND DETOUR EB TRAFFIC AS SHOWN ON THE DETOUR MAP.

STAGE 2

1. WHEN WORKING THROUGH THE VINE STREET INTERSECTION, MAINTAIN WB TRAFFIC AT ALL TIMES AND DETOUR EB TRAFFIC AS SHOWN ON THE DETOUR MAP.

TRAFFIC NOTES:

1. 'D" DISTANCE BETWEEN ADVANCED SIGNING SHALL BE PER MAINTAINING TRAFFIC TYPICAL 101-GEN-SPACING-CHARTS.
2. SIGN LOCATIONS APPROXIMATELY SHOWN, EXACT LOCATION OF PROPOSED DETOUR ROUTE SIGNING SHALL BE AS APPROVED BY ENGINEER.

LEGEND

- WORK ZONE
- DETOUR ROUTE
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED

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REVISIONS:
03-05-2025 BID SET

DATE ###
PROJ NUMBER 0039-22-0050
ENG TJ
PROJ MGR
CADD ID
COUNTY KALAMAZOO
CITY/VILLAGE/TOWNSHIP KALAMAZOO
SCALE H 1"=40' V 1"=4'
HORIZ DATUM N/A
VERT DATUM N/A

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
DETOUR PLAN

SHEET 22 OF 30

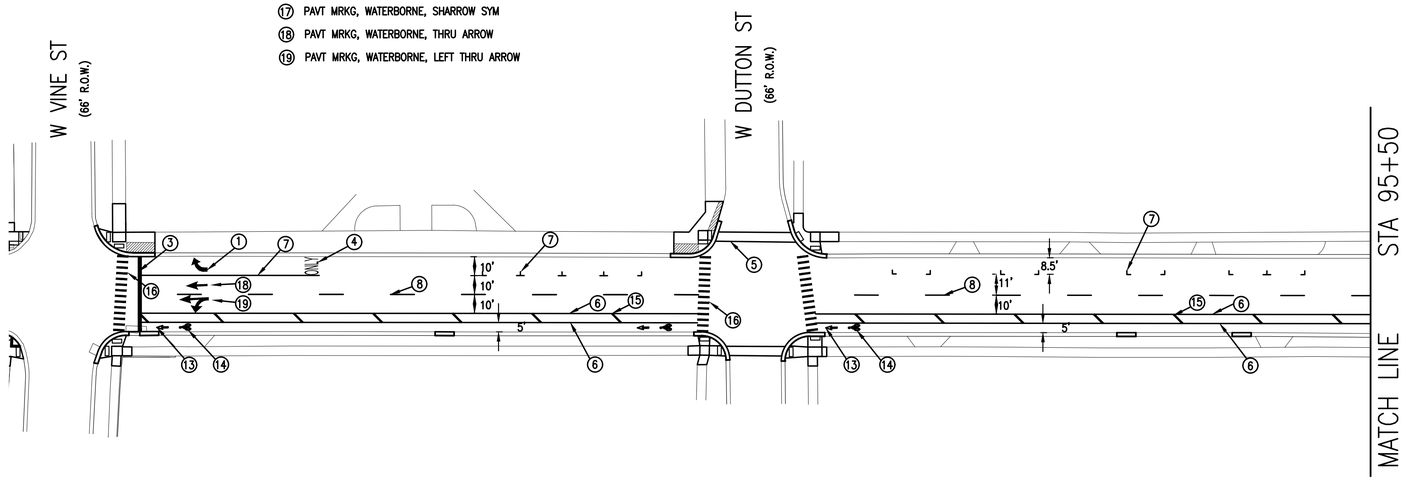
DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Stage\220050_Detour.dwg Mar 05, 2025 - 11:05am

LEGEND

1. PAVT MRKG, WATERBORNE, RT TURN ARROW SYMBOL
2. PAVT MRKG, WATERBORNE, LT TURN ARROW SYMBOL
3. PAVT MRKG, WATERBORNE, 24 INCH, STOP BAR
4. PAVT MRKG, WATERBORNE, ONLY
5. PAVT MRKG, WATERBORNE, 6 INCH, CROSSWALK
6. PAVT MRKG, WATERBORNE, 6 INCH, WHITE
7. PAVT MRKG, WATERBORNE, 4 INCH, WHITE
8. PAVT MRKG, WATERBORNE, 4 INCH, WHITE DASHED, DASHES TO BE 12.5' LONG WITH 37.5' GAP
9. PAVT MRKG, WATERBORNE, 4 INCH, YELLOW SOLID LINE WITH DASHED LINE ON INSIDE, 6" CENTER TO CENTER DASHES TO BE 12.5' LONG WITH 37.5' GAP
10. PAVT MRKG, WATERBORNE, 4 INCH, YELLOW DOUBLE SOLID LINES, 1' CENTER TO CENTER
11. PAVT MRKG, WATERBORNE, 12 INCH, WHITE DASHED, DASHES TO BE 5' LONG WITH 20' GAP
12. PAVT MRKG, WATERBORNE, 12 INCH, WHITE
13. PAVT MRKG, WATERBORNE, BIKE THRU ARROW SYM
14. PAVT MRKG, WATERBORNE, BIKE, SMALL SYM
15. PAVT MRKG, WATERBORNE, 12 INCH. CROSS HATCHING, WHITE
16. PAVT MRKG, WATERBORNE, 12 INCH. CROSSWALK
17. PAVT MRKG, WATERBORNE, SHARROW SYM
18. PAVT MRKG, WATERBORNE, THRU ARROW
19. PAVT MRKG, WATERBORNE, LEFT THRU ARROW

S WESTNEDGE AVENUE

(R.O.W. VARIES)



GRAPHIC SCALE: FULL HALF 80 feet 40 feet
0 20 40 80 120
HALF: 11x17
FULL: 22x34

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REVISIONS:
03-05-2025 BID SET

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09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED V: 1"=4'	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
PAVEMENT MARKING & SIGNING
P.O.B. TO STA 104+00

SHEET 23 OF 77

LEGEND

1. PAVT MRKG, WATERBORNE, RT TURN ARROW SYMBOL
2. PAVT MRKG, WATERBORNE, LT TURN ARROW SYMBOL
3. PAVT MRKG, WATERBORNE, 24 INCH, STOP BAR
4. PAVT MRKG, WATERBORNE, ONLY
5. PAVT MRKG, WATERBORNE, 6 INCH, CROSSWALK
6. PAVT MRKG, WATERBORNE, 6 INCH, WHITE
7. PAVT MRKG, WATERBORNE, 4 INCH, WHITE
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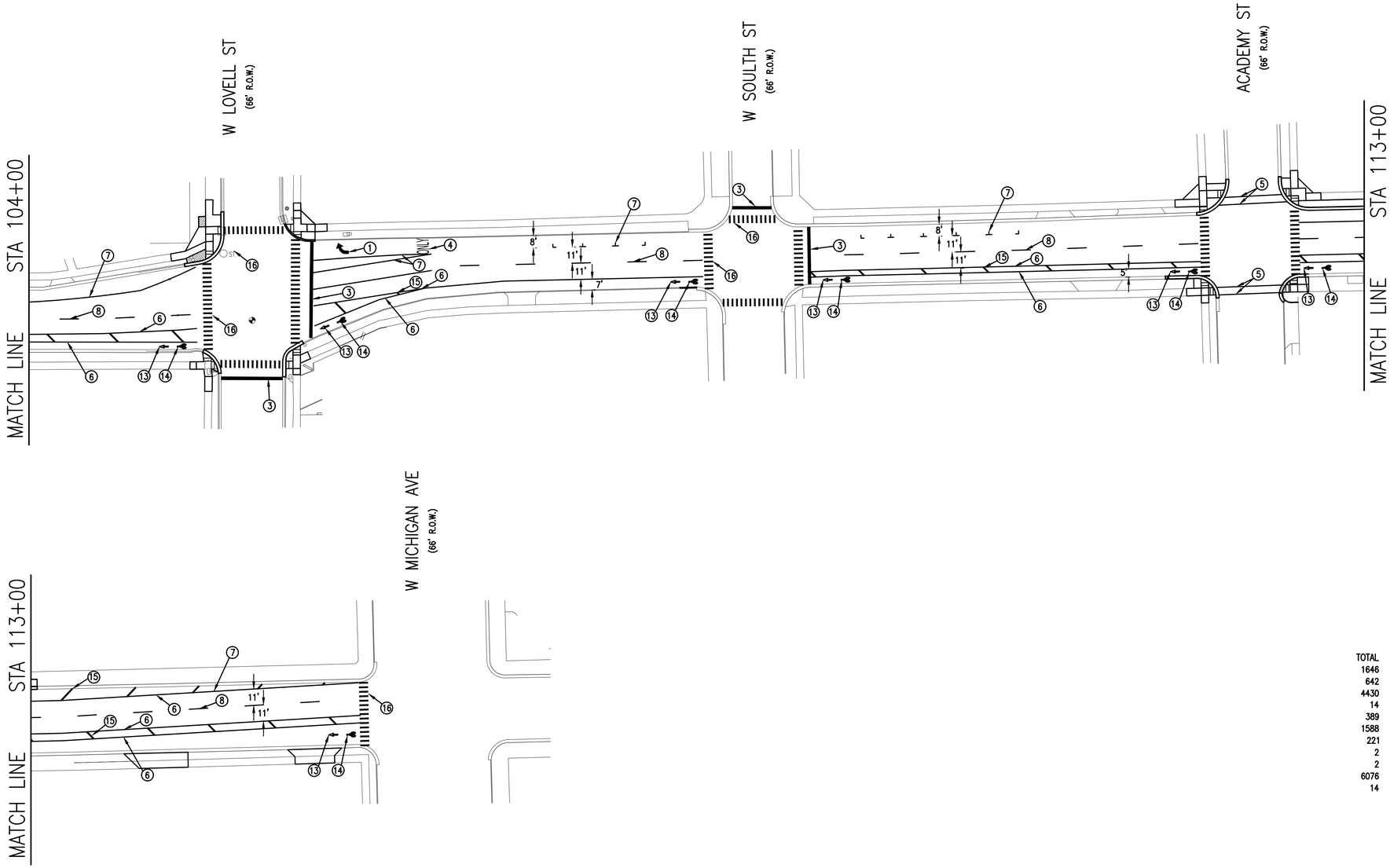
9. PAVT MRKG, WATERBORNE, 4 INCH, YELLOW SOLID LINE WITH DASHED LINE ON INSIDE, 6" CENTER TO CENTER DASHES TO BE 12.5' LONG WITH 37.5' GAP
10. PAVT MRKG, WATERBORNE, 4 INCH, YELLOW DOUBLE SOLID LINES, 1" CENTER TO CENTER
11. PAVT MRKG, WATERBORNE, 12 INCH, WHITE DASHED, DASHES TO BE 5' LONG WITH 20' GAP
12. PAVT MRKG, WATERBORNE, 12 INCH, WHITE
13. PAVT MRKG, WATERBORNE, BIKE THRU ARROW SYM
14. PAVT MRKG, WATERBORNE, BIKE, SMALL SYM
15. PAVT MRKG, WATERBORNE, 12 INCH. CROSS HATCHING, WHITE
16. PAVT MRKG, WATERBORNE, 12 INCH. CROSSWALK
17. PAVT MRKG, WATERBORNE, SHARROW SYM

S WESTNEDGE AVENUE
(R.O.W. VARIES)



PAVEMENT MARKING QUANTITIES

TOTAL	UNIT	DESCRIPTION
1646	Ft	Pavt Mrkg, Polyurea, 4 inch, White
642	Ft	Pavt Mrkg, Polyurea, 6 inch, Crosswalk
4430	Ft	Pavt Mrkg, Polyurea, 6 inch, White
14	Ea	Pavt Mrkg, Polyurea, Bike, Small Sym
389	Ft	Pavt Mrkg, Polyurea, 12 inch, Cross Hatching, White
1588	Ft	Pavt Mrkg, Polyurea, 12 inch, Crosswalk
221	Ft	Pavt Mrkg, Polyurea, 24 inch, Stop Bar
2	Ea	Pavt Mrkg, Polyurea, Only
2	Ea	Pavt Mrkg, Polyurea, Rt Turn Arrow Sym
6076	Ft	Recessing Pavt Mrkg, Longit
14	Ea	Pavt Mrkg, Polyurea, Bike Thru Arrow Sym

GRAPHIC SCALE: FULL 40 feet / HALF 20 feet
0 10 20 40 60
HALF: 11x17
FULL: 22x34

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09-29-2023	0039-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED V: 1"=F	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
PAVEMENT MARKING & SIGNING
STA 104+00 TO P.O.E.

SHEET 24 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\PMS\220050PMS.dwg Mar 05, 2025 - 11:54am

LEGEND SHEET

TRAFFIC SIGNAL

- INSTALL 12" VEHICULAR TRAFFIC SIGNAL (1–WAY SHOWN)
- INSTALL VEHICULAR TRAFFIC SIGNAL WITH SALVAGED HEADS (2–WAY SHOWN)
- EXISTING VEHICULAR TRAFFIC SIGNAL (1–WAY SHOWN)
- REMOVE VEHICULAR TRAFFIC SIGNAL (1–WAY SHOWN)
- INSTALL PEDESTRIAN (COUNTDOWN TYPE) TRAFFIC SIGNAL (2–WAY SHOWN)
- INSTALL PEDESTRIAN (COUNTDOWN TYPE) TRAFFIC SIGNAL WITH SALVAGED HEAD (2–WAY SHOWN)
- REMOVE PEDESTRIAN (WALK–DON'T WALK) TRAFFIC SIGNAL (1–WAY SHOWN)
- EXISTING PEDESTRIAN (WALK–DON'T WALK) TRAFFIC SIGNAL (1–WAY SHOWN)
- INSTALL JUNCTION BOX
- INSTALL SALVAGED JUNCTION BOX
- REMOVE JUNCTION BOX
- EXISTING JUNCTION BOX
- INSTALL OVERHEAD PLASTIC JACKETED CABLE
- EXISTING OVERHEAD PLASTIC JACKETED CABLE
- REMOVE OVERHEAD PLASTIC JACKETED CABLE
- INSTALL TRAFFIC SIGNAL CONTROLLER (NEW OR SALVAGED AS INDICATED). (EXCEPT AS OTHERWISE INDICATED)
- INSTALL MAST ARM POLE & MAST ARM (SIZES AS INDICATED) ON NEW FOUNDATION (EXCEPT AS OTHERWISE INDICATED).
- INSTALL TRAFFIC SIGNAL PEDESTAL ON NEW FDN. OR PUSHBUTTON SUPPORT POST (AS INDICATED).
- INSTALL ANCHOR BASE STEEL STRAIN POLE (SIZE AS INDICATED) ON NEW FOUNDATION. (EXCEPT AS OTHERWISE INDICATED).
- EXISTING TRAFFIC SIGNAL CONTROLLER
- EXISTING MAST ARM STANDARD
- EXISTING PEDESTAL
- EXISTING STEEL STRAIN POLE
- BAG SIGNALS AS DIRECTED BY ENGINEER. (INCLUDED IN INSTALLATION OF T.S. ON THIS CONTRACT).
- REMOVE BAG AS DIRECTED BY ENGINEER. (INCLUDED IN INSTALLATION OF T.S. ON THIS CONTRACT).
- POCH — POLE CONTACT HEIGHT OF T.S. SPAN WIRE
- L.C.H. — LOW CONTACT HEIGHT OF SPAN WIRE T.S. TO SPAN WIRE.
- INSTALL WARNING SIGN (TYPE AS INDICATED ON PLANS).
- INSTALL 1 OR 2–WAY CASE SIGN (AS INDICATED ON PLANS)
- REMOVE 2–WAY CASE SIGN
- EXISTING 2–WAY CASE SIGN
- INSTALL 4–WAY CASE SIGN
- REMOVE 4–WAY CASE SIGN
- EXISTING 4–WAY CASE SIGN

UNDERGROUND

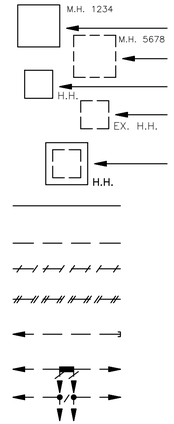
- M.H. 1234 — EXISTING MANHOLE
- EX. H.H. — EXISTING HANDHOLE
- EXISTING DUCT RUN
- REMOVE EXISTING DUCT RUN
- 2–3" D.B. — BUILD DIRECT BURIAL CONDUIT (D.B.) OR ENCASED CONDUIT (E.C.) (2–3" D.B. SHOWN)
- 2–3" — GALVANIZED IRON CONDUIT (2–3" SHOWN)
- M.H. 5678 — BUILD NEW MANHOLE (2–WAY)
- M.H. 9012 — BUILD NEW MANHOLE (3–WAY)
- M.H. 3456 — BUILD NEW MANHOLE (4–WAY)
- M.H. 7890 — BUILD NEW MANHOLE (CORNER)
- BUILD ROUND HANDHOLE
- BUILD SQUARE HANDHOLE
- BUILD TYPE "D" HANDHOLE
- EXISTING DIRECT BURIAL OR PARKWAY CABLE
- ABANDON DIRECT BURIAL OR PARKWAY CABLE
- INSTALL DIRECT BURIAL CABLE (NO. & SIZE AS INDICATED)
- EXISTING U.G.–FED ST. LTG. UNIT
- REMOVE U.G.–FED ST. LTG. UNIT & FDN. (EXCEPT AS OTHERWISE INDICATED)
- INSTALL COMB. T.S. & ST. LTG. STD. (SIZE AS SPECIFIED) ON NEW FDN., 6FT. CLAMP ON BRACKET ARM WITH 3'–0" RISE, INSTALL 400W. TYPE LUMINAIRE.

OVERHEAD

- EXISTING OR REMOVE WOOD POLE AS INDICATED
- REPLACE WOOD POLE (HEIGHT & CLASS AS INDICATED)
- INSTALL WOOD POLE (HEIGHT & CLASS AS INDICATED) (USE SALVAGED POLE WHERE INDICATED)
- EXISTING OVERHEAD ST. LTG. UNIT
- REMOVE OVERHEAD ST. LTG. UNIT
- INSTALL OVERHEAD ST. LTG. UNIT
- EXISTING OVERHEAD LINE
- REMOVE OVERHEAD LINE
- INSTALL OVERHEAD LINE
- INSTALL & LATER REMOVE OVERHEAD LINE
- 1/2" — INSTALL GUY & ANCHOR (1/2" GUY SHOWN)
- REMOVE GUY & ANCHOR ROD
- 1/2" — INSTALL POLE GUY (1/2" GUY SHOWN)
- 3/8" — INSTALL ARM GUY (3/8" GUY SHOWN)
- P OR A — REMOVE GUY (TYPE AS INDICATED)
- IN. — MATERIAL TO BE INSTALLED
- RM. — MATERIAL TO BE REMOVED
- MSS — MAKE WOOD POLE SELF–SUPPORTING IN CONCRETE
- C.P. — CABLE POLE

DIAGRAMS

(U.G.–FED ST. LTG. STD. SYMBOLS SAME AS UNDERGROUND LEGEND OF THIS SHEET).



- PROPOSED MANHOLE
- EXISTING MANHOLE
- PROPOSED HANDHOLE
- EXISTING HANDHOLE
- PROPOSED HANDHOLE IN SAME LOCATION AS EX. HOLE
- INSTALL U.G. CABLE (NO. & SIZE AS INDICATED).
- EXISTING U.G. CABLE
- U.G. CABLE TO BE ABANDONED
- U.G. CABLE TO BE REMOVED
- DISCONNECT, INSULATE & CAP CABLE END.
- SPLICE STRAIGHT THRU
- SPLICES

TRAFFIC SIGNAL

- INSTALL OVERHEAD DETECTION CAMERA MOUNTED AS INDICATED ON THE PLANS.
- INSTALL SALVAGED OVERHEAD DETECTION CAMERA MOUNTED AS INDICATED ON THE PLANS.
- EXISTING OVERHEAD DETECTION CAMERA
- REMOVE OVERHEAD DETECTION CAMERA
- DETECTION AREA FOR OVERHEAD DETECTOR
- WIRELESS VEHICLE DETECTION AREA
- SPP — INSTALL WIRELESS DETECTION RADIO
- INSTALL LOOP DETECTOR & CABINET (EXCEPT AS OTHERWISE INDICATED).
- EXISTING LOOP DETECTOR & CABINET
- INSTALL OPTICAL DETECTOR AS SHOWN ON PLANS

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ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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REVISIONS: 03-05-2025 BID SET

DATE 6-25-2020 | PROJ NUMBER 003-22-0050 | ENG TL | PROJ MGR MM | CADD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP KALAMAZOO | SCALE H: NONE V: NONE | HORZ DATUM NAD83 | VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
TRAFFIC SIGNAL LEGEND

SHEET 25 OF 77

DRAWING PATH: P:\0000_0\0000039220050_Westnedge_Vine_to_MichiganDrawings\Civil\Signal\220050SIG_NOTES.dwg Mar 05, 2025 - 11:05am

