Central County Transportation Authority
Purchasing Division
241 W. South Street
Kalamazoo, MI 49007
Phone: 269.337.8020
www.kmetro.com

INVITATION FOR BID (IFB)

The Central County Transportation Authority is soliciting sealed bids for:

PROJECT NAME: Rood Hall Bus Stop Site Improvements

BID REFERENCE #: 91244-053.0

IFB ISSUE DATE: June 25, 2026

BID DUE/ OPENING DATE: July 16, 2026 @ 3:30 p.m. Local Time.
Electronic Proposals Will Not Be Accepted

MAILING ADDRESS & INSTRUCTIONS

Mail to:
City Hall c/o CCTA
241 W. South Street
Kalamazoo, MI 49007

Questions about this IFB should be directed to:
Department Contact: Rob Branch
Director of Fleet and Facilities
(269) 337-8235 branchr@kmetro.com

You are invited to submit a bid for this project. Specifications, terms, conditions and instructions for submitting bids are contained herein. This Invitation for Bid with all pages, documents and attachments contained herein, or subsequently added to and made a part hereof, submitted as a fully and properly executed bid shall constitute the contract between the CCTA and the successful bidder when approved and accepted on behalf of the CCTA by an authorized official or agent of the CCTA. 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/Risk Management Division at the above address. **BIDS MUST BE RECEIVED BEFORE THE DUE DATE - LATE BIDS WILL NOT BE CONSIDERED.** The CCTA reserves the right to postpone the bid opening for its own convenience.

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CCTA – INVITATION FOR BIDS
Rood Hall Bus Stop Site Improvements **Bid Reference #: 91244-053.0**

STATEMENT OF NO BID

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

The Purchasing Division of the CCTA wishes to keep its proposers' 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 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 proposers 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: _____ 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 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 Referencing Rood Hall Bus Stop Site Improvements,** 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 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 ***ROOD HALL BUS STOP SITE IMPROVEMENTS***, meeting or exceeding the specifications as set forth herein for the price as stated below.

ROOD HALL BUS STOP SITE IMPROVEMENTS- WMU CAMPUS (per Attachment A&B)

ITEM	ITEM DESCRIPTION	UNIT	QTY	TOTAL LUMP SUM PRICE
1	Complete in a professional manner the ROOD HALL BUS STOP SITE IMPROVEMENTS, per specifications and plans.	LS	1	$

Contact person for order releases shall be:

Name: _____ Phone: _____

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

Addendum No: _____ _____ _____ _____ _____

Dated: _____ _____ _____ _____ _____

Proposer 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.**

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 CCTA's Non-Discrimination Clause found in Appendix A as updated by City Ordinance 1856.

Signed: _____ Name: _____

Title: _____

Bidder's Form

(Please return this form with your bid submission.)

Firm Name: _____

Address: _____
Street City State Zip

Website: _____

Contact: _____ _____
Name Title

Phone: (_____)_____-_____

Fax: (_____)_____-_____

Email: _____

Years in Business: _____

Number of Employees: _____

Annual Gross Receipts of your firm:

☐ under $150,000

☐ $150,001 to $300,000

☐ $300,001 to $500,000

☐ $500,001 and up

Special Status:

☐ DBE ☐ Small Business

BLANK forms are NOT acceptable. If DBE subcontractor opportunities are available, please fill out sections 1 through 5. If there are no subcontractor opportunities available fill out section 6.
SIGNATURE ARE REQUIRED.

DBE PARTICIPATION FORM

Separate information is required for each DBE subcontractor. This form may be duplicated as necessary.

1) DBE Firm Name: _____

   Address: _____

   _____

2) Dollar amount awarded: _____

3) Description of work to be performed: _____

   _____

   _____

4) CONTRACTOR'S COMMITMENT TO USE DBE FIRM

   _____ is committed to utilize the DBE contractor
   (Name of Contractor)
   in the manner and amount described on this form.

   Dated _____ _____
   (Authorized Signature)

5) DBE'S COMMITMENT TO PARTICIPATE

   _____, as a DBE firm, is committed to perform
   (Name of subcontractor/supplier)
   the work as described above for the amount specified.

   Dated _____ _____
   (Authorized Signature)

6) NO SUBCONTRACT OPPORTUNITIES, AVAILABLE.

   _____, has no subcontractor opportunities
   (Name of subcontractor/supplier)
   available for work to be performed.

   Dated _____ _____
   (Authorized Signature)

DBE PARTICIPATION FORM

Instruction Diagram

Separate information is required for each DBE subcontractor. This form may be duplicated as necessary.

DBE Firm Name: _____ Sub contractor name and address _____

Address: _____

1) Dollar amount awarded: _____ Amount awarded to Sub contractor

2) Description of work to be performed: _____ Work description. _____

_____

4. **CONTRACTOR'S COMMITMENT TO USE DBE FIRM** Prime contractor fills out.

_____ is committed to utilize the DBE contractor to
(Name of Contractor)

utilize the above named DBE subcontractor/supplier in the manner and amount described on this form.

Dated _____ _____
(Authorized Signature)

5. **DBE'S COMMITMENT TO PARTICIPATE** Sub contractor fills out.

_____, as a DBE firm, is committed to perform the
(Name of subcontractor/supplier)

work as described above for the amount specified.

Dated _____ _____
(Authorized Signature)

6. **NO SUBCONTRACT OPPORTUNITIES, AVAILABLE.** Prime contractor fills out.

_____, has no subcontractor opportunities
(Name of subcontractor/supplier)

available for work to be performed.

Dated _____ _____
(Authorized Signature)

DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

As required by U.S. Department of Transportation regulations on Government and Suspension at 49 CFR 29.510, the Contractor certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

(2) Have not within a three-year period preceding this bid been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) transaction or contract under a public transaction; violation of Federal or state anti-trust statutes; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

(3) Are not presently indicted or otherwise criminally or civilly charged by a government entity (Federal, state, or local) with the commission of any of the offenses listed in paragraph (2) of this certification.

(4) Have not within a three-year period preceding this contract had one or more public transactions (Federal, state, or local) terminated for cause of default.

The contractor certifies that if it becomes aware of any later information that contradicts the statements of paragraphs (1) through (4) above, it will promptly inform FTA. Should the contractor be unable to certify the statements of paragraphs (1) through (4) above, it shall acknowledge on its signature page and provide a written explanation to FTA.

_____
Signature of Authorized Individual

_____
Title

The certification must be attached and returned with any bid equal to or exceeding $25,000.

CERTIFICATION OF COMPLIANCE WITH FEDERAL CONTRACT CLAUSES

As required by Federal Transit Administration Circular FTA C 4220.1F Third Party Contracting Guidance, Rev. 4, March 18, 2013, and all subsequent editions, as available on FTA's website, www.fta.dot.gov and http://www.KMTS.org/about-metro/purchasing-info

_____ acknowledges receipt of the Contract Clauses available
(Vendor Name)

at http://www.KMTS.org/about-metro/purchasing-info and certifies compliance with all federal

requirements for items and services being purchased by the CCTA.

_____

VENDOR REPRESENTATIVE, TITLE

_____ _____

SIGNATURE (Vendor Representative) Date

BIDDERS QUESTIONNAIRE

Please answer the following questions completely on this form.

1. Firm name: _____

2. Address and telephone number:

   _____

   _____

   _____

3. Established: Year _____ State _____

4. Type of organization:

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

5. State time frame from contract award to when all vehicles completed:

   _____

   _____

6. State length of time the workmanship will be under warranty:

   _____

   _____

7. Warranty Service will be provided by:

   Name and Contact:_____

   Address:_____

   Phone: _____

8. Provide three current references.

   Agency Name: _____

   Address: _____

   Contact Person/Title: _____

   Phone Number: _____

   Type of Service Provided: _____

BIDDER'S QUESTIONAIRE, continued.

Agency Name: _____

Address: _____

Contact Person/Title: _____

Phone Number: _____

Type of Service Provided: _____

Agency Name: _____

Address: _____

Contact Person/Title: _____

Phone Number: _____

Type of Service Provided: _____

9. State any deviations from the specifications listed under Section III.

_____

_____

_____

_____

_____

_____

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 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 CCTA. 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 CCTA that would tend to destroy or hinder free competition.

The firm's identification information provided will be used by the CCTA 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: _____EMAIL ADDRESS: _____

FOR CCTA USE ONLY - DO NOT WRITE BELOW

SECTION III
SPECIFICATIONS AND REQUIREMENTS

1. SCOPE OF WORK

Complete in a professional manner the ROOD HALL BUS STOP SITE IMPROVEMENTS, per specifications and plans. The Scope of the work is to construct the new Rood Hall Bus Stop on the Western Michigan University Campus for METRO Transit.

The project work includes the removal of the existing concrete bus pads, which currently house three bus shelters. Note that the bus shelters and the benches will be removed by others in advance of this construction project. The project includes grading the area to place a granular material subbase surface to prepare the area for concrete. The Contractor will place the foundations for the bus shelters and bike shelter. The Contractor will place the concrete pad to receive the bus and bike shelters. The Contractor will place soil erosion and sediment control as required and will restore the topsoil and establish turf in the disturbed areas.

Areas noted on Phase 2 will be included in the work if funding permits.

Phase 2 areas are shown for information only. Phase 2 areas may be added or may be a part of a future project. Phase 2 areas include similar work as noted above. Phase 2 work includes the removal of the turf and mulch surface. The Phase 2 project includes grading the area to place a granular material subbase surface to prepare the area for concrete. Place the Phase 2 area concrete sidewalk.

These Specifications
• Attachment A&B –
Western Michigan University
Rood Hall Bus Stop Site Improvements
KALAMAZOO, MICHIGAN 49008
SECTION 20, T01S, R11W
2101 WILBUR STREET

2. TIMELINE

<u>The project must be completed by: 25 days after Notice to Proceed.</u> If you cannot meet this deadline, please fill out the "Statement of No Bid" form included in this packet, stating this as the reason.

3. DBE CONTRACTOR COMPLIANCE

3.1 The selected Contractor and its subcontractors shall agree to ensure that disadvantaged businesses have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds provided under this Agreement. In that regard, all Contractors and subcontractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 as amended, to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts.

3.2 Where the Contractor is found to have failed to exert sufficient reasonable and good faith efforts to involve DBEs in the work provided, Kalamazoo Metro Transit may declare the Contractor noncompliant and in breach of contract.

3.3 The Contractor shall keep records and documents for a reasonable time following performance of this contract to indicate compliance with Kalamazoo Metro Transit's DBE program. These records and documents will be made available at reasonable times and placed for inspection by an authorized representative of Kalamazoo Metro Transit and will be submitted to Kalamazoo Metro Transit upon request.

3.4 The contractor, sub-recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

3.5 The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than thirty (30) days from the receipt of each payment the prime contract receives from CCTA. The prime contractor agrees further to return retainage payments to each subcontractor within thirty (30) days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above-mentioned time frame may occur only for good cause following written approval of the CCTA. This clause applies to both DBE and non-DBE subcontracts. Non-compliance with this clause will be considered default under the contract.

4. POST DUE DATE INFORMATION

After receiving bids, the CCTA may request further information or clarification in selected areas. Requested information shall be provided by the proposer either in writing or by oral presentations at no additional cost to the CCTA.

5. AWARD CRITERIA

Award will be made on an aggregate basis, not split.

6. PROJECT MANAGEMENT

The department contact shall have the general authority over the services provided and to make any changes necessary in meeting the CCTA's requirements.

7. PRICE ADJUSTMENTS

7.1 No increases over the base bid period will be allowed the Contractor without prior written authorization from the City Purchasing Manager, and then only after receipt of documentation from the Contractor's suppliers(s) showing the basis for and the amount of increase, and that the increase applies to all customers. **In the event that a price increase is not approved by the Purchasing Department, CCTA / METRO reserves the right to terminate this contract.**

7.2 No increases over the base bid price will be permitted to compensate the Contractor for inefficiency or errors in judgment, increases in labor cost or profit.

8. TERMS AND CONDITIONS

The CCTA standard Terms and Conditions in Section V, which will become a part of the Invitation for bid, are attached for your information. It is expected that these terms and conditions will form any contract resulting from this Invitation for Bid. If any additional terms and conditions are proposed, they shall be submitted with the bid and will be considered during the selection process.

9. INVOICING

All original invoice(s) will be sent to CCTA, 530 North Rose Street, Kalamazoo, MI 49007 or via email at finance@kmetro.com . Faxed copy of invoice(s) will not be accepted, unless it is to replace an original invoice that was lost in the mail. The CCTA processes payments after receipt of an original invoice from the Contractor and approval by the department.

CCTA 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. To guarantee payment to the vendor on a timely basis, the vendor needs to receive a purchase order number before supplying CCTA with goods or services. All original, and copies of original invoice(s), will clearly state which purchase order they are being billed against.

The CCTA is a government municipality and therefore is tax exempt from all sales tax. Our tax-exempt number is 47-5061737.

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

10. QUESTIONS

Questions relative to the bid specifications may be addressed to Tom J. Hohm, Senior Civil Project Manager, at (269) 544 – 1455, or tomh@driesenga.com. Questions relative to the bid requirements may be addressed to Kyle Dunn, Buyer, at (269) 337-8720, or dunnk@kalamazoocity.org. This does not relieve the requirements of Page 1, Item 3.

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 CCTA 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 Central County Transit Authority. 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 Central County Transit Authority 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 Central County Transit Authority 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.

SECTION V
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 doing business in the State of Michigan with a rating of A- or better from the A.M. Best Company. All coverage shall be with insurance carriers acceptable to the CCTA and be furnished within ten (10) days of Notice of Award.

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 CCTA, 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 CCTA as additional insured, coverage afforded is considered to be primary and any other insurance the CCTA 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 CCTA, its elected and appointed officials, employees, agents and volunteers, and others working on behalf of the CCTA 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 CCTA, 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: CCTA, Purchasing Department, 241 W. South Street, Kalamazoo, MI 49007.

Proof of Insurance Coverage: The Contractor shall provide the CCTA, at the time that the contracts are returned to the CCTA for execution, a copy of Certificates of Insurance as well as 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 for all coverage as listed above or within 10 days of Notice of Award.

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

INDEMNITY AND INSURANCE
CONTINUED

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 CCTA 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 VI
TERMS AND CONDITIONS

1. **AWARD OF CONTRACT**

   A. The contract will be awarded to that responsible proposer whose bid, conforming to this solicitation, will be most advantageous to the CCTA according to the criteria outlined herein. The CCTA reserves the right to accept or reject any or all bids and waive informalities and minor irregularities in bids received. The award of this Contract shall be in its entirety to the Proposer determined to be most responsive and responsible.

   B. Notification of award will be in writing by the Purchasing Manager. Upon notification, the Consultant/ Professional Firm (hereinafter Firm) 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 CCTA, the Purchasing Manager will forward to the Firm a written **NOTICE TO PROCEED**. Work shall **NOT** be started until such **NOTICE TO PROCEED** is received by the Firm.

   C. Unilateral changes in bid prices by the proposer shall not be allowed. However, the CCTA, at its sole option, reserves the right to negotiate with proposers.

2. **INVITATION FOR BID AS CONTRACT**

   Should modifications (after bid opening) NOT be necessary; this Invitation for Bid (IFB) will be executed as the contract. In the event modifications of any nature do occur, a separate agreement shall be negotiated containing mutually agreeable terms and conditions from this Invitation for Bids and any addenda.

3. **SUBCONTRACTORS - NON-ASSIGNMENT**

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

   The Firm hereby agrees and understands that the contract resulting from this bid shall not be transferred, assigned, or sublet without prior written consent of the CCTA.

4. **TAXES**

   The CCTA is exempt from all federal excise tax and state sales and use taxes. However, depending upon the situation, the vendor or Firm may not be exempt from said taxes and the CCTA is making no representation as to any such exemption.

5. **PAYMENTS**

   Unless otherwise specified by the CCTA in this bid, the Firm will be paid in not more than thirty (30) days after receipt of a properly executed invoice, the sum stipulated herein for service rendered and accepted. Payments are processed by the Budget and Accounting Division after receipt of an original invoice from the Firm and approval by the department.

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

   The CCTA reserves the right to increase or decrease services 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 Firm and the CCTA.

   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 Manager. CCTA Commission approval may also be required. **SUCH CHANGES, IF PERFORMED IN ADVANCE OF PURCHASING MANAGER APPROVAL, MAY BE SUBJECT TO DENIAL AND NON-PAYMENT.**

7. **LAWS, ORDINANCES AND REGULATIONS**

The Firm shall keep themselves 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. The Firm 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 Firm.

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

8. **RIGHT TO AUDIT**

The CCTA or its designee shall be entitled to audit all the Firm's records, and shall be allowed to interview any of the Firm'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. Firm's compliance with contract requirements,
B. Compliance with provisions for pricing change orders, invoices or claims submitted by the Firm or any of their payees.

9. **HOLD HARMLESS**

If the acts or omissions of the Contractor/Vendor or its employees, agents or officers, cause injury to person or property, the Contractor/Vendor shall defend, indemnify, and save harmless the CCTA, 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.

10. **DEFAULT**

The CCTA may at any time, by written notice to the Firm, terminate this contract and the Firm'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 perform the services within the time specified herein, or any extension thereof.

C. Failure to make progress if such failure endangers performance of the contract in accordance with its terms.

D. Failure to perform in compliance with any provision of the contract.

E. **Standard of Performance** - Firm guarantees to perform the services rendered herein in accordance with the accepted standards of the industry or industries concerned herein, except that if the specifications call for higher standards, then such higher standards shall be provided.

Upon notice by the CCTA of the Firm's failure to comply with such standards or to otherwise be in default of this contract in any manner following the Notice to Proceed, the Firm shall immediately remedy said defective performance in a manner acceptable to the CCTA. Should the Firm 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 CCTA.

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

DEFAULT *(Cont.)*

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

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

F. All remedies available to the CCTA herein are cumulative and the election of one remedy by the CCTA shall not be a waiver of any other remedy available to the CCTA, either listed in this contract or available by operation of law.

11. **INDEPENDENT CONTRACTOR**

At all times the Firm, any of its employees, or its sub-contractors, and their subsequent employees shall be considered independent contractors and not as CCTA 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 its employees be entitled to CCTA paid sick leave, pension benefit, vacation, medical benefits, life insurance or workers' unemployment compensation or the like.

12. **CCTA'S RESPONSIBILITIES**

The CCTA agrees to provide full, reliable information regarding its requirements for the Project and, at its expense, shall furnish the information, surveys, and reports, if any, as described in the specifications. In addition, the CCTA agrees to provide, at its expense and in a timely manner, the cooperation of its personnel and such additional information with respect to the Project as may be required from time to time, to be provided by the CCTA for the performance of the Firm's work.

13. **TERMINATION**

This Agreement may be terminated by either the CCTA or the Firm by giving written notice at least thirty (30) days prior to the date of termination.

A. In the event of such termination by the Firm, the CCTA, together with any other remedies which are legally available, may withhold any subsequent payment due under this agreement until such time as the services required to be performed under this Agreement have been completed by the CCTA or another firm. In the event that the CCTA incurs additional expenses caused directly or indirectly by the termination of this Agreement, together with such other remedies as are legally available, the CCTA shall be entitled to deduct such expenses from any unpaid amount due to the Firm under this agreement.

B. In the event of such termination by the CCTA, the CCTA shall pay the Firm for services and reimbursable expenses performed or incurred prior to the termination date plus all costs and expenses directly attributable to such termination for which the Firm is not otherwise compensated.

14. **NO WAIVER**

Either party's failure to insist on strict performance of any term or condition of the contract shall not be deemed a waiver of that term or condition even if the party accepting or acquiescing in the nonconforming performance knows of the nature of the performance and fails to object to it

APPENDIX A
NON-DISCRIMINATION CLAUSE FOR ALL CCTA 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 job or position. Such action should 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 compensation; 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 CCTA, 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 CCTA 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 with parties employing less than three employees. 1-2010

APPENDIX B
APPLICATION OF FEDERAL TRANSIT ADMINISTRATION REGULATIONS AND REQUIREMENTS

To achieve compliance with changing Federal requirements, the CCTA hereby includes notice that Federal requirements may change and the changed requirements will apply to this contract, as applicable, unless the Federal government determines otherwise.

The contractor also recognizes that the United States Environmental Protection Agency, Federal Highway Administration, and other agencies in the Federal Government have issued and are expected to issue regulations, guidelines, orders, or other requirements that may affect this contract. The Contractor acknowledges that other obligations relative to this contract involving Federal law may exist.

The CCTA has agreed to include provision adequate to ensure compliance of participation entities with Federal requirements. The contractor agrees to include in its subcontracts for service under this contract provisions adequate to impose Federal requirements including those below:

For all Contracts:

NOTICE OF FEDERAL REQUIREMENTS: The contractor shall comply with the rules of 49 CFR Part 18, relative to third party contracts with the CCTA, Uniform Administrative Requirements for Grants and Cooperative Agreements.

INTEREST OF MEMBERS OR DELEGATES TO CONGRESS: No member or delegate to the Congress of the United States shall be admitted to any share or part of this project or any benefit therefrom.

ENERGY CONSERVATION REQUIREMENTS: The contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

ACCESS TO RECORDS (sole source or offer): The contractor agrees to provide the CCTA, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions. Contractor also agrees, pursuant to 49 C.F.R. 633.17 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309, or 5311. The contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed. The Contractor agrees to maintain all books, records, accounts, and reports required under this contract for a period of not less than three years, after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case contractor agrees to maintain same until the Metro Transit System, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims, or exceptions related thereto. Reference 49 CFR 18.39(I)(11).

CONTRACTS INVOLVING FEDERAL PRIVACY ACT REQUIREMENTS (applies to the contractor and its employees that administer any system of records on behalf of the Federal Government under any contract. Specific attention is drawn to contractors administering drug and alcohol enforcement activities for FTA): (1) The contractor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. subsection 552a. Among other things, the contractor agrees to obtain the express consent of the Federal Government before the contractor or its employees operate a system of records on behalf of the Federal Government. The contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract. (2) The contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

FEDERAL CHANGES: Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Agreement (Form FTA MA (2) dated October, 1999) between the Metro Transit System, and the FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

RECOVERED MATERIALS: The contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designed in Subpart B of 40 CFR Part 247.

NO OBLIGATIONS BY THE FEDERAL GOVERNMENT: (1) The Metro Transit System and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government or in approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the Purchaser, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract. (2) The contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS: These provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1D, dated April 15, 1996, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Kalamazoo Metro Transit requests which would cause Kalamazoo Metro Transit to be in violation of the FTA terms and conditions.

PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS: (1) The contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. subsection 3801 et seq. And U.S. DOT regulations, Program Fraud Civil Remedies, 49 CFR Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assistance project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate. (2) The contractor also

acknowledges that if it makes or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. subsection 5307, the Government reserves the right to impose the penalties of 18 U.S.C. subsection 1001 and 49 U.S.C. subsection 5307(n)(1) on the contractor, to the extent the Federal Government deems appropriate. (3) The contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by the FTA. It is further agreed that the clauses shall not be modified, except to identify the contractor who will be subject to the provisions.

DISADVANTAGED BUSINESS ENTERPRISE PROVISION: The Federal Fiscal Year goal has been set by Kalamazoo Metro Transit in an attempt to match projected procurements with available qualified disadvantaged businesses. Kalamazoo Metro Transit goals for budgeted service contracts, bus parts, and other material and supplies for Disadvantaged Business Enterprises have been established by Kalamazoo Metro Transit as set forth by the Department of Transportation Regulations 49 C.F.R. Part 23, March 31, 1980, and amended by Section 106(c) of the Surface Transportation Assistance Act of 1987, and is considered pertinent to any contract resulting from this solicitation.

(1) Policy. It is the policy of the Department of Transportation and Kalamazoo Metro Transit that Disadvantaged Business Enterprises, as defined in 49 CFR Part 23, and as amended in Section 106(c) of the Surface Transportation and Uniform Relocation Assistance Act of 1987, shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this Agreement. Consequently, the DBE requirements of 49 CFR Part 23 and Section 106(c) of the STURRA of 1987, apply to this contract.

The Contractor agrees to ensure that DBEs as defined in 49 CFR Part 23 and Section 106(c) of the STURAA of 1987 have the maximum opportunity to participate in the whole or in part with federal funds provided under this Agreement. In this regard, the Contractor shall take all necessary and reasonable steps in accordance with the regulations to ensure that DBEs have the maximum opportunity to compete for and perform subcontracts. The contractor shall not discriminate on the basis of race, color, national origin, religion, sex, age, or physical handicap in the award and performance of subcontracts. It is further the policy of Kalamazoo metro Transit to promote the development and increase the participation of businesses owned and controlled by disadvantaged individuals. DBE involvement in all phases of Kalamazoo Metro Transit procurement activities are encouraged.

(2) DBE obligation. The contractor and its subcontractors agree to ensure that disadvantaged businesses have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds provided under this Agreement. In that regard, all Contractors and subcontractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 as amended, to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts.

(3) Where the contractor is found to have failed to exert sufficient reasonable and good faith efforts to involved DBEs in the work provided, Kalamazoo Metro Transit may declare the contractor noncompliant and in breach of contract.

(4) The contractor will keep records and documents for a reasonable time following performance of this contract to indicate compliance with Kalamazoo Metro Transit's DBE program. These records and documents will be made available at reasonable times and placed for inspection by an authorized representative of Kalamazoo Metro Transit and will be submitted to Kalamazoo Metro Transit upon request.

(5) Kalamazoo Metro Transit will provide affirmative assistance as may be reasonable and necessary to assist the prime contractor in implementing their programs for DBE participation. The assistance may

include the following upon request: identification of a qualified DBE; available listing of minority assistance agencies; holding bid conferences to emphasize requirements.

(6) Definitions:

X Disadvantaged business: A small business concern which is at leave 51 percent owned by one or more socially and economically disadvantaged individuals, or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more socially and economically disadvantaged individuals; and whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it - OR - Which is at least 51 percent owned by one or more women, or in the case of public owned business, at least 51 percent of the stock of which is owned by one or more women; and, whose management and daily business operations are controlled by one or more women who own it.

X Small Business Concern: A small business, as defined by Section 3 of the Small Business Act and Appendix B - (Section 106(c)) Determinations of Business Size.

X Socially and economically disadvantaged individuals: Those individuals who are citizens of the United States or lawfully admitted permanent residents and who are black Americans, Hispanic Americans, native Americans, Asian-Pacific Americans, Asian-Indian Americans, or women, or any other minorities or individuals found to be disadvantaged by the Small Business Administration pursuance to section 8(a) of the Small Business Act. Black Americans includes persons having origins in any of the Black racial groups of Africa; Hispanic Americans includes persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race; Native Americans includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians; Asian-Pacific Americans includes persons whose origins are from Japan, China, Taiwan, Korea, Vietnam, Laos, Cambodia, the Philippines, Samoa, Guam, the U.S. Trust Territories of the Pacific, and the Northern Marianas; AAsian-Indian Americans includes persons whose origins are from India, Pakistan, and Bangladesh.

TRANSIT EMPLOYEE PROTECTIVE PROVISIONS: (1) The contractor agrees to comply with applicable transit employee protective requirements, as follows: (a) General Transit Employee Protective Requirements. To the extent that FTA determines that transit operations are involved, the contractor agrees to carry out the transit operations work on the underlying contract in compliance with terms and conditions determined by the U.S. Secretary of Labor to be fair and equitable to protect the interests of employees employed under this contract and to meet the employee protective requirements of 49 U.S.C. subsection 5333(b), and U.S. DOL guidelines at 29 CFR Part 215, and any amendments thereto. These terms and conditions are identifies in the letter of certification from the US DOL to FTA applicable to the FTA Recipient's project from which Federal assistance is provided to support work on the underlying contract. The Contractor agrees to carry out that work in compliance with the conditions stated in that US DOL letter. The requirements of this subsection (1), however, do not apply to any contract financed with Federal assistance provided by FTA either for projects for elderly individuals and individuals with disabilities authorized by 49 U.S.C. subsection 5310(a)(2), or for projects for nonurbanized areas authorized by 49 U.S.C. subsection 5311. Alternate provisions for those projects are set forth in subsections (b) and (c) of this clause. (b) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. subsection 5310(a)(2) for Elderly Individuals and Individuals with Disabilities. If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. subsection 5310(a)(2), and if the US Secretary of Transportation has determined or determines in the future that the employee protective requirements of 49 U.S.C. subsection 5333(b) are necessary or appropriate for the state and the public body subrecipient for which work is performed on the underlying contract, the contractor agrees to carry out the Project in compliance with the terms and conditions determined by the U.S. Secretary of Labor to meet the requirements of 49 U.S.C. subsection 5333(b), US DOL guidelines at 29 CFR Part 215, and any amendments thereto. These terms and conditions are identified in the US DOL's letter of certification to FTA, the date of which is set forth Grant Agreement or Cooperative Agreement with the state. The contractor agrees to perform transit operations in connection with the underlying contract in compliance with the conditions stated in that US DOL letter. (c) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. subsection 5311 in Nonurbanized areas. If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. subsection 5311, the contractor agrees to comply with the terms and conditions of the Special Warranty for the Nonurbanized Area Program agreed to by the US Secretaries of Transportation and Labor, dated May 31, 1979, and the procedures implements by US DOL or any revision thereto. (2) The contractor also agrees to include any applicable requirements in each subcontract involving transit operations financed in whole or in part with Federal assistance provided by the FTA.

ACCESS REQUIREMENTS FOR PERSONS WITH DISABILITIES: The contractor agrees to comply with all applicable requirements of the Americans with Disabilities Act of 1990 (ADA) as amended, 42 USC subsection 12101, et seq; Section 504 of the Rehabilitation Act of 1973, as amended, 29 USC, subsection 794, 49 USC subsection 5301(d), and the following Federal regulations, as they relate to this contract:

(1) United States Department of Transportation regulations, Transportation Services for Individuals with Disabilities (ADA), 49 CFR Part 37.

(2) United States Department of Transportation regulations, Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefitting from Federal Financial Assistance, 49 CFR Part 27.

(3) United States Department of Transportation regulations, Americans with Disabilities Act (ADA) Accessibility Specifications for Transportation Vehicles, 49 CFR Part 38.

(4) United States Department of Justice regulations, Nondiscrimination on the Basis of Disability in State and Local Government Services, 28 CFR Part 35.

(5) United States Department of Justice regulations, Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities, 28 CFR Part 36.

(6) United States General Services Administration regulations Accommodations for the Physically Handicapped, 41 CFR Subparts 101-19.

(7) United States Equal Employment Opportunity Commission, Regulations to Implement the Equal Employment Provisions of the ADA, 29 CFR Part 1630.

(8) United States Federal Communications Commission regulations, Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled, 47 CFR Part 64, Subpart F.

(9) Federal Transit Administration regulations, Transportation for Elderly and Handicapped Persons, 49 CFR Part 609.

(10) Any implementing requirements FTA may issue.

TERMINATION PROVISIONS – If there is a conflict between the termination provisions of the terms and conditions and these FTA provisions, the FTA provisions prevail.

a. Termination for Convenience – The CCTA may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the Government's best interest. The Contractor shall be paid its costs, including contract close-outs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to the CCTA to be paid the Contractor. If the Contractor has any property in its possession belonging to the CCTA, the Contractor will account for the same, and dispose of it in the manner the CCTA directs.

b. Termination for Default (Breach or Cause) – If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the CCTA may terminate this contract for default. Termination shall be effective by serving a notice of termination on the contractor setting forth the manner in which the Contractor is in default. The contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract.