GENERAL INFORMATION SHEET

1. CALL MISS DIG (800-482-7171) OR 811 3 WORKING DAYS PRIOR TO ANY EXCAVATION FOR THE LOCATIONS OF UNDERGROUND UTILITIES.
2. WHERE ABANDONING OF U.G. CABLES IS CALLED FOR ON PLANS OR DIAGRAMS, CONTRACTOR SHALL CUT & REMOVE CABLES WITHIN MANHOLES & HANDHOLES.
3. WHERE INSTALLATION OF NEW MANHOLES OVER EXISTING CONDUITS (TO ACCOMMODATE NEW & EXISTING CONDUITS) IS CALLED FOR ON PLANS, CONTRACTOR SHALL CAREFULLY & SO AS NOT TO DAMAGE EXIST. CABLES, REMOVE THE EXISTING CONDUITS & ENCASEMENT WITHIN MANHOLES. EXIST. CABLES SHALL BE EXTENDED & PROPERLY TRAINED, RACKED & SUPPORTED.
4. ALL EXISTING STREET LIGHTING, TRAFFIC SIGNAL, PRIMARY, TRANSMISSION ETC. CIRCUITS SHALL ALWAYS BE MAINTAINED IN AN OPERATIONAL CONDITION (EXCEPT WHERE OTHERWISE NOTED).
5. ALL CONDUITS NOT TERMINATING IN STRUCTURES SUCH AS MANHOLES, HANDHOLES OR FOUNDATIONS SHALL EXTEND 2 FEET BEYOND PAVEMENT LIMIT (EXCEPT AS OTHERWISE INDICATED). ALL UNOCCUPIED CONDUITS SHALL BE PLUGGED.
6. ALL TREE TRIMMING REQUIRED TO CLEAR NEW OR SALVAGED ST. LTG. & TRAFFIC SIGNAL STD.'S, O.H. ST. LTG. & TRAFFIC SIGNAL UNITS SHALL BE INCLUDED IN OTHER CONTRACT PAY ITEMS AND NOT PAID FOR SEPARATELY.
7. EXISTING O.H. & T.S. FACILITIES ARE NOT NECESSARILY SHOWN ON PLANS.
8. ALL OVERHEAD WIRES & UNDERGROUND CABLES SHALL CONSIST OF COPPER CONDUCTORS AS PER SPECIFICATIONS.
9. NEW CONDUITS BROKEN INTO EXISTING MANHOLES OR HANDHOLES SHALL NOT INTERFERE WITH RACKING AND/OR TRAINING OF CABLES.
10. ALL NEW ANCHOR GUYS SHALL BE INSTALLED ON A 1:1 RATIO OR AS NEARLY AS POSSIBLE (EXCEPT WHERE OTHERWISE NOTED). (STRUT GUYS ARE ACCEPTED).
11. ALL CABLES SHALL BE TAGGED IN ALL MANHOLES AND HANDHOLES.
12. INSTALL WOOD POLES SO AS NOT TO INTERFERE WITH TRAFFIC OR FUTURE CONSTRUCTION STAGES.
13. ALL SALVAGED WOOD POLES SHALL BE PREVIOUSLY INSTALLED NEW ON THIS CONTRACT. (EXCEPT AS OTHERWISE INDICATED)
14. ALL TRAFFIC SIGNS SUCH AS "NO PARKING", "NO STANDING", "STREET NAME", ETC. SHALL BE TRANSFERRED FROM OLD STD. OR POLE TO NEW STD. OR POLE AT THE SAME LOCATION OR IN CLOSE PROXIMITY BY CONTRACTOR.
15. ALL TRAFFIC SIGNALS SHALL BE MOUNTED WITH NEW STANDARD TRAFFIC SIGNAL BRACKETS & FITTINGS.
16. ALL TRAFFIC SIGNAL ITEMS, AS CALLED FOR ON PLANS, SHALL HAVE INCLUDED IN THE THE TRAFFIC SIGNAL ITEM ALL CABLES FROM THE CONTROLLER TO THE TRAFFIC SIGNALS, FOUNDATIONS & PIPE EXTENSIONS NEEDED TO MAINTAIN 17'-0" UNDER CLEARANCE AS INDICATED (18'-0" FOR JOINT USE WOOD POLES)
17. WHEN ENTERING PROPOSED CONDUIT INTO EXISTING MANHOLES & HANDHOLES EXERCISE CAUTION NOT TO DISTURB EXISTING CABLES. EARTH EXCAVATION, CLASS II GRANULAR BACKFILL, TAPPING NEW CONDUIT ENTRANCES AND GROUTING ARE INCLUDED IN THE INSTALLATION OF CONDUIT AND WILL NOT BE PAID FOR SEPARATELY. THE CONTRACTOR WILL REPAIR OR REPLACE THE HANDHOLE DUE TO DAMAGES BY THE CONTRACTOR. THE COST OF THIS REPAIR OR REPLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR .
18. ALL SALVAGED TRAFFIC SIGNALS SHALL BE TRAFFIC SIGNALS PREVIOUSLY INSTALLED NEW ON THIS CONTRACT. (EXCEPT AS OTHERWISE INDICATED).
19. FOR TRAFFIC SIGNAL SPAN WIRE USE EXTRA HIGH STRENGTH GRADE AS PER SPECIFICATIONS.
20. SEAL-END OF CABLE WHERE COILING OF CABLE IS CALLED FOR ON PLANS. (CONTRACTOR SHALL RECEIVE PAYMENT FOR COILED-UP CABLES).
21. ALL NEW TRAFFIC SIGNAL CONTROLLERS MUST BE SETUP AND PROGRAMMED BY A FACTORY AUTHORIZED DEALER WITH TIMING PLANS FURNISHED BY THE ENGINEER OR MAINTAINING AGENCY. TRAFFIC SIGNAL CONTROLLERS SHALL BE FURNISHED WITH A COMPLETE SET OF INSTALLATION PLANS AND OWNERS MANUAL.
22. PROPOSED T.S. SHALL BE PUT INTO OPERATION AT TIME OF REMOVAL OF EXISTING T.S. FACILITIES, CONTRACTOR SHALL NOTIFY THE CITY OF KALAMAZOO IF UNABLE TO MAINTAIN T.S. IN AN OPERABLE CONDITION AT ALL TIMES.
23. A MINIMUM CLEARANCE OF 3'-6" HORIZONTAL & 1'-0" VERTICAL MUST BE MAINTAINED BETWEEN PROPOSED FACILITIES & EXISTING U.G. WATER FACILITIES.
24. LOCAL UTILITY CO. SERVICE INSTALLATION FEES, METERED SERVICE CHARGES AND OTHER CHARGES AS DETAILED ON THE PLANS ARE TO BE ORDERED & PAID FOR BY THE CONTRACTOR.
25. CONTACT CITY OF KALAMAZOO (MR. DENNIS RANDOLPH) AT (269) 303-7844 (48) HOURS PRIOR TO INSTALLATION AND INSPECTION OF TRAFFIC SIGNALS.
26. ALL MATERIAL REMOVED ON THIS CONTRACT SHALL BE DISPOSED OF PROPERLY BY THE CONTRACTOR. CONTRACTOR SHALL NOTIFY THE CITY OF KALAMAZOO PRIOR TO REMOVAL OF THE EQUIPMENT AND ALL MATERIAL IDENTIFIED BY THE CITY SHALL BE STORED ON SITE AS DIRECTED BY THE ENGINEER FOR PICK UP BY THE CITY.
27. ALL O.H. TRAFFIC SIGNAL CABLE SHALL BE SUPPORTED BY 5/16" E.H.S. MESSENGER WIRE. (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.)
28. ALL TRAFFIC SIGNAL SPANS WITH SOLID STATE CONTROLLERS SHALL BE GROUNDED. THE GROUNDING OF BOTH SHALL HAVE A RESISTANCE NO GREATER THAN 10 OHM WHEN INSTALLED.
29. CONCRETE PAVEMENT REPAIR SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST M.D.O.T. R-44 SERIES STANDARD PLAN.
30. ALL CONDUIT BENDS SHALL HAVE MINIMUM RADII IN ACCORDANCE WITH THE CURRENT N.E.C.
31. ALL TRAFFIC SIGNAL FITTINGS (SCREWS, BOLTS, PINNACLES, ETC.) SHALL BE GREASED WITH A NON-OXIDE TYPE GREASE.
32. INSTALL STEEL POLE HANDHOLE, AS DESCRIBED IN M.D.O.T. STANDARD DETAILS IN ALL EXIST. STEEL POLES AS DIRECTED BY THE ENGINEER. (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.)
33. ALL GROUND WIRE SHALL BE #6 STRANDED COPPER.
34. WHEN SPLICING TRAFFIC SIGNAL CABLES, USE UN-INSULATED SOLID BARREL COMPRESSION TYPE CONNECTORS. TAPE OVER EACH INDIVIDUAL BARREL AND ANY BARE WIRE WITH PREMIUM GRADE PVC, 7 MIL, SUNLIGHT & COLD RESISTANT TAPE. THEN TAPE OVERALL SPLICE WITH LINERLESS RUBBER SPLICING TAPE OR EQUIVALENT. THEN TAPE OVER THAT WITH A LAYER OF PREMIUM GRADE PVC, 7 MIL, SUNLIGHT & COLD RESISTANT TAPE OVER LAPPING CABLE JACKET BY ONE INCH. ALL TAPE SHOULD COVER SPLICES FROM CABLE JACKET TO CABLE JACKET AND BE 1/2 LAPPED. THE FINAL LAYER OF TAPE SHOULD BE WRAPPED IN AN UPWARD MOTION SO THAT CUT OFF END DOES NOT ALLOW MOISTURE BACK INTO SPLICE.
35. NO CHANGES FROM PLANS IN LOCATION OF SUPPORTING STRUCTURES, SIGNAL HEAD PLACEMENT OR TRAFFIC SIGNAL EQUIPMENT WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE CITY OF KALAMAZOO CONTACT MR GEORGE WARING AT 269-303-7844
36. STEMMING OF SIGNAL HEADS TO MAINTAIN EQUAL UNDER CLEARANCE FOR EACH SPAN WIRE MOUNTED SIGNAL HEAD (AT ALL INTERSECTIONS ON THIS CONTRACT) IS INCLUDED IN THE INSTALLATION OF T.S. IN THIS CONTRACT.
37. ALL DIRECTIONAL BORED, OPEN CUT OR DIRECT BURIAL CONDUIT CALLED FOR ON PLANS IS THE PREFERRED METHOD OF INSTALLATION. IF THE METHOD OF CONDUIT INSTALLATION IS IMPOSSIBLE TO CONSTRUCT OR IF THE CONTRACTOR PREFERS TO USE ANY OTHER METHOD, THE CHANGE OF METHOD MAY BE MADE UPON APPROVAL BY THE PROJECT ENGINEER.
38. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING OR ANTICIPATING HIS NEED OR DESIRE TO INSTALL CONDUIT BY ANY OTHER METHOD AND TO INCLUDE THE COST IN HIS CONTRACT BID.
39. NO EXTRA PAYMENT WILL BE ALLOWED IF THE CONTRACTOR CHOOSES TO CHANGE THE METHOD OF CONDUIT INSTALLATION.
40. ALL OVERHEAD CAMERA CLAMP-ON BRACKET ARMS SHALL BE INSTALLED ON WOOD OR STEEL POLES PERPENDICULAR TO THE CURB UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
41. CONTACT LOCAL UTILITY CO. PRIOR TO INSTALLATION OF TRAFFIC SIGNALS. (INCLUDED IN THE INSTALLATION OF TRAFFIC SIGNALS ON THIS CONTRACT.)
42. ALL WEATHERHEADS AND LB'S INSTALLED NEW ON THIS CONTRACT SHALL BE METAL UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
43. THE "PLOWING IN CONDUIT" METHOD SHALL NOT BE USED ON THIS CONTRACT UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
44. WHEN CONTRACTOR IS INSTALLING A NEW STEEL STRAIN POLE FOR INSTALLATION OF A NEW SPAN WIRE BY LOCAL UTILITY CO., A SPAN WIRE ATTACHMENT CLAMP AND BULL RING SHALL BE PROVIDED BY THE CONTRACTOR. (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.)
45. ALL PEDESTRIAN TRAFFIC SIGNALS NOT IN USE ON THIS PROJECT SHALL BE BAGGED AS DIRECTED BY THE ENGINEER.
46. ALL TRAFFIC SIGNALS, CASE SIGNS, AND SPAN MOUNTED STATIC SIGNS THAT ARE NOT BEING USED WILL BE HOODED, TURNED, OR TAKEN DOWN TO CLEARLY INDICATE THAT THEY ARE NOT IN OPERATION. BAGGING MATERIAL WILL BE OF SUCH CONSTRUCTION AS TO NOT ALLOW ANYTHING TO BE VISIBLE THROUGH THE MATERIAL. BAGGING MATERIAL WILL BE OF SUCH CONSTRUCTION AS TO HOLD UP TO WIND AND OTHER ADVERSE WEATHER CONDITIONS. ALL TRAFFIC SIGNALS AND CASE SIGNS WILL BE DISABLED SO THAT NO LIGHTS ARE OPERATIONAL.
47. ALL TRAFFIC SIGNALS SHALL BE MOUNTED SUCH THAT A 17'-0" UNDER CLEARANCE IS MAINTAINED AT ALL TIMES.
48. THE CONTRACTOR SHALL SETUP AND PROGRAM VIDEO DETECTION ZONES AS DIRECTED BY THE ENGINEER OR MAINTAINING AGENCY.
49. FOR ANY CABLE RATED FOR LESS THAN 600V., THE CONTRACTOR MUST INSTALL A CONTINUOUS FLEXIBLE NON-METALLIC TUBE (INNERDUCT) BETWEEN THE DEVICE AND THE CONTROLLER CABINET. INNERDUCT IS NOT REQUIRED FOR 600V. RATED CABLES.
50. ENSURE EACH TRAFFIC SIGNAL HEAD ASSEMBLY HAS ITS OWN LANDING POINT WITH ALL NEUTRALS CONNECTED TOGETHER WITH A METAL TYPE JUMPER.

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

TITLE	PLAN NO.
STATEWIDE TRAFFIC SIGNALS	
SPAN WIRE TS ON STEEL AND WOOD POLES	SIG-010-A *
6 ANCHOR BOLT TRAFFIC SIGNAL STRAIN POLE AND FOUNDATION	SIG-020-B *
STEEL TRUSS BRACKETS	SIG-060-A *
PEDESTAL FOUNDATION	SIG-070-A *
BASE MOUNTED TS CONTROLLER CABINET/FOUNDATIONS	SIG-110-A *
ANTENNA ATTACHMENT DETAIL (YAGI/BROADBAND)	SIG-130-B *
SECONDARY SERVICE/DISCONNECT FOR STEEL POLES	SIG-201-A *
COLOR CODE WIRING/EQUIPMENT GROUNDING	SIG-230-A *
HANDHOLE- PRECAST, POLYMER CONCRETE	SIG-240-A *
CONDUIT (DIRECT BURIAL/ENCASED)	SIG-250-A *
SPAN WIRE MOUNTED TS BRACKET ASSEMBLY	SIG-300-A *
TRAFFIC SIGNAL BACKPLATES	SIG-304-A *
SPAN WIRE TETHER DETAILS	SIG-305-C *
ALIGNMENT OF TRAFFIC SIGNAL HEADS (DIAGONAL)	SIG-310-A *
PEDESTAL MOUNTED SIGNAL DISPLAYS	SIG-330-A *
PEDESTAL MOUNTING DETAILS FOR SIGNALS	SIG-331-A *
POLE MOUNTED SIGNAL DISPLAYS	SIG-340-A *
POLE MOUNTING DETAILS FOR SIGNALS	SIG-341-A *
BACK BRACKET SIGNAL DISPLAYS	SIG-342-A *
PEDESTRIAN PUSH BUTTON DETAILS	SIG-400-A *
VIDEO DETECTION CAMERA	SIG-430-A *

* DENOTES SPECIAL DETAIL

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN SHEETS.

MISCELLANEOUS QUANTITIES

TOTAL	UNIT	DESCRIPTION
1000	Dlr	Power Company (Estimated Cost to Contractor)
20	Ea	TS Face, Bag
20	Ea	TS Face, Bag, Rem

PEDESTRIAN SIGNALS SHALL BE BAGGED AND UNBAGGED IN COORDINATION WITH CLOSURE OF CROSSWALKS AS DIRECTED BY THE ENGINEER.

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34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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REVISIONS: 03-05-2025 BID SET

DATE 09-29-2023 | PROJ NUMBER 0089-22-0050 | ENG TL | PROJ MGR MM | CAD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP KALAMAZOO | SCALE H. NONE V. NONE | HORZ DATUM NAD83 | VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
TRAFFIC SIGNAL NOTES SHEET

SHEET 26 OF 77

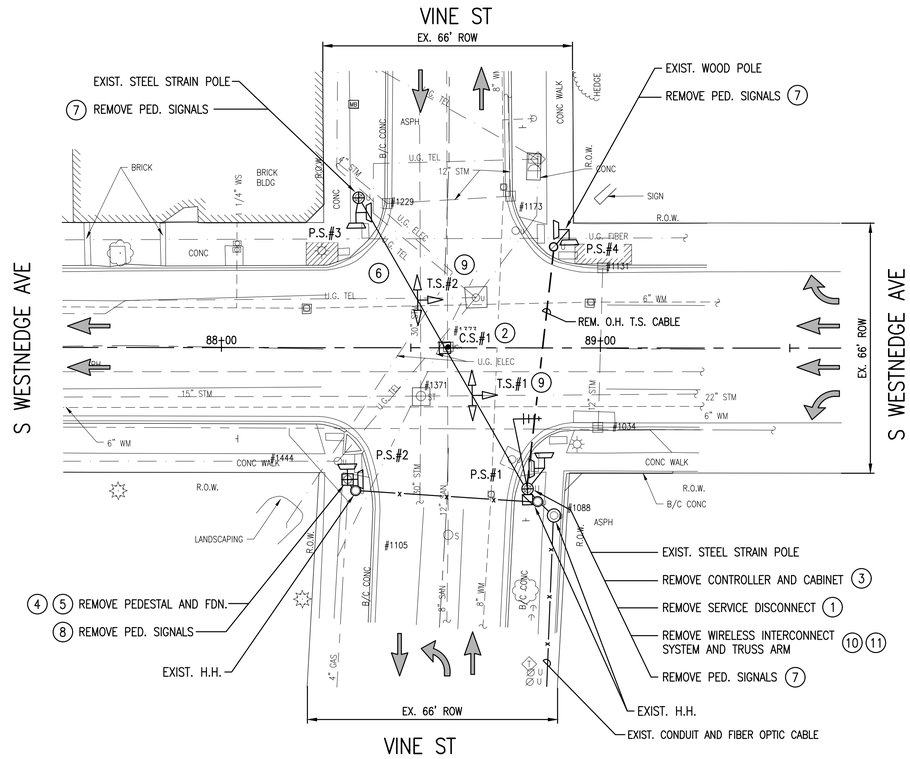
DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Signal\220505IG_NOTES.dwg Mar 05, 2025 - 11:05am

REMOVE 4-WAY, 24"X30"
ILLUMINATED CASE SIGN
C.S. #1

ALL TRAFFIC SIGNAL CABLE SHALL BE REMOVED ON THIS PLAN.

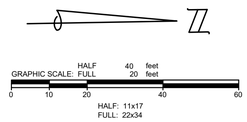
QUANTITIES THIS SHEET		
(1)	Serv Disconnect, Rem	1 Ea
(2)	Case Sign, Rem	1 Ea
(3)	Controller and Cabinet, Rem	1 Ea
(4)	Pedestal Fdn, Rem	1 Ea
(5)	Pedestal, Rem	1 Ea
(6)	Span Wire, Rem	1 Ea
(7)	TS, Pedestrian, Bracket Arm Mtd, Rem	3 Ea
(8)	TS, Pedestrian, Pedestal Mtd, Rem	1 Ea
(9)	TS, Span Wire Mtd, Rem	2 Ea
(10)	Bracket, Truss, Rem	1 Ea
(11)	Wireless Intercn, Closed Loop, Rem	1 Ea

CONTRACTOR SHALL PLUG ALL HOLES IN POLES FOLLOWING REMOVAL OF SIGNAL EQUIPMENT. MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. PAYMENT SHALL BE INCLUDED IN THE REMOVAL PAY ITEMS.



REMOVAL PLAN

SCALE: 1"=40' (11"X17")



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34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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DATE 09-29-2023
PROJ NUMBER 0039-22-0050
ENG TL
PROJ MGR MM
CADD PR
COUNTY KALAMAZOO
CITY/VILLAGE/TOWNSHIP KALAMAZOO
SCALE H: AS NOTED V: N/A
HORIZ DATUM NAD83
VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
TRAFFIC SIGNAL REMOVAL SHEET

SHEET 27 OF 77

Know what's **below.**
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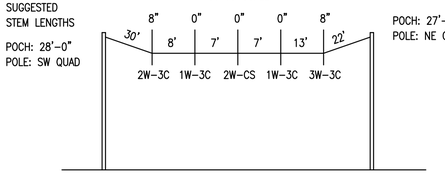
		QUANTITIES THIS SHEET	
	(1)	Hh, Round	2 Ea
	(2)	Serv Disconnect	1 Ea
	(3)	Wood Pole, Fit Up, TS Cable Pole	1 Ea
	(4)	Case Sign (LED), Two Way, 24 inch by 30 inch	1 Ea
	(5)	Controller Fdn, Base Mtd	1 Ea
	(6)	Pedestal, Alum	5 Ea
	(7)	Pedestal, Fdn	8 Ea
	(8)	Pedestal, Pushbutton, Alum	3 Ea
	(9)	Push Button Station and Sign	8 Ea
	(10)	Span Wire	1 Ea
*	(11)	Span Wire Tether	1 Ea
	(12)	Pedestrian Signal System, Accessible	1 Ea
	(13)	TS, One Way Span Wire Mtd (LED)	2 Ea
	(14)	TS, Two Way Span Wire Mtd (LED)	2 Ea
	(15)	TS, Three Way Span Wire Mtd (LED)	1 Ea
	(16)	TS, Pedestrian, Two Way Bracket Arm Mtd (LED) Countdown	1 Ea
	(17)	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	4 Ea
	(18)	TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	1 Ea
	(19)	Bracket, Truss, with 18 foot Arm	2 Ea
	(20)	Backplate, TS	7 Ea
	(21)	Controller Cabinet, Modified	1 Ea
	(22)	Controller, ATC Type, Classic	1 Ea
	(23)	Fiber Optic, Pigtail, Modified	10 Ea
	(24)	Modular Video Detection System	1 Ea
		Conduit, DB, 1, 1/2 inch	100 Ft
		Conduit, DB, 1, 3 inch	20 Ft
		Conduit, DB, 3, 3 inch	10 Ft
		Cable, Sec, 600V, 1, 3/C#6	75 Ft

* TETHER WIRES SHALL BE BOTTOM TETHER.

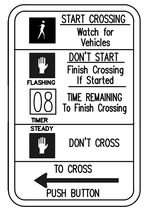
SPAN CALCULATIONS
NOT TO SCALE

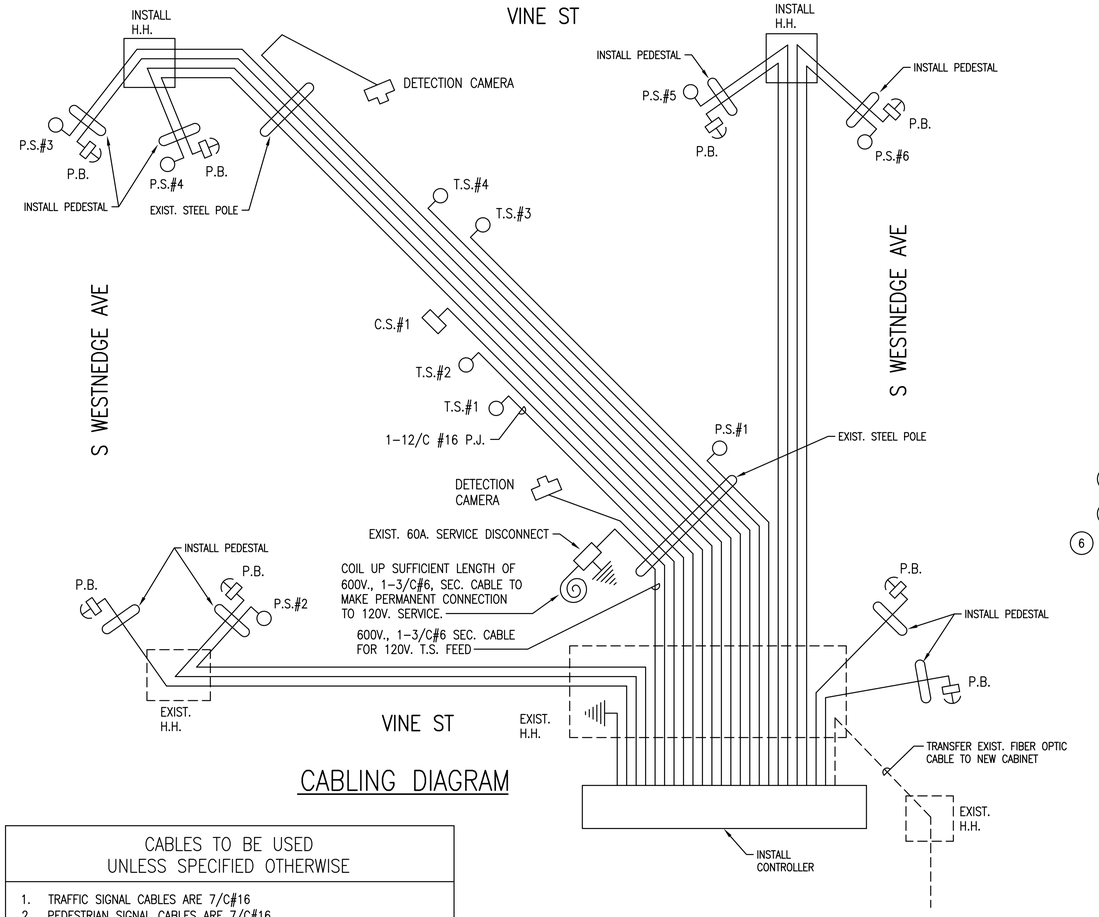


POCH IS CALCULATED AT 1000 POUNDS TENSION
SIGNAL BOTTOM HEIGHT SHALL BE 18' ABOVE ROAD GRADE.

PEDESTRIAN COUNTDOWN LEGEND

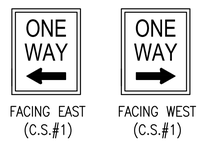
R10-3e SIGN TYPICAL

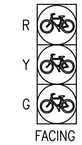


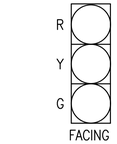


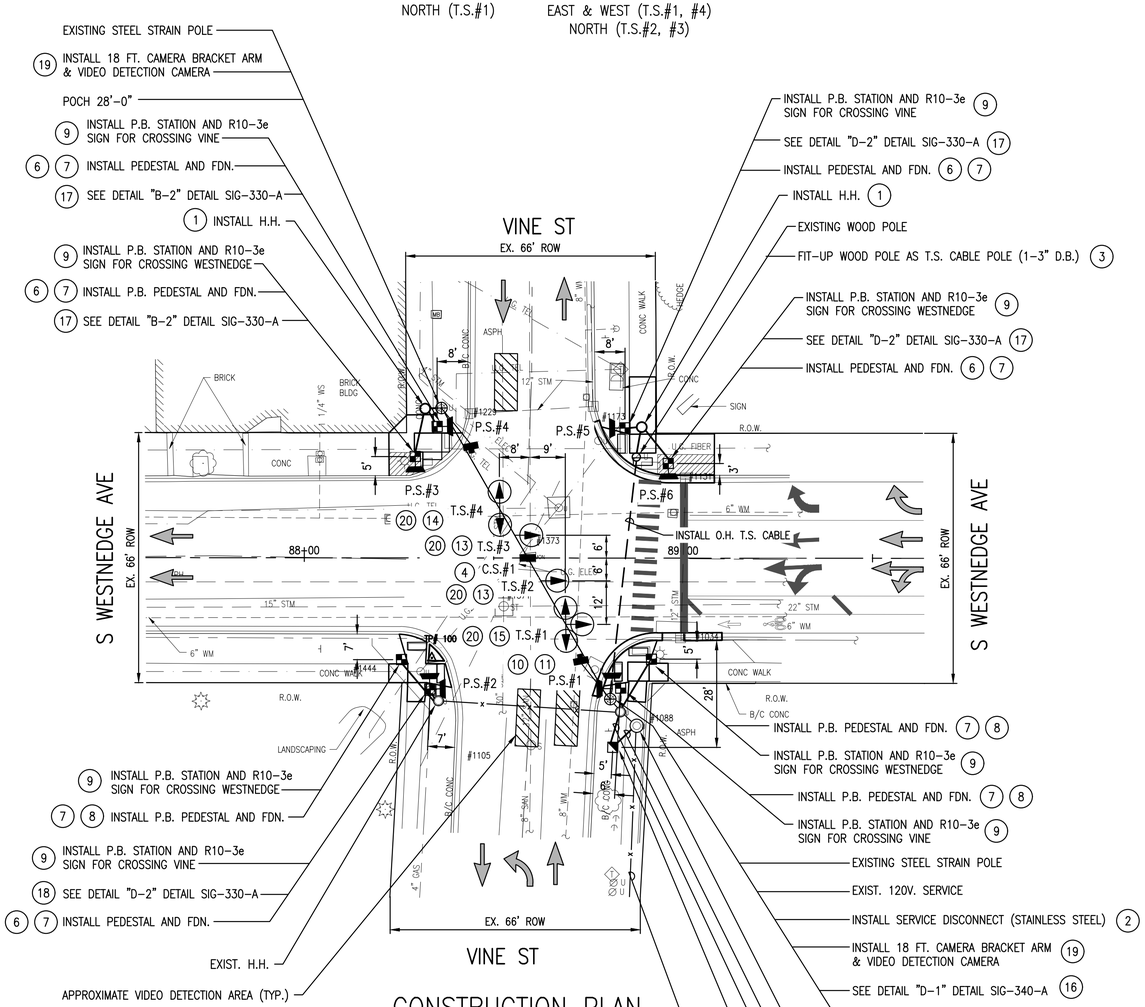
CABLING DIAGRAM

CABLES TO BE USED UNLESS SPECIFIED OTHERWISE
1. TRAFFIC SIGNAL CABLES ARE 7/C#16
2. PEDESTRIAN SIGNAL CABLES ARE 7/C#16
3. PUSHBUTTON TO CONTROLLER CABLES ARE 2/C#16 SHIELDED
4. ILLUMINATED CASE SIGN CABLES ARE 4/C#16
5. DETECTION CAMERA CABLES ARE 600v CAT 5e OR CAT 6.









CONSTRUCTION PLAN

SCALE: 1"=40' (11"X17")

APPROACH SPEEDS:	
S.BD.	35 MPH
E.BD.	25 MPH
W.BD.	25 MPH

CONDUIT TYPICALS:
STEEL POLE TO H.H. --------3-3" & 1-1 1/2"
PEDESTAL TO H.H. ---------1-1 1/2"
CONTROLLER FDN. TO H.H.---4-3" & 1-1 1/2"
WOOD POLE TO H.H. ---AS INDICATED ON PLAN

COORDINATE THE INSTALLATION OF PUSHBUTTON PEDESTALS WITH THE CONSTRUCTION OF SIDEWALKS. ENSURE COMPLIANCE WITH CURRENT ADA REQUIREMENTS.