   If it is later determined by the CCTA that the Contractor had an excusable reason for not performing, such as strike, flood, events which are not the fault of or are beyond the control of the Contractor, the CCTA, after setting up a new delivery of performance schedule, may allow the Contractor to continue work or treat the termination as a termination for convenience.

c. Opportunity to Cure – The CCTA in its sole discretion may, in the case of a termination for breach or default, allow the Contractor an appropriately short period of time in which to cure the defect. In such case, the notice of termination will state the time period in which cure is permitted and other appropriate conditions.

   If Contractor fails to remedy to the CCTA satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within the established timeframe, the CCTA shall have the right to terminate the Contract without any further obligation to the Contractor. Such termination for default shall not in any way operate to preclude the CCTA from also pursuing all available remedies against the Contractor and its sureties for said breach or default.

d. Waiver of Remedies for Any Breach – In the event that the CCTA elects to waive its remedies for any breach by the Contractor of any covenant, term or condition of the Contract, such waiver by the CCTA shall not limit the CCTA remedies for any succeeding breach of that or of any other term, covenant, or condition of this Contract.

FLY AMERICA REQUIREMENTS – The Contractor agrees to comply with 49 USC 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide the recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carried was used, an appropriate certification or memorandum adequately explaining why service by a U.S. Flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

CARGO PREFERENCE REQUIREMENTS - Use of United States Flag Vessels: (applies to anything transported by ocean vessels) The contractor agrees to a) use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels; b) furnish within 20 working days following the date of loading for shipments originating within the United States, or within 30 working days following the date of leading for shipments originating outside the United States, a legible copy of a rates, on-board commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the Metro Transit System; c) to include these requirements in all subcontracts issued pursuant to this contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

For Operational Contracts (excluding transportation services) in excess of $2,500; rolling stock contracts; and, construction contracts over $2,000 (in conjunction with the Davis-Bacon Act clauses set forth below).

CONTRACT WORK HOURS AND SAFETY STANDARDS ACT: Pursuant to Section 102 (Overtime):

(1) **Overtime Requirements**. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) **Violation; liability for unpaid wages; liquidated damage**. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) **Withholding for unpaid wages and liquidated damages**. The Kalamazoo Metro Transit System shall upon its own action or upon written request for an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) **Subcontracts**. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in this section.

(5) ***Special Provision of Section 102 Nonconstruction Contracts***: **Payroll and basic records**. (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(6) **Section 107 (OSHA): (This section is applicable to construction contracts only) Contract Work Hours and Safety Standards Act -**

(i) The Contractor agrees to comply with section 107 of the Contract Work Hours and Safety Standards Act, 40 USC section 333 and applicable DOL regulations. "Safety and Health Regulations for Construction" 29 CFR Part 1926. Among other things, the Contractor agrees that it will not require any laborer or mechanic to work in unsanitary, hazardous, or dangerous surroundings or working conditions.

(ii) Subcontracts – The Contractor also agrees to include the requirements of this section in each subcontract. The term "subcontract" under this section is considered to refer to a person who agrees to perform any part of the labor or material requirements of a contract for construction, alteration or repair. A person who undertakes to perform a portion of a contract involving the furnishing of supplies or materials will be considered a "subcontractor" under this section if the work in question involves the performance of construction work and is to be performed: (1) directly on or near the construction site, or (2) by the employer for a specific project on a customized basis. Thus, a supplier of materials which will become an integral part of the construction is a "subcontractor" if the supplier fabricates or assembles the goods or materials in question specifically for the construction project and the work involved may be said to be construction activity. If the goods or materials in question are ordinarily sold to other customers from regular inventory, the supplier is not a "subcontractor." The requirements of this section do not apply to contracts or subcontracts for the purchase of supplies or materials or articles normally available on the open market.

For Operational Service Contracts:

DRUG AND ALCOHOL TESTING: (Maintenance contractors and subcontractors -- these rules do not apply): The contractor agrees to establish and implement a drug and alcohol testing program that complies with 49 CFR Parts 653 and 654, and permit any authorized representative of the United States Department of Transportation or its operating administrations, the Michigan Department of Transportation, or the Kalamazoo Metro Transit System to inspect the facilities and records associated with the implementation of the drug and alcohol testing program as required under 49 CFR Parts 653 and 654 and review the testing process. The contractor agrees further to certify annually its compliance with Parts 653 and 654 and to submit the Management Information System (MIS) reports before February 15th to the Metro Transit System Operations Supervisor. To certify compliance the contractor shall use the Substance Abuse Certifications in the Annual List of Certifications and Assurances for Federal Transit Administration Grants and Cooperative Agreements, which is published annually in the Federal Register.

CHARTER BUS REQUIREMENTS: The contractor agrees to comply with 49 U.S.C. 5323(d) and 49 CFR Part 604, which provides that recipients are subrecipients of FTA assistance are prohibited from providing charter service using federally funded equipment or facilities if there is as least one private charter operator willing and able to provide the service, except under one of the exceptions at 49 CFR 604.9. Any charter service provided under one of the exceptions must be incidental (i.e., must not interfere with or detract from the provision of mass transportation).

SCHOOL BUS REQUIREMENTS: Pursuant to 69 U.S.C. 5323(f) and 49 CFR Part 605, recipients and subrecipients of FTA assistance my not engage in school bus operations exclusively for the transportation of students and school personnel in competition with private school bus operators unless qualified under specified exemptions. When operating exclusive school bus service under an allowable exemption, recipients and subrecipients may not use federally funded equipment, vehicles, or facilities.

APPEALS AND REMEDIES - FTA GRANT REQUIREMENTS

(A) PROTESTS

(1) Right to Protest

Any actual or prospective bidder, offeror, or contractor who is aggrieved in connection with the solicitation or award of a contract may file a written protest with the Purchasing Director. A protest with respect to an Invitation for Bids or Request for Proposal shall be submitted in writing prior to the opening of bids or the closing date of proposals, unless the aggrieved person did not know and would not have known of the facts giving rise to such protest prior to bid opening or the closing date for proposals. In all cases, the protest shall be submitted within ten (10) calendar days after receiving knowledge of the action about which the protest is being made.

(2) Stay of Procurement During Protests

In the event of a timely protest, the Purchasing Director shall not proceed further with the solicitation or award of the contract until all administrative remedies have been exhausted or until the Executive Director makes a determination on the record that the award of a contract without delay is necessary to protect substantial interests of the CCTA.

(3) Notification of Granter Agency - Grant Funding

If a procurement action which spends grant funding is subject to a protest, the grantor agency shall be notified in writing of such protest and any subsequent response made by the CCTA or the challenging vendor.

(4) Decision of Purchasing Director

The Purchasing Director shall issue a decision in writing within fourteen (14) calendar days after receipt of such protest or notice of other controversy. A copy of that decision shall be mailed, or otherwise furnished, to the aggrieved party and shall state the reasons for the action taken.

(5) Appeal

The decision of the Purchasing Director shall be final and conclusive unless the aggrieved party files a written appeal with the Purchasing Director, addressed to the CCTA Executive Director within ten (10) calendar days after receipt of the Purchasing Director's decision.

(6) Decision of Executive Director

The Executive Director shall issue a decision, in writing, within fourteen (14) calendar days after receipt of appeal unless the parties agree to a longer period. The decision of the Executive Director shall be final and conclusive, and a copy of that decision shall be mailed, or otherwise furnished, to the aggrieved party and shall state the reasons for the action taken. In the absence of a decision by the Executive Director within the time specified, the decision of the Purchasing Director shall stand.

(B) CONTRACT CLAIMS

(1) Decision of the Purchasing Director

All claims by the contract against the CCTA relating to a contractor, except bid protests, shall be submitted in writing to the Purchasing Director for a decision. The contractor may request a conference with the Purchasing Director on the claim. Claims include, without limitation, disputes arising under a contract and those based upon breach of contract, mistake, misrepresentation, or other cause for contract modification or rescission.

(2) Notice to the Contractor of the Purchasing Director's Decision

The decision of the Purchasing Director shall be issued in writing within fourteen (14) calendar days after receipt of such protest and shall be immediately mailed or otherwise furnished to the contractor. The decision shall state the reasons for the decision reached and shall inform the contractor of its appeal rights.

(3) Finality of Purchasing Director's Decision: Contractor's Right to Appeal

The Purchasing Director's decision shall be final and conclusive unless, within ten (10) calendar days from the date of receipt of the decision, the contractor mails or otherwise delivers a written appeal to the Executive Director or commences an action in a court of competent jurisdiction.

(4) Decision of Executive Director

The Executive Director shall issue a decision, in writing, within fourteen (14) calendar days after receipt of an appeal unless the parties agree to a longer period. The decision of the Executive Director shall be final and conclusive and a copy of that decision shall be mailed, or otherwise furnished, to the aggrieved party, and shall state the reasons for the action taken. In the absence of a decision by the Executive Director within the time specified, the decision of the Purchasing Director shall stand.

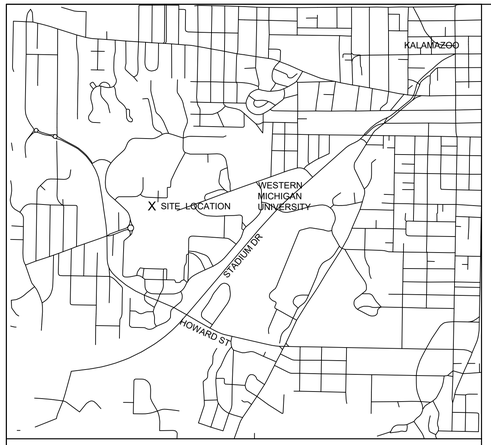
DRIESENGA & ASSOCIATES, INC.

Engineering · Surveying · Testing

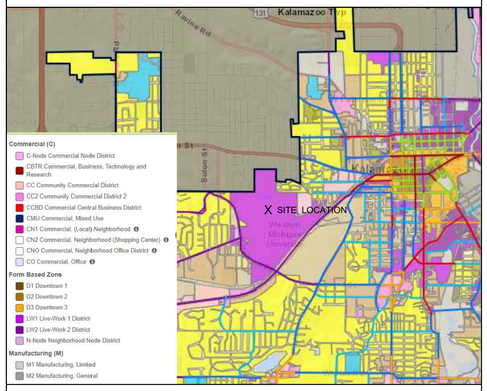
Attachment A - Plans

Rood Hall Bus Stop Site Improvements

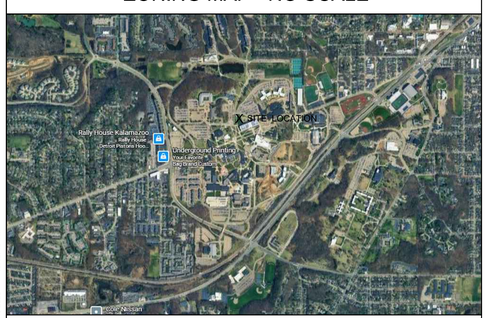
Bid Reference #: 91244-053.0



LOCATION MAP - NO SCALE



ZONING MAP - NO SCALE



AERIAL - NO SCALE

SITE ADDRESS
WESTERN MICHIGAN UNIVERSITY 1903 W. MICHIGAN AVENUE KALAMAZOO, MI 49008
OWNER
WESTERN MICHIGAN UNIVERSITY 1903 W. MICHIGAN AVENUE KALAMAZOO, MI 49008 (269) 387-8800 CHRIS NORD christopher.nord@wmich.edu
CIVIL ENGINEER
DRIESENGA & ASSOCIATES, INC. 552 SOUTH 8TH STREET KALAMAZOO MI, 49009 (269) 544-1455 TOM HOHM, P.E. tomh@driesenga.com
PROJECT CONTROL
CENTRAL COUNTY TRANSPORTATION AUTHORITY 530 NORTH ROSE STREET KALAMZOO, MICHIGAN 49007 (269) 337-8211 ROB BRANCH branchr@kmetro.com

DRIESENGA & ASSOCIATES, INC.
Engineering
Surveying
Testing
www.driesenga.com
Holland, MI 616-396-0255
Grand Rapids, MI 616-249-3800
Kalamazoo, MI 269-544-1455
Lansing, MI 517-889-6210
Ypsilanti, MI 734-368-9483

WESTERN MICHIGAN UNIVERSITY

ROOD HALL BUS STOP SITE IMPROVEMENTS

2101 WILBUR STREET
SECTION 20, T01S, R11W
KALAMAZOO, MICHIGAN 49008

SHEET INDEX

G-001	TITLE SHEET
V-101	EXISTING TOPOGRAPHIC PLAN
CD-101	CIVIL DEMOLITION PLAN
C-101	SITE PLAN
C-102	GRADING & SOIL EROSION CONTROL PLAN

ROOD HALL BUS STOP
2101 WILBUR STREET, KALAMAZOO, 49007
SECTION 20, T02S, R11W
-FOR-
CENTRAL COUNTY TRANSPORTATION AUTHORITY
530 NORTH ROSE STREET, KALAMAZOO, MI 49007

ISSUED FOR:	
1	OWNER REVIEW 05-11-2026 D: WKT C: JMT
2	CONSTRUCTION DOCS 05-22-2026 D: AVV C: JMT
3	CONSTRUCTION DOCS REV. 06-04-2026 D: AVV C: TJH
4	CONSTRUCTION DOCS REV. 06-17-2026 D: AVV C: TJH

Know what's below. Call before you dig.

STATE OF MICHIGAN
TOM J. HOHM
ENGINEER No. 40945
LICENSED PROFESSIONAL ENGINEER

ISSUED FOR CONSTRUCTION

Project Manager: TOM J HOHM
Project # 2450296.1A
Sheet Title: TITLE SHEET
Sheet # G-001
1 of 5

File Name: Z:\Shared\Kalamazoo\Projects\2026\2450362.1A\dwg\2450362.1A – SITE 3.dwg Last Saved: 6/17/2026 10:16:49 AM

PARTIAL TOPOGRAPHIC SURVEY

BENCHMARK DATA

NAVD '88 AS DERIVED FROM GPS OBSERVATIONS UTILIZING M.D.O.T. CORS GEOID 18

BM #1 EL= 920.43' (NAVD 88)
SET "SQUARE" ON THE UPPER NORTH SIDE OF CONCRETE LIGHT POLE BASE, LOCATED 15'± EAST OF THE WEST PARKING LOT AND 60'± WEST OF ARBOR ATM MACHINE.

BM #2 EL= 919.67' (NAVD 88)
SET "X" ON THE UPPER NORTHWEST FLANGE BOLT ON HYDRANT, LOCATED 30'± NORTH OF THE CENTERLINE OF WILBUR STREET AND 65'± NORTHWEST OF BUS STOP BOX.

BM #3 EL= 917.43' (NAVD 88)
SET "SQUARE" ON THE UPPER SOUTH SIDE OF CONCRETE LIGHT POLE BASE, LOCATED 90'± SOUTHEAST OF MAINTENANCE SHED AND 60'± NORTH OF THE CENTERLINE OF WILBUR STREET.

SURVEYOR'S NOTES

1. UTILITIES SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL FIELD MEASUREMENTS AND AVAILABLE RECORDS. THIS MAP IS NOT TO BE INTERPRETED AS SHOWING EXACT LOCATIONS OR SHOWING ALL UTILITIES IN THE AREA.
2. NOTE TO CONTRACTORS: THREE WORKING DAYS BEFORE YOU DIG - CALL MISS DIG AT 811.
3. CONTOUR INTERVAL = 1 FOOT.
4. BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE(S) "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 26077C0186E, WHICH BEARS AN EFFECTIVE DATE OF JULY 31, 2024. ZONE "X" AREAS DETERMINED TO BE AREAS OF MINIMAL FLOOD HAZARD.
5. THIS IS NOT INTENDED OR REPRESENTED TO BE A BOUNDARY SURVEY AND IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OF ANY FENCE, BUILDING, OR OTHER IMPROVEMENT. LEGAL DESCRIPTION WAS NOT PROVIDED & NO PROPERTY CORNERS WERE SET.
6. THE FIELD WORK WAS COMPLETED ON MAY 08, 2026.