WATTAGE:
STEADY: 90 W
CYCLIC: 389 W

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34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

GRAPHIC SCALE: HALF FULL 40 feet 20 feet
0 10 20 40 60
HALF: 11x17
FULL: 22x34

REVISIONS: 03-05-2025 BID SET

DATE 09-29-2023 | PROJ NUMBER 0030-22-0050 | ENG TL | PROJ MGR MM | CADD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP KALAMAZOO | SCALE H. AS NOTED V. N/A | HORIZ DATUM NAD83 | VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
TRAFFIC SIGNAL CONSTRUCTION SHEET

SHEET 28 OF 77

DRAWING PATH: P:\0000_0100\0030220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Signal\220050SIG_CON.dwg Mar 05, 2025 - 11:08am

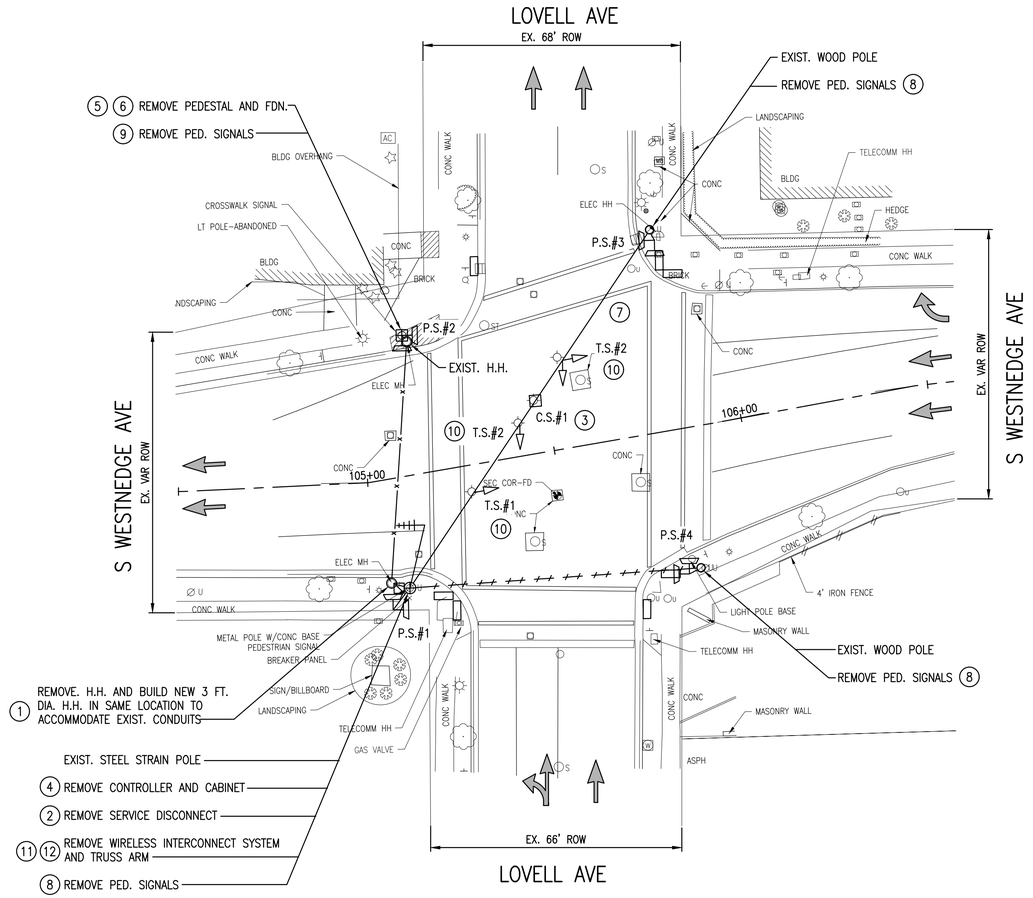
FACING SOUTH & WEST | FACING EAST | FACING NORTH

REMOVE 4-WAY, 24"X30" ILLUMINATED CASE SIGN C.S. #1

ALL TRAFFIC SIGNAL CABLE SHALL BE REMOVED ON THIS PLAN.

QUANTITIES THIS SHEET		
(1)	Hh, Rem	1 Ea
(2)	Serv Disconnect, Rem	1 Ea
(3)	Case Sign, Rem	1 Ea
(4)	Controller and Cabinet, Rem	1 Ea
(5)	Pedestal Fdn, Rem	1 Ea
(6)	Pedestal, Rem	1 Ea
(7)	Span Wire, Rem	1 Ea
(8)	TS, Pedestrian, Bracket Arm Mtd, Rem	3 Ea
(9)	TS, Pedestrian, Pedestal Mtd, Rem	1 Ea
(10)	TS, Span Wire Mtd, Rem	3 Ea
(11)	Bracket, Truss, Rem	1 Ea
(12)	Wireless Intercn, Closed Loop, Rem	1 Ea

CONTRACTOR SHALL PLUG ALL HOLES IN POLES FOLLOWING REMOVAL OF SIGNAL EQUIPMENT. MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. PAYMENT SHALL BE INCLUDED IN THE REMOVAL PAY ITEMS.



REMOVAL PLAN

SCALE: 1"=40' (11"X17")

GRAPHIC SCALE: HALF 40 feet, FULL 20 feet
0 10 20 40 60
HALF: 11x17
FULL: 22x34

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REVISIONS: 03-05-2025 BID SET

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
09-24-2023	0039-22-0060	TL	MM	PR	KALAMAZOO	KALAMAZOO	H: AS NOTED V: N/A	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
TRAFFIC SIGNAL REMOVAL SHEET

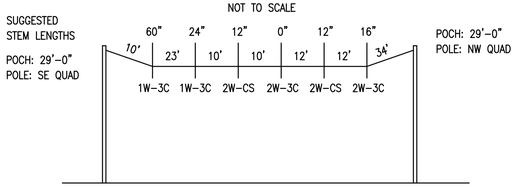
SHEET 29 OF 77

Know what's below. Call before you dig.

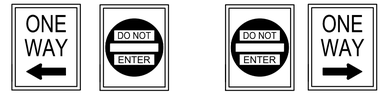
QUANTITIES THIS SHEET		
(1)	Hh, Round	2 Ea
(2)	Hh, Round, 3 foot dia	1 Ea
(3)	Serv Disconnect	1 Ea
(4)	Case Sign (LED), Two Way, 24 inch by 30 inch	2 Ea
(5)	Controller Fdn, Base Mtd	1 Ea
(6)	Pedestal, Alum	2 Ea
(7)	Pedestal, Fdn	7 Ea
(8)	Pedestal, Pushbutton, Alum	5 Ea
(9)	Push Button Station and Sign	8 Ea
(10)	Span Wire	1 Ea
✳ (11)	Span Wire Tether	1 Ea
(12)	Pedestrian Signal System, Accessible	1 Ea
(13)	TS, One Way Span Wire Mtd (LED)	2 Ea
(14)	TS, Two Way Span Wire Mtd (LED)	2 Ea
(15)	TS, Pedestrian, Two Way Bracket Arm Mtd (LED) Countdown	2 Ea
(16)	TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	2 Ea
(17)	Bracket, Truss, with 18 foot Arm	1 Ea
(18)	Strain Pole, Steel, 6 bolt, 30 foot	1 Ea
(19)	Strain Pole Fdn, 6 Bolt	15 Ft
(20)	Casing	12 Ft
(21)	Backplate, TS	6 Ea
(22)	Controller Cabinet, Modified	1 Ea
(23)	Controller, ATC Type, Classic	1 Ea
(24)	Modular Video Detection System	1 Ea
	Conduit, DB, 1, 1/2 inch	100 Ft
	Conduit, DB, 3, 3 inch	10 Ft
	Conduit, DB, 4, 3 inch	10 Ft
	Cable, Sec, 600V, 1, 3/C#6	75 Ft

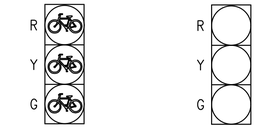
✳ TETHER WIRES SHALL BE BOTTOM TETHER.

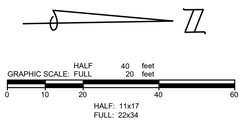
SPAN CALCULATIONS
NOT TO SCALE



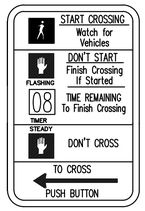
POCH IS CALCULATED AT 1050 POUNDS TENSION
SIGNAL BOTTOM HEIGHT SHALL BE 17' ABOVE ROAD GRADE.



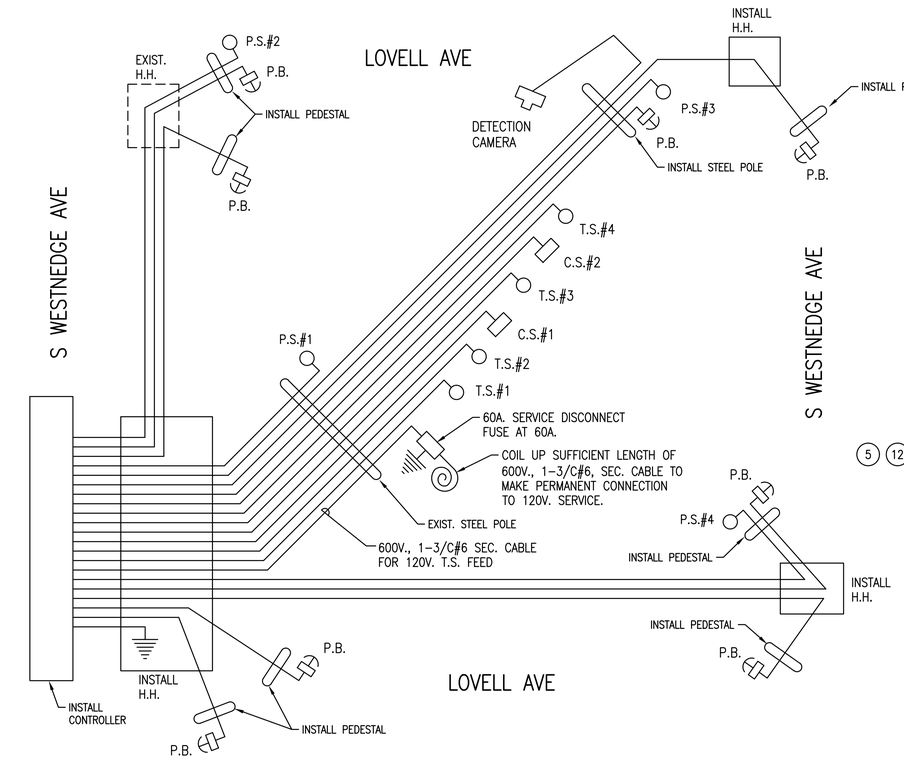




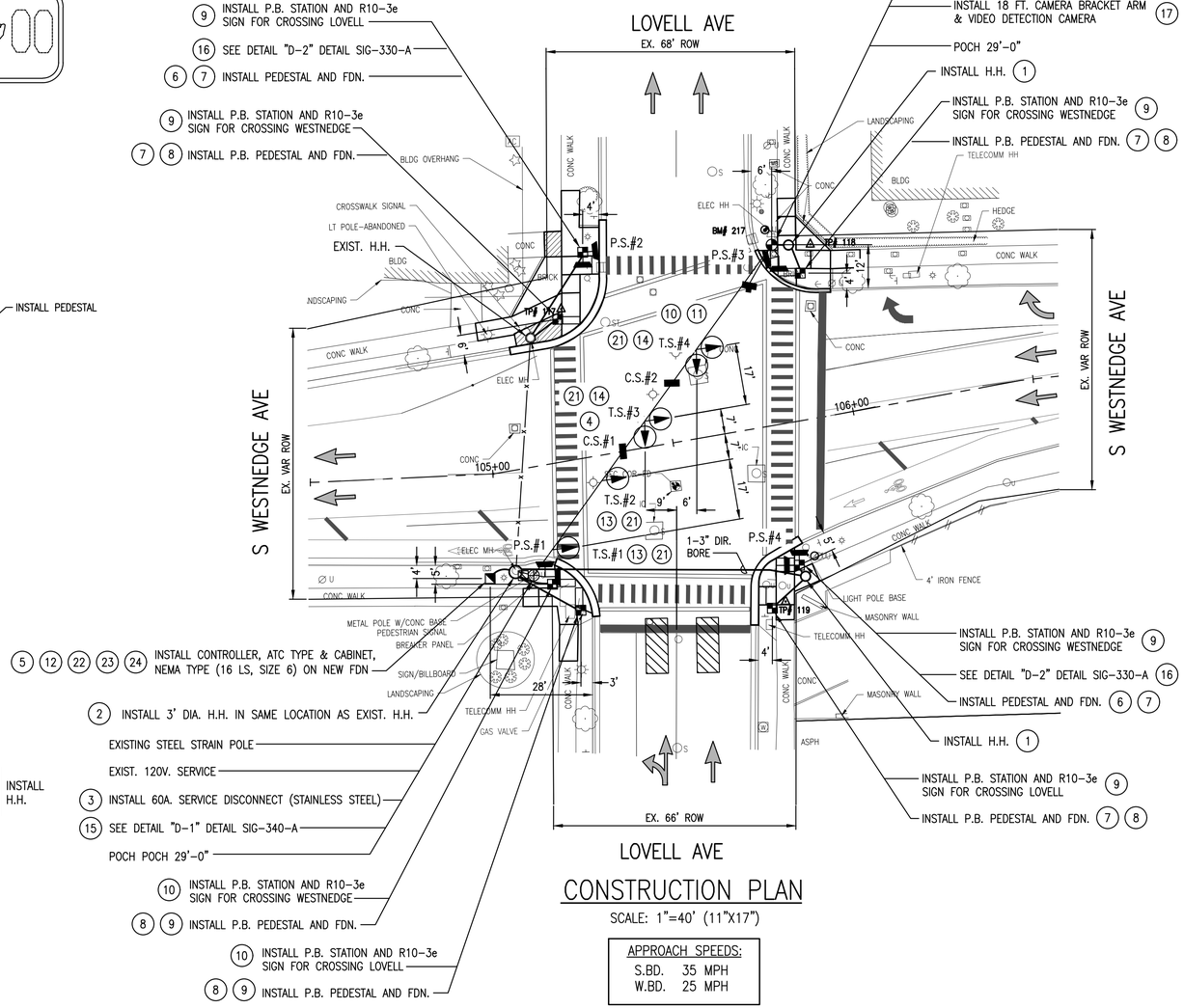
R10-3e SIGN TYPICAL



PEDESTRIAN COUNTDOWN LEGEND



CABLING DIAGRAM



CONSTRUCTION PLAN

SCALE: 1"=40' (11"X17")

APPROACH SPEEDS:	
S.BD.	35 MPH
W.BD.	25 MPH

CABLES TO BE USED UNLESS SPECIFIED OTHERWISE
1. TRAFFIC SIGNAL CABLES ARE 7/C#16
2. PEDESTRIAN SIGNAL CABLES ARE 7/C#16
3. PUSHBUTTON TO CONTROLLER CABLES ARE 2/C#16 SHIELDED
4. ILLUMINATED CASE SIGN CABLES ARE 4/C#16
5. DETECTION CAMERA CABLES ARE 600v CAT 5e OR CAT 6.

CONDUIT TYPICALS:

STEEL POLE TO H.H. --------3-3" & 1-1 1/2"
PEDESTAL TO H.H. ---------1-1 1/2"
CONTROLLER FDN. TO H.H.---4-3" & 1-1 1/2"
WOOD POLE TO H.H. ---AS INDICATED ON PLAN

COORDINATE THE INSTALLATION OF PUSHBUTTON PEDESTALS WITH THE CONSTRUCTION OF SIDEWALKS. ENSURE COMPLIANCE WITH CURRENT ADA REQUIREMENTS.

WATTAGE:
STEADY: 90 W
CYCLIC: 346 W

Know what's **below.** **Call** before you dig.

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REVISIONS:
03-05-2025 BID SET

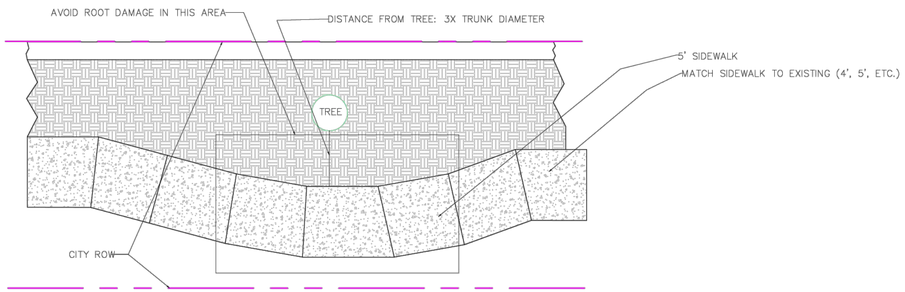
DATE	09-29-2023
PROJ NUMBER	0039-22-0050
ENG	TL
PROJ MGR	MM
CADD	PR
COUNTY	KALAMAZOO
CITY/VILLAGE/TOWNSHIP	KALAMAZOO
SCALE	H: AS NOTED V: N/A
HORZ DATUM	NAD83
VERT DATUM	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
TRAFFIC SIGNAL CONSTRUCTION SHEET

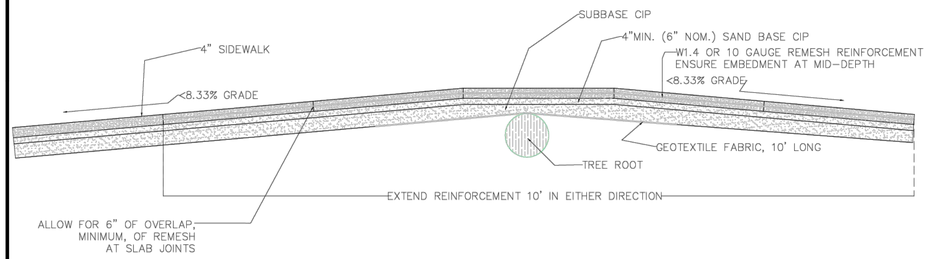
SHEET 30 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Signal\220050SIG_CON.dwg Mar 05, 2025 - 11:07am

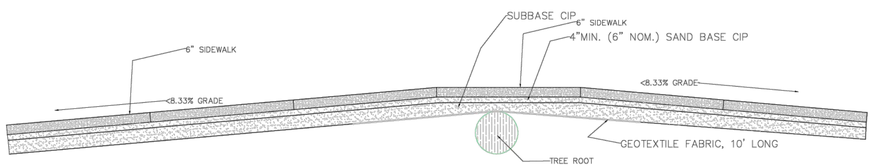
STANDARD DETAIL – SIDEWALK
ROOT AVOIDANCE – MEANDERING SIDEWALK



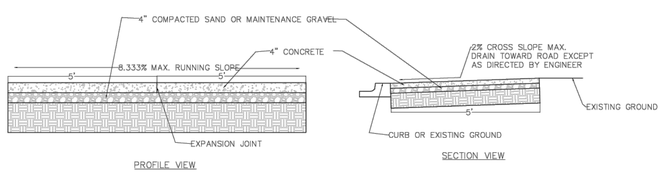
STANDARD DETAIL – SIDEWALK
ROOT AVOIDANCE



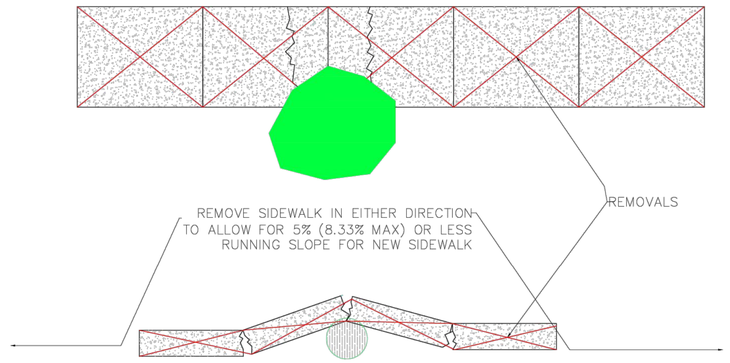
STANDARD DETAIL – SIDEWALK
ROOT AVOIDANCE – W/O REINFORCEMENT
(USE ONLY AS DIRECTED BY ENGINEER)



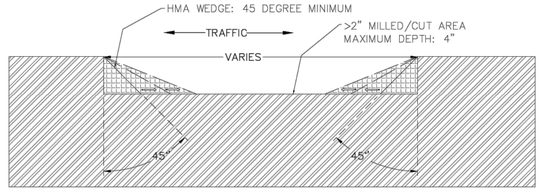
TYPICAL 4" SIDEWALK DETAIL



ROOT CRACKING OF SIDEWALK



STANDARD DETAIL – WEDGING
A CUT/MILLED SECTION



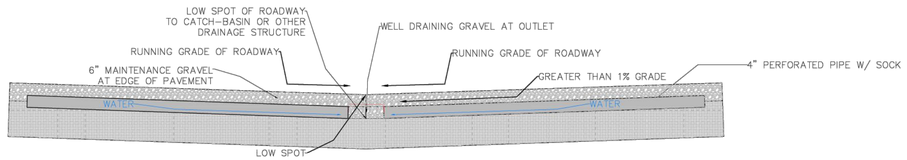
THE CITY OF Kalamazoo

DEPARTMENT OF PUBLIC SERVICES - Engineering
STANDARD DETAILS
CITY OF KALAMAZOO

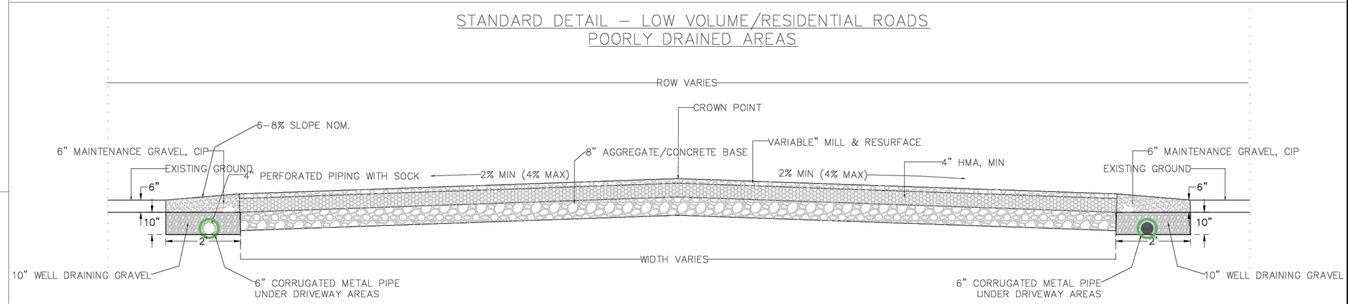
		SCALE	REVISIONS
SURVEYED	N/A		
DESIGNED	GHW		
DRAWN	GHW	VERTICAL NOT TO SCALE	1. 12.18.20 – Agg base depth & option of 2C base
QA/QC	AL	HORIZONTAL NOT TO SCALE	1. 12.17.21 – General updates plus MDOT HMA updates
ENG PROJ # XXX-XX		DATE 11/23/2020	

GENERAL NOTES:
- MDOT STANDARD PLANS R-28-J, R-29-I, R-30-G, AND R-44-F SHALL BE FOLLOWED IN CONJUNTION WITH THESE STANDARD PLANS
- ALL SAW CUTTING SHALL BE DONE PERPENDICULAR AND PARALLEL TO THE DIRECTION OF TRAVEL
- SAW CUTTING SHALL PROVIDE A STRAIGHT, CLEAN, EDGE TO ENHANCE BONDING
- ALL CUTS SHALL BE RECTANGULAR AND NEATLY CUT TO AVOID SPALLING OF PAVEMENT
- IN GENERAL ALL ROAD/UTILITY CUTS OF AN AREA GREATER THAN 25SFT (5FTX5FT TYPICAL) SHALL EXTEND THE FULL WIDTH OF THE TRAVEL LANE
- FOR PAVEMENT WITH LOAD TRANSFER DOWEL RODS OR REINFORCEMENT: NEW LOAD TRANSFER DOWELS/REINFORCEMENT SHALL BE PLACED TO MAINTAIN BEARING CAPACITY OF ROADWAY
- CUTS LESS THAN 12" SHALL BE PATCHED WITH PCC. IF GREATER THAN 12", ENSURE CUT IS IN ACCORDANCE WITH STANDARD DETAILS AND MATCHING EXISTING ROADWAY
- BUMPS/CUTS/MILLED AREAS WITH EDGE GREATER THAN 2" DEEP/HIGH MUST BE WEDGED WITH HMA BEFORE OPEN TO TRAFFIC. SEE STANDARD DETAIL.
- MEANDERING SIDEWALK SHALL ONLY BE PLACED IN THE CITY'S ROW OR WHERE AN EASEMENT IS ESTABLISHED
- NEW SIDEWALK CONSTRUCTION SHALL MEET OR EXCEED CURRENT ADA AND ACCESSIBILITY STANDARDS
- REPLACED SIDEWALK SHALL, TO THE EXTENT PRACTICABLE, MEET OR EXCEED ADA AND ACCESSIBILITY STANDARDS
- SIDEWALK, DRIVEWAY OPENINGS & APPROACHES SHALL CONFORM TO MDOT STANDARD PLAN DETAILS R-28-J AND R-29-I
- MARSHALL MIX 13A (BASE/LEVELING) MAY BE SUBSTITUTED FOR SUPERPAVE HMA BASE MIX DESIGNS WITH CITY OF KALAMAZOO APPROVAL IF DEEMED APPROPRIATE BY THE ENGINEER
- ASPHALT BINDER SHALL BE INCLUDED IN THE PAY ITEM FOR HMA
- MDOT PCC P1 MIX DESIGN SHALL BE USED FOR ALL CONCRETE UNLESS OTHERWISE STATED OR DIRECTED BY THE ENGINEER
- OPENING TO TRAFFIC STRENGTHS (2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION, TABLE 603-1):
  - -- <72 HOURS, GRADE P-NC, 300 psi
  - -- 72 HOURS +, GRADE P1, P1M, 550 psi