SURVEY CONTROL

GROUND COORDINATES AS DERIVED FROM THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FEET. SURVEY DATA AND CONTROL HAVE BEEN PROJECTED TO THE GROUND AT CP #50 (GRID TO GROUND SCALE FACTOR: 1.0000771637)

POINT NUMBER	NORTHING (GROUND)	EASTING (GROUND)	ELEVATION (NAVD 88)
50	288352.3928'	12784762.3785'	916.20'
51	288344.6855'	12784990.6747'	917.59'
52	288207.2014'	12784895.9197'	921.09'
53	288212.4974'	12784726.9031'	919.16'
54	288254.4909'	12785178.4017'	915.38'

MISS DIG INFORMATION

MISS DIG SURVEY TICKET # 2026050103937-000
(INCLUDES INFORMATION RECEIVED THROUGH MAY 11, 2026)

- WESTERN MICHIGAN UNIVERSITY - 05/07/2026 (MAPS PROVIDED)
- CONSUMERS ENERGY GAS - 05/08/2026 (MAPS PROVIDED)
- AT&T - 05/11/2026 (MAPS PROVIDED)
- CITY OF KALAMAZOO - 05/11/2026 (MAPS PROVIDED)

STORM STRUCTURE DATA

MH#1 - 6x8'Ø CONCRETE
LEACHING BASIN
OFFSET UNABLE TO SEE WEST
RIM 915.93
INV (E) 24" CPP=910.27
TOP OF WATER=909.03
SUMP=908.93

MH#2 - 6x8'Ø CONCRETE
LEACHING BASIN
RIM 917.88
FULL OF GARBAGE
INV (NNE) 12" CPP=910.09
INV (W) 24" CPP=909.68
SUMP=907.78

CB#3 - 2'Ø CONCRETE
RIM 917.64
INV (S) 12" CPP=912.84

CB#4 - 2'Ø CONCRETE
RIM 913.21
INV (N) 12" CPP=910.16
INV (S) 12" CPP=910.06
SUMP=909.91

MH#5 - 4'Ø CONCRETE
RIM 916.19
INV (N) 12" CPP=908.09
INV (SW) 18" RCP=905.99
INV (W) ? TOO DEEP TO MEASURE
INV (S) ? TOO DEEP TO MEASURE
SUMP=885.94

CB#6 - 2'Ø CONCRETE
RIM 916.36
INV (W) 6" CPP=914.36
SUMP=913.86

MH#7 - 4'Ø CONCRETE
RIM 917.77
INV (N) 36" RCP=886.47
INV (SE) 12" RCP=902.85
SUMP=886.47

MH#8 - 4'Ø CONCRETE
RIM 919.96
INV (SW) 12" PVC=909.36
INV (NE) ? TOO DEEP TO MEASURE
TOP OF WATER=888.26
SUMP=888.26

CB#9 - 2'Ø CONCRETE
RIM 919.13
INV (NNW) 4" CLAY=914.13
SUMP=913.93

CB#10 - 2'Ø CONCRETE
RIM 918.67
INV (NW) 4" CLAY=914.77
HALF FULL OF SEDIMENT
SUMP=914.77

MH#11 - 4'Ø CONCRETE
RIM 919.93
INV (SW) 6" CLAY=913.78
INV (NE) 6" CLAY=913.58
SUMP=913.23

SANITARY STRUCTURE DATA

MH-A - 4'Ø CONCRETE
RIM 915.65
INV (N) 18" STEEL=893.50
INV (SW) 6" CLAY=893.65
INV (NE) 6" STEEL=905.12

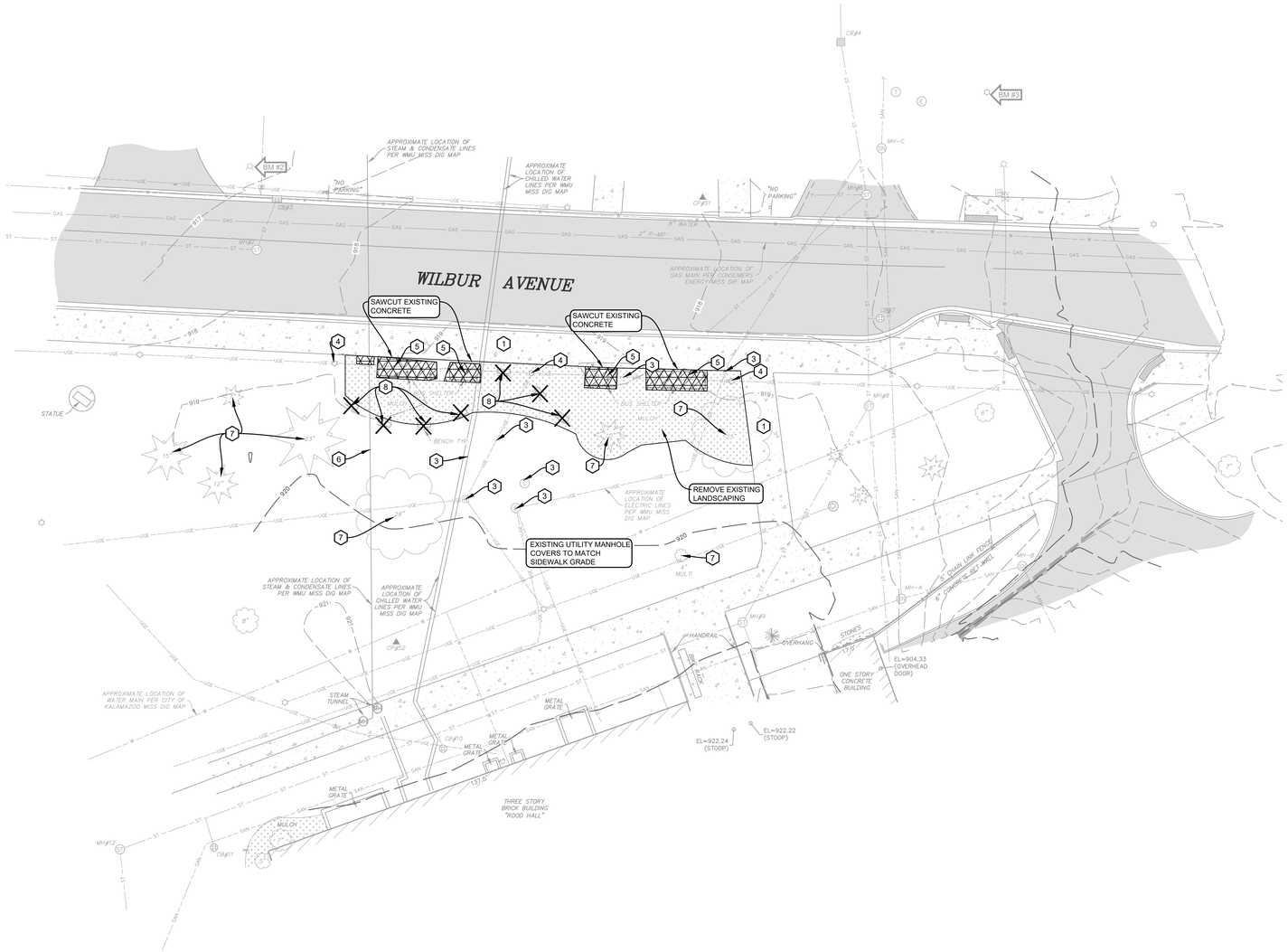
MH-B - 2'Ø CONCRETE
RIM 909.87
INV (SE) 6" STEEL=905.87
INV (WSW) 6" STEEL=905.82

MH-C - 4'Ø CONCRETE
RIM 914.99
INV (N) CLAY=883.89
INV (S) CLAY=885.89
INV (SW) CLAY=885.89
INV (SW) 8" CLAY=906.69

W Grand St
Greenlawn
Ring Rd N
Goldsworth Dr
Cleveland St
Ring Rd N
Business Ct
X SITE LOCATION
Ring Rd N
Stadium Dr
Gibbons Rd
Kendall St
Campus Dr
Oakland Dr
Parkview Dr
Oakland Ave
Stadium Cir
Stadium Cir
Stadium Dr
Kanley St
Kanley St
Kanley St

CLEARING & DEMOLITION NOTES:

1. REMOVE ALL STRUCTURES, SUPPORT COLUMNS, FOOTINGS, ASPHALT PAVING, CONCRETE CURB, SIDEWALKS, CONCRETE PADS, TREES, STUMPS, HEDGES, UTILITIES, AND OTHER EXISTING SITE FEATURES WITHIN LIMITS OF DEMOLITION. ALL DEMOLITION MATERIALS SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE INDICATED AND DISPOSED OF IN A MANNER ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
2. MOVEMENT OF CLEARED WOOD IS RESTRICTED; REFER TO EMERALD ASH BORER QUARANTINE INFORMATION AT WWW.MICHIGAN.GOV. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL QUARANTINE REQUIREMENTS.
3. CONSTRUCTION FENCE SHALL BE PLACED AT THE DRIP LINE OF ALL TREES WITHIN THE PROJECT AREA THAT ARE INDICATED TO BE PROTECTED. DO NOT OPERATE EQUIPMENT OR STORE MATERIALS OR VEHICLES WITHIN THIS AREA.
4. UNLESS INDICATED TO BE ABANDONED IN PLACE, ALL UTILITIES TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY. UTILITIES TO BE ABANDONED IN PLACE SHALL BE FILLED WITH FLOWABLE FILL AND SECURELY CAPPED.
5. EXCEPT FOR THOSE UTILITIES INDICATED TO BE ABANDONED OR REMOVED, RECONNECT ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION.
6. ALL CATCHBASIN AND MANHOLE FRAMES AND COVERS SPECIFIED TO BE REMOVED SHALL BE SALVAGED, CLEANED AND INSPECTED, AND MAY BE REUSED WITH APPROVAL BY ENGINEER.
7. ANY REMOVAL OF PAVEMENT, SIDEWALK, CURB AND GUTTER OR OTHER HARD SURFACES SHALL BE TO A SAWCUT LINE AT THE NEXT JOINT BEYOND REMOVAL LIMITS SHOWN.
8. DEMOLITION WORK IS INDICATED BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL INSPECT THE SITE AND BE FAMILIAR WITH THE EXTENT OF DEMOLITION WORK REQUIRED.

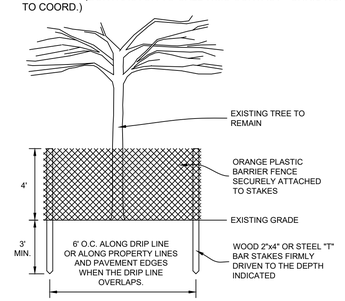


DEMOLITION KEY:

1. PROTECT EX.SIDEWALK PAVEMENT TO REMAIN
2. PROTECT EX. UNDERGROUND ELECTRIC TO REMAIN
3. PROTECT EX. UNDERGROUND UTILITY TO REMAIN
4. PROTECT EXISTING LIGHT POLE TO REMAIN
5. EXISTING BUS SHELTERS (REMOVED BY OTHERS)
6. PROTECT EX. UNDERGROUND STEAM LINES TO REMAIN
7. PROTECT EX. TREES TO REMAIN (SEE TREE PROTECTION DETAIL)
8. REMOVE EX. BENCHES (REMOVED BY WESTERN MICHIGAN UNIVERSITY (CONTRACTOR TO CALL WMU CONTACT - CHRIS NORD TO COORD.)

REMOVAL LEGEND:

- CONCRETE REMOVAL
- ASPHALT REMOVAL
- BUILDING REMOVAL
- GRAVEL REMOVAL
- TREE CLEARING
- TREE/SHRUB REMOVAL
- XXXXX FENCE/WALL/UTILITY/MISC. REMOVAL



NOTE:
ALL TREE PROTECTION SHALL BE INSTALLED BY CONTRACTOR AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO COMMENCEMENT OF DEMOLITION.

TREE PROTECTION

NO SCALE

LEGEND

	EXISTING	PROPOSED
BENCHMARK	BM #1	
STORM SEWER MANHOLE		
CATCH BASIN		
FLARED END SECTION		
SANITARY SEWER MANHOLE		
CLEANOUT	CO	CO
WELL HEAD		
FIRE HYDRANT		
FIRE DEPARTMENT CONNECTION		
SPRINKLER CONTROL VALVE	SCV	
SPRINKLER HEAD		
VALVE (WATER & GAS)	WV GV	GV WV
GAS METER		
UTILITY RISERS	RS	TR RS
UTILITY POLE		
LIGHT POLE		
GUY ANCHOR		
TRANSFORMER	TR	
HAND HOLE (ELECTRIC)	H	
ELECTRIC METER	E	
GROUND MOUNTED LIGHT		
SIGN		
SOIL BORING	SB #1	
BOLLARD POST		
POST		
GATE		
FENCE LINE	X	X
OVERHEAD UTILITIES	OHU	
UNDERGROUND ELECTRIC	UGE	UGE
COMMUNICATIONS	UGC	UGC
TELEPHONE	TEL	
FIBER OPTIC	FO	
GAS LINE	GAS	
EXISTING WATER LINE	W	
PROPOSED WATER LINE		
EXISTING STORM SEWER	ST	ST
PROPOSED STORM SEWER		
EXISTING SANITARY SEWER	SAN	
PROPOSED SANITARY SEWER		

EXISTING BITUMINOUS SURFACE | EXISTING CONCRETE SURFACE | GRAVEL SURFACE

PROPOSED BITUMINOUS SURFACE | PROPOSED CONCRETE SURFACE

CONIFEROUS TREE | DECIDUOUS TREE | ORNAMENTAL BUSH

0' 10' 20' 40'
SCALE: 1"=20'

ISSUED FOR CONSTRUCTION

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

File Name: Z:\Shared\Kalamazoo\Projects\2026\2650362.1A\dwg\2650362.1A - SITE 3.dwg Last Saved: 6/17/2026 10:16:49 AM

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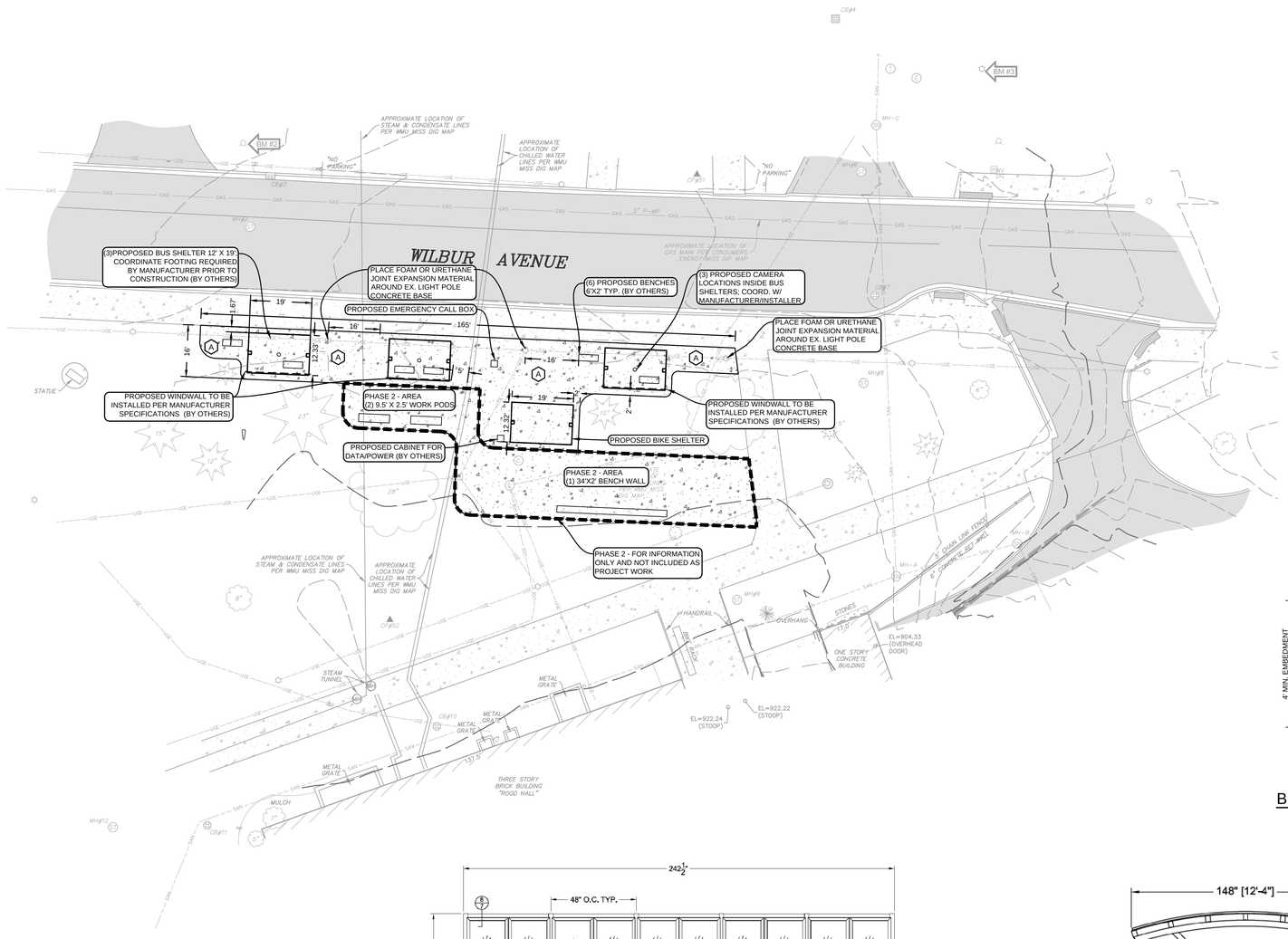
Project Manager: TOM J HOHM
Project # 2450296.1A
Sheet Title: CIVIL DEMOLITION PLAN
Sheet # CD-101
3 of 5



NOTE: Contractor is to Coordinate with WMU, Chris Nord regarding any required conduit or cabling for the call box
Contractor to provide layout plan for saw cut joints prior to concrete placement.
Joints to be 8 foot by 8 foot nominal.