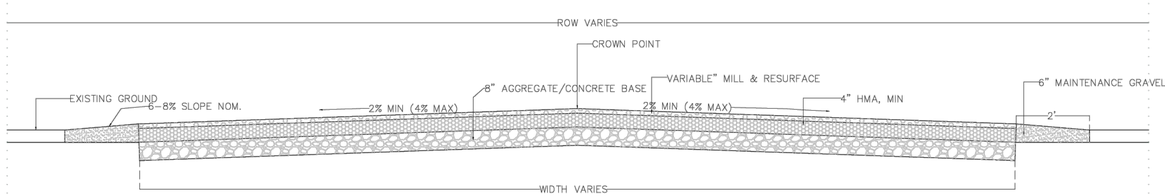
STANDARD DETAIL – LOW VOLUME/RESIDENTIAL ROADS
PERFORATED PIPE DETAIL



STANDARD DETAIL – LOW VOLUME/RESIDENTIAL ROADS
POORLY DRAINED AREAS



STANDARD DETAIL – LOW VOLUME/RESIDENTIAL ROADS
EASILY DRAINED AREAS



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03-05-2025 BID SET

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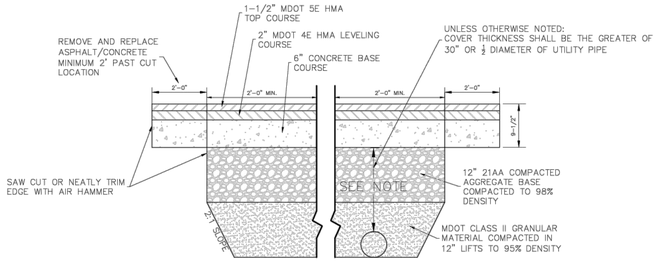
COUNTY	KALAMAZOO
CITY/VILLAGE/TOWNSHIP	KALAMAZOO
SCALE	V: NTS H: NTS
HORIZ DATUM	NAD83
VERT DATUM	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
CITY OF KALAMAZOO STANDARD DETAILS

SHEET 74 OF 77

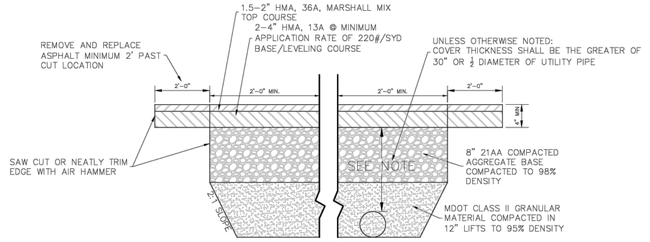
DRAWING PATH: P:\0000_0100\0039220060_Westnedge_Vine_to_Michigan\Drawings\Civil\Details\220005\STD_DET.dwg Mar 05, 2025 - 11:37am



NOTE:

1. CUT SHALL BE PARALLEL OR PERPENDICULAR TO EDGE OF ROADWAY/GUTTER
2. FOR POTHOLES 12" DIAMETER AND SMALLER – ALL CONCRETE
3. FOR 1' x 1' AND LARGER HAND COMPACT LAYERS AS SHOWN AND FINISH WITH CONCRETE

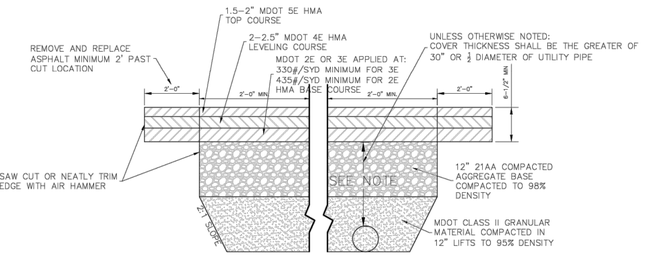
ASPHALT WITH CONCRETE BASE TRENCH DETAIL



NOTE:

1. CUT SHALL BE PARALLEL OR PERPENDICULAR TO EDGE OF ROADWAY/GUTTER
2. *SS–1H @ 0.10/GAL/SYD BETWEEN LIFTS
3. PERFORMANCE GRADE BINDER TO BE USED: PG 64–28

RESIDENTAL / LOW TRAFFIC VOLUME ROAD ASPHALT UTILITY TRENCH DETAIL



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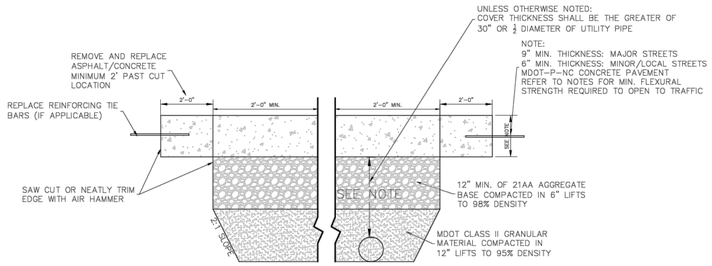
1. CUT SHALL BE PARALLEL OR PERPENDICULAR TO EDGE OF ROADWAY/GUTTER
2. *SS–1H @ 0.10/GAL/SYD BETWEEN LIFTS
3. PERFORMANCE GRADE BINDER TO BE USED: PG 64–28
4. HEAVY COMMERCIAL ADT COULD WARRANT CHANGE TO DESIGN.

COMMERCIAL ROAD ASPHALT UTILITY TRENCH DETAIL



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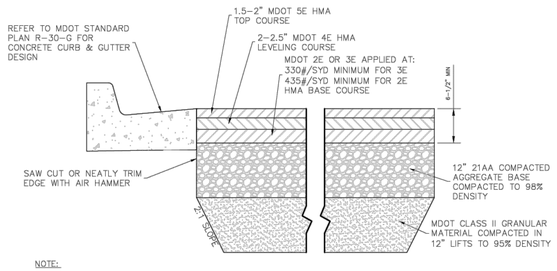
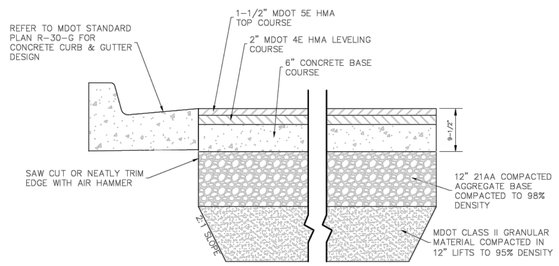
TYPICAL CUT USING PCC TO FILL (WINTER CUT)



NOTE:

1. *SS–1H @ 0.10/GAL/SYD BETWEEN LIFTS
2. PERFORMANCE GRADE BINDER TO BE USED: PG 64–28

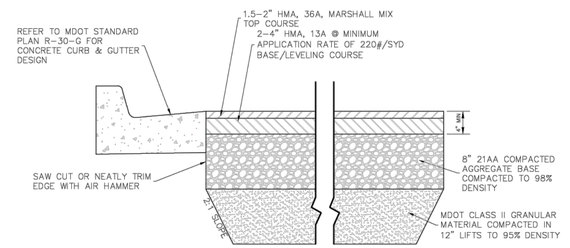
COMMERCIAL ROAD ASPHALT PAVEMENT DETAIL



NOTE:

1. *SS–1H @ 0.10/GAL/SYD BETWEEN LIFTS
2. PERFORMANCE GRADE BINDER TO BE USED: PG 64–28

ASPHALT PAVEMENT WITH CONCRETE BASE DETAIL



NOTE:

1. *SS–1H @ 0.10/GAL/SYD BETWEEN LIFTS
2. PERFORMANCE GRADE BINDER TO BE USED: PG 64–28

RESIDENTAL / LOW TRAFFIC VOLUME ROAD ASPHALT PAVEMENT DETAIL

THE CITY OF Kalamazoo

DEPARTMENT OF PUBLIC SERVICES - Engineering

STANDARD DETAILS

CITY OF KALAMAZOO

		SCALE	REVISIONS
SURVEYED	N/A	VERTICAL NOT TO SCALE	1. 12.18.20 – Agg base depth & option of 2C base
DESIGNED	GHW	HORIZONTAL NOT TO SCALE	2. 12.17.21 – General updates plus MDOT HMA updates
DRAWN	GHW	DATE 11/23/2020	
QA/QC	AL		
ENG PROJ #	XXX–XX		

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- SAW CUTTING SHALL PROVIDE A STRAIGHT, CLEAN, EDGE TO ENHANCE BONDING
- ALL CUTS SHALL BE RECTANGULAR AND NEATLY CUT TO AVOID SPALLING OF PAVEMENT
- IN GENERAL ALL ROAD/UTILITY CUTS OF AN AREA GREATER THAN 25SFT (5FTX5FT TYPICAL) SHALL EXTEND THE FULL WIDTH OF THE TRAVEL LANE
- FOR PAVEMENT WITH LOAD TRANSFER DOWEL RODS OR REINFORCEMENT: NEW LOAD TRANSFER DOWELS/REINFORCEMENT SHALL BE PLACED TO MAINTAIN BEARING CAPACITY OF ROADWAY
- CUTS LESS THAN 12" SHALL BE PATCHED WITH PCC. IF GREATER THAN 12", ENSURE CUT IS IN ACCORDANCE WITH STANDARD DETAILS AND MATCHING EXISTING ROADWAY
- BUMPS/CUTS/MILLED AREAS WITH EDGE GREATER THAN 2" DEEP/HIGH MUST BE WEDGED WITH HMA BEFORE OPEN TO TRAFFIC. SEE STANDARD DETAIL.
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- SIDEWALK, DRIVEWAY OPENINGS & APPROACHES SHALL CONFORM TO MDOT STANDARD PLAN DETAILS R–28–J AND R–29–I
- MARSHALL MIX 13A (BASE/LEVELING) MAY BE SUBSTITUTED FOR SUPERPAVE HMA BASE MIX DESIGNS WITH CITY OF KALAMAZOO APPROVAL IF DEEMED APPROPRIATE BY THE ENGINEER
- ASPHALT BINDER SHALL BE INCLUDED IN THE PAY ITEM FOR HMA
- MDOT PCC P1 MIX DESIGN SHALL BE USED FOR ALL CONCRETE UNLESS OTHERWISE STATED OR DIRECTED BY THE ENGINEER
- OPENING TO TRAFFIC STRENGTHS (2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION, TABLE 603–1):
  - <72 HOURS, GRADE P–NC, 300 psi
  - 72 HOURS +, GRADE P1, P1M, 550 psi

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
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REVISIONS:
03-05-2025 BID SET

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	H:	NTS	HORIZ DATUM	VERT DATUM
09-29-2023	003-22-0050	TL	MM	PR	KALAMAZOO	KALAMAZOO		V:	NTS	NAD83	NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE
CITY OF KALAMAZOO STANDARD DETAILS

SHEET 75 OF 77

LEGEND

BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH

N

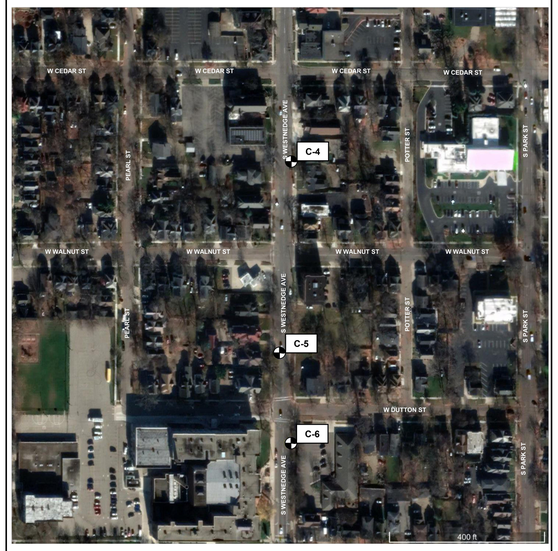
TITLE: BORING LOCATION PLAN			PROJECT: WESTNEDGE – VINE TO MICHIGAN STREETS
SCALE: AS SHOWN	DATE: 02/21/2023	PROJECT NO.: 231045	MTC MATERIALS TESTING CONSULTANTS
FIG. NO.: 1	DR. BY: KV	REV. BY: RS	

LEGEND

BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH

N



TITLE: BORING LOCATION PLAN			PROJECT: WESTNEDGE – VINE TO MICHIGAN STREETS
SCALE: AS SHOWN	DATE: 02/21/2023	PROJECT NO.: 231045	MTC MATERIALS TESTING CONSULTANTS
FIG. NO.: 2	DR. BY: KV	REV. BY: RS	

LOG OF BORING

Project No.: 231045
Boring No.: B-1
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Asker Renegade
Crew Chief: NB Field Eng.: JS Rev. By: RS
Coordinates: N=289831.9 E=12792380.3 (MI South ift)
Elevation: 791.2 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 21.0 ft.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	23.0
Sampler	SPT	2"	End	21.0
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 25.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
790.2	1					4 1/2" HMA 0.3				S-2, S-3: Poor recovery; possible coarse gravel / COBBLE
789.2	2	S-1	1.5	4-4-5 N=9	CL	8" Concrete 1.0 Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, moist with occasional roots	0.75			
788.2	3					Grades without roots at 2.7' 3.2				
787.2	4	S-2	0.3	2-3-3 N=6		Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, trace silty fines, moist				
786.2	5									
785.2	6									
784.2	7	S-3	1.2	8-10-13 N=23		Grades with trace fine gravel				
783.2	8									
782.2	9									
781.2	10	S-4	1.5	7-8-9 N=17		Grades with few coarse to fine gravel				
780.2	11									
779.2	12	S-5	1.5	7-8-12 N=20						
778.2	13									
777.2	14									
776.2	15	S-6	1.5	8-12-14 N=26	SP	Grades with trace coarse to fine gravel				
775.2	16									
774.2	17	S-7	1.5	7-9-11 N=20						
773.2	18									
772.2	19									
771.2	20	S-8	1.5	8-11-13 N=24		Grades with trace fine gravel				
770.2	21									
769.2	22	S-9	1.5	7-8-8 N=16						
768.2	23									
767.2	24									
766.2	25	S-10	1.5	5-6-8 N=14		Grades wet 25.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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REVISIONS:
03-05-2025 BID SET

LOG OF BORING

Project No.: 231045
Boring No.: C-1
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JS Rev. By: RS
Coordinates: N=290677.3 E=12792434.8 (MI South ift)
Elevation: 790.1 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	Hand Auger	3 1/4"	During	None
Sampler			End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 0.6 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
789.9	0.25					3" HMA 0.3				
789.6	0.50					4 1/2" Concrete 0.6				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231045
Boring No.: C-1A
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JS Rev. By: RS
Coordinates: N=290677.3 E=12792534.4 (MI South ift)
Elevation: 790.2 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	Hand Auger	3 1/4"	During	None
Sampler			End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 0.4 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
790.0	0.25					4 1/2" HMA 0.4				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231045
Boring No.: C-2
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JS Rev. By: RS
Coordinates: N=290273.3 E=12792469.2 (MI South ift)
Elevation: 790.5 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	Hand Auger	3 1/4"	During	None
Sampler			End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 0.6 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
790.3	0.25					7 3/4" HMA 0.6				HMA underlain by cobblestone
790.0	0.50					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

HORIZ DATUM: NAD83
VERT DATUM: NAVD88
SCALE: H: NTS V: N/A
DATE: 09-29-2023
PROJ NUMBER: 0039-22-0050
ENG: TL
PROJ MGR: MM
CADD: PR
COUNTY: KALAMAZOO
CITY/VILLAGE/TOWNSHIP: KALAMAZOO

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

SOIL BORING LOGS

SHEET 76 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Misc\220050BOR.dwg Mar 05, 2025 - 11:08am

LOG OF BORING

Project No.: 231045
Boring No.: C-3
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JS Rev. By: RS
Coordinates: N=289660.9 E=12792474.4 (MI South ift)
Elevation: 790.8 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	Hand Auger	3 1/4"	During	None
Sampler			End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 1.1 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
790.6	0.25					5 1/2" HMA 0.5				
790.3	0.50					8" Cobblestone 1.1				Granular Soil beneath Cobblestone
790.1	0.75									
789.8	1.00					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231045
Boring No.: C-4
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JS Rev. By: RS
Coordinates: N=289160.6 E=12792493.0 (MI South ift)
Elevation: 789.2 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	Hand Auger	3 1/4"	During	None
Sampler			End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 1.1 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
789.0	0.25					6 1/2" HMA 0.5				
788.7	0.50					7" Cobblestone 1.1				Granular Soil beneath Cobblestone
788.5	0.75									
788.2	1.00					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231045
Boring No.: C-5
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JS Rev. By: RS
Coordinates: N=288670.1 E=12792454.1 (MI South ift)
Elevation: 787.7 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	Hand Auger	3 1/4"	During	None
Sampler			End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 0.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
787.5	0.25					6" HMA 0.5				HMA underlain by cobblestone. Core seperated horizontally at 3".
787.2	0.50					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231045
Boring No.: C-6
Sheet: 1 of 1

Project: Westnedge - Vine to Michigan Streets
Client: OHM Advisors
Location: Kalamazoo, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JS Rev. By: RS
Coordinates: N=288439.3 E=12792480.0 (MI South ift)
Elevation: 786.5 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 02/08/2023 Date End: 02/08/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	Hand Auger	3 1/4"	During	None
Sampler			End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 0.6 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
786.3	0.25					7" HMA 0.6				HMA underlain by cobblestone. Core seperated horizontally at 4 1/2".
786.0	0.50					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

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REVISIONS:
03-05-2025 BID SET

DATE 03-29-2023 | PROJ NUMBER 0039-22-0050 | ENG TL | PROJ MGR MM | CADD PR | COUNTY KALAMAZOO | CITY/VILLAGE/TOWNSHIP KALAMAZOO | SCALE H: NTS V: N/A | HORIZ DATUM NAD83 | VERT DATUM NAVD88

CITY OF KALAMAZOO
S WESTNEDGE PAVING - VINE ST TO W MICHIGAN AVE

SOIL BORING LOGS

SHEET 77 OF 77

DRAWING PATH: P:\0000_0100\0039220050_Westnedge_Vine_to_Michigan\Drawings\Civil\Misc\220050BOR.dwg Mar 05, 2025 - 11:08am

APPENDIX D
SPECIAL PROVISIONS

THE CITY OF KALAMAZOO
DEPARTMENT OF PUBLIC SERVICES
ENGINEERING DIVISION

SPECIAL PROVISIONS

WESTNEDGE AVE (VINE-MICHIGAN)

Bid Reference #: 91396-022.0

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

DR STRUCTURE COVER, TYPE_, MODIFIED

a. Description. This work consists of furnishing City of Kalamazoo sanitary and storm sewer structure covers during construction operations in accordance with Section 403 of the MDOT Standard Specifications for Construction.

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

1. **Cover and Casting:** Supply a Dr Structure Cover, Type __, and Modified in accordance with City of Kalamazoo Specifications for Sanitary and Storm sewer meeting the requirements of Section 908 of the MDOT Standard Specifications for Construction.

2. **Cover Q (Storm Sewer)** - 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.

3. **Cover S (Sanitary Sewer)** – shall consist of an EJIW 1045ZPT (bolted) frame with a 1040A (non-bolted) Cover with 2 inch "SANITARY SEWER" lettering or approved equal.

4. **Concrete:** Use Grade P-NC concrete meeting the requirements of Section 1006.

5. **Mortar Type R-2:** Use mortar meeting the requirement of Section 1005.

c. Construction Methods. Refer to COK special provision "Dr Structure Cover, Adj, Case 1, Modified" for construction methods.

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:

Contract Item (Pay Item)	**Pay Unit**
Dr Structure Cover, Type __, Modified	Each

The unit price for Dr Structure Cover, Type __, Modified includes supplying the new cover and adjustment rings to be placed and adjusted per COK special provision "Dr Structure Cover, Adj, Case 1, Modified".

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

DR STRUCTURE, 24 INCH DIA

a. Description. For the unit price bid for this item, the Contractor shall furnish all materials and do all work necessary to construct in place the structure and appurtenances, complete and ready for operation in accordance with subsection 403.01, as shown on the plans, as specified herein, or as ordered by the Engineer.

b. Work Included. Included under these items shall be all earth excavation, backfill, sheeting, shoring, removal and disposal of water, disposal of excess material, cleanup, and all concrete, reinforcing steel, masonry work, pipe and all other work and materials necessary to complete the inlet structures as shown herein, on the plans, and as ordered by the Engineer, except such work as is specifically included under other contract items.

c. Materials. Provide materials meeting subsection 402.02.

d. Construction Methods. Construction shall be in accordance with section 402.03 of the MDOT Standard Specifications for Construction except the construction details will be shown on the attached drawing as specified.

e. Measurement and Payment. The actual number of inlet structures constructed as shown on the plans or directed by the Engineer, regardless of depth, shall be paid for under their respective items. The frame and cover of the size and type indicated will be paid as Dr Structure Cover, Type _.

Contract Item (Pay Item)	**Pay Unit**
Dr Structure, 24 inch Dia, …….	Each

The unit price for Dr Structure, 24 inch Dia, includes all labor, equipment, and materials to install the new drainage structure and shall include the removal of any existing drainage structures that are within the construction influence of the new structure.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

PAVT REM, MODIFIED

OHM:TJL 1 OF 1 10/20/2022

a. Description. Description. The existing pavement(s) shall be removed as shown on the plans and as specified in Section 204, Removing Miscellaneous Structures and Materials, of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction except as modified herein.

b. Materials. None Specified

c. Construction Methods. All existing roadway and driveway pavements(s) to be removed shall be paid for once as “Pavt, Rem, Modified”, regardless of depth/thickness of pavement material being removed. The existing pavement may contain different materials with depths of each material and potentially remnants of street railway system including ties, ballast, rails and spikes, plates and other material. The contractor shall investigate the pavement cores/soil borings. No claims will be allowed of pavement thickness deeper than anticipated, where no pavement core/soil borings data exists. “Pavt Rem, modified” shall include excavation, removal and disposal pf all pavements and materials necessary to construct the proposed improvements.

d. Measurement and Payment. The completed work for **Pavt, Rem, Modified**,**, Modified** will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	**Pay Unit**
Pavt Rem, Modified…….	Square Yard

Pavt, Rem, Modified, will be measured in its original position by the unit square yard and paid for at the contract unit price per square yard, which price shall be payment in full for all labor, materials, and equipment needed to accomplish this work.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

SIDEWALK, POROUS, MODIFIED

OHM: SEB 1 OF 1 7/23/2023

a. Description. The work shall consist of placing porous sidewalk as shown on the plans and as specified in Section 803 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction except as modified herein.

b. Materials. The material to be used for Sidewalk shall be Porous Pave XL (Porous Pave, Inc) or approved equal.
Redwood is the preferred color.

c. Construction Methods. Sidewalk pay items shall include furnishing, placement and compaction of the Porous Pave Xl.

d. Measurement and Payment. The completed work for **Sidewalk, Porous, Modified** will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	**Pay Unit**
Sidewalk, Porous, Modified……..	Sft

Sidewalk, Porous, Modified will be measured in its original position by the unit square feet and paid for at the contract unit price per square feet, which price shall be payment in full for all labor, materials, and equipment needed to accomplish this work.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

UTILITY COORDINATION

The Contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in section 104.08 of the MDOT 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 Standard Specifications for Construction. Contractor delay claims resulting from a utility, will be determined based upon Section 109.05 of the MDOT Standard Specifications for Construction.

For protection of underground utilities in conformance with Public Act 53, the Contractor shall dial 1-800-482-7171 or 811 a minimum of three (3) full working days, excluding Saturdays, Sundays and holidays, prior to beginning each excavation in areas where public utilities have not been previously located. Members will thus be routinely notified. This does not relieve the Contractor of the responsibility of notifying utility owners who may not be a part of the “MISS dig” alert system.

PUBLIC UTILITIES

The following Public Utilities have facilities located within the Right-of-Way:

Name of Owner	Kind of Utility
Consumers Energy 2500 East Cork Street Kalamazoo, MI 49001	Electric Natural Gas
AT&T 2919 Millcork Street Kalamazoo, MI 49001	Telephone
Charter Communications 4176 Commercial Avenue Portage MI 49002	Cable
Comcast 5047 W Main Street Kalamazoo, MI 49009	Cable
CTS Telecom 13800 East Michigan Avenue Galesburg, MI 49053	Fiber
Midwest Fiber	Fiber

6070 North Flint Road Glendale, WI 53209	
Western Michigan University 1903 W. Michigan Avenue Kalamazoo, MI 49008	University
City of Kalamazoo Public Utilities Department 415 Stockbridge Avenue Kalamazoo, MI 49001	Water Sanitary Sewer Storm Sewer City Fiber

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

DR STRUCTURE COVER, TYPE_, MODIFIED

a. Description. This work consists of furnishing, placing and adjusting to final grade City of Kalamazoo owned sanitary and storm sewer structure covers during construction operations in accordance with Section 403 of the MDOT Standard Specifications for Construction.

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

Cover and Casting: Supply a Dr Structure Cover, Type __, and Modified in accordance with City of Kalamazoo Specifications for Sanitary and Storm sewer meeting the requirements of Section 908 of the MDOT Standard Specifications for Construction.

Cover B (Storm Sewer) - 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 Q (Sanitary Sewer) – shall consist of an EJIW 1045ZPT (bolted) frame with a 1040A (non-bolted) Cover with 2 inch “SANITARY SEWER” lettering or approved equal.

Concrete: Use Grade P-NC or as approved by engineer concrete meeting the requirements of Section 1106.

Engineer shall meet project requirements for “Hand Patching”.

Mortar Type R-2**:** Use mortar meeting the requirements of Section 702.

c. Construction Methods. Remove existing pavement around the drainage structure using the Mr. Manhole™ or equivalent system. In the manhole is currently encased in a no larger than 4 ft by 4ft square pad, that concrete shall be removed in its entirety and HMA placed as described below. 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:

Contract Item (Pay Item)	**Pay Unit**
Dr Structure Cover, Adj, Type 1, Modified	Each

The unit price for **Dr Structure Cover, Adj, Type __, Modified** includes all labor, equipment, and materials to remove any existing pavement or soils, supply and install the new cover, place adjustment rings, and any HMA patching over the plated structure.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

GATE BOX, ADJUST, CASE 1, MODIFIED

a. Description. This work consists of adjusting gate boxes in accordance with Subsection 403.03C and 823.03 of the MDOT Standard Specifications for Construction.

b. Materials. Use MDOT P-NC Concrete with no fly ash and coarse aggregate 6AA meeting the requirements of section 603.

c. Construction Methods. Adjust gate box according to subsection 823.03 and place a concrete collar around the adjusted structure. The concrete shall be uniformly placed around the valve box so it is flush with the top of the final HMA course.