GENERAL NOTES:

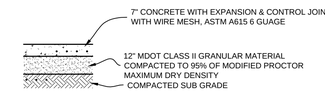
1. CONTRACTOR SHALL OBTAIN ALL NECESSARY LOCAL, STATE AND FEDERAL PERMITS REQUIRED.
2. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF AUTHORITIES HAVING JURISDICTION.
3. CALL "MISS DIG", 811, 72 HOURS PRIOR TO THE START OF ANY EXCAVATION.
4. EXISTING UNDERGROUND UTILITIES ARE SHOWN BASED ON AVAILABLE RECORDS AND/OR TOPOGRAPHIC SURVEY DATA. THIS PLAN MAY NOT SHOW UTILITIES IN THEIR EXACT LOCATION AND MAY NOT SHOW ALL UTILITIES IN THE AREA.
5. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES AT ALL TIMES. ANY INTERRUPTION IN SERVICES TO THIS SITE OR ADJACENT SITES MUST BE SCHEDULED WITH THE OWNER, UTILITY PROVIDER, AND AFFECTED PROPERTIES 48 HOURS PRIOR TO THE INTERRUPTION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING AND NEW CONSTRUCTION FROM DAMAGE. SHOULD ANY DAMAGE OCCUR, CONTRACTOR SHALL MAKE ALL NECESSARY REPAIRS AT NO COST TO THE OWNER.
7. IF ANY DISCREPANCIES OR CONFLICTS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY PRIOR TO CONSTRUCTION OF AFFECTED WORK TO DETERMINE COURSE OF ACTION.
8. CONTRACTOR SHALL COORDINATE THEIR WORK WITH OTHER CONTRACTORS ON OR ADJACENT TO THE PROJECT SITE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND COORDINATING THEIR WORK WITH ALL UTILITY PROVIDERS PRIOR TO CONSTRUCTION.
10. PROVIDE BARRIERS OR OTHER PROTECTION TO KEEP VEHICULAR AND PEDESTRIAN TRAFFIC AWAY FROM CONSTRUCTION AREA AND OFF NEWLY PAVED AREAS.

LAYOUT NOTES:

1. CONTRACTOR SHALL REVIEW AND VERIFY SITE LAYOUT PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL ENGAGE A LICENSED SURVEYOR TO PERFORM ALL CONSTRUCTION LAYOUT AND STAKING AS NECESSARY.
3. ALL COORDINATE POINTS AND DIMENSIONS GIVEN, UNLESS OTHERWISE NOTED, ARE TO BACK OF CURB AND FACE OF BUILDING WALL.
4. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DIMENSIONS.
5. INSTALL EXPANSION JOINTS AT ALL LOCATIONS WHERE NEW CONCRETE MEETS EXISTING CONCRETE OR BITUMINOUS PAVEMENT.

KEY NOTES:

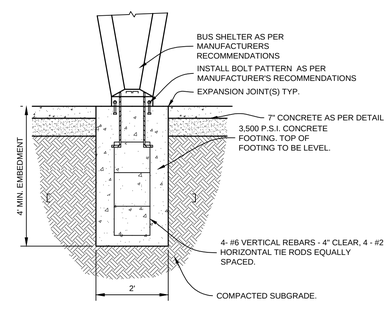
(A) 7" REINFORCED CONCRETE PAVEMENT (SEE DETAIL)



NOTE: CONCRETE SHALL BE 4,000 PSI, AIR ENTRAINED CONCRETE

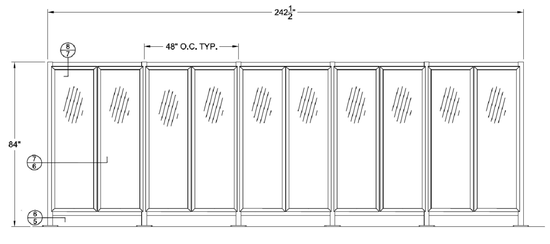
7" REINFORCED CONCRETE SIDEWALK

NO SCALE



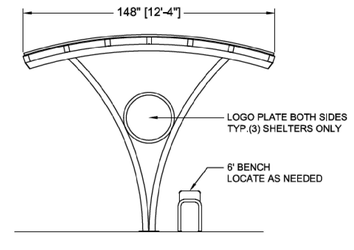
BUS/BIKE SHELTER FOUNDATION DETAIL

NO SCALE



BUS SHELTER WINDWALL ELEVATION VIEW

NO SCALE - SHOWN AS REFERENCE ONLY. SEE PRODUCT DETAILS FOR ADDITIONAL INFORMATION



BUS/BIKE SHELTER ELEVATION VIEW

NO SCALE - SHOWN AS REFERENCE ONLY. SEE PRODUCT DETAILS FOR ADDITIONAL INFORMATION

0' 10' 20' 40'
SCALE: 1"=20'

LEGEND

	EXISTING	PROPOSED
BENCHMARK	BM #1	
STORM SEWER MANHOLE		
CATCH BASIN		
FLARED END SECTION		
SANITARY SEWER MANHOLE		
CLEANOUT	CO	CO
WELL HEAD		
FIRE HYDRANT		
FIRE DEPARTMENT CONNECTION		
SPRINKLER CONTROL VALVE	SCV	
SPRINKLER HEAD		
VALVE (WATER & GAS)	WV GV	GV WV
GAS METER		
UTILITY RISERS	RS RS RS RS	TR RS
UTILITY POLE		
LIGHT POLE		
GUY ANCHOR		
TRANSFORMER	TR	
HAND HOLE (ELECTRIC)	H	
ELECTRIC METER	E	
GROUND MOUNTED LIGHT		
SIGN		
SOIL BORING	SB #1	
BOLLARD POST		
POST		
GATE		
FENCE LINE	X X	
OVERHEAD UTILITIES	OHU	
UNDERGROUND ELECTRIC	UGE UGE	
COMMUNICATIONS	UGC UGC	
TELEPHONE	TEL	
FIBER OPTIC	FO	
GAS LINE	GAS	
EXISTING WATER LINE	W	
PROPOSED WATER LINE		
EXISTING STORM SEWER	ST ST	
PROPOSED STORM SEWER		
EXISTING SANITARY SEWER	SAN	
PROPOSED SANITARY SEWER		

EXISTING BITUMINOUS SURFACE · EXISTING CONCRETE SURFACE · GRAVEL SURFACE · PROPOSED BITUMINOUS SURFACE · PROPOSED CONCRETE SURFACE · CONIFEROUS TREE · DECIDUOUS TREE · ORNAMENTAL BUSH

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ROOD HALL BUS STOP
2101 WILBUR STREET, KALAMAZOO, 49007
SECTION 20, T02S, R11W
-FOR-
CENTRAL COUNTY TRANSPORTATION AUTHORITY
530 NORTH ROSE STREET, KALAMAZOO, MI 49007

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Project Manager: TOM J HOHM
Project # 2450296.1A
Sheet Title: SITE PLAN
Sheet # C-101
4 of 5

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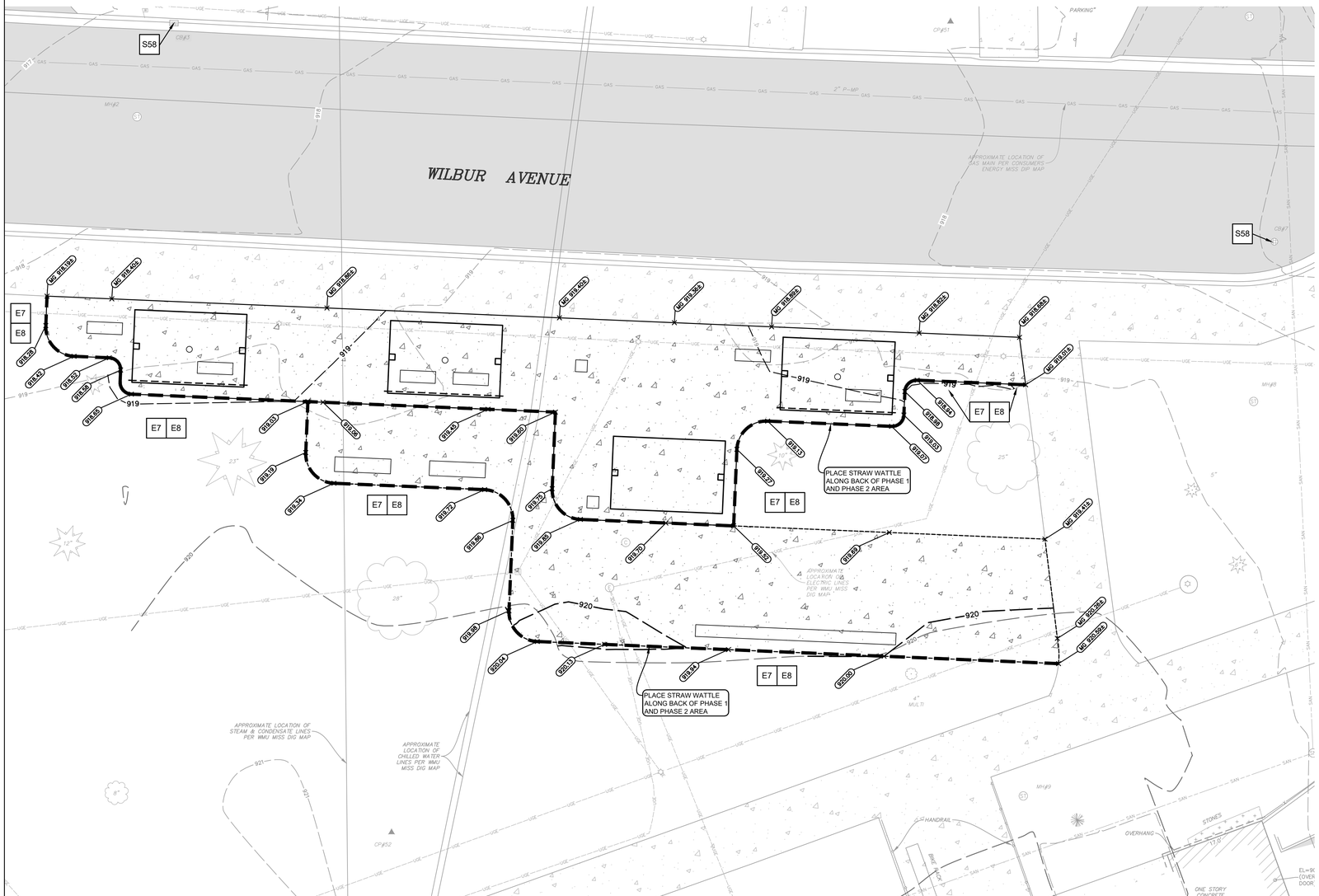


SOIL EROSION & SEDIMENTATION CONTROL (SESC) NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COMPLYING WITH THE SESC PERMIT.
2. PLACE TEMPORARY SESC MEASURES AS INDICATED ON DRAWING PRIOR TO EARTH MOVING AND GRADING ACTIVITIES.
3. CONTRACTOR SHALL AVOID THE UNNECESSARY DISTURBING OR REMOVING OF EXISTING VEGETATED TOPSOIL OR EARTH COVER.
4. INSPECT AND MAINTAIN ALL TEMPORARY SESC MEASURES AFTER STORM EVENTS AND AS NECESSARY TO ASSURE PROPER FUNCTION.
5. ALL SOIL STOCKPILES LEFT UNDISTURBED FOR MORE THAN 7 DAYS SHALL HAVE PERIMETER SILT FENCE. ALL SOIL STOCKPILES LEFT UNDISTURBED FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING.
6. DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE AND PERMANENTLY STABILIZED WITHIN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING.
7. TEMPORARY SEEDING SHALL CONSIST OF OATS AND/OR BARLEY AT AN APPLICATION RATE OF 2.0 LBS/1000 SFT MINIMUM APRIL 1 THROUGH AUGUST 31, OR ANNUAL RYEGRASS AT AN APPLICATION RATE OF NOT LESS THAN 2.0 LBS/1000 SFT AUGUST 1 THROUGH NOVEMBER 15. IRRIGATE IF NECESSARY TO ESTABLISH TEMPORARY COVER.
8. TEMPORARY SESC MEASURES SHALL REMAIN IN PLACE UNTIL ALL PERMANENT SESC MEASURES ARE INSTALLED, AND VEGETATION IS UNIFORMLY ESTABLISHED. RE-GRADE, RE-SEED AND PLACE ADDITIONAL TOPSOIL IN ERODED AREAS AS NECESSARY UNTIL FINAL LANDSCAPING IS INSTALLED.
9. CONSTRUCTION OF SEDIMENT BASINS AND DIVERSION DITCHES SHALL BE COMPLETED PRIOR TO SITE CLEARING AND GRADING.
10. INSTALL INLET SEDIMENT TRAPS ("SILT SACK" OR EQUAL) IN ALL PROPOSED CATCHBASINS AS INDICATED ON THIS DRAWING. CLEAN INLET SEDIMENT TRAPS ON A WEEKLY BASIS AND AFTER RAIN EVENTS AS REQUIRED.
11. CONTRACTOR SHALL INSPECT AND CLEAN OUT ALL EXISTING AND PROPOSED STORM SEWER CATCHBASINS AND MANHOLES WITHIN THE PROJECT LIMITS, OR OUTSIDE THE PROJECT LIMITS IF SUBJECT TO CONSTRUCTION SITE RUNOFF, AS NECESSARY DURING CONSTRUCTION AND PRIOR TO FINAL ACCEPTANCE.
12. PLACE SILT FENCE ALONG DISTURBED AREAS WHERE SURFACE WATER WILL FLOW INTO EXISTING SWALES, DITCHES AND ADJACENT PROPERTIES. ANCHOR SILT FENCE TO PREVENT UNCONTROLLED RELEASE OF SILT LADEN WATER.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE DAILY SWEEPING OF TRACKED MATERIALS FROM ALL ROADWAYS.
14. THE SESC MEASURES SHOWN ON THIS PLAN ARE THE MINIMUM MEASURES REQUIRED. DUE TO SITE ACTIVITIES AND SCHEDULES, ADDITIONAL MEASURES WILL LIKELY BE REQUIRED TO MAINTAIN SITE ACCORDING TO APPLICABLE STATE AND FEDERAL GUIDELINES AT NO ADDITIONAL COST TO THE OWNER.
15. ONCE SITE IS STABILIZED, ALL TEMPORARY SESC MEASURES SHALL BE REMOVED.

CONTINUED MAINTENANCE OF PERMANENT SESC MEASURES:

PROPERTY OWNER SHALL BE RESPONSIBLE TO MAINTAIN PERMANENT SESC MEASURES.

PAVING:
REPAIR CRACKED OR DAMAGE PAVEMENT AS NEEDED.

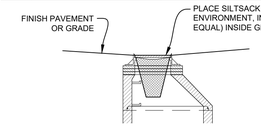
SEEDING:
INSPECT NEWLY SEEDED AREAS SUBSEQUENT TO ANTICIPATED GERMINATION DATE AND AFTER EACH SIGNIFICANT RAINFALL EVENT THAT PRODUCES RUNOFF UNTIL AREAS ARE STABILIZED.

REPAIR ERODED AREAS, APPLYING SUPPLEMENTAL SEED, MULCH AND WATER AS NEEDED.

IF SEED DOES NOT ESTABLISH, CONDUCT SOIL TESTS, AMEND SOILS AS NEEDED, AND REAPPLY SEED AND/OR MULCH DURING THE RECOMMENDED GROWING SEASON.

TO ASSIST IN THE ESTABLISHMENT OF NATIVE SPECIES REMOVE UNWANTED COMPETING VEGETATION IN THE FIRST YEAR. MOWING CAN BE USED PERIODICALLY TO DISCOURAGE WEEDS.

E7	TEMPORARY SEEDING		STABILIZATION METHOD UTILIZED ON CONSTRUCTION SITES WHERE EARTH CHANGE HAS BEEN INITIATED BUT NOT COMPLETED WITHIN A 2 WEEK PERIOD.
E8	PERMANENT SEEDING		STABILIZATION METHOD UTILIZED ON SITES WHERE EARTH CHANGE HAS BEEN COMPLETED (FINAL GRADING ATTAINED).
	WATTLES		In areas requiring protection of slopes against surface erosion and gully formation.
S58	INLET PROTECTION FABRIC DROP		USE AT STORMWATER INLETS, ESPECIALLY AT CONSTRUCTION SITES.



SILT SACK
NO SCALE

LEGEND

	EXISTING	PROPOSED
BENCHMARK	BM #1	
STORM SEWER MANHOLE		
CATCH BASIN		
FLARED END SECTION		
SANITARY SEWER MANHOLE		
CLEANOUT	CO	CO
WELL HEAD		
FIRE HYDRANT		
FIRE DEPARTMENT CONNECTION		
SPRINKLER CONTROL VALVE	SCV	
SPRINKLER HEAD		
VALVE (WATER & GAS)	WV CV	GV WV
GAS METER		
UTILITY RISERS	RS RS RS RS	TR RS
UTILITY POLE		
LIGHT POLE		
GUY ANCHOR		
TRANSFORMER	TR	
HAND HOLE (ELECTRIC)	H	
ELECTRIC METER	E	
GROUND MOUNTED LIGHT		
SIGN		
SOIL BORING	SB #1	
BOLLARD POST		
POST		
GATE		
FENCE LINE	X X	
OVERHEAD UTILITIES	OHU	
UNDERGROUND ELECTRIC	UGE UGE	
COMMUNICATIONS	UGC UGC	
TELEPHONE	TEL	
FIBER OPTIC	FO	
GAS LINE	GAS	
EXISTING WATER LINE	W	
PROPOSED WATER LINE		
EXISTING STORM SEWER	ST ST	
PROPOSED STORM SEWER		
EXISTING SANITARY SEWER	SAN SAN	
PROPOSED SANITARY SEWER		

EXISTING BITUMINOUS SURFACE
EXISTING CONCRETE SURFACE
GRAVEL SURFACE
PROPOSED BITUMINOUS SURFACE
PROPOSED CONCRETE SURFACE
CONIFEROUS TREE
DECIDUOUS TREE
ORNAMENTAL BUSH

0' 5' 10' 20'
SCALE: 1"=10'

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Project Manager: TOM J HOHM
Project # 2450296.1A
Sheet Title: GRADING & SOIL EROSION CONTROL PLAN
Sheet # C-102
5 of 5

DRIESENGA & ASSOCIATES, INC.

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Attachment B - Specifications

Rood Hall Bus Stop Site Improvements

Bid Reference #: 91244-053.0

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protection of existing trees and vegetation to remain.
2. Removal of existing trees and other vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, abandoning site utilities in place, and removing site utilities.

A. Related Sections include the following:

1. Division 01 Section "Temporary Facilities and Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities.
2. Division 02 Section "Structure Demolition" for demolition of buildings, structures, and site improvements.
3. Division 02 Section "Selective Structure Demolition" for partial demolition of buildings or structures undergoing alterations.
4. Division 31 Section "Earth Moving" for soil materials, excavating, backfilling, and site grading.
5. Division 23 Section "Turf and Grasses" for finish grading including preparing and placing planting soil mixes and testing of topsoil material.
6. Division 01 Section "Construction Waste Management and Disposal" for handling waste and recyclable materials.

1.2 DEFINITIONS

A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow. Its appearance is generally friable, pervious,

and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

1.3 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record drawings, according to Division 01 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.5 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises as directed by owner.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

D. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures and plant/tree protection measures are in place.

E. Protection of existing improvements: Provide protection necessary to prevent damage to existing improvements indicated to remain in place.

1. Protect improvements on adjoining properties and on Owner's property.
2. Restore damaged improvements to their original condition, as acceptable to property owners, at no cost to the owner.

F. Protection of existing trees and vegetation: Protect, maintain, and repair/replace existing trees and vegetation per WMU Facility Guideline 329300 Plants, Appendix C1 & C2.

G. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 2000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide erosion control methods in accordance with those indicated on the plans as well as any of the requirements of authorities having jurisdiction.

B. Erosion controls shall be installed prior to mass grading. All contractors on site are responsible for daily monitoring, maintenance, and notifying the Owner and Engineer of any failure immediately.

C. Special care and inspections shall be performed to ensure that existing drainage conveyances remain protected and undisturbed throughout the course of construction. The Contractor shall immediately notify the Owner and Engineer of any failure.

D. The Contractor shall inspect the soil erosion control structures daily during construction activities and after rain events. The Contractor shall immediately repair any soil erosion control structures that have failed and shall correct any new soil erosion problems that arise related to their construction activities.

3.3 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Engineer not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Excavate for and remove underground utilities indicated to be removed.

3.4 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction, except for those indicated to remain.

1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
2. Use only methods described in WMU Facility Guideline 329300 Plants, Appendix C1 & C2 for grubbing inside drip line of trees indicated to remain.
3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
   a. Place fill material in horizontal layers not exceeding 8 inches loose depth and thoroughly compact to density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within tree protection zones.
3. Dispose of excess topsoil as specified for waste material disposal.
4. Stockpile surplus topsoil to allow for re-spreading deeper topsoil.

3.6 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Ail pavement removed during construction shall become the property of the Contractor and will be removed from the site and disposed of in an appropriate manner.
2. The edges of all pavements being removed shall be saw cut. The cost of the saw cutting shall be incidental to the cost of pavement removal.
3. Pavement removal shall include concrete and bituminous pavements.
4. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

C. Follow procedures developed and identified in Construction Waste Management Plan.

END OF SECTION 311000

SECTION 31 19 00 - SOIL EROSION CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Division 01 Section "Sustainable Design Requirements - LEED v4 BD+C" for required LEED submissions.

1.2 SUMMARY

A. This Section includes the following:

1. Installation of Soil Erosion Control Measures
2. Temporary Seeding of Stockpiles

B. All work necessary for completion but not specifically listed as a pay item will be deemed to be included in one or more of the Bid Form items.

C. If this document conflicts with the standards and requirements of any agencies having jurisdiction, then the standards and requirements of the agencies having jurisdiction shall override this document.

D. If discrepancies exist between specification sections, Contractor shall verify with Architect which section to follow prior to ordering materials and/or installing product.

E. This project is pursuing LEED v4 Certification; requirements of SSp1 Construction Activity Pollution Prevention shall be met.

1. All erosion and sediment control (ESC) measures will be constructed and implemented in accordance with the standards and specifications of 2012 EPA Construction General Permit, or local standards and codes, whichever is more stringent.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Mulch Blankets
2. Geotextiles
3. Temporary Plastic Sheets
4. Seeding
5. Rip rap source

B. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

A. All materials shall be stored and handled per the manufacturer's recommendations.

B. Seed: Deliver seed in original, sealed, labeled, and undamaged containers.

1.5 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit the work to be performed according to manufacturers' written instructions and warranty requirements.

B. Field Measurements: Contractor shall verify all quantities and dimensions in the field prior to ordering any materials.

1.6 COORDINATION

A. Contractor shall coordinate the work with sub-contractors prior to commencement of work.

B. Contractor shall notify the Engineer a minimum of 48 hours prior to the placement of any soil erosion control device so that proper inspection and documentation can be performed at the time of installation.

PART 2 - PRODUCTS

2.1 MULCH BLANKET / TURF REINFORCEMENT

A. Mulch Blanket

1. Available Products:
   a. North American Green; SC150;
   b. or approved equal

B. High Velocity Mulch Blanket:

1. Available Products:
   a. North American Green; SC250;
   b. Or approved equal

C. Turf Reinforcement Mat:

1. Available Products:
   a. North American Green; C350
   b. SI Geosolutions; Landlok TRM 450
   c. Green Fix America; CF020000
   d. or approved equal

2.2 SILT FENCE

A. Available Manufacturers:

1. American Excelsior Co Inc.
2. C.S.I./Geo Turf, Inc.
3. Hanes Geo Components
4. or approved manufacturer

2.3 GEOTEXTILES

A. Filter Bag:

1. Available Products:
   a. Price and Company; Ecolobag
   b. or approved equal

B. Filtration Sacks / Basin Inlet Protection:

1. Available Products:
   a. Hanes Geo Components; Inlet Pro
   b. ACF Environmental; SiltSack
   c. or approved equal

C. Geotextile Liner: Shall meet the minimum specifications for all applications.

1. Grab Tensile Strength: min. 270 lbs in conformance with ASTM D4632.
2. Trapezoid Tear Strength: min. 100 lbs in conformance with ASTM D4833;
3. Puncture Strength: min. 100 lbs in conformance with ASTM D4833.
4. Mullen Burst Strength: min. 400 psi in conformance with ASTM D3786;
5. Permittivity: 0.5 per second in conformance with ASTM D4491
6. Apparent Opening Size: max. 0.21 mm in conformance with ASTM D4751

2.4 CHECK DAMS

A. Materials

1. Natural Stone: ranging in size from 2-8 inches in least dimension. Larger stone up to 12-inch may be necessary depending on flows. Use smaller stone as necessary to fill voids.

2.5 RIPRAP

A. Plain Riprap

1. Natural Stone:
   a. The "footprint" dimensions must range from 8 to 16 inches with in-place thickness of at least 8 inches. Smaller pieces may be used to fill spaces for better protection of the slope

B. Heavy Riprap

1. Natural Stone:
   a. The "footprint" dimensions must be 16 inches in least dimension with the ratio of maximum to minimum dimension not exceeding 3:1. The in-place thickness must be at least 8 inches unless otherwise specified

2.6 TEMPORARY SEEDING

A. Seed Mixture: Proportioned by weight as follows.

1. 50 percent Perennial Rye Grass
2. 50 percent Spring Oats

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for, installation tolerances, and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.

3.2 PREPARATION

A. Prepare materials to be used in accordance with manufacturer's recommendations.

3.3 MULCH BLANKET / TURF REINFORCEMENT

A. Prepare the ground to receive the blanket per Section 32 "Turfs and Grasses".

B. Place and anchor blankets according to the manufacturer's directions.

3.4 SILT FENCE

A. Install silt fence per manufacturer's recommendation, only if they are more restrictive than those listed below.

B. Bottom of silt fence shall be toed in a minimum of 6-inches.

C. Trenches shall not be excavated wider and deeper than necessary for proper installation of the temporary linear sediment barriers.

D. Excavation of trenches shall be performed immediately before installation of the temporary linear sediment barriers.

E. Stakes shall be spaced at a maximum of 6 feet and shall be positioned on downstream side of fence.

F. Stakes shall be driven a minimum of 12-inches below existing ground surface.

G. Joining of two sections of silt fence shall have the end stakes overlap and fabric shall be folded around both stakes one full turn. Stakes shall be driven tightly together to prevent potential flow-through of sediment at joint. The top of the stakes shall be secured with wire.

H. Construct silt fence with a set-back of at least 3 feet for the toe of a slope. Where a silt fence is determined to be not practical due to site specific conditions, the silt fence may be constructed at the toe of the slope, but shall be constructed as far from the toe of the slope as practical.

I. Maintain silt fence to provide for an adequate sediment holding capacity. Sediment shall be removed when the sediment accumulation reaches one-third (1/3) of the barrier height.

J. Silt fences that are damaged and become unsuitable for the intended purpose, as determined by the Engineer, shall be removed for the site of work and disposed of off-site according to local governing agency regulations.

3.5 GEOTEXTILES

A. Prepare the site area and install per the manufacturer's recommendations.

3.6 CHECK DAMS

A. Natural Stone

1. Prepare the channel by forming the shape and grade of the channel and compacting the subgrade. Place the top course of fertile soil to a maximum of 4", applying little or no compaction. Apply soil additives and seed.
2. Install a piece of geotextile, wide enough to cover the footprint of the check dam, perpendicular to the direction of flow, centered under the check dam location.
3. Place stone in the ditch banks and extend it beyond the banks a minimum of 18 inches above the anticipated flow. Stone shall be placed in a pyramid shape.
4. The middle of the dam should be 9-inches lower than the outer edges at natural ground elevation.

3.7 TEMPORARY SEEDING

A. Place temporary seed only for erosion control or temporary stabilization. Do not temporarily seed slopes 1:3 or steeper after topsoiling; permanently seed these slopes.

B. Secure the Architect's approval for all temporary seeding.

C. Temporary seed shall be placed on all spoil piles, and stockpiles that will be left on-site for more than 2 months.

D. Slopes and ditches within 150 feet of a lake, stream, or wetland shall be seeded within 24 hours after final grading or final earth change.

E. Temporary seeding shall be placed on disturbed areas, regardless of the status of the work, if no work has been performed on the area in the last 3 days.

3.8 MAINTENANCE AND CLEANING

A. During the period between initial ground breaking or site preparation and the stabilization of the soil surface resulting from final grading, all soil erosion and sedimentation control measures shall be maintained by the Contractor or Owner.

B. During Construction: At least once a week and after any precipitation event, the contractor shall inspect and maintain all soil erosion control measures.

C. Adjustment to Controls: During construction, depending on schedule and order of events additional controls may be necessary at the discretion of the Contractor's certified storm water operator. These additional controls are meant to abide by federal and local regulations for SESC and are to occur at no additional fee to the contract.

D. After Construction and until site is stabilized: At least once a week and after any precipitation event, the contractor shall inspect and maintain all soil erosion control measures.

E. Removed sediment shall be disposed of off-site in a suitable location, or can be incorporated into the project at locations as designated by the Engineer.

END OF SECTION 311900

SECTION 31 20 00 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks and pavements.
5. Subbase and base course for asphalt paving.
6. Subsurface drainage backfill for walls and trenches.
7. Excavating and backfilling for utility trenches.
8. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

B. Related Sections include the following:

1. Division 01 Section "Construction Waste Management and Disposal" for handling waste and recyclable materials
2. Division 31 Section "Soil Erosion Controls" for Construction Activity Pollution Prevention

1.2 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and pavement.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation,

as well as remedial work directed by Engineer, shall be without additional compensation.