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:

Contract Item (Pay Item)	**Pay Unit**
Gate Box, Adjust, Case 1, Modified	EA

The Unit price for Gate Box, Adjust, Case 1, Modified includes all material, labor and equipment to saw cut and remove pavement, adjust the gate box to final grade, replace and re-compact disturbed soils, and place the concrete collar.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

GATE VALVE BOX, TOP SECTION

OHM:TJL 1 OF 1 03/23/2022

a. Description. This work shall consist of removing and replacing the tops sections of gate valve boxes for the road improvements. This work shall be performed accordance with this special provision

b. Materials. The top section of the valve boxes shall be from adjustable three-piece screw type, gray iron, with 5-1/4" shaft, such as East Jordan Iron works #8560 or approved equal. Valve box lids shall be gray iron, non-locking, drop-in type, with the word "WATER" in raised letters,
such as East Jordan Iron Works #6800 or approved equal.

c. Construction Methods. The work consists of removing and replacing the existing gate valve top section with new section.

d. Measurement and Payment. The completed work for **Gate Valve Box, Top Section, Modified** will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	**Pay Unit**
Gate Valve Box, Top Section, Modified	Square Yard

Gate Valve Box, Top Section, Modified, will be measured by the each and payment in full for all labor, materials, and equipment needed to accomplish this work.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

SURFACE RESTORATION

OHM:TJL 1 of 3 7/26/2023

a. Description. This work shall be done in accordance with the City of Kalamazoo Standards. The requirements of the special provision include a one-year warranty period from date of final inspection performed by the City of Kalamazoo or its designated representative.

b. Materials. The materials and application rates specified in Sections 816 and 917 of the 2020 Michigan Department of Transportation Standard Specifications for Construction apply unless modified by this special provision or otherwise directed by the Engineer.

Materials included in **Surface Restoration**:

1. Topsoil Surface, Furn, 3 inch
2. Fertilizer, Chemical Nutrient, Cl A (12-12-12)
3. Seeding, Mixture THM
4. Paper mulch shall be used for hydroseeding
5. Water, Sodding/Seeding/Hydroseeding
6. Tackifier shall be MDOT approved from the QPL Section 917.15C
7. The hydro-seeding slurry shall consist of a mixture of the following materials:

Mulch: 2,000lbs./acre
Fertilizer: 400lbs./acre
Tackifier: 25lbs./acre
Seed: 220lbs./acre
Water: As required

c. Construction Methods. Prior to placing topsoil, shape and compact all areas to be hydroseeded. Place topsoil to the minimum depth indicated above, to meet proposed finished grade. If the area being restored requires more than the minimum depth of topsoil to meet finished grade, this additional depth may be filled with approved excavated material. Furnishing and placing this additional material is included in **Sidewalk, Conc 4 inch, Curb Ramp, Conc, 6 inch and Curb and Gutter, Conc, Det F4.**

In areas of hydroseeding, the Contractor shall protect site features from over spray. These features shall include, but not be limited to, fire hydrants, mailboxes (including posts), private properties, sidewalks, driveways, pavements or other surfaces that the Engineer may designate as needing to be protected from the hydroseeding operation. Where directed by the Engineer, the Contractor will be responsible to remove all unwanted or unintended overspray. The cost for this work will be the sole responsibility of the Contractor.

Areas within existing and proposed drainage channels shall be restored using mulch blankets with appropriate anchors as recommended by the manufacturer. All other areas shall be

restored using mulch. Mulch shall be bladed into the prepared earth to provide proper anchoring.

If a restored area washes out after this work has been properly completed and approved by the Engineer, make the required corrections to prevent future washouts and replace the topsoil, fertilizer, seed and mulch. This replacement shall be paid for as additional work. If an area washes out for reasons attributable to the Contractor's activity or failure to take proper precautions, replacement shall be at the Contractor's expense.

All areas disturbed by the Contractor and/or their Subcontractors beyond the normal construction limits of this project shall be restored as directed by the Engineer. No additional payment or compensation will be allowed for this activity.

By October 15, only those areas for which work for **Surface Restoration** has already begun shall be completed. After October 15, any remaining areas shall be graded and covered by mulch blanket, temporary seeding and restored the following April 15, or as soon as weather permits.

A. Inspection and Final Acceptance

1. When landscape work is completed, Engineer will, upon request make a final inspection to determine acceptability.

2. Landscape work may be inspected for acceptance in parts agreeable to Engineer provided work offered for inspection is complete, including maintenance.

3. Where inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by Engineer and found acceptable. Remove rejected plants and materials promptly form project site.

c. Measurement and Payment. The completed work as measured for **Surface Restoration** will be paid for at the contract unit prices for the following contract items (pay items):

Pay Item	**Pay Unit**
Surface Restoration	Square Yard

Surface Restoration will be measured in place by station. Payment for Surface Restoration shall include all materials, equipment, and labor required to complete the work as described.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

BRICK PAVER, REM

OHM:TJL 1 OF 1 7/27/2023

a. Description. Description. The existing pavement(s) shall be removed as shown on the plans and as specified in Section 204, Removing Miscellaneous Structures and Materials, of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction except as modified herein.

b. Materials. None Specified

c. Construction Methods. All existing brick pavers to be removed shall be paid for once as "Brick Paver, Re,", regardless of depth/thickness of pavement material being removed. The existing pavement may contain different materials with depths of each material and "Brick Paver, Rem" shall include excavation, removal and disposal of all brick pavers and brick paver base materials necessary to construct the proposed improvements. In the event the adjacent business wants the bricks the contactor shall salvage and palatize the bricks to be left in the business property as directed by the engineer.

d. Measurement and Payment. The completed work for **Brick Paver, Rem** will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	**Pay Unit**
Brick Paver, Rem	Square Yard

Brick Paver, Rem, will be measured in its original position by the unit square yard and paid for at the contract unit price per square yard, which price shall be payment in full for all labor, materials, and equipment needed to accomplish this work.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
ACCESSIBLE PEDESTRIAN SIGNAL SYSTEM

SIG:EMS 1 of 6 APPR:HLO:NJB:05-01-20
FHWA:APPR:05-06-20

a. Description. This work consists of either furnishing and installing an accessible pedestrian signal system and push button station(s), or removing a system and station(s) at locations as shown on the plans.

The following terminology is used in this special provision.

1. Accessible pedestrian signal system, or system hereafter, refers to central control unit (CCU) and multiple push button stations.

2. CCU, refers to the unit installed in an existing traffic signal controller cabinet, frame, and all required mounting hardware and the configurator. The CCU is the power supply and signaling interface, between the intersection traffic signal controller and the push button stations. Configurator refers to a handheld, password secure, infrared device capable of setting and resetting all push button stations on the intersection from a single push button station (global updating). Each CCU will control multiple push button stations. A complete system includes one CCU.

3. Push button station (PBS), refers to a Public Rights of Way Accessibility Guidelines (PROWAG) compliant push button station including signs when specified, installed at crosswalk termini, and all required mounting hardware. A system can include 2 to 12 PBS (maximum of 3 per phase).

b. Materials. Provide a Polara Navigator system including CCU and PBS, or approved equal, meeting the requirements of this subsection. Provide all hardware and other appurtenant materials in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. The system must:

A. Provide various audible features including but not limited to locator tones. All locator tones must emanate from push button stations and be synchronized;

B. Have multiple language capability, selectable by user, and able to play an emergency preemption message;

C. Be able to self-test and report any faults to the traffic controller;

D. Provide the following audible feature, each with a minimum and maximum volume independently settable using the configurator:

(1) One locating tone;

(2) Five walk sound choices (field selectable);

(3) Three pedestrian - clearance sound choices (field selectable) one of which must be an audible countdown;

(4) Direction of travel (as standard feature with extended push); and

(5) Information message (custom feature with extended push).

E. Automatically adjust audible features to ambient noise levels over a 60 decibel (dB) range; and

F. Mute sounds on all crosswalks except the activated crosswalk (selectable feature).

2. The CCU must meet the following requirements:

A. Be compatible with solid-state pre-timed or actuated traffic signal control equipment and cabinet environments;

B. Be capable of controlling up to and including 12 PBSs and controlling up to and including 4 pedestrian phases;

C. Receive timing from the walk and don't walk signals;

D. Have additional advanced configurations available by using general purpose inputs and outputs;

E. Ensure full optical isolation of all inputs and outputs and include transient voltage protection as follows:

(1) General Purpose Inputs. 10 to 36 Volts (V) Alternating Current/Direct Current (AC/DC) peak with a 10 milli Ampere (mA) maximum.

(2) General Purpose Outputs and Pedestrian Outputs. 36V AC/DC peak, 0.3 Ampere (A) solid state fused contact closure.

(3) Fault Output. Normally open and closed relay contacts, 125V AC/DC, 1A maximum.

(4) Pedestrian Hand/Walking Person (Walk/Don't Walk) Inputs. 80-150V AC/DC, 5mA maximum.

(5) A, B, C, D PBS Power Outputs. Nominal 22V DC, short circuit protected, auto recovering.

(6) Environment Operation and Storage Range. -30 degrees Fahrenheit (F) to 165 degrees F (-35 degrees Celsius (C) to 74 degrees C), 0 to 100 percent Humidity, Non-condensing.

(7) Line Power. 25 Watt (W) to 75W typical, 120W peak with 8 PBSs.

F. Include a 50-pin connector and cable that plugs into the CCU for termination to the traffic signal controller terminal facilities. Ensure the connector is a Positronic MD50F20Z0X or equivalent, provided with 20-24 gauge wire, which complies with the requirements of *UL 1061*.

3. The PBS must meet the following requirements:

A. Design each PBS in accordance with the following:

(1) Produce sounds emanating from the back of the unit via an 8 ohms 15W, weather-proof speaker protected by a vandal resistant screen;

(2) Require only two wires coming from the traffic control cabinet for each phase/crosswalk;

(3) Include push buttons which are audibly locatable and equipped with tactile arrows pointing in the same direction as the associated crosswalk;

(4) PROWAG compliant, cast aluminum, nickel plated, powder coated with raised tactile arrow on button;

(5) Include solid-state switch rated to 20 million activations (minimum); and

(6) Include a two inch button with a tactile raised directional arrow on the button that can be changed to one of four directions to coincide with the direction of travel of the associated crosswalk.

B. The PBS must include the following standard features:

(1) The arrow/button must vibrate during the walk period, following a button push;

(2) Confirm a button push via a “vibratactile” bounce and a red light emitting diode (LED), clearly visible in direct sunlight, which latches ON when the button is pushed;

(3) Indicate the direction of travel with extended button push;

(4) Transmit a standard locating tone, custom sound, or verbal countdown during pedestrian clearance;

(5) Ensure sounds automatically adjust to ambient over 60 dB range;

(6) Allow sounds to have minimum and maximum volume set independently;

(7) Synchronize all sounds;

(8) Extended button push can turn on, boost volumes, and/or mute all sounds except those on activated crosswalk; and

(9) Include message to clear the intersection when preemption is activated.

C. Ensure the PBS is capable of custom message and sound options for the following features:

(1) Custom locating tone;

(2) Custom clearance sound;

(3) Custom walk sounds/message;

(4) Informational message;

(5) Multiple languages (up to three, selected by user); and

(6) Street name in Braille on the sign.

D. Ensure the PBS is fabricated in accordance with the following:

(1) Available in three standard colors: Black, Green, and Yellow. The default color is yellow unless specified otherwise;

(2) Have an operational temperature range of -40 degrees F to 165 degrees F (-40 degrees C to 60 degrees C);

(3) Ensure the housing material is cast aluminum;

(4) Chemically filmed and powder coated;

(5) Face plate constructed of powder coated aluminum with ink marking; and

(6) Have pre-drilled mounting holes to hold a 9 inch by 12 inch, R10-3b, 3d, or 3e pedestrian sign.

E. PBS LED display operational requirements:

(1) Light when the button is pushed and remain lit until the next walk phase.

(2) Luminous intensity greater than 1200 maximum continuous discharge (mcd), sunlight visible, ultra bright red, with a 160 degree viewing angle.

F. PBS audio operational requirements:

(1) Audio amplifier power output of 10W Root Mean Square (RMS) into 8 ohms.

(2) Volume control automatic adjustment range of 28dB (maximum).

(3) Microphone ambient noise frequency range of approximately 170 Hertz (Hz) to 2.3 Kilo Hertz (kHz).

(4) Button tone provides a brief “tick” to confirm each button push.

(5) Audible locating tone operates during the pedestrian-clearance and don't walk interval at an 880Hz plus harmonic, 0.1 second duration, 1 second interval.

(6) Audible "chirp" operates only during walk intervals at 2700Hz to 1700Hz, 0.2 second duration, 1 second interval.

(7) Audible "cuckoo" operates only during walk intervals at 1250Hz to 1000Hz, 0.6 second duration, 1.8 second interval.

4. Ensure the configurator meets the following requirements:

A. Be a handheld, password protected, remote that configures the CCU or an individual PBS;

B. Communicate via infrared technology with the CCU and the PBS with an interactive operation to select various configuration options at the intersection(s), by standing adjacent to either the CCU or a PBS;

C. Feature a liquid crystal display (LCD) display, with two 16-character lines, with backlight and adjustable contrast;

D. Be powered by four AA 1.5V cell batteries, include a low battery warning, and have an auto or manual shut-off switch; and

E. Have an operating temperature range of 32 degrees F to 122 degrees F (0 degrees C to 50 degrees C).

5. Warranty. Provide a manufacturer's warranty, transferable to the MDOT, that the supplied materials will be free from all defects in materials and workmanship for a 2-year period from the date of shipment. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing date of shipment, to the Engineer at the time of delivery.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specifications for Construction, typical signal construction details, and this special provision.

1. Furnish and Install. Furnish and install a system at an intersection as shown on the plans and in accordance with the *MMUTCD*. Ensure that the arrow on the PBS button(s) point in the direction of pedestrian travel for the associated crosswalk.

2. Remove. Remove an accessible pedestrian signal system or a push button station and store, as directed by the Engineer, or dispose of all removed materials.

A. Where removal of an accessible pedestrian signal system is specified on the plans, remove the CCU, hardware, cable, connectors, and other appurtenant material required to complete the work.

B. Where removal of a PBS is specified on the plans, remove the PBS, sign, associated assembly, hardware, cable, connectors, and other appurtenant material required to complete the work.

d. 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
Pedestrian Signal System, Accessible	Each
Push Button Station	Each
Push Button Station and Sign	Each
Pedestrian Signal System, Accessible, Rem	Each
Push Button Station, Rem	Each

1. **Pedestrian Signal System, Accessible** includes installing the accessible pedestrian signal system at an intersection, including a CCU, configurator, hardware, fittings, conduit(s), wiring, grounding and ground rod(s), and all appurtenant material required to complete the work.

2. **Push Button Station** and **Push Button Station and Sign** includes installing the push button station, sign (when specified), associated assembly, brackets, hardwire, fittings, conduit(s), cable to controller, wiring, grounding, ground rod(s), and all other appurtenant material required to complete the work.

3. **Pedestrian Signal System, Accessible, Rem**, includes removing an accessible pedestrian signal system at an intersection including a CCU, configurator, hardware, fittings, hardware, cable, connectors, conduit(s), grounding, and other material required to complete the work. **Pedestrian Signal System, Accessible, Rem** also includes storage or disposal of removed material.

4. **Push Button Station, Rem**, includes removing a push button station, sign, associated assembly, brackets, hardware, fittings, cable, connectors, conduit(s), ground, and other material required to complete the work. **Push Button Station, Rem** also includes storage or disposal of removed material.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
WIRELESS INTERCONNECT FOR CLOSED LOOP TRAFFIC SIGNAL SYSTEM

a. Description. This work consists of one or more of the following work types, at locations shown on the plans:

1. Furnishing and installing a wireless interconnect, closed loop, master, repeater, or remote.

2. Removing and disposing of an existing wireless interconnect, closed loop system, including the master, repeater, and remote.

3. Removing, storing and reinstalling an existing wireless interconnect, closed loop system master, repeater, and remote.

As applicable, this work includes removal or installation of interface equipment, mounting assembly, brackets, hardware, fittings, connectors, wiring, cable to controller, grounding, risers, conduit, and any other material required to ensure a complete removal or installation, as specified for a location.

b. Materials. Provide materials, as directed by the Engineer, necessary to provide a complete and operating wireless interconnect, closed loop traffic signal system. Provide materials in accordance with sections 918 and 921 of the Standard Specifications for Constructions and this special provision.

Provide wireless interconnect, closed loop, master, repeater, or remote in accordance with this special provision. Provide wireless interconnect, closed loop package compatible with solid state pre-timed or actuated traffic signal control equipment and cabinet environments.

1. Wireless Interconnect, Closed Loop, Package. Provide equipment meeting the following requirements:

A. Operate in the license-free, Spread Spectrum band [902-928 megahertz (MHz)], utilizing Frequency Hopping technology.

B. Be compatible with the communications protocol of an on-street master type traffic signal system equipped with both Recommended Standard (RS)-232 and Frequency Shift Key (FSK) interfaces.

C. Utilize 139 user-selectable channels, with 62 available hopping sequences, (ensure two are non-overlapping).

D. Be completely configurable via included software for hop pattern, operation as

master-repeater or remote, baud rate, drivers to interface to units currently in the field, and compatible with the wireless systems.

E. Have software features to provide:

(1) Spectrum analysis at each radio.

(2) Remote programming and remote maintenance from the master location.

F. Have an RS-232 interface capable of 1200 bit per second (bps) to 115.2 Kilobits per second (Kbps) with an 8 or 9 bit format or 1200bps Bell 202 FSK (2 or 4-wire); RS-485 interface is optional.

G. Have a maximum 8 millisecond end-to-end latency.

H. Have light emitting diode (LED) indicators for power (PWR), transmit (TX) data, Receive (RX) data, and for the active data port.

I. Have DB9F connector for RS-232 port and registered jacks (RJ)-22 for FSK.

J. Have an operating temperature of -30 degrees Fahrenheit (F) to 165 degrees F (-35 degrees Celsius [C] to 74 degrees C).

K. Operate with voltages between 10.8 volts (V) direct current (DC) and 30V DC, with a maximum current draw of 265 milliamperes (mA).

L. Have a radio sleep mode with a maximum current draw of less than 1mA.

M. Be programmable for radio frequency (RF) output levels of 1 milliwatt (mW), 10mW, 100mW or 1 watt (W).

N. Provide 16-bit cyclic redundancy check (CRC) error checking with auto re-transmit.

O. Be available as shelf mounted, rack-mounted or *NEMA 4X* weatherproof versions.

P. Not require controller hardware or software modifications,

Q. Have built-in store-and-forward repeater.

2. Shelf mount unit option: Provide FSK type interface equipment meeting the following additional requirements:

A. Not exceed 9 inches long by 2 inches wide by 5 inches high.

B. Have threaded Neill-Concelman (TNC) female antenna connector.

C. Be supplied with 120V alternating current (AC) wall cube power supply.

D. Have received signal strength indicators (RSSI) signal strength LEDs.

3. Shelf mount unit option: Ensure RS-232 type interface equipment meets the following

additional requirements:

A. Not exceed 4.38 inches in depth by 3.56 inches in width by 1.69 inches in height (not including connectors or mounting bracket).

B. Have TNC female antenna connector.

C. Have power cable supplied with radio modem.

D. Have RSSI signal strength LEDs.

4. Ensure antennas, connectors, and cable meet the following requirements, as applicable:

A. Master Location. Provide from 2 to 4, 10 decibel (dB) Yagi Antennas for a back-to-back operation, specified for the frequency range of the radio, connected to a Pasternack PE 2047 or Encom Wireless EP Splitter type power divider, or approved equal.

B. Repeater Location. Provide 2, 10dB Yagi Antennas for a back-to-back operation, specified for the frequency range of the radio, connected to a Pasternack PE 2047 or Encom Wireless EP Splitter type power divider, or approved equal.

C. Remote Location. Provide 1, 10dB Yagi Antenna, specified for the frequency range of the radio.

D. Use Times Microwave Land Mobile Radio (LMR) or Andrew CNT 400dB cable, or approved equal, for connection between both the polyphaser and power divider and power divider and antenna for the master location. Use a LMR or CNT 400dB type cable between the polyphaser and the antenna for secondary locations.

E. Use Times Microwave TC-400-NMH or RF Industries RFN-1006-31 Type N male connectors, or approved equal, fastened at the ends of the LMR or CNT 400dB type cable for connection to polyphaser, power divider, and antenna.

F. Use one 2/C #16 PJ type traffic signal cable to connect the phone drop to the traffic signal controller at the master location, as shown on the plans, or as directed by the Engineer.

5. Surge Protection. Provide a broadband DC blocked polyphaser type surge protection device installed between the antenna/power divider and the radio equipment. Provide N Female type connectors for both the protected and surge sides of this device. Ensure the electrical and RF characteristics are as follows: Surge minimum 50 Kiloampere (kA), Turn on 600VDC (±20 percent), Frequency Range 1.25 Megahertz (MHz) to 1 Gigahertz (GHz), Insertion Loss less than 0.1dB over the frequency range.

6. Documentation. Provide manufacturer’s instructions for hardware installation, programming, and system commissioning to the Engineer at the time of installation.

7. Software. Ensure software meets the following requirements:

A. Be compatible with “Windows” type graphical user interface (GUI).

B. Supports remote diagnostics and radio link tests with no additional hardware.

C. Provides up to three message lengths to test various network configuration and link requirements.

D. Supports system wide remote configuration from master radio location.

E. Provides method for radio system optimization.

8. Warranty. Provide materials with a manufacturer warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specifications for Construction, the typical signal construction detail(s), and this special provision.

1. Installation. When installing new equipment is specified, furnish and install the wireless interconnect closed loop master, repeater, or remote as shown on the plans. When installing salvaged equipment is specified, install wireless interconnection closed loop equipment, salvaged on the project, as shown on the plans.

Install the radio antennas after the rest of the signal equipment (signal heads, poles, case signs, span wire, etc.) has been installed. Obtain the Engineer's approval prior to beginning antenna installation. Correct radio antenna installation that was completed prior to the approval of the Engineer, and which is found to be non-optimal placement of the antennas at no additional cost to the contract. The Engineer will not authorize extra payment or time extensions for work required to reorient or move the radio antenna.

2. Removal. When removal is specified, remove the wireless interconnect, closed loop as shown on the plans. Removal includes the wireless closed loop interconnect package, shelf mounted unit, processor (with radio modem, when appropriate), power supply, surge protection, antennas, mounting brackets, hardware assembly, fittings, cable, connectors, grounding, and other appurtenances required for a complete removal.

3. Salvage and Disposal. Salvage and store, or dispose of, removed material as directed by the Engineer and section 204 of the Standard Specifications for Construction. Store salvaged equipment to be re-installed on the project in a protected and clean environment.

d. 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**
Wireless Intercn, Closed Loop, Master	Each
Wireless Intercn, Closed Loop, Repeater	Each
Wireless Intercn, Closed Loop, Remote	Each
Wireless Intercn, Closed Loop, Rem	Each
Wireless Intercn, Closed Loop, Salv	Each

1. **Wireless Intercn, Closed Loop**, of the type specified, includes furnishing and installing a new master, repeater, or remote at the location(s) shown on the plans.

2. **Wireless Intercn, Closed Loop, Rem** includes removing and disposing of an existing wireless interconnect, closed loop package at the location(s) shown on the plans.

3. **Wireless Intercn, Closed Loop, Salv** includes removing an existing wireless interconnect, closed loop package, storing the removed materials on site, and reinstalling materials at the location(s) shown on the plans.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL BACKPLATE

SIG:EMS 1 of 2 APPR:HLO:NJB:05-01-20
FHWA:APPR:05-06-20

a. Description. This work consists of completing one or more of the following work types at location(s) shown on the plans:

1. Furnishing and installing a traffic signal backplate.

2. Removing and disposing of an existing traffic signal backplate.

3. Removing, storing and reinstalling an existing traffic signal backplate.

As applicable, this work includes removal or installation of hardware, connectors, fittings and all material necessary to complete the work.

b. Materials. Material must meet sections 819, 820, and 921 of the Standard Specifications for Construction.

1. Provide a one-piece backplate for three or four section traffic signal heads as indicated on the plans or as directed by the Engineer. Ensure that five section (doghouse) signal head combinations are provided with no more than three vacuum formed pieces.

2. Provide backplates that are designed to precisely fit the manufacturer's signal heads and supplied with necessary hardware to attach the backplate to the signal.

3. Provide backplates that are vacuum formed from 0.125 inch thick black acrylonitrile butadiene styrene (ABS) plastic with a hair cell finish on the front side (facing approaching traffic) to reduce glare.

4. Provide backplates that are constructed with a minimum 5/8 inch flange on all sides to provide structural rigidity. Ensure the backplates are provided with a three inch corner radius.

5. Ensure that all backplates extend approximately five inches around the perimeter of the traffic signal combinations after installation.

6. Provide backplates with an *ASTM Type IV* reflective yellow tape border. Ensure that a one inch border is used with yellow signal heads and visors, and a two inch border is used with black signal heads and visors.

7. Warranty. Provide materials with a manufacturer's warranty/guarantee, transferable to MDOT, that the supplied materials will be free from all defects in materials and workmanship for the stated time period from the date of shipment. Supply the Engineer with any warranty or guarantee documents from the manufacturer and a copy of the invoice showing date of

shipment.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specification for Construction, as shown on the plans, and as directed by the Engineer. Remove, store, and dispose of material in accordance with section 204 of the Standard Specification 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 items:

Pay Item	**Pay Unit**
Backplate, TS	Each
Backplate, TS, Rem	Each
Backplate, TS, Salv	Each

1. **Backplate, TS** includes installing the backplate on existing or new signal head(s) at location(s) shown on the plans where installation is specified. Furnish and install a traffic signal backplate, as indicated on the plans or as directed by the Engineer.