F. Fill: Soil materials used to raise existing grades.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

H. Subbase: The undisturbed earth or the compacted soil layer immediately below granular subbase, or topsoil materials.

I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging

to provide temporary utility services according

to requirements indicated.

1. Provide minimum of 48 hour notice to Engineer and Owner, and receive written notice to proceed before interrupting any utility.
2. Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations.
3. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
4. Do not proceed with utility interruptions without Engineer's and Owner's written permission.
5. Contact utility-locator service for area where Project is located before excavating.

B. Use of explosives: Use of explosives is not permitted, unless authorized in writing by the Engineer as described in the General Conditions Section.

C. Protection of persons and property. Barricade open excavations occurring as part of this work and post warning lights.

D. Operate warning lights as recommended by authorities having jurisdiction.

E. Protect utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

F. Perform excavation within drip line of trees to remain per WMU Facility Guideline 329300 Plants, Appendix C1 & C2.

G. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, SW, and SP, or soils meeting Michigan Department of Transportation (MDOT) Specifications for Class II granular fill. Satisfactory soil materials must be free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: MDOT Granular Material Class II.

E. Base Course: MDOT Aggregate Base 21AA

F. Engineered Fill: MDOT Granular Material Class II.

G. Bedding Course: MDOT Granular Material Class II.

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Soil Erosion Controls", during earthwork operations.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Remove surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system if necessary to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock,

soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
   a. 24 inches outside of concrete forms other than at footings.
   b. 12 inches outside of concrete forms at footings.
   c. 6 inches outside of minimum required dimensions of concrete cast against grade.
   d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
   e. 6 inches beneath bottom of concrete slabs on grade.
   f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

B. Excavation for Structures: Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for

placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and

grades to leave solid base to receive other work.

2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch.

Do not disturb bottom of excavations intended as bearing surfaces.

C. Excavation for Walks and Pavements: Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

D. Excavation for Utility Trenches: Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
2. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than

top of pipe or conduit, unless otherwise indicated.

   a. Clearance: 12 inches each side of pipe or conduit.
3. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints,

and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

   a. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
   b. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
   c. Over-excavate trench 3 inches for pipe sizes less than 30 inches.
   d. Over-excavate trench 4 inches for pipe sizes 30 to 60 inches.
   e. Over-excavate trench 6 inches for pipe sizes greater than 60 inches

3.5 SUBGRADE INSPECTION

A. Notify Engineer when excavations have reached required subgrade.

B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade with a minimum of six passes over all subgrade areas, with each pass perpendicular to the previous pass.
2. Proof-roll with a 10 ton vibratory roller.
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.6 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Engineer.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
2. Stockpile soil to remain in place for more than 30 days shall be seeded in accordance with the Soil Erosion and Sedimentation Control plan.

3.8 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete."

D. Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

E. Backfill voids with satisfactory soil while installing and removing shoring and bracing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

1. When existing ground surface has density less than that specified under "Compaction of Soil Backfills and Fills" for particular area's classification, break up ground surface, pulverize, moisture_condition to optimum moisture content, and compact to required depth and percentage of maximum density.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use engineered fill.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 12 inches in loose depth.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent maximum density.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent maximum density.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 90 percent maximum density.
4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.14 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Place base course material over subbase course under hot-mix asphalt pavement.
2. Shape subbase and base course to required crown elevations and cross-slope grades.
3. Place subbase course 12 inches or less in compacted thickness in a single layer.
   a. If subbase course exceeds 12 inches, construct the subbase in equal layers, with no compacted layer less than 6 inches thick or greater than 12 inches thick.
4. Place base course 6 inches or less in compacted thickness in a single layer.
   a. If base course is not more than 10 inches, Engineer may waive the 6 inch restriction if Contractor is able to obtain consistent density on the thicker lift.
   b. If base course exceeds 10 inches, construct the base in layers of equal thickness.
5. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
6. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry unit weight according to ASTM D 1557.

3.15 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least 1 test for each 100 feet or less of wall length, but no fewer than 2 tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.16 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.

1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

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ROOD HALL BUS STOP
2101 WILBUR STREET, KALAMAZOO, 49007
SECTION 20, T02S, R11W
-FOR-
CENTRAL COUNTY TRANSPORTATION AUTHORITY
530 NORTH ROSE STREET, KALAMAZOO, MI 49007

ISSUED FOR:		
1	OWNER REVIEW 05-11-2026 D: WKT C: JMT	
2	CONSTRUCTION DOCS 05-22-2026 D: AVV C: JMT	
3	CONSTRUCTION DOCS REV. 06-04-2026 D: AVV C: TJH	
4	CONSTRUCTION DOCS REV. 06-17-2026 D: AVV C: TJH	

Project Manager:
TOM J HOHM

Project #
2450296.1A

Sheet Title:
SPECIFICATIONS

Sheet #
C-501
X of 5

File Name: Z:\Shared\Valamazoo\Projects\2026\2650362.1A\dwg\2650362.1A - SITE 3.dwg Last Saved: 6/17/2026 10:16:49 AM

SECTION 32 13 13 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Driveways and roadways.
2. Curbs and gutters.
3. Walks.

B. Related Requirements
1. Section 018113.14 "Sustainable Design Requirements - LEED v4 BD+C" for requirements relating to LEED compliance, and for reporting required LEED data.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. LEED Submittal
1. Product Data: For recycled content, indicating postconsumer and pre-consumer recycled content and cost.
2. Product Certificates: For materials manufacturer within 100 miles of Project, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each raw material.
3. Product Data: provide data from product manufacturers, indicating SRI ratings for all non-roof materials that contribute to heat island effect.
a. Non-roof Measures (architectural shading structure or device, paving materials)
1) Materials with 3-year aged SRI value of at least 0.28 or an initial SR value of at least 0.33 shall be provided as indicated on Civil, Landscaping and Architectural drawings, and shall be selected over materials with a lower SR value.

C. Design Mixtures: For each concrete paving mixture.

D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated based on comprehensive testing of current materials:
1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.

E. Material Certificates: Signed by manufacturers certifying that each material complies with requirements:
1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Fiber reinforcement.
4. Admixtures.
5. Curing compounds.
6. Applied finish materials.
7. Bonding agent or epoxy adhesive.
8. Joint fillers.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.

C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.4 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
1. Use flexible or curved forms for curves with a radius 100 feet or less.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

C. Steel Bar Mats: ASTM A 184/A 184M, with ASTM A 615/A 615M, Grade 60, deformed bars; assembled with clips.

D. Joint Dowel Bars: Plain steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.

E. Tie bars: ASTM A 615/A 615M, Grade 60, deformed.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

G. Zinc Repair Material: ASTM A 780.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use one of the following cementitious materials, of the same type, brand, and source throughout the Project:
1. Portland Cement: ASTM C 150, Type I/A. Supplement with the following:
a. Fly Ash: ASTM C 618, Class F.

B. Normal-Weight Aggregates: ASTM C 33, Class 4S coarse aggregate, uniformly graded. Provide aggregates from a single source.
1. Coarse Aggregate: MDOT 6A or MDOT 6AA, crushed gravel or stone.
2. Maximum Coarse-Aggregate Size: 1-1/2 inch nominal.
3. Fine Aggregate: MDOT 2NS.
4. Do not use fine or coarse aggregates containing substances that cause spalling.

C. Water: Potable and complying with ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to requirements, and as follows:
a. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:
1. Compressive Strength (28 Days): 4000 psi.
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 5-1/2 percent plus or minus 1.5 percent.
5. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.
6. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
a. Use water-reducing admixture in concrete, as required, for placement and workability.

B. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
1. Elapsed time: The maximum amount of time between charging the mixer and complete discharge of the concrete into the work, shall be the more restrictive time based on air temperature or concrete temperature below: Charging begins when the cement meets the mixing water or damp aggregates.
a. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
b. For closed top agitating units and truck mixers
1) Concrete Temperature less than 60 deg F, delivery time is 90 minutes.
2) Concrete Temperature between 60 deg F and 85 deg F, delivery time is 60 minutes.
3) Concrete Temperature greater than 85 deg, delivery time is 45 minutes.
2. Continuously agitate the concrete when the time between charging and completion of discharge may exceed 30 minutes.

B. Additional Water at Placement Site: Do not add more water than the approved concrete mix design will allow based on maximum water content and maximum water/cementitious material ratios.
1. Document, on the delivery ticket, all water added after batching.
2. For concrete transported in truck mixers, water may be added if additional mixing water is required to obtain specified slump, and the truck mixer is not loaded over its rated mixing capacity.
3. After all water is added, allow a minimum of 30 revolutions of the truck mixer drum at mixing speed before discharging concrete.
4. Additional water added and completion of the additional mixing at the project site shall be within the elapsed times stated above.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete pavements to identify soft pockets and areas of excess yielding.
1. Completely proof-roll subbase in one direction.
2. Proof-roll with a 10-ton vibratory roller.
3. Subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch shall require correction according to requirements in Division 31 Section "Earth Moving."

3.2 INSTALLATION

A. Edge Forms and Screed Construction: Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
1. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

B. Steel Reinforcement: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
1. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
2. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
3. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

C. Joints, General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.

D. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.
1. Continue steel reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
2. Provide tie bars at sides of pavement strips where indicated.
3. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
4. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

E. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
1. Locate expansion joints at intervals of 50 feet, unless otherwise indicated.
2. Extend joint fillers full width and depth of joint.
3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

F. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.
1. Tooled/Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

G. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

H. Concrete Placement: Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
1. Moisten subbase to provide a uniform dampened condition at time concrete is placed.
2. Do not add water to fresh concrete after testing.
3. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
4. Screed pavement surfaces with a straightedge and strike off.
5. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
6. Curbs and Gutters: When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.
7. Slip-Form Pavers: When automatic machine placement is used for pavement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce pavement to required thickness, lines, grades, finish, and jointing as required for formed pavement.
a. Compact subbase and prepare subgrade of sufficient width to prevent displacement of paver machine during operations.
8. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.
9. Cold-Weather Placement: Comply with ACI 306.1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
10. Hot-Weather Placement: Comply with ACI 301 when hot-weather conditions exist.

3.3 FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
1. Medium-to-Fine Texture Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.

3.4 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, or a combination of these methods.

3.5 PAVING TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:
1. Elevation: 1/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot long, unleveled straightedge not to exceed 1/4 inch.
4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch (25 mm).
5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch (6 mm).
6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch (13 mm).
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches (6 mm per 300 mm).
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.6 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Allow concrete pavement to cure for 28 days and be dry before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least 1 composite sample for each 100 cu. yd or fraction thereof of each concrete mix placed each day.
a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 2 specimens at 28 days.
a. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls.

D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of testing agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.

G. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Engineer.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 32 13 73 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Expansion and contraction joints within cement concrete pavement.
2. Joints between cement concrete and asphalt pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants.

C. Product certificates.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.4 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 50 deg F.
2. When joint substrates are wet or covered with frost.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.
1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 FIBER JOINT FILLER

A. Shall conform to the requirements of ASTM D 1751 or an approved manufacturers:
1. W.R. Meadow Co.
2. Knight-Celotex, LLC.
3. Right Pointe Company

B. Fiber joint filler shall not be deformed or broken by ordinary twisting, bedding, or handling when exposed to atmospheric conditions.

2.3 COLD-APPLIED JOINT SEALANTS

A. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
1. Products:
a. Crafco Inc.; RoadSaver Silicone SL.
b. Dow Corning Corporation; 890-SL.
c. Or Approved Equal

2.4 HOT-APPLIED JOINT SEALANTS

A. Shall conform to ASTM D 3405 and the following exceptions:
1. Bond: Sealant will be tested at -20 deg F for 3 complete cycles at 100 percent extension
2. Penetration at 77 deg F: Penetration must be 130x20.
3. Penetration at 0 deg F: Penetration must not less than 40. Prepare and test two specimens ater 24 hours of conditioning at 0 deg F. Complete the test within 20 seconds after removal from the freezer.
4. Use 2NS sand as the fine aggregate in concrete mixture for bond blocks.
5. Allow at least 14 days from receipt of the sample to the time of reporting results.
6. Material containers must be legibly marked with a non-fading, weather resistant ink or paint. Include the manufacturer's name or trade name, batch number, recommended pouring temperature, and the maximum safe heating temperature on the label.

2.5 JOINT-SEALANT BACKER MATERIAL

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold and Hot-Applied Sealants: Shall be solid, round, heat resistant, closed-cell, cross-linked polyethylene foam rod conforming to ASTM D 5249, Type 1.

C. Backer Strips for Cold and Hot-Applied Sealants: ASTM D 5249, Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.6 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.1 INSTALLATION OF COLD APPLIED JOINT SEALANTS

A. Re-cutting Joints: All joints in concrete pavement shall be re-sawn per the details in the plans to remove the temporary hot applied joint sealant and in accordance with Section 32 Concrete Paving.

B. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealer manufacturer's written instructions.

C. Joint Priming: Prime joint substrates where indicated or where recommended in writing by the joint sealant manufacturer, based on preconstruction joint sealant substrate tests or prior experience.

D. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

E. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of backer materials.
2. Do not stretch, twist, puncture, or tear backer materials.
3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses provided for each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.

H. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

3.2 INSTALLATION OF HOT APPLIED JOINT SEALANTS

A. Cleaning of Joints: Clean all joints, including the surface of the pavement next to the joint groove with appropriate tools and equipment to remove slurry, stones, or other foreign materials.
1. Blast clean the faces of all joints with an oil-free dry abrasive just before sealing.
2. Give all joints a final cleaning with a jet of compressed air, free of oil and water, having a minimum pressure of 90 psi.

B. Sealing Joints: Seal longitudinal joints before sealing transverse joints.
1. Seal the joints immediately after the joints are cleaned. Joint surfaces must be dry when sealed.
2. Melt the sealant in the heating kettle. Do not heat directly. Do not use sealants heated to more than the safe heating temperature recommended by the manufacturer.
3. Apply joint sealant using a pressure applicator with a nozzle that extends into the groove.

C. Remove all sealant from the surface of the pavement.

D. Cure the sealant sufficiently to resist pickup before allowing traffic over the sealed joint.

3.3 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.4 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 321373

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ISSUED FOR:

1	OWNER REVIEW 05-11-2026	D: WKT C: JMT
2	CONSTRUCTION DOCS 05-22-2026	D: AVV C: JMT
3	CONSTRUCTION DOCS REV. 06-04-2026	D: AVV C: TJH
4	CONSTRUCTION DOCS REV. 06-17-2025	D: AVV C: TJH

Project Manager:
TOM J HOHM

Project #
2450296.1A

Sheet Title:
SPECIFICATIONS

Sheet #
C-502
X of 5

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SECTION 32 92 00 – TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the furnishing and installation of the major items listed below:
1. Seed.
2. Fertilizer.
3. Mulch.
4. Sod.
5. Dune grass.

1.3 REFERENCES

A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
1. State DOT Current Standards
a. Specifications for Construction.
b. Standard Plans.

1.4 DEFINITIONS

A. Follow-up Maintenance: Maintenance required when seeding, sodding, or other vegetative practices do not achieve the desired degree of stabilization.

B. Periodic Maintenance: Maintenance performed after the vegetation has been established.

1.5 LOCATION

A. Sodded Areas: As indicated on the Drawings.

B. Seeded Areas: All disturbed areas within the project limits not covered by other surface improvements or features.

C. Mulch Blankets: As indicated on the Drawings.

1.6 SUBMITTALS

A. Action Submittals: Product Data for mulch blanket.

B. Informational Submittals:
1. Samples: For netting and mulch blanket.
2. Supplier's certified analysis for each seed and fertilizer mixture required.

1.7 QUALITY ASSURANCE

A. Fabrication and Installation Personnel Qualifications:
1. Trained and experienced in the fabrication and installation of the materials and equipment.
2. Knowledgeable of the design and the reviewed Submittals.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable.