2. **Backplate, TS, Rem** includes removing the existing backplate, hardware, and other appurtenances, required for a complete removal where removal is specified. Dispose of removed materials.

3. **Backplate, TS, Salv** includes removing the existing backplate, hardware, and other appurtenances required for a complete removal, storing salvaged materials in a clean environment, and reinstalling the materials where salvage is specified. Complete reinstallation in accordance with subsection c. of this special provision.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SPAN WIRE TETHER

SIG:EMS 1 of 1 APPR:NJB:HLO:07-25-22
FHWA:APPR:07-25-22

a. Description. This work consists of furnishing and installing hardware, connector hangers, fittings, tether plate, span wire clamps, associated stainless steel fasteners and a span wire tether.

Bottom tethering, or top tether traffic signal heads. As indicated on plans or as directed by the Engineer.

b. Materials. Furnish material meeting the requirements of sections 819, 820, and 921 of the Standard Specifications for Construction.

1. Furnish tether span wire that is 1/4 inch nominal diameter, 7-strand, galvanized, Class A or Class C in accordance with *ASTM A475* extra high strength of 6650 pounds. Maintain clearance of 17 feet over roadway.

2. Three way span tether clamp or, “bull-ring” galvanized or stainless, tether plate (break-away tether assembly) aluminum plates with stainless steel hardware, galvanized pole clamps with manufacturer approved bolts, stainless steel break away link; breaking at 3325 pounds force, turnbuckle, tri-stud break-a-way and extension hardware to furnish and install a span wire tether.

3. Materials will be accepted based on certification and visual inspection.

c. Construction. Complete this work in accordance with sections 819, 820 and 821 of the Standard Specification for Construction, as shown on the plans, and as directed by the Engineer.

Where installation is specified, install the span wire tether on existing or new signal head(s) at location(s) shown on the plans. Furnish, install, remove, or install on the project, a span wire tether, as indicated on the plans or as 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**
Span Wire Tether	Each

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL WORK - CONSTRUCTION METHODS

SIG:EMS 1 of 2 APPR:HLO:NJB:04-29-20
FHWA:APPR:05-06-20

a. Description. This special provision is for electrical construction and/or relocation of traffic signal facilities is to be used in addition to the applicable sections of the standard specifications. In case of conflict use whichever is most restrictive.

b. Materials. Furnish new material and equipment, unless specified otherwise, and comply with sections 918 and 921 of the Standard Specifications for Construction. Materials furnished by the Department to the Contractor will be picked up by the Contractor at such site as designated by either MDOT, or the Local Agency representing MDOT, with any associated costs included in pay items as indicated on the plans and will not be paid for separately.

1. General. Provide manufacturer's certifications, in accordance with the specifications, for all wire and cable and other items or as directed by the Engineer. Do not install any wire or cable before it has been approved by the Engineer. Include statement "Materials are in accordance with the Specifications" on their material order, especially on wire and cable.

Reuse only the best of the existing material and equipment where the contract calls for reuse of existing material and equipment as directed by the Engineer. The Department will have the right to furnish the Contractor with a new part if any are found defective prior to dismantling. Any part or parts damaged by the Contractor subsequent to starting the removal are a liability of the Contractor.

Furnish the Engineer an as-built record of all underground or overhead work installed within 5 days after completion of each section of the underground conduit, cable or overhead line work. This record must include the size and length of cable and duct lines, location of the lines, handholes and manholes, and location and size of support poles. Tag and stamp all wires and cables using a brass tag indicating the source and use of the cable.

Connect the ground wire to the ground rod with a UL rated copper or bronze ground clamp.

c. Construction. All work must comply with sections 819 and 820 of the Standard Specifications for Construction, the applicable "typical" signal construction details, this special provision, and requirements of the *NEC*, *National Electrical Safety Code (NESC)*, and the Michigan Department of Licensing and Regulatory Affairs (LARA). Contact the LARA for electric service inspection and be responsible for payment of all applicable fees.

1. Maintain all existing street lighting, traffic signal, primary, transmission, communication cables, etc. circuits in an operational condition, unless otherwise noted on the plans or as directed by the Engineer.

2. In addition to subsections 104.07 and 812.03 of the Standard Specifications for

Construction, the following applies to Contractor maintenance of permanent or temporary traffic signal installations which are being worked on by the Contractor:

A. The Contractor is responsible for maintaining any portion of a traffic signal which has been worked on by the Contractor until final acceptance of that specific location.

B. If MDOT forces are required to work on an emergency traffic signal malfunction that is determined to have been caused by the work of a Contractor, the cost of the work will be the responsibility of the Contractor.

C. If vandalism occurs to equipment that is not energized, the Contractor is responsible for replacement.

3. Utility Coordination. Notify the System Operating Division of the local utility 72 hours in advance of any work on underground or overhead transmission or distribution circuits. If possible, the System Operating Division will shutdown and red tag the line by 8 a.m. for the day requested. Notify the System Operating Division when the work is complete.

Provide coordination and make arrangements, as described above, to work on traffic signal circuits.

Schedule, coordinate, install, and pay for work provided by the local utility company(s), as indicated on the plans or as directed by the Engineer. The Engineer will not authorize payment for delay caused by the Contractor's failure to properly schedule and coordinate any utility work.

4. Agency Coordination. Secure all necessary permits covering the operations, including permits from the Public Authorities having jurisdiction over the streets, or other Public Properties in which the work is located, and the improvements therein. Obtain the amount of any charges for payment, including fees or inspection charges required by such authorities, and include the cost of these fees in the bid prices.

The local traffic authority may impose restrictions regarding particular times of certain days of the week wherein the Contractor cannot perform work and may, in fact, be required to clear the area of work obstacles or construction equipment. The Contractor must take note of this and there will be no extra payment to perform the work with possible restrictions imposed. The Engineer will not authorize extra payment if the Contractor chooses to perform work during overtime status.

5. Ensure construction is performed by persons who are experienced and qualified for the work required. On-site licensed (Journeyman electrician) supervision is required for the electrical system installation (including placement of traffic loops, conduits, and/or cables in dirt, foundations, and handholes) and must be present at all times when electrical construction is in progress. Ensure the ratio of electrical journeymen or master electricians to registered apprentice electricians is on the basis of one electrical journeyman or master electrician to one registered apprentice electrician in accordance with Michigan Law section 338.883e. This ratio is to be enforced on a jobsite basis. For traffic signal work a single jobsite is defined as a single intersection or single electronic traffic control device.

CIT OF KALAMAZOO

SPECIAL PROVISION

FOR

CONTROLLER CABINET, MODIFIED

Wightman/PAD 10/03/2022

a. Description. This work consists of furnishing, delivering, and installing a traffic signal cabinet, *NEMA* type and includes removals of existing controller cabinet.

This work includes furnishing and delivering the cabinet to the maintaining agency for cabinet setup. This work includes transporting the cabinet from the maintaining agency to the job site for installation. This work includes installation of the cabinet, and accessories required to provide the traffic signal control operations as shown on the plans, in accordance with the *MMUTCD* and this special provision. As applicable this work includes mounting brackets and hardware, conduit risers, wiring, connectors, grounding, terminating signal wiring, and all appurtenant materials required to ensure a complete installation.

b. Material. Provide materials meeting the requirements in sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. Cabinet. This special provision defines the minimum acceptable requirements for a series of cabinets that differ in size, to house the controller unit (CU) and related devices. Provide the base mounted size 6 cabinet unless the plans indicate otherwise.

A. Cabinet Dimensions. Outside dimensions are as shown in Table 1. These dimensions are outside dimensions exclusive of hinges, handles, overhang(s), vent housing, and adapters. Cabinet heights are measured to the lowest point of the top surface of the cabinet. Ensure the combined overhangs of the four sides of the cabinet does not exceed 4 inches.

Table 1: Minimum Outside Dimensions

Size	Height (inches)	Width (inches)	Depth (inches)
M30	51	30	16
M36	51	36	16
6	56	44	25.5
M30-ITS	61	30	16
6-ITS	66	44	25.5

B. Cabinet Types and Mountings.

(1) Base Mounted (Size 6 and 6-ITS). Ensure the size 6 and 6-ITS cabinet can be constructed so that it can be mounted on a 30 inch by 48 inch foundation. Anchor bolt mounting provisions for four bolts on 40¾ inch centers (side-to-side) on 18½ inch

centers (front-to-back). Include one base adaptor, 15 inches in height, with the same dimensions and bolt pattern as the cabinet. Provide eight nuts and eight washers with each size 6 and 6-ITS cabinet.

(2) Pole Mounted/Base Mounted (M30 and M30-ITS). Ensure cabinets intended for side of pole mounting are provided with any necessary adapter, inclusive of steel banding, to permit mounting to a 4½ inch or larger diameter pole. Ensure the adapter accommodates lag bolts up to 3/8 inch and steel banding up to 1 inch wide. Ensure mounting points are provided at or near the top and bottom of the cabinet. Ensure the adapter has provisions for two holes spaced horizontally, which will have a center-to-center distance of 3½ inches. Furnish cabinets without conduit holes. In addition, ensure the cabinet is provided with a removable bottom to enable it to be pole or base mounted.

(3) Base Mounted (M36). Ensure the M36 cabinet is constructed so that it can be mounted on a 24 inch by 42 inch foundation. Ensure anchor bolt mounting provisions are dimensioned for two bolts on 18 inch centers (side to side).

(4) Anchor Bolts. Provide anchor bolts for base mounted cabinets which are 3/4 inch in diameter by 42 inches long which includes a 90-degree bend with a 3-inch leg. Ensure the long leg is threaded for at least 3 inches with a 3/4 inch Unified Coarse Thread (UNC) -10 thread. Ensure anchor bolts are steel with a hot-dipped galvanize.AISI 300 Series.

C. Materials. Construct the traffic control cabinet of aluminum . Ensure the aluminum material is a minimum of 1/8 inch alloy sheet, *ASTM B 209*, *5052-H32* or equivalent.

D. Finish and Surface Preparation. Paint and prepare cabinets as specified herein.

(1) The surface of the cabinet must be suitably prepared Aluminum SSPC or approved equal prior to painting, to avoid paint peeling.

(2) Interior surface must be painted white. Ensure the interior of the controller cabinet is finished with a durable two coat white paint having a total dry film thickness of not less than 0.75 mils.

(3) Ensure the exterior of the controller cabinet and all mounting attachments are finished with a durable and weather-resistant protective coating having a total dry film thickness of not less than 1.5 mils. Ensure the final coat is aluminum in color, gives complete coverage, and must be at least 0.75 mil in thickness.

(4) Repaint any scratched or damaged surface area. Ensure the final repair coat is aluminum in color, yields complete coverage, and must be at least 0.75 mil in thickness.

E. Top Surface Construction. Ensure the cabinet is manufactured to prevent the accumulation of water on its top surface.

F. Doors.

(1) Main Cabinet Door. Ensure the cabinet has a main door which permits access

to all equipment within the cabinet. Ensure doors are hinged on the right side of the cabinet as viewed from the outside facing the cabinet door opening. Ensure the door has a handle of one piece construction and swings away from the locking mechanism.

(2) Hinges. Ensure all cabinet doors incorporate a piano type hinge utilizing stainless steel hinge pins.

(3) Door Stop. Ensure the cabinet door is provided with a door stop which holds the door open at 90 degrees and at 180 degrees (±20 degrees at each stop).

(4) Latches and Locking Mechanism.

(a) Ensure all cabinets incorporate a main door lock, Corbin No. 15481RS, Pelco (Type II) SM-1025 or equivalent, constructed of nonferrous or stainless materials, which operates with a Traffic Industry conventional #2 key, Corbin No. 1R6380 or Pelco (Type II) SM-0198-2 or equivalent. Ensure a minimum of two keys are included for the main door of each cabinet.

(b) Ensure the cabinet door(s) is provided with a three-point latch. Ensure the top and bottom has rollers to secure the door in a closed position.

(c) When in the locked position, ensure the lock prevents the movement of the three-point latching mechanism.

(d) Ensure the cabinets provide with a means of externally padlocking the latching mechanism. Ensure a minimum of 3/8 inch diameter lock shackle is accommodated.

(5) Door Opening. Ensure the main door opening of all cabinets is at least 80 percent of the area of the cabinet side which the door closes, exclusive of the area of plenums.

(6) Switch Compartment.

(a) Mount a hinged switch compartment door to the outside of the main cabinet door. Ensure the door permits access to a switch panel but does not allow access to exposed electrical terminals or other equipment within the cabinet.

(b) Ensure the switch compartment with the door closed has minimum internal dimensions of 3½ inches high, 7½ inches wide, and 2 inches deep. Additionally, ensure the volume is not less than 70 cubic inches.

(c) Ensure switch compartment doors are equipped with a lock, which can be operated by a police key, Corbin Type Blank 04266 or Pelco Type SM-0200 long keys, or equivalent. Ensure a minimum of two keys are included for the switch compartment of each cabinet.

(7) Intelligent Transportation System (ITS) Compartment.

(a) M30-ITS and 6-ITS cabinets must include a hinged compartment door mounted to the outside front of the cabinet, above the main door. The door must

permit access to shelf mounted ITS devices and electrical power components to power these devices.

(b) To allow for the ITS and power components, the ITS compartment door will have a minimum opening size of 8 inches high by 27 inches wide for the M30-ITS cabinet and 8 inches high by 41 inches wide for the 6-ITS cabinet. The depth of the compartment will be the full depth of the cabinet.

(c) The ITS compartment door is to be equipped with a Type 2 lock, cut for the Traffic Industry standard #1 key. A minimum of two keys must be included for the ITS compartment.

(d) Accommodation will be made to allow free air movement from the ITS compartment to the controller compartment.

(e) The ITS compartment will include U-channels mounted to the sides of the compartment for future mounting of shelves and/or Deutsches Institut für Normung (DIN) rail(s). Four U-channels, two on each side, must run vertically up the entire height of the compartment. Two additional U-channels must run horizontally across the entire back of the compartment.

(f) Run flexible 1½ inch innerduct from the dedicated ITS conduit at the bottom of the cabinet to the ITS compartment. Run the flexible innerduct up the back-left corner inside the main compartment of the cabinet into the ITS compartment. Install the flexible innerduct in such a way that wires and cables can be run into the ITS compartment from outside the cabinet without accessing the main compartment of the cabinet.

G. Shelves.

(1) Ensure the cabinet is provided with two shelves for supporting the control equipment.

(2) Ensure the shelves are at least 10 inches in depth. Shelf height must leave a minimum of 2 inches of clear space between the top of the CU and the bottom horizontal surface of the shelf without blocking access to the back panel.

(3) Ensure all cabinets have a provision for positioning shelves to within 12 inches of the bottom of the cabinet and to within 6 inches of the top of the cabinet in increments not more than 1/2 inch.

H. Cabinet Risers.

(1) Ensure the M30, M30-ITS (when specified as base mount), M36, the Size 6 and 6-ITS are provided with a 15 inch high cabinet riser.

(2) Ensure the riser matches the mounting base of the cabinet and is provided with anchor bolt holes on the top and bottom of the risers.

(3) Ensure the risers come in two parts for ease of assembly.

I. Ventilation System. Ensure all cabinets incorporate a ventilation system to provide for the circulation of external air through the enclosure to remove excess heat, fumes, or vapors. Ensure each cabinet is equipped with an electric fan with a capacity of at least 100 cubic feet of air per minute.

(1) Fan. Ensure the fan on all aluminum door cabinets is installed so that it operates in the filtered incoming air stream so as not to create a negative pressure within the cabinet relative to its outside environment. Ensure all fans are equipped with a guard which inhibits a user from making contact with the blades of the fan.

(2) Fan Controls.

(a) Ensure all cabinets equipped with a fan has a device to control the operation of the fan.

(b) Ensure the device switch-on point is manually adjustable at least in the range from 80 degrees Fahrenheit (F) to 120 degrees F.

(c) Ensure the device has a differential between its switch-on point and its switch-off point. Ensure this differential is not be greater than 25 degrees F.

(d) Ensure the device is placed in the inside of the top of the cabinet not lower than 6 inches from the top of the cabinet.

(3) Filter. Ensure the cabinet is equipped with a device to filter the incoming air. Ensure the cabinets are provided with louvered vents in the main door with a replaceable air filter having a width of 16 inches, a height of 12 inches, and a thickness of 1 inch.

J. Terminal Facility. This special provision defines the minimum acceptable requirements for terminal facilities to interconnect the related devices within a traffic control cabinet.

(1) Mechanical Construction. Ensure the terminal facility is in accordance with the following mechanical requirements.

(a) Terminal Identification.

(i) Ensure all terminals are permanently identified in accordance with the cabinet wiring diagram. Ensure where through-panel terminal blocks are used, both sides of the panel have the terminals properly identified with the terminal position number.

(ii) Ensure identification is permanently attached and close as possible to the terminal strip and is not affixed to any part which is easily removable from the terminal block panel.

(iii) Ensure each input or output terminated on a terminal block is identified on the front of the panel by position number and function terminology (e.g., Ph 1 Red, Ph 2 Hold, etc.).

(iv) Ensure the same identification is used consistently on the cabinet wiring diagram.

(b) Component Identification. Ensure all components which make up the basic terminal facility are permanently identified in accordance with the cabinet wiring diagram. The following components are considered part of the basic terminal facility:

(i) Load Switch Sockets;

(ii) Flash Transfer Relay Sockets;

(iii) Flasher Socket;

(iv) Main and Auxiliary Circuit Breakers;

(v) Radio Interference Suppressor and Surge Protector;

(vi) Solid State Signal Power Relay; and

(vii) Power Terminal Bus Bars.

Ensure where through-panel components are used, both sides of the panel have the components properly identified by relative symbols (e.g., FRI, LS1, etc.).

Ensure identification is permanently attached and as close to the component as possible and is not affixed to any part which is easily removable from the panel.

Ensure each component is identified on the front of the panel by symbol and function terminology (e.g., LF1 Filter, BR1 Signal Bus, etc.).

(c) Load Switch and Flasher Support.

(i) Design and construct load switch and flasher bases to receive all such devices which may be manufactured to the maximum size requirements permitted under the *NEMA Standards Publication*.

(ii) Ensure all support(s) are provided so that, at a minimum, it(they) is(are) supporting the flasher and load switch of the maximum size at some point(s) between 3 inches and 7 inches from the panel.

(iii) Ensure at least 90 percent of the area beneath the load switch or flasher is open to allow for the free flow of air across the load switches or flasher. Ensure there is no obstruction within 1 inch above or below the units within the open area.

(d) Load Switch, Flasher, and Flasher Transfer Positions.

(i) Ensure wired load switch, flasher, and flash transfer relay sockets are provided in the quantities listed in Table 2.

Table 2: Load Switch, Flasher, and Flash Transfer Socket Relay Quantities

Configuration	Load Switch	Flasher	Flash Transfer
A2	8	1	4
A5	12	1	6
A16	16	1	6

(ii) Ensure the flasher socket is wired for a Type 3 solid state flasher in accordance with *Section 8 of NEMA Standards Publication*.

(iii) Ensure flashing of even numbered load switch output indications are placed on one circuit and flashing for odd numbered load switch output indications are placed on the other circuit. Ensure it is possible to flash either the amber or red indication on any load switch outputs. Ensure it is possible to easily change the flash indication from the front side of the panel using simple tools without the need to unsolder or re-solder connections.

(iv) Ensure the load switch sockets are wired for triple-signal load switches in accordance with *Section 5 of NEMA Standards Publication TS 2* for Type 2 CUs. Ensure all load switch driver outputs coming out of the CU are on separate terminal points from the respective inputs to the load switches. Ensure these separate termination points are bussed for normal operation. Ensure all load switch outputs are on separate points from the respective inputs to the malfunction management unit (MMU) inputs. Ensure these separate points are bussed for normal operation.

(v) Ensure load switch sockets for the A2 configuration are oriented in a single row of eight. Ensure socket positions one thru four are for phase one thru four vehicles, respectively. Ensure socket positions five thru eight are for phases one thru four pedestrians, respectively.

(vi) Ensure load switch sockets for the A5 configuration are oriented in a single row of 12. Ensure socket positions one thru eight are for phase one thru eight vehicles, respectively. Ensure socket positions 9 thru 12 are for phases 2, 4, 6, and 8 pedestrians, respectively.

(vii)Ensure load switch sockets for the A16 configuration are oriented in two rows of eight positions each. Ensure the top row includes socket positions one thru eight and is for phase one thru eight vehicles respectively. Ensure the lower row includes socket positions 9, 10, 11, and 12 for overlaps A thru D, respectively, and are located below socket positions 1, 3, 5, and 7 respectively. Ensure socket positions 13, 14, 15, and 16 in the lower row are below and to the right of socket position 8, and is for pedestrian phases 2, 4, 6, and 8 respectively.

(e) Terminal Blocks. Ensure terminal blocks have mechanical characteristics to properly support the wiring connected without warping the terminal block. Ensure all materials including screws and threaded portions used in terminals and terminal blocks are stainless steel.

(i) Field Terminal Blocks. Include field terminal blocks for all inputs and outputs for a fully expanded CU. Ensure these blocks are either single terminal type with through-panel connection on the rear side of the mounting panel or double binder head screw terminals. Ensure either type of terminal block uses the correct ampacity for the application. Minimum acceptable ratings are 30 ampere (A), 300 volt (V), with 10 - 32 binder head screws.

(ii) Control Terminal Blocks. Include control terminal blocks for inputs and outputs of the CU, MMU, flash transfer relays, load switches, etc. Ensure these blocks are either single terminal type with through-panel connections or double binder head screw terminals. Ensure either type of terminal block uses the correct ampacity for the application. Minimum acceptable ratings are 15A, 250V, with 6-32 x 1/4-inch pan or binder screws.

Ensure the control terminal block wiring provides groupings of functions based on probable interconnect (bussing) for normal operation rather than based on the source of the wiring (e.g., CU, MMU, etc.).

(iii) Detector Terminal Blocks. Include detector terminal blocks for loop and push button inputs. Ensure these blocks are either single terminal type with through-panel connections or double binder head screw terminals. Ensure either terminal block is of the correct ampacity for the application. Minimum acceptable ratings are 20A, 250V with 8 - 32 pan or binder screws.

(f) CU and MMU Harnesses.

(i) Ensure the CU and MMU harnesses is neatly arranged and provided with the flexibility for the connectors to reach at least 40 inches from the top of the terminal block panel which must be mounted directly below the CU shelf. Ensure the harness connectors do not have any sharp edges and the stress relief attachment screws do not extend greater than 1/4 inch beyond the stress relief.

(ii) Ensure terminal positions are provided, completely wired and neatly arranged, providing access to all inputs and outputs listed in the CU specification. Ensure all *NEMA Standards Publication* functions of the CU for the configuration selected are terminated, except those designated by *NEMA* as spares, reserved, no connection, and manufacturer's use need not be installed in the harness.

(iii) Ensure terminal positions are provided, completely wired and neatly arranged, providing access to inputs and outputs in the MMU. Ensure all MMU input is terminated. Ensure provisions are made to terminate any unused red monitoring inputs. Ensure type select and port one disable inputs are terminated.

(iv) Provide a D connector for connection to the CU. The connector will be of the style for the controller approved for the project. The connector terminal strip must be attached via channel nuts to the upper left side of the cabinet.

(v) Ensure the MMU harness is configured for a 16 channel MMU operating in the type 12 mode. Ensure the MMU harness is configured as specified in Table 3.

Table 3: MMU Harness Configuration

Configuration	Load Switch	MMU
A2	8	12 Channel
A5	12	12 Channel
A16	16	12 Channel

(g) Power Distribution. Supply the following equipment as part of the power distribution panel:

(i) Main Circuit Breaker;

(ii) Six Auxiliary Circuit Breakers;

(iii) Solid State Signal Power Relay;

(iv) Primary and Secondary Surge Protector;

(v) Neutral Bus Bar;

(vi) Equipment Ground Bus Bar;

(vii) AC+ Power (Filtered) Bus Bar;

(viii) AC+ Power (Unfiltered) Bus Bar.

(h) The following equipment must be supplied as part of the ITS compartment power panel:

(i) Three Auxiliary Circuit Breakers;

(ii) Neutral Bus Bar;

(iii) Equipment Ground Bus Bar.

(2) Electrical Requirements. Ensure the terminal facility conforms to the following electrical requirements:

(a) Power Distribution. Ensure the terminal facility operates properly when supplied with single-phase alternating current (AC) power [95-135V, 57-63 hertz (Hz)] when non-ITS cabinets and 240V when an ITS type cabinet. Ensure all breakers and grounding devices are wired in accordance with the *NEC* and the *Michigan Electrical Code*.

(i) Circuit Breakers. Ensure provisions are made for mounting and wiring up to nine circuit breakers in the terminal facility. Ensure a quantity of seven

circuit breakers are provided with ampacities as specified in Table 4.

Table 4: Circuit Breaker Ampacity (in A)

Configuration	Main	Vehicle Load Switch	Pedestrian Load Switch	Flasher	Miscellaneous	Channel Reds	Illuminated Sign
A2	30	10	10	10	10	10	20
A5	30	10	10	10	10	10	20
A16	30	10	10	10	10	10	20

The M30-ITS and the 6-ITS cabinets will include an additional 30A circuit breaker mounted on the main cabinet power panel, utilizing a single phase of the AC power to power the ITS compartment devices. Two 15A and one 10A circuit breakers will be provided in the ITS compartment, wired to the load side of the 30A breaker.

Ensure the main circuit breaker is wired to protect the entire facility and is identified as the “MAIN” breaker. Ensure the Vehicle Load Switch breaker and the Pedestrian Load Switch breaker are fed by the load side of the bus relay and provides power to the vehicle and pedestrian load switches, respectively. Ensure the Flasher breaker has the flasher connected to its load side. Ensure the miscellaneous breaker has the cabinet fan, light, and door mounted duplex receptacle connected to its load side. Ensure the Channel Red breaker is connected to the input to the MMU for the Red enable and cabinet control relay coils. Ensure the Illuminated Sign breaker is available to power auxiliary devices such as illuminated signs. Ensure the breaker for the ITS compartment (if used) will be fed by a separate phase connected to the power disconnect. Ensure the circuit breakers are capable of manual operation with markings to indicate rating and whether it is in the open or closed position. Ensure Square D series QOB circuit breakers are used and mounted on QON3B triple position breaker blocks.

Ensure a four pole fuse holder with screw terminals for connecting individual illuminated sign loads is provided and wired to the load side of Illuminated Sign breaker.

(ii) Cabinet Surge Protection. Ensure the power panel has devices to provide both primary and secondary surge protection devices. Ensure the Line In, Neutral In and Ground leads of the primary device are to be kept as short as possible (18 inches maximum), with no sharp bends and must not be bundled with other conductors.

Ensure the primary surge protection device (SPD) has two separate hot legs. For the non-ITS cabinets, ensure both legs of the SPD are connected to the load side of the main circuit breaker. For the M30-ITS and the 6-ITS cabinets, the second leg must be connected to the load side of the main circuit breaker for the ITS compartment. Ensure the primary SPD is connected in parallel to the load and have a surge capacity of 160 kiloamperes (kA) per phase or greater. Ensure the let through voltage measured 6 inches outside the unit does not exceed 430V = 3kA 8/20 microseconds(u/s) pulse and 650V = 10kA

8/20 u/s pulse. Ensure modes protected are Line to Ground, Line to Neutral, Line to Line and Neutral to Ground. Ensure the SPD provides Green LED indications that protection is operational and Red LED indications that a fault has occurred. Ensure in addition, an audible alarm sounds indicating a fault has occurred. Ensure there is a set of normally open and normally closed contacts available for remote monitoring of the SPD. Ensure the SPD is no larger than 9.3 inches wide by 3 inches high by 4.93 inches deep. Ensure the SPD is mounted on the lower right hand side of the cabinet and easily accessible for replacement.

Ensure the secondary SPD is connected to the load side of the main circuit breaker and its output will be used to supply AC power the CU, MMU, and cabinet electronics power strip. Ensure the surge current capacity is 50kA or greater, with the unit connected in series to the load. Ensure the secondary SPD is a 5-stage hybrid design with integrated filter with series load current of 12A. Ensure the let through voltage measured 6 inches outside the unit does not exceed 260V = 2kA 8/20 u/s pulse and 300V = 3kA 8/20 u/s pulse. Ensure modes protected are Line to Ground, Line to Neutral, and Neutral to Ground.

Ensure a gas tube device is installed on the load side of the main circuit breaker. Ensure it is possible to replace this device without interrupting power to the rest of the terminal facility. The M30-ITS and the 6-ITS cabinets must have a second gas tube device installed on the load side of the main circuit breaker feeding the ITS compartment. For the ITS cabinets, ensure that the ITS compartment includes a switched, surge protected, metal enclosed, outlet strip. This outlet strip is to provide a minimum 3,300 joule suppression rating and is wired to the load side of one of the 15A ITS compartment breakers. Ensure the outlet strip is mounted on the rails on the back of the cabinet.

(iii) Solid State Signal Power Relay. Ensure the terminal facility includes a single-pole, single-throw (SPST)-no signal power relay wired to provide power from the main circuit breaker and radio frequency interference (RFI) filter to the AC signal power bus bar and load switches. Ensure the solid-state relay is energized to provide power to the signal bus and have ampacity of 75A. Ensure it provides zero voltage switching from 47 – 63Hz. Ensure the signal power relay is mounted on a panel on the lower right side of the controller cabinet and easily accessible for replacement.

(iv) AC-Common Bus Bar. Terminate the AC-common (Neutral) on a solid metallic multi-terminal bus bar that will accept #4 - #16 American Wire Gage (AWG) copper conductors. Ensure this bus bar is insulated from the cabinet. Ensure separate wires are run from this bus bar to each unit or group of similar units in the terminal facility which requires AC-common connection. Ensure only one conductor is allowed in each termination position. Ensure a minimum of 24 open termination positions are available for field wiring common return connections.

(v) Equipment Ground Bus Bar. Terminate the equipment ground on a solid metallic multi-terminal bus bar that will accept #4 - #16 AWG copper conductors. Ensure this bus bar is connected to the cabinet. Ensure only one

conductor is allowed in each termination position. Ensure a minimum of 24 open termination positions are available for field wiring ground connections.

Ensure separate wires are run from this bus bar to each unit or group of similar units in the terminal facility which requires equipment ground connection.

(vi) In addition to the three breakers and surge protected outlet strip, ensure the upper ITS compartment includes: ground fault interrupter (GFI) outlet wired to the load side of one of the 15A breakers, a minimum 6 position ground bus, led lighting mounted above the air plenum above the door powered via a door switch and 10A breaker, and a minimum 12-inch-long piece of DIN rail mounted across the channels on the back of the cabinet.

(b) Conductors. Ensure all conductors used in the terminal facility wiring are #22 AWG, or larger, with a minimum of 19 strands. Ensure conductors terminated on the AC-common bus bar and safety ground bus bar are tinned and a minimum size of #16 AWG. Ensure the insulation has a minimum thickness of 10 mils and is nylon jacketed polyvinyl chloride or is irradiated cross-link polyvinyl chloride. Ensure conductors #8 AWG are UL Type THHN.

Ensure all conductors used in the terminal facility wiring are in accordance with the following color-code requirements:

(i) Ensure the AC-neutral conductor of a circuit is a continuous white color.

(ii) Ensure the equipment ground conductor of a circuit is a continuous green color or a continuous white color with one or more green stripes.

(iii) Ensure the AC ungrounded power conductor of a circuit is a continuous black color.

(iv) Ensure the low-level direct current (DC) (+24 or less) conductor of a circuit is a continuous blue color.

(v) Ensure other conductors, not conforming to one of the above, are any continuous color not defined above.

(c) Wiring (Power Distribution within the Facility).

(i) Ensure all terminal facility wiring is neat, firm, and routed, where practical, to minimize crosstalk and electrical interference. Do not use printed circuit boards to eliminate or reduce facility wiring. Do not use adhesive-backed means to support any wiring.

(ii) Ensure all terminal facility conductors are of sufficient size to carry the maximum current of the circuit or circuits they are provided for. Ensure they are sized based on the ampacity ratings per Table 5.

Table 5: Terminal Facility Conductor Size

AWG Wire Size	Ampacity Rating
#22	5A
#16	10A
#14	15A
#12	20A
#10	30A
# 8	50A
# 6	70A

(iii) Ensure the conductor feeding power from the main circuit breaker to the auxiliary breakers, solid state signal power relay, primary and secondary SPD terminal blocks, and AC signal power bus bar has an ampacity of 30A.

(iv) Ensure the conductor feeding power to the flasher socket has, as a minimum, an ampacity of 10A.

(v) Ensure the conductor feeding power to the signal power bus bar to each load switch socket has an ampacity of 10A.

(vi) Ensure the conductors feeding power from the load switch to the field signal terminals has an ampacity of 10A.

(vii) Ensure the conductors feeding power from the flasher socket to the flash transfer relay sockets, which feed flashing power to same, has an ampacity of 10A. The remaining wires to and from the flash transfer relay socket, which are in the circuit between the load switch socket and the field signal terminals, are covered in the previous paragraph.

(d) Control Circuits.

(i) Flash Transfer Control. Ensure the control circuit to the flash transfer relay sockets can provide flashing operation when the MMU or optional auxiliary equipment call for flash (e.g., police panel flash switch and maintenance panel). Ensure the flash transfer control also conforms to the following:

Ensure the flash transfer relay socket is wired so the coil of the relay(s) must be de-energized for flashing operation. Ensure the flash transfer relay sockets are near the load switches, flasher, and field signal terminals.

(ii) MMU Control. Ensure the MMU is wired to provide flashing operation when the fault relay de-energizes or if the MMU is disconnected. Ensure it also provides "Stop Time" to the CU when the fault relay de-energizes. Ensure the MMU is wired to provide an "External Start" signal to the CU upon the application of AC power to the MMU following a power interruption or upon initial turn-on.

(iii) Detector Rack. All cabinets must include a 20-channel detector rack

that meets *NEMA TS2- Section 5 specifications*. Ensure the detector rack accommodates 16 channels of vehicle detection and an additional 4 channels of pedestrian detection push button isolation. Ensure the bus interface unit (BIU) slot is in the first (furthest to the left) position in the detector rack. Ensure the 16 channels of vehicle detection are located immediately to the right of the BIU. Ensure the four channels of pedestrian detection are in the last (furthest to the right) slot positions. Ensure each cabinet includes one power supply for the detector rack that meets the *NEMA TS2-* specification for power supplies.

(3) Field Wire Terminal Locations. Ensure the terminal facility provides field wire terminals located in accordance with the following requirements:

(a) AC Service Hookup. Terminate incoming AC power service on the right side of the cabinet on the power distribution panel. Terminate the incoming AC power service using listed pressure connectors capable of accepting a #4 AWG conductor for the grounded, ungrounded, and equipment grounding conductors. Terminate the ungrounded conductor directly to the main circuit breaker. Terminate the neutral and equipment ground conductors directly to their respective bus bars. Ensure this service hookup meets *NEC* code, and the *Michigan Electrical Code*.

(b) Signal Hookup. Terminate signal wires on terminal blocks on the back of the cabinet at least 3 inches but not over 6 inches from the bottom of the cabinet. Locate the field terminal block for signal circuits a minimum of 4 inches below the load switches and angled up 30 to 45 degrees from vertical for ease of access. Ensure signal terminals are directly accessible from the front of the cabinet. Provide one terminal for each load switch output. Ensure each field terminal includes a SLU-35 or equivalent pressure connector that will allow multiple field conductors to be attached to a single output terminal. Ensure it is possible to terminate a minimum of 16 #14 AWG neutral leads on the signal neutral bar.

(c) Detector Panel. Terminate vehicle loop and pedestrian pushbutton inputs on terminal blocks on the left side of the cabinet at least 3 inches from the bottom of the cabinet. Provide a minimum of three terminals for each vehicle detector and four terminals for each pedestrian detector. Ensure the terminal block meets the specifications of the detector terminal blocks. Ensure the detector panel is wired completely to the detector rack, providing 20 channels total.

(4) Auxiliary Equipment.

(a) Ensure the terminal facility includes provisions for the following equipment in a panel accessible from a police door on the front of the cabinet.

(i) Signals On-Off Switch. Ensure a signals on-off switch is included, installed, and wired.

Ensure the switch and wiring energizes or de-energizes the solid-state signal power relay. Ensure the AC signal power is not routed through this switch. Label the switch "Signal-Off". Ensure when in the “Off” position, all signal field terminals are de-energized and the Red Enable input to the MMU is inactive.

(ii) Flash Normal Switch. Ensure a flash-normal switch is included.

Ensure when in the Flash position, the flash transfer relays and solid state signal power relay is de-energized, and power is removed from the MMU and CU, resulting in flash being displayed to traffic. Ensure neither AC signal power nor flashing power is routed through this switch. Ensure the switch is labeled "flash-normal".

Ensure when the switch is returned to the “Normal” position, the signals return to the initialization phase and begin cycling.

Ensure operation of the signal-off switch overrides this switch. That is, when in the "Off" position, the signal-off switch prevents flashing operation as called for by all flash control circuits.

(iii) Manual Control Cord and Switch. Install a manual control cord and auto-hand switch and wired in the police panel of the cabinet.

Ensure the switch and wiring energizes the "manual control enable" input to the CU and connects the manual control cord to the "interval advance" input to the CU. Label the switch "auto-hand".

(b) Maintenance Panel Options.

(i) Detector Test Switches. Provide a detector test push-button switch for each vehicle and pedestrian detector circuit in a panel on the inside of the front cabinet door. The A2 configuration requires eight test push-buttons for phases one thru four vehicle and pedestrian inputs. The A5 and A16 configurations require 12 test push-buttons for phases 1 thru 8 vehicle inputs and phases 2, 4, 6, and 8 pedestrian inputs.

Ensure the switch and wiring places an actuation for the respective vehicle or pedestrian phase when pushed. Label the switch(s) "call switch" and the phase # as well as whether it is vehicle or pedestrian (e.g., Ph 1 Veh, Ph 1 Ped, etc.).

(ii) Stop Time Switch. Provide a stop time switch in a panel on the inside of the front cabinet door. Ensure the switch and wiring provides three modes of operation which are:

14 Normal. Provides "Stop time" to the CU as required by the MMU.

15 Run. Prevents "Stop time" from being applied to the CU from other devices.

16 Stop. Applies "Stop time" to the CU. Ensure this switch is labeled "stop-run-normal".

(iii) Flash-Normal Switch. Provide a flash-normal switch in a panel on the inside of the front cabinet door.

Ensure the switch and wiring provides flashing operation as defined for police panel flash-normal switch except that it does not terminate power to the CU. Ensure provisions are provided so that this flash-normal switch operates as a CU power switch by removing a control terminal link. Label this switch "flash-normal".

(iv) Duplex Receptacle. Provide a duplex receptacle of a three-wire GFI type in a panel on the inside of the front cabinet door.

For the M30-ITS and 6-ITS cabinets provide a duplex receptacle of a three-wire GFI type in the ITS compartment on the right side, towards the front. The receptacle must be wired to one of the 15A circuit breakers in the ITS compartment.

(c) Miscellaneous Options.

(i) Cabinet Forced Air Heater. Provide a forced air heater for all cabinets, rated with at least 100 watt (W) for the M30 and M30 ITS cabinets, and 200W for all other configuration cabinets, completely wired and operational. Provide a temperature and humidity level controller to operate the heater. Ensure the temperature control has an adjustable set point from 32 to 95 degrees F. Ensure the humidity control has an adjustable set point from 50 to 90 percent relative humidity. Mount the heater below the bottom shelf and offset from the cabinet walls with air forced downward. Care must be taken to mount the heater clear of the field wiring.

(ii) Cabinet Lights. Install two LED lighting panels with a switch in the cabinet. Provide a door switch to activate the lights when the door is opened. Install one lighting panel above the top shelf and install the second to the bottom of the lower shelf's storage drawer. Each panel must provide at least 450 lumens of light and consume no more than 15W of power.

Wire the switches and lights to the miscellaneous circuit breaker.

Install one light socket in the upper right wall of the control cabinet and the second light socket on the left wall of the cabinet immediately below the lower shelf.

Install one LED light strip in the ITS compartment of M30-ITS and 6-ITS cabinets. Ensure the door switch activates the light when the door is opened.

(iii) Outlet Strips. Install a multiple outlet strip on the upper right side of the cabinet. Wire the outlet strip to the load side of the secondary SPD.

For the M30-ITS and 6-ITS cabinets install a 15A, industrial grade surge protected multiple outlet strip with no less than six outlets in the ITS compartment. Wire the outlet strip to one of the 15A circuit breakers in the ITS compartment. Attach the outlet strip to the bottom U-channel running horizontally across the back of the ITS compartment.

(iv) Additional Grounding. Install a #10 AWG bonding jumper from the

right-hand DIN rail mounting screw in the ITS compartment to the ground bar in the ITS compartment.

Install a #10 AWG bonding jumper from the top shelf in the signal cabinet to the ground bar in the signal cabinet.

(5) Prints, Functional Data, and Parts List. Ensure the manufacturer supplies each of the following items with each cabinet:

(a) Two complete set of schematic and wiring diagrams of the cabinet and terminal facilities.

(b) Cabinet mounting diagram.

(c) Complete parts list of cabinet and accessories.

Ensure each of these items applies directly to the cabinet with which it is applied. One set is to be put in the installed cabinet, and one set is to be furnished to the maintaining agency.

2. Accessories. This special provision defines the minimum acceptable requirementsfor plug-in accessories for the traffic controller assembly within a traffic control cabinet.

A. Malfunction Management Unit (MMU). This subsection defines the minimum requirements for a shelf-mountable, 16 channel, Ethernet capable MMU. Ensure the MMU meets, all applicable sections of the *NEMA Standard TS-2-2003 (R2008)* for MMU2 configuration while maintaining compatibility with *NEMA TS1-1989* assemblies. Where differences occur, this special provision governs.

Provide the following monitoring functions in addition to those required by the *NEMA standard*:

(1) Dual Indication Monitoring. Ensure the MMU can detect simultaneous input combinations of active green (or walk), yellow and red inputs on the same channel. Ensure the channels enabled for dual indication monitoring are user determined. Ensure dual indication monitor is disabled when the red enable input is not active.

(2) Field Check Monitoring. Ensure when the field signal inputs states sensed by the MMU do not correspond with the data provided by the CU in the type #0 message for 10 consecutive messages, the MMU enters the fault mode and indicates the field check fail fault.

(3) Recurrent Pulse Monitoring. Ensure the MMU detects conflict, red fail, and dual indication faults that result from intermittent or flickering field signal inputs.

(4) Ensure when the MMU detects a conflict flash indication it provides an output to the “D” connector indicating an MMU/conflict flash status input.

(5) Ensure the MMU monitors an intersection with up to four approaches using the four section Flashing Yellow Arrows (FYA) movement outlined by the *National Cooperative Highway Research Program (NCHRP) Research Project 3-54* on

Protected/Permissive signal displays with (FYA). Ensure the MMU provides the same fault coverage for the FYA approaches as it does for conventional movements including conflict, red fail, dual indications, and minimum clearance monitoring.

Ensure the MMU provides alternate configuration options as follows:

(a) Red Yellow Green (RYG) Only Red Fail Option. This function excludes the walk input from the red fail fault algorithm when operating the Type 12 mode.

(b) LED Signal Threshold Adjust. This function provides the capability to sense field inputs with an alternate set of voltage thresholds to better determine the state of LED signal indications. Conflict and dual indication thresholds for Green/Yellow/Red inputs are set for: No Detect is less than 15 root-mean-square voltage (Vrms). Detect is greater than 25Vrms. Red fail thresholds for Green/Yellow/Red are set for: No Detect is less than 50Vrms. Detect is greater than 70Vrms.

(c) Controller Voltage Monitor (CVM) Log Disable Option. Ensure the MMU provides a means to disable the logging of CVM faults events.

(d) Provide a 4 line by 20-character liquid-crystal display (LCD) to report MMU status, time and date, and menu navigation. Provide a separate Red, Yellow, Green LCD indicator, display for the input status of signal inputs. Provide individual icons to indicate channels involved in a fault.

(e) Provide a mode to display the Vrms of each field signal input and each cabinet control signal voltage, and the frequency of the AC line, the ambient temperature measured at the MMU.

(f) Ensure when the MMU is in the fault mode, a display screen is provided to identify all field signal inputs with field check status, and all field signal inputs with recurrent pulse status.

(g) Additional display functions include a configuration display of settings and all MMU configuration parameters; logs of previous fault, AC line, and MMU reset logs; clock set.

(h) Ensure the program card supplied with the MMU provides non-volatile memory that contains the configuration parameters for the enhanced features of the MMU, such that transferring the program card to a different MMU completely configures that MMU. Ensure the non-volatile memory device used on the program card does not utilize any input/output (I/O) pins designated as “Reserved” by *NEMA TS-2*.

(i) Ensure a minimum of five logs are provided that graphically display all field signal states and red enable for up to 30 seconds prior to the current fault trigger event. Ensure the resolution of the display is at least 50 milliseconds. Ensure these signal sequence logs are accessible from the front panel RJ-45 Ethernet port with software available from the manufacture.

B. Flasher. Provide a *NEMA* two-circuit, 15A per circuit, flasher for installation in the

cabinet. Ensure each flashing circuit contains zero-voltage switching, a 25A power triac, a snubber and a LED across the AC circuitry, directly indicating the AC load that is activated. Ensure the flasher conforms to a *Type 3 per Section 8* of the *NEMA Standards Publication*. Fabricate the flasher such that internal components are completely enclosed by the chassis.

C. Flash Transfer Relay. Provide flash transfer relays in the quantity of two each for the A2 configuration and six each for the A5 and A16 configurations for installation in the cabinet. Ensure the flash transfer relays conform to the following requirements:

(1) Mechanical Requirements. Enclose the relay in a transparent plastic case which protects the relay from dust, moisture, and other contamination. Ensure the case protects the user from contact with live parts and be sufficiently rugged to permit insertion and removal of the relay from its mating socket.

(2) Connector. Mount the relay on an eight-pin spade plus base and the socket and relay/base must be wired as follows:

Pin 1 - Coil	Pin 2 - Coil
Pin 3 - #1 Closed	Pin 4 - #2 Closed
Pin 5 - #1 Common	Pin 6 - #2 Common
Pin 7 - #1 Open	Pin 8 - #2 Open

(3) Contacts. Provide the relay with two single-pole, double-throw (form C) contact sets. Pin 8 - #2 Open each contact is rated to switch a 20A tungsten load for a minimum of 30,000 operations. The contact material must minimize welding.

(4) Coil Rating. Ensure the relay coil is rated for continuous duty from 95 to 135 volts alternating current (VAC). Ensure this rating is valid at 158 degrees F ambient temperature outside the relay case. Ensure the relay coil measures less than 10VA at 120VAC. Ensure the relay picks up by 95VAC and drops out by 50VAC, and makes the transfer within 50 milliseconds. Ensure the magnetic circuit in the relay reverses concurrently with the 60Hz AC input voltage.

D. Load Switches. Use solid-state load switching assemblies for opening and closing signal light circuits and be jack-mounted external to the CU. Ensure each load switch provides three independent switching circuits. Ensure each of the three circuits contains a zero-voltage switching optically coupled electrically isolating the DC input circuitry from the AC output circuitry, a 25A power triac and LED indicators on both the DC input circuitry and the AC output circuitry. Provide eight load switch assemblies (24 circuits) for the A2 configuration unit. Provide 12 load switch assemblies (36 circuits) for the A5 configuration unit. Provide 16 load switch assemblies (48 circuits) for the A16 configuration unit

3. Warranty. Provide materials with a manufacturer's warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specifications for Construction, as shown on the plans and as 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 items:

Pay Item	**Pay Unit**
Controller Cabinet, Modified	Each
Cabinet, Rem	Each

1. **Controller Cabinet, Modified** includes:

A. All labor, equipment, and materials required to install the traffic signal cabinet, and accessories required to provide the traffic signal control operation as shown on the plans and in accordance with the *MMUTCD* and this special provision.

B. Furnishing and delivering the cabinet to the maintaining agency for cabinet setup.

C. Transporting the cabinet from the maintaining agency to the job site for installation.

D. Salvaging all equipment not being replaced from the existing controller cabinet and re-installing within the new controller cabinet. All equipment including the existing cabinet being replaced shall remain in possession of the City of Kalamazoo. The Contractor will contact the City of Kalamazoo to notify them when the cabinet and equipment has been removed and is ready to be picked up.

2. **Cabinet, Rem** includes all labor, equipment, and materials required to remove an existing traffic signal cabinet.

The Engineer may process a partial payment for units delivered to MDOT signals shop or other approved location after initial inspection and acceptance and after the Contractor provides either a paid invoice/proof of payment or a receipt for delivery. If payment is based on the delivery invoice, the Contractor must provide a copy of the paid invoice/proof of payment to the supplier within 10 calendar days of the prime Contractor receiving payment for the materials. Partial payments for delivered materials/units meeting all project specifications will be limited to the smaller of the actual invoice amount or 96 percent of the contract bid amount. Final payment will be processed after final acceptance of the individual traffic signal installation.

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
TRAFFIC SIGNAL CONTROLLER ATC TYPE

a. Description. This work consists of furnishing, delivering, and installing a traffic signal controller, *ATC* type.

This work includes furnishing and delivering the traffic signal controller. This work includes installation of the traffic signal controller, and accessories required to provide the traffic signal control operations as shown on the plans, in accordance with the *MMUTCD* and this special provision.

b. Material. Provide materials meeting the requirements in sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. Controller. This special provision defines the minimum acceptable requirements for an ATC type traffic signal controller.

A. Enclosure. The controller shall be compact so as to fit in limited cabinet space.

(1) The external dimensions shall not be larger than 8.5” x 15.2 ¼” x 6.375” (H x W x D).

(2) The top and bottom of the chassis shall be made from extruded aluminum and include an integral handle on the back for easy transport.

(3) The sides shall be constructed of injection molded polycarbonate.

(4) The model, serial number, and program information shall be displayed on the outside of the controller.

B. Electronics.

(1) The electronics shall be modular in design and shall consist of vertical circuit boards. Horizontal circuit boards shall not be acceptable.

(2) In the interest of reliability, no sockets shall be used for any electronic device. All devices shall be directly soldered to the printed circuit board. Surface mount parts shall be used for the majority of the electronic components in the controller.

(3) A built-in, high-efficiency switching power supply shall generate the primary, +5VDC internal voltage, an isolated +24VDC for internal and external use, VSTANDBY, POWERUP and POWERDOWN signals. All voltages shall be regulated.

(4) The 120 or 220VAC fuse shall be mounted on the front of the controller. Protection for the 24VDC supply shall be provided by a resettable electronic fuse.

(5) All printed circuit boards shall meet the requirements of the NEMA Standard plus the following requirements to enhance reliability.

(a) Both sides of the printed circuit board shall be covered with solder mask material.

(b) The circuit reference designation for all components and the polarity of all polarized capacitors and two-leaded diodes shall be clearly marked adjacent to the component. Pin 1 for all integrated circuit packages shall be designated on all printed circuit boards.

(c) All printed circuit board assemblies shall be coated on both sides with clear moisture-proof and fungus-proof sealant.

(6) Timing of the controller application shall be derived from the AC power line.

(7) To facilitate the transfer of user-programmed data from one controller to another, a data-key receptacle for using a separate 2070-style, serial flash memory device shall be an available hardware option. In addition, two USB sockets and one SD Card socket shall be provided for memory devices that can be used for data transfer. These data transfer devices shall be easily removable and directly accessible from the outside of the controller. The controller will not require this data-key, USB memory device, or SD Card to be present for proper operation.

(8) All controller software shall be stored in Flash Memory devices. The controller software shall be easily updated without the removal of any memory device from the controller. The use of removable PROMS or EPROMS from the controller shall not be acceptable. The controller shall include an option that allows updating software using a Windows based computer, a USB memory device, or an SD card.

C. ATC Engine Board.

(1) The controller shall include an ATC engine board compliant to ATC standards 05.2b and 06.25.

(2) The engine board shall include a PowerPC 83XX family processor with QUICC engine.

(3) The engine board shall have a minimum of the following memory.

(a) 128 Mbytes of DDR2 DRAM memory used for application and OS program execution.

(b) 64 Mbytes of FLASH memory used for storage of OS Software and user applications.

(c) 2 MB of SRAM memory used for non-volatile parameter storage.

(4) The engine board shall provide the seven ATC serial ports, Ethernet, USB and all other control signal required by the ATC standard.

(5) The operating system shall be Linux 2.6.35 or later.

D. Front Panel.

(1) The front of the controller shall consist of a panel for the display, keyboard and connectors for all necessary user connections. The front panel shall be available in touch (Graphic) or non-touch (Classic) screen models.

(2) The display shall be a seven-inch (7”), color, TFT (Thin Film Transistor) LCD (Liquid Crystal Display) with high brightness. It shall be readable in direct sunlight. The display will perform over the NEMA temperature range and shall have a resolution of 800 X 480.

(3) The touch screen shall have an 18-bit color depth. The luminous intensity shall be a minimum of 800 nits. The display shall include an industrial, resistive touch screen that can be operated with gloved hands. The touch screen and display shall not be affected by condensation or water drops.

(4) Front-panel operator inputs shall be via touch screen or by clearly labeled elastomeric keypad. These shall include a 10-digit numeric keypad, Main and Sub keys, toggle keys, special function and enter keys, six function keys, status and help keys and a large four-direction cursor control key.

(5) The front panel shall include a built-in speaker for enhanced controller audio feedback.

(6) The front panel shall include a tri-color status LED.

E. Ethernet Ports.

(1) The controller shall have the capability of supporting Ethernet communications, using TCP/IP communications protocols.

(2) The controller shall provide four front-panel Ethernet ports.

(3) Two of the ports shall be connected to Ethernet switch ENET1 and the other two shall be connected to Ethernet switch ENET2.

F. USB Ports.

(1) The controller shall provide two USB 2.0 ports.

(2) USB ports shall be used for USB thumb drives to update software, upload or download configuration or uploading logged data.

G. Connectors.

(1) All non-optional interface connectors shall be accessible from the front of the controller in the NEMA Configured Controller models. Configurations shall be offered to accommodate different versions, as seen below.

(a) NEMA TS2 Type 1

(b) NEMA TS2 Type 2

(c) NEMA TS1

(2) The D connector shall be a 61 pin AMP 205842-1.

(3) To facilitate special applications the controller shall have the capability of assignment of any input or output function to any input or output pin respectively on the interface connectors, with the exception of Flashing Monitor, Controller Voltage Monitor, AC+, AC-, Chassis Ground, 24VDC, Logic Ground and TS2 Mode bits.

(4) The controller shall as a minimum have the following communication ports.

(a) Port 1 SDLC for communications with other devices in the cabinet

(b) Port 2 serial port for systems communications

(c) Console serial port for local communications

(d) Ports on ATC-2070 communication slots

(5) Serial communications shall operate from 1200 to 115.2 K baud.

(6) The controller shall provide one ATC-2070 Type communications slot that will allow ATC 2070 type modules to be inserted.

H. Controller Software. Provide a controller local software with each ATC controller from the following list. Confirm the appropriate software prior to ordering. No additional payment will be made based on the software provided.

(1) Econolite EOS, version 03.01.23 or the latest version as approved by the engineer.

(2) Econolite ASC3/LX, version 32.65.30 or the latest version as approved by the engineer.

(3) Approved equal. Requests to use an alternate controller local software will not be justification for project delays.

2. Packing and Marking. Ensure each controller is packed separately in such a manner that there will be no injury or defacement to the controller during transportation to the point of destination, unless otherwise specified in the contract. Ensure each carton is legibly marked with the controller description, purchase order number, and vendors name.

3. Warranty. Provide materials with a manufacturer's warranty, transferable to the agency, that the supplied materials are free from all defects in materials and workmanship.

Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specifications for Construction, as shown on the plans and as 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 items:

Pay Item	**Pay Unit**
Controller, ATC Type, Graphic	Each
Controller, ATC Type, Classic	Each
Controller, ATC Type, Rem	Each

1. **Controller, ATC Type, Graphic** includes:

A. All labor, equipment, and materials required to install the traffic signal controller, and accessories required to provide the traffic signal control operation as shown on the plans and in accordance with the *MMUTCD* and this special provision.

B. Furnishing and delivering the controller to the maintaining agency for cabinet setup.

C. Transporting the controller from the maintaining agency to the job site for installation.

2. **Controller, ATC Type, Classic** includes:

A. All labor, equipment, and materials required to install the traffic signal controller, and accessories required to provide the traffic signal control operation as shown on the plans and in accordance with the *MMUTCD* and this special provision.

B. Furnishing and delivering the controller to the maintaining agency for cabinet setup.

C. Transporting the controller from the maintaining agency to the job site for installation.

3. **Controller, ATC Type, Rem** includes all labor, equipment, and materials required to remove an existing traffic signal controller from an existing cabinet.

CITY OF KALAMAZOO

SPECIAL PROVISION

FOR

MODULAR VIDEO DETECTION SYSTEM

a. Description. This specification sets forth the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle and bicycle traffic.

The video detection system (VDS) shall consist of up to four video cameras, up to four video detection processors (VDP) capable of processing one video source each, one Central Control Unit (CCU), input/output extension modules, video surge suppressors and a pointing device, or any combination thereof.

The VDS will be deployed at locations where site conditions and roadway geometry vary. The VDS system may also be deployed at locations where existing cabinets or equipment exist. Existing site configurations will dictate the availability of cabinet space and VDS usage.

The system shall include software that discriminately detects the presence of individual vehicles and bicycles in a single or multiple lanes using only the video image. Detection zones shall be defined using only an embedded software application. A monitor, a keyboard and a pointing device are used to place the zones on a video image. A minimum of 32 detection zones per camera view shall be available. A separate computer shall not be required to program the detection zones.

b. Materials. Provide materials in accordance with the following requirements of this special provision.

1. VDS Hardware Video Detection Processor System Interfaces. The following interfaces shall be provided on each video detection processor:

   A. Video Input - Each VDP will be supplied with video from the VDS Camera Sensor. The interface connector shall be an RJ-45 type and shall be located on the back of the CCU unit.

   B. Video Lock LED - A LED indicator shall be provided to indicate the presence of the video signal. The LED shall illuminate upon valid video synchronization and turn off when the presence of a valid video signal is removed.

   C. Contact Closure Output - Open collector (contact closure) outputs shall be provided. Four (4) open collector outputs shall be provided for the Video Detection Processor rack-mount configuration. Additionally, the VDS shall allow the use of extension modules to provide up to 32 open collector contact closures per camera input. Each open collector output shall be capable of

sinking 30mA at 24VDC. Open collector outputs will be used for vehicle detection indicators as well as discrete outputs for alarm conditions. The VDP outputs shall be compatible with industry standard detector racks assignments.

D. Logic Inputs - Logic inputs such as delay/extend or delay inhibit shall be supported through the appropriate detector rack connector pin or front panel connector in the case of the I/O module. For VDPs and extension modules, 4 inputs shall be supported via detector rack interface. The I/O module shall accommodate eight (8) inputs through a 15-pin “D” connector.

E. Detection LEDs - Detection status LEDs shall be provided on the front panel. The LEDs shall illuminate when a contact closure output occurs. Rack-mounted video processors shall have a minimum of four (4) LEDs. Rack-mounted extension modules shall have two (2), four (4) or eight (8) LEDs (depending upon extension module type) to indicate detection.

F. Test Switches - The front panel of the VDP shall have detector test switches to allow the user to manually place vehicle and bicycle calls on each VDP output channel. The test switch shall be able to place a momentary call.

G. Both the VDP and EM shall be specifically designed to mount in a standard detector rack, using the edge connector to obtain power, provide contact closure outputs and accept logic inputs (e.g. delay/extend). No adapters shall be required to mount the VDP or EM in a standard detector rack and no rack rewiring shall not be required.

H. VDP printed circuit boards (PCBs) shall be conformally coated in accordance with Caltrans and NEMA specifications.

I. On-board Memory - The VDP shall utilize non-volatile memory technology to store on- board firmware and operational data.

J. Firmware Upgrade - The VDP and CCU shall enable the loading of modified or enhanced software through either the Ethernet or front-panel USB port (using a USB thumb drive) and without removing or modifying the VDP or CCU hardware.

K. VDP and EM Power - The VDP and EM shall be powered by 12 or 24 volts DC. VDP and EM modules shall automatically compensate for either 12 or 24 VDC operation. VDP power consumption shall not exceed 7.5 watts. The EM power consumption shall not exceed 3 watts.

L. Operating Temperature - The VDS shall operate satisfactorily in a temperature range from -30° F to +165° F (-34° C to +74° C) and a humidity range from 0%RH to 95%RH, non- condensing as set forth in NEMA specifications.

2. VDS CCU. The VDS CCU sensor shall be supplied by the VDS manufacturer.

A. Hardware - The CCU shall be supplied in a standard One (1) Rack Unit (1U) 19" rack format. There shall be brackets to allow the CCU to be mounted under shelves where a 19" frame is not available.

B. CCU Power - The CCU shall be powered from an 110V or 230V, 50Hz or 60Hz supply. CCU power consumption shall not exceed 20 Watts.

C. Operating Temperature - The VDS shall operate satisfactorily in a temperature range from -30° F to +165° F (-34° C to +74° C) and a humidity range from 0%RH to 95%RH, non- condensing as set forth in NEMA specifications.

D. On-board Memory - The CCU shall utilize non-volatile memory technology to store on- board firmware and operational data.

E. Video Surge Suppression - The CCU shall incorporate video surge suppression for each video input. The CCU shall be appropriately grounded to the cabinet ground rod using 14 AWG ($2.5mm^2$) minimum.

F. Power Surge Suppression - The CCU shall incorporate power surge suppression both on the input power and on the power supplied to the cameras. The CCU shall be appropriately grounded to the cabinet ground rod using 14 AWG ($2.5mm^2$) minimum.

G. Power Management - The CCU shall incorporate power management for the various parts of the VDS such that if fault conditions are detected the power supply will safely shut down the power to that peripheral.

H. Interfaces

(1) Extension Modules (EM) shall be available to eliminate the need of rewiring the detector rack, by enabling the user to plug an extension module into the appropriate slot in the detector rack to provide additional open collector outputs. The EM shall be available in both 2- and 4-channel configurations. EM configurations shall be programmable from the CCU. A separate I/O module shall also be available having 32 outputs through a 37-pin "D" connector on the front panel and 8 inputs through a 15-pin "D" connector using an external wire harness for expanded flexibility.

(2) The CCU shall provide four ports for connection to VDS camera sensors. The connector shall be an RJ-45 type.

(3) The CCU shall provide four ports for connection to VDPs. The connector shall be an RJ-45 type.

(4) The CCU shall provide 2 USB 'A' ports on the front panel of the rack mount CCU unit. These ports can be utilized for various functions. For example, keyboard and mouse functions during system configuration, USB storage devices can be utilized for bin data and video collection. The USB ports shall not require special mouse software drivers. The USB ports shall be used as part of system setup and configuration.

(5) The CCU shall provide an output to a monitor. The port shall be HDMI.

(6) Communications - An Ethernet communications port shall be provided on the front panel. The Ethernet port shall be compliant with IEEE 802.3 and shall use a RJ-45 type connector mounted on the front panel of the CCU. The Ethernet communications interface shall allow the user to remotely configure the system and/or to extract calculated vehicle/roadway information. The interface protocol shall be documented or interface software shall be provided. Each VDS shall have the capability to be addressable. The VDP shall support data rates of up to100Mbps.

(7) The CCU shall provide an SDLC connection to the Traffic Controller. The connector shall be a 'D-15' type, in compliance with NEMA TS-2 specifications.

(8) The CCU shall provide an indicator when the SDLC port is active.

(9) The CCU shall provide an indicator when the unit has power.

(10) The CCU shall provide an indicator when the unit is on line.

(11) The CCU shall provide a Wi-Fi connection. The connection shall be over a standard 2.4GHz connection. The Wi-Fi connection shall be enabled and disabled by a switch on the CCU. The CCU shall provide an indicator when the Wi-Fi connection is active.

(12) The CCU shall provide system status via an on-board Organic Light Emitting Diode display. The display shall indicate various system parameters, such as camera health and VDP health, firmware version and camera air temperature. The display with be enabled and disabled with a switch on the CCU.

3. VDS Camera Sensor. The VDS camera sensor shall be supplied by the VDS manufacturer.

A. The VDS shall be of the *Vantage Next* type as manufactured by Iteris or equal approved by the Owner and Engineer.

B. The VDS camera sensor shall utilize a single shielded CAT5E or CAT6

cable for power and video. Cable termination at the camera shall not require crimping or special tools. The cable termination shall only require a standard wire stripper and a screw driver. No connectors (e.g. BNC) shall be allowed.

C. The camera sensor shall allow the user to set the focus and field of view via the VDS software. Camera sensor control from the controller cabinet shall communicate over a single Cat- 5e or CAT6 cable. No additional wires shall be required.

D. The camera shall produce a useable video image of the features of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.003 lux to 10,000 lux.

E. The camera electronics shall include automatic gain control (AGC) to produce a satisfactory image at night for the VDS algorithms.

F. The imager luminance signal to noise ratio (S/N) shall be more than 50 dB with the automatic gain control (AGC) disabled.

G. The imager shall employ three dimensional dynamic noise reduction (3D-DNR) to remove unwanted image noise.

H. The camera imager shall employ wide dynamic range (WDR) technology to compensate for wide dynamic outdoor lighting conditions. The dynamic range shall be greater than 100 dB.

I. The camera shall be digital signal processor (DSP) based and shall use a CCD sensing element and shall output color video with resolution of not less than 540 TV lines. The color CCD imager shall have a minimum effective area of 811(h) x 508(v) pixels.

J. The camera shall include an electronic shutter control based upon average scene luminance and shall be equipped with an auto-iris lens that operates in tandem with the electronic shutter. The electronic shutter shall operate between the range of 1/60th to 1/90,000th second.

K. The camera shall utilize automatic white balance.

L. The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier.

M. The horizontal field of view shall be adjustable from 4.5 to 48 degrees. This camera configuration may be used for the majority of detection approaches in order to minimize the setup time and spares required by the

user. The lens shall be a 12x zoom lens with a focal length of 3.5mm to 35mm.

N. The lens shall also have an auto-focus feature with a manual override to facilitate ease of setup.

O. The camera shall incorporate the use of preset positioning that store zoom and focus positioning information. The camera shall have the capability to recall the previously stored preset upon application of power.

P. The camera shall be housed in a weather-tight sealed enclosure. The housing shall allow the camera to be rotated to allow proper alignment between the camera and the traveled road surface.

Q. The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view. The camera enclosure with sunshield shall be less than 3.5" (89mm) diameter, less than 5.25" (133mm) long, and shall weigh less than 2.5 pounds (1.14kg) when the camera and lens are mounted inside the enclosure.

R. The enclosure shall be designed so that the pan, tilt and rotation of the camera assembly can be accomplished independently without affecting the other settings.

S. The camera enclosure shall include a proportionally controlled Indium Tin Oxide (ITO) lens coating for the heating element of the front glass that maximizes heat transfer to the lens. The output power of the heater shall vary with temperature, to assure proper operation of the lens functions at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure. The transparent coating shall not impact the visual acuity and shall be optically clear.

T. The glass face on the front of the enclosure shall have an anti-reflective coating to minimize light and image reflections.

U. When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -30° F to +140° F (-34 °C to +60 °C) and a humidity range from 0% RH to 100% RH. Measurement of satisfactory video shall be based upon VDP system operation.

V. The camera shall be powered by 48VDC. Power consumption shall be 5 watts typical and 16 watts or less under worst conditions.

W. Recommended camera placement height shall be 33 feet (or 10 meters) above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the camera should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance

not to exceed 350 feet (107 meters) for reliable detection (height to distance ratio of 10:100). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

X. The video signal shall be fully isolated from the camera enclosure.

Y. Cable terminations at the camera for video and power shall not require crimping tools.

Z. A weather-proof protective cover shall be provided shall be provided to protect all terminations at the camera. No special tooling shall be required to remove or install the protective cap.

AA. The camera assembly shall include a temperature sensor. The sensor will be polled by the VDS every minute and will supply the current air temperature. The VDS software will display this information on the On-Screen Display for each camera.

4. VDS Software.

A. General System Functions

(1) Detection zones shall be programmed via an embedded application displayed on a video monitor and a keyboard and a pointing device connected to the CCU. The menu shall facilitate placement of detection zones and setting of zone parameters or to configure system parameters. A separate computer shall not be required for programming detection zones or to view system operation. All programming function shall occur on live video images, no snapshots or still images are allowed.

(2) The VDS software shall store up to five completely independent detection zone patterns in non-volatile memory. The VDS can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device. Each configuration shall be uniquely labeled and able to be edited by the user for identification. The currently active configuration indicator shall be displayed on the monitor.

(3) The VDS shall detect vehicles and bicycles in real time as they travel across each detection zone.

(4) The VDS shall accept new detection patterns from an external computer through the Ethernet port when the external computer uses the correct communications protocol for downloading detection patterns. A Windows™-based software designed for local or remote connection and providing video capture, real-time detection indication and detection zone modification capability shall be provided with the system.

The VDS shall have the capability to automatically switch to any one of the stored configurations based on the time of day which shall be programmable by the user.

(5) The VDS shall send its detection patterns to an external computer through the Ethernet port when requested when the external computer uses the appropriate communications protocol for uploading detection patterns.

(6) The VDS shall default to a safe condition, such as a constant call on each active detection channel, in the event of unacceptable interference or loss of the video signal.

(7) The VDS shall be capable of automatically detecting a low-visibility condition such as fog and respond by placing all affected detection zones in a constant call mode. A user-selected alarm output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists. An On-Screen Icon will be displayed while the system is in this mode.

(8) Up to 32 detection zones per camera input shall be supported and each detection zone must be user-sizeable to suit the site and the desired vehicle detection region.

(9) The VDS shall provide up to 32 open collector output channels per camera input using one or more extension modules.

(10) A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may instead be AND'ed together to indicate vehicle presence on a single approach of traffic movement.

(11) When a vehicle is detected within a detection zone, a visual indication of the detection shall activate on the video overlay display to confirm the detection of the vehicle for the zone.

(12) Detection shall be at least 98% accurate in good weather conditions, with slight degradation possible under adverse weather conditions (e.g. rain, snow, or fog) which reduce visibility. Detection accuracy is dependent upon site geometry, camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality.

(13) The VDS shall provide dynamic zone reconfiguration (DZR). DZR sustains normal operation of existing detection zones when one zone is

being added or modified during the setup process. The new zone configuration shall not go into effect until the configuration is saved by the operator.

(14) Detection zone setup shall not require site specific information such as latitude and longitude to be entered into the system.

(15) The VDS shall process the video input from each camera at 30 frames per second. Multiple camera processors shall process all video inputs simultaneously.

(16) The VDS shall output a constant call during the background learning period of no longer than 3 minutes.

(17) Detection zone outputs shall be individually configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

(18) Up to six detection zones per camera view shall have the capability to count the number of vehicles detected. The count value shall be internally stored for later retrieval through the Ethernet port. The zone shall also have the capability to calculate and store average speed and lane occupancy at user-selectable bin intervals of 10 seconds, 20 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes and 60 minutes.

(19) In addition to the count type zone, the VDS shall be able to calculate average speed and lane occupancy for all of the zones independently. These values shall be stored in non-volatile memory for later retrieval.

(20) The VDS shall have an “advance” zone type where raw detection output duration to the traffic controller is compensated for angular occlusion and distance.

(21) The VDS shall employ color overlays on the video output.

(22) The VDS shall have the ability to show controller phase status (green, yellow, or red) for up to 8 phases. These indications shall also be color coded.

(23) The user shall have the ability to enable or disable the display of the phase information on the video output.

(24) The VDS shall have the capability to change the characteristics of a detection zone based on external inputs such as signal phase. Each detection zone shall be able to switch from one zone type (i.e. presence, extension, pulse, etc.) to another zone type based on the signal state. For example, a zone may be a “count” zone when the phase is green

but change to a “presence” zone type when the phase is not green. Another application would be zone type of “extension” when the signal phase is green and then “delay” when red.

(25) The VDS software shall aid the user in drawing additional detection zones by automatically drawing and placing zones at appropriate locations with only a single click of the mouse. The additional zone shall utilize geometric extrapolation of the parent zone when creating the child zone. The process shall also automatically accommodate lane marking angles and zone overlaps.

(26) When the user wishes to modify the location of a zone, the VDS software shall allow the user move a single zone, multiple zones or all zones simultaneously.

(27) When the user wishes to modify the geometric shape of the zone, the VDS software shall allow the user to change the shape by moving the zone corner or zone sides.

(28) On screen zone identifiers shall be modifiable by the user. The user shall be allowed to select channel output assignments, zone type, input status, zone labels or zone numbers to be the identifier.

(29) The VDS software shall support bicycle type zones where the zone can differentiate between motorized vehicles and bicycles, producing a call for one but not the other.

(30) Bicycle zone types shall only output when a bicycle is detected. Larger motorized vehicles such as cars and trucks that traverse a bicycle zone shall not provide an output.

(31) The VDS software shall provide the ability to assign a separate output channel for bicycle zones to allow traffic controllers to implement special bicycle timing.

(32) Placement of bicycle type zones in vehicle lanes shall be allowed.

(33) Upon detection of a bicycle, the video output overlay shall indicate active detection as well as providing a unique bicycle detection identifier to visually distinguish bicycle detection versus vehicle detection.

(34) Up to six bicycle detection zones per camera view shall have the capability to count the number of bicycles detected in addition to their normal detection function. The count value shall be internally stored for later retrieval through the Ethernet port.

(35) Automatic Traffic Volume Graph - The On-Screen Display shall include an Automatic Traffic Volume graph. This graph will display

estimated Vehicles Per Hour (VPH) per movement for each camera view. The graph will display a rolling 24 hour period of VPH.

(36) Occupancy Graph - The On-Screen Display shall include an Occupancy Graph. This graph will display estimated approach occupancy for each camera view. The graph will display a rolling 24 hour period of Occupancy.

B. User Interfaces - This section sets forth the minimum requirements for the VDS to provide a single point interface to remote and local users. The VDS shall also have the capability to stream up to four simultaneous video streams over an Ethernet interface.

(1) The user interface shall provide capabilities to enable multiple rack-mounted video detection processors to be locally and remotely accessed from a single point via an Ethernet connection.

(2) The device shall allow the operator to view four videos simultaneously or any one video by controls embedded in the VDS.

(3) Local user access to video detection programming shall be limited to the detection processor unit that is currently being displayed on the monitor.

(4) All local programming and setup parameters for the video detection processor shall be user accessible through the interface unit without requiring the user to swap user interface cables between video detection processors.

(5) Remote access to the device shall be through the built-in Ethernet port via access software running on a Microsoft Windows based personal computer.

(6) A Windows OS remote access firmware shall also be available for remote setup and diagnostics of the interface unit.

(7) The VDS shall support streaming video technology using H.264 standards to allow the user to monitor video detection imagery over the Ethernet interface. Motion JPEG streaming video shall not be allowed.

(8) The interface unit shall allow eight independent streams, one from each video processor, to be transported via Ethernet to four independent streaming video players simultaneously in D1 resolution.

(9) The interface shall allow the user to select the resolution of the displayed streamed video.

(10) The interface unit shall support the streaming and display of eight

concurrent streams in D1 resolution.

(11) The VDS shall allow the user to manage the unit's Ethernet bandwidth usage by allowing the user to select high, medium or low resolution.

(12) The interface shall allow the user to change the unit's Ethernet network settings of IP address, subnet mask and default gateway.

(13) The VDS shall allow the user to upload new application firmware through the use of the interface, remotely or on-site.

(14) A Windows OS based application will be provided to remotely view video streams from the VDS.

(15) An iOS based application will be provided to remotely view video streams from the VDS. This application shall allow the user to choose between any number of pre- configured intersection locations. The live video from any cameras at that location will be viewable on an iOS product, including the vehicle and bicycle detections occurring in real-time.

c. SDLC Functionality. This section sets forth the minimum requirements for a full-function BIU and integrated video detection communication. The VDS shall provide outputs to the controller of vehicle calls from video processors that reside within the detector rack**.**

1. Functional Capabilities - The VDS shall have the capability of monitoring phase information and passing that information and other system data such as "time" from the controller to video detection processor modules. The VDP shall also accept data from video processor modules and relay the information to the controller. The unit shall provide a maximum of 64 detector outputs to the controller via the SDLC interface.

2. Requirements - The module shall be in compliance with the following industry specifications:

   A. Transportation *Electrical Equipment Specifications (TEES)*, August 16, 2002 (or latest edition), California Department of Transportation

   B. *NEMA* Standard *Publication TS 1-1989* (or latest edition), *Traffic Control Systems,* National Electrical Manufacturers Association

   C. *NEMA* Standard *Publication TS 2-2003, Traffic Controller Assemblies With NTCIP Requirements, Version 02.06* (or latest edition), National Electrical Manufacturers Association

3. Data Interfaces - The VDS shall have two data interfaces:

The interface to the controller shall be accomplished by the use of the TS-2 SDLC port and protocol in accordance with the TS-2 specifications. The module shall be able to be configured to respond to BIU addresses 8, 9, 10 and 11 or a combination thereof.

The interface to communicate with card rack video detection processors shall be manufacturer specific.

4. SDLC Communication Indicators - One LED indicator shall be provided for the TS-2 SDLC interface. The indicator shall be used to inform the user of any communication activity on the SDLC port.

d. Warranty.

1. The supplier shall provide a limited three-year warranty on the video detection system.

2. During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

3. During the warranty period, updates to VDP software shall be available from the supplier without charge.

4. The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

5. The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on site technical support services.

6. Installation or training support shall be provided by a factory-authorized representative and shall be a minimum IMSA-Level II Traffic Signal Technician certified.

7. All product documentation shall be written in the English language.

e. Construction. The cable to be used between the camera and the CCU in the traffic cabinet shall be Cat-5e, shielded, direct burial. This cable shall be suitable for installation in conduit or overhead with appropriate span wire. Shielded RJ-45 connectors shall be used where applicable. The Cat-5e cable, RJ- 45 connector, stripping and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

The video detection camera shall be installed by factory-certified installers as recommended by the supplier and documented in installation materials provided by the supplier. Proof of factory certification shall be provided.

f. 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**
Modular Video Detection System	Each