B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.

C. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil: In accordance with Division 31 Section Grading.

B. Fertilizer and Lime:
1. Use Organic/Organic-Based Fertilizer: 21-22-4 fertilizer with 0.08% Mesotrione (or approved equal)
2. Liquid Fertilizer for Hydroseed: 16-32-4 containing no chlorine.

C. Seed:
1. Mixture composed of certified seed of the following purity, germination, and proportions by Weight:
a. Lawns: Rhino Tuff Stuff Mix:
1) 70% 3-WAY TURF TYPE TL. FES. BLEND.
2) 20% TURF TYPE PER. RYE.
3) 10% KY. BLUE.
4) Phone: 877-744-6657
5) Approved Equal.
2. Furnish seed in durable bags, each marked by the supplier of the blended mix with a tag giving name, lot number, net weight of contents, purity, and germination.

D. Mulch:
1. Small Grain:
a. Straw.
b. Hay.
2. Anchoring Material for Small Grain Mulch:
a. Netting:
1) Biodegradable.
2) Openings not to exceed 1-1/2 inches x 2 inches.
3) Minimum Roll Width: 35 inches.
4) Anchoring Staples or Pins: Wood pegs at least 6 inches long. Steel wire not permitted.
3. Hydromulch:
a. Slurry: Minimum 60% wood fiber mulch with remaining being recycled cellulose fibers.
b. Tackifier:
1) Manufacturers: Finn Fiber Plus; Finn Fiber Gum; or equal.
2) Synthetic fiber or gum.
4. Mulch Blankets:
a. Biodegradable:
1) Straw: North American Green S-75 or equal.
2) Coconut: North American Green C-125; or equal.
3) Straw and Coconut: North American Green SC-150; or equal.
b. Non Degradable Polyester: North American Green P-300; or equal.
c. Anchoring Staples or Pins:
1) Hardwood stakes at least 6 inches long.
2) North American Green Bio-Stake blanket pins at least 6 inches long.

E. Sod: Comply with MDOT Section 917.13

PART 3 - EXECUTION

3.1 TOPSOIL

A. In accordance with Division 31 Section

3.2 SEEDBED PREPARATION

A. General:
1. After the areas to be seeded have been brought to the required grade and properly trimmed, Use Rota- Dairon soil renovator, drill seed in 2 directions.
2. If the prepared seedbed is not fertilized, satisfactorily seeded, and mulched before the friable condition is lost through compaction or crusting, repeat the seedbed preparation prior to seeding or reseeding.

B. Raking: Rake prepared seedbed before seeding.

3.3 FERTILIZING

A. Dry Fertilizer:
1. Broadcast on surface as first step in seeding process.
2. Apply with seeding if drilled.
3. Work fertilizer into the soil to a depth of 1-inch to 2 inches.
4. Apply uniformly.
5. Application Rate: 21-22-4 w/Meso is packaged in a 40 lb. poly bag and has a typical use rate of 187 lbs./acre, which applies the target rate of 0.15 lbs. of Mesotrione

B. Hydroseeding:
1. Apply fertilizer with seed.
2. Application Rate: Equivalent to 6.25 pounds per 1,000 square feet of 16-32-4.

3.4 SEEDING

A. Scheduling:
1. Within 7 days from the time the area was first disturbed.
2. Channel Banks: Within 24 hours from the time the area was first disturbed.
3. Seasonal Limitations:
a. April 20 through November 1 .
b. Dormant seeding after November 1.

B. Sowing:
1. Sow the seed following or in conjunction with the fertilizer and while the seed bed is in a friable condition.
2. Do not sow seeds through mulch.
3. Use PLS to adjust the seeding rate.
4. Application Rate:
a. Lawn Areas: Sow seed at a minimum rate of 8-10pounds per 1,000 square feet.
b. Other Areas: Sow seed at a minimum rate of 350-435 lbs per acre.

C. Finishing: Float and lightly compact areas sown by hydro-seeder or the broadcast method to incorporate the seed into the uppermost 1/2-inch of the soil.

D. Method:
1. Broadcast: Do not seed when wind velocity exceeds 5 miles per hour.
2. Mechanical drills.
3. Hydroseeder:
a. Use only equipment specifically designed for hydraulic seeding application.
b. Mix seed, fertilizer and pulverized mulch in water until uniformly blended into homogeneous slurry.
c. Continue mixing during application.

E. Satisfactory Seeded or Hydroseeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 3 by 3 inches.

F. Seed on Slopes: Protect seeded slopes against erosion with mulch blanket.

3.5 MULCHING

A. Small Grain Mulch:
1. Application:
a. Immediately after seeding.
b. Uniform distribution.
c. Allow sunlight to penetrate mulch.
2. Application Rate: Two tons per acre (2-1/2 bales per 1000 square feet).
3. Anchoring:
a. Mulch anchoring tool.
b. Netting.

B. Hydromulch:
1. Apply with hydroseed or following seeding by other method.
2. Application Rate: 2,000 pounds per acre.
3. Do not apply if rain is anticipated within 24 hours. Reapplication is required after rain damage at Contractor's expense.

C. Mulch Blankets:
1. Netting on top.
2. Fibers in direct contact with soil.
3. Staple in accordance with Manufacturer's guidelines for slope conditions.
4. Direction of Installation:
a. Direction of flow of water in intermittent and ephemeral drains.
b. Perpendicular to sideslopes above normal water level in perennial drains.

3.6 SOD BED PREPARATION

A. Make Area to be Sodded:
1. Smooth and uniform.
2. Parallel to the finished grade and cross sections indicated on the Drawings.

3.7 LAYING SOD

A. General:
1. Moisten sod and place on a moist earth bed.
2. Lay sod within 24 hours after cutting and properly protect it until placed.
3. Carefully place the sod by hand in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward.
4. Do not use pitch forks to handle sod. Dumping from vehicles will not be permitted.
5. Extend bottom edge of sodded areas at least 2 inches into the ground or ditch bottom.
6. Break transverse joints of sod strips and carefully lay sod to produce tight joints.
7. When the sod may be displaced during sodding operations, work from ladders or treaded planks.
8. Firmly compact the sod by tamping immediately after it is placed.
9. After tamping, the sod shall present a smooth, even surface free from bumps and depressions.

B. Sod on Slopes:
1. On slopes steeper than 1 vertical to 3 horizontal, peg the sod with wooden pegs.
2. Space pegs not over 2 feet apart in any direction.
3. Drive pegs flush with the surface of the sod.

C. Frozen Materials:
1. Do not place frozen sod.
2. Do not place sod on frozen soil. Section 32 92 00

D. Watering: After placing sod, water with an initial application of 15 gallons per 100 square feet.

3.8 MAINTENANCE

A. General:
1. Contractor: Responsible for follow-up maintenance.
2. Contractor responsible for periodic maintenance for 60 days between April and October after completion of areas of seeding or sodding. November through March are excluded.

B. Follow-up Maintenance:
1. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed. Reseed, sod, plant, fertilize, mulch, topsoil, grade and roll as necessary to achieve a uniform lawn stand of grass free from eroded or bare areas.
2. Water sodded and seeded areas as required to maintain the viability of the Product.

C. Periodic Maintenance:
1. Mow turf as soon as soil can support mowing equipment and turf is present. Repeat mowing weekly and height appropriate for species without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings.
2. Spot seed areas damaged by traffic or other means.

SECTION 33 41 00 - STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes gravity-flow, nonpressure storm drainage outside the building, with the following components:
1. Storm sewer piping.
2. Cleanouts.
3. Precast concrete manholes and catch basins.
4. Subsurface storm water storage system.

B. All work necessary for completion but not specifically listed as a pay item will be deemed to be included in one or more of the Bid Form items.

C. If this document conflicts with the standards and requirements of any agencies having jurisdiction, then the standards and requirements of the agencies having jurisdiction shall override this document.

D. If discrepancies exist between specification sections, Contractor shall verify with Engineer which section to follow prior to ordering materials and/or installing product.

1.2 DEFINITIONS

A. PE: Polyethylene plastic.

B. PVC: Polyvinyl chloride plastic.

C. RCP: Reinforced Concrete Pipe

D. NPS: Nominal Pipe Size

1.3 SUBMITTALS

A. Shop Drawings: For the following:
1. Manholes: Include plans, elevations, sections, details, and frames and covers.
2. Catch Basins. Include plans, elevations, sections, details, and frames, covers, and grates.
3. Subsurface Storm Water Management System:
a. Submit proposed layout drawings and cross-sections.
b. Submit manufacturer's product data, including compressive strength and unit weight.
c. Submit Inspection Port product data and information.

1.4 PERFORMANCE REQUIREMENTS

A. Gravity-Flow, Nonpressure, Drainage-Piping Pressure Rating: 10-foot head of water. Pipe joints shall be at least siltight, unless otherwise indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic manholes, pipe, fittings, or subsurface storm water management system in direct sunlight.

B. Cold weather:
1. Care must be taken when handling plastics when air temperature is at 40 degrees or below as plastic becomes brittle.
2. Do not use frozen materials or materials mixed or coated with ice or frost.

C. Protect pipe, pipe fittings, and seals from dirt and damage.

D. Handle manholes and catch basins according to manufacturer's written rigging instructions.

E. Handle subsurface storm water management system in accordance with manufacturer's standards and recommendations

1.6 PREINSTALLATION CONFERENCE

A. A preinstallation conference is required for the subsurface storm water management system per manufacturer's standards and recommendations..

1.8 PROJECT CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
1. Notify Architect or Engineer no fewer than three working days in advance of proposed interruption of service.
2. Do not proceed with interruption of service without Architect's or Engineer's written permission.

B. Coordinate installation of subsurface storm water management with other on-site activities to eliminate all non-installation related construction traffic over the completed system.

C. No loads heavier than the design loads of the subsurface storm water management system shall be allowed over the system and in no case shall loads higher than a standard AASHTO H20 loads be allowed on the system at any time.

D. All Pre-Treatment Systems to remove debris and heavy sediments must be in place and functional prior to operation of the subsurface storm water management system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.

PART 2 - PRODUCTS

2.1 HDPE PIPE AND FITTINGS

A. Perforated Pipe:
1. NPS 3 to 10 inch shall meet ASTM F405 latest revision or ASTM F667 latest revision, and AASHTO M 252M. Type S, with smooth waterway and be perforated
2. NPS 12 to 60 inch shall meet ASTM F405 latest revision or ASTM F667 latest revision, and AASHTO M294, Type S, with smooth waterway and be perforated.

B. Solid Wall Pipe: Shall meet ASTM F405 latest revision or ASTM F667 latest revision, and AASHTO M 252 or AASHTO M294, Type S, with smooth waterway.

2.2 PVC PIPE AND FITTINGS

A. PVC Sewer Pipe and Fittings, NPS 15 and Smaller: ASTM D 3034, SDR 35 with bell-and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.

2.3 CONCRETE PIPE AND FITTINGS

A. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C 76, Class III, with bell-and-spigot ends and gasketed joints with ASTM C 443, rubber gaskets.

2.4 NONPRESSURE-TYPE PIPE COUPLINGS

A. Unshielded Flexible Couplings: Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:
1. For Concrete Pipes: ASTM C 443, rubber.
2. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
3.
4. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

C. Nonpressure-Type Rigid Couplings: ASTM C 1461, sleeve-type reducing- or transition-type mechanical coupling molded from ASTM C 1440, TPE material with corrosion-resistant-metal tension band and tightening mechanism on each end.
1. Available Manufacturers:
a. AANCO.
b. Or Approved Equal.

2.5 CLEANOUTS

A. Description: Cast-iron cleanout with threaded adjustable housing, flanged ferrule, brass cleanout plug, and round cast-iron heavy-duty, secured, scoriated cover. Wade Model 6000Z-75-179 or equivalent, unless otherwise detailed on the plans.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Josam Company.
b. MIFAB Manufacturing Inc.
c. Smith, Jay R. Mfg. Co.
d. Wade Div.; Tyler Pipe.
e. Zurn Industries, Inc.; Zurn Specification Drainage Operation.
2. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

2.6 MANHOLES

A. Standard Precast Concrete Manholes: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
1. Diameter: 48 inches minimum, unless otherwise indicated.
2. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
3. Base Section: 6-inch minimum thickness for floor slab and 5-inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor.
4. Riser Sections: 5-inch minimum thickness, and lengths to provide depth indicated.
5. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
6. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
7. Steps: Shall be wide enough to allow worker to place both feet on 1 step and designed to prevent lateral slippage off of step. Cast or anchor steps into sidewalls at 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 3 feet.
8. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and diameter matching manhole frame and cover. Include sealant recommended by ring manufacturer.

2.7 CONCRETE

A. General: Cast-in-place concrete according to ACI 318/318R, ACI 350R, and the following:
1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water-cementitious materials ratio.
1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

C. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water-cementitious materials ratio.
1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

2.8 CATCH BASINS

A. Standard Precast Concrete Catch Basins: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
1. Diameter: As specified on the plans.
2. Base Section: As specified on the plans for floor slab and 4-inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor.
3. Riser Sections: Diameter as specified on the plans, wall thickness to match base section, and lengths to provide depth indicated.
4. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
5. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
6. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and shape matching catch basin frame and grate. Include sealant recommended by ring manufacturer.
7. Grade Rings: Include 2 or 3 reinforced-concrete rings, of 6- to 9-inch total thickness, that match catch basin frame and grate.
8. Steps: for structures 4 feet or greater in diameter. Shall be wide enough to allow worker to place both feet on 1 step and designed to prevent lateral slippage off of step. Cast or anchor steps into sidewalls at 16-inch intervals. Omit steps if total depth from floor of catch basin to finished grade is less than 3 feet.

2.9 MANHOLE / CATCH BASIN FRAME AND COVER

A. Frame: Shall conform to ASTM A48, Class 35B, gray iron construction, coated with tar emulsion
1. Shall be of the type as specified on the plans
2. Approved Suppliers
a. East Jordan Iron Works
b. Neenah Foundry
c. Or Approved equal

B. Cover: Shall conform to ASTM A48, Class 35B, gray iron construction, coated with tar emulsion
1. Shall be of the type as specified on the plans
2. Approved Suppliers
a. East Jordan Iron Works
b. Neenah Foundry
c. Or Approved Equal

2.10 SUBSURFACE STORM WATER STORAGE SYSTEM

A. Corrugated HDPE Arch Structures for Subsurface Storage Water Storage.
1. Design: Must meet a minimum requirement of H-20 live loads.
2. Corrugated HDPE Arch Structures: ASTM F 2418-05 entitled "Standard Specification for PE Corrugated Wall Stormwater Collection Chambers".
3. Recommended Product: StormTech provided by ADS or approved equal.
4. Size: Use chamber size as specified on Drawings or as determined by manufacturer with Engineer's review.
5. Stone: As specified on Drawings and as recommended by manufacturer with Engineer's review.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, backfilling, and warning tapes are specified in Division 31 Section "Earth Moving."

3.2 PIPING APPLICATIONS

A. Pipe couplings and special pipe fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.
1. Use non-pressure-type flexible couplings where required to join gravity-flow, non-pressure sewer piping, unless otherwise indicated.
a. Flexible or rigid couplings for same or minor difference OD pipes.
b. Unshielded, increaser/reducer-pattern, flexible or rigid couplings for pipes with different OD.
c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

B. Gravity-Flow, Non-pressure Sewer Piping: Use piping material as specified on Drawings.

3.3 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.

D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. Tunneling: Install pipe under streets or other obstructions that cannot be disturbed by tunneling, jacking, or a combination of both.

F. Install gravity-flow, nonpressure drainage piping according to the following:
1. Install piping pitched down in direction of flow, at minimum slope of as specified on the plans.
2. Install piping with cover as specified on plans.
3. Install PE corrugated sewer piping according to CPPA's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings."
4. Install reinforced-concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."

3.4 PIPE JOINT CONSTRUCTION

A. Basic pipe joint construction specified in Division 2 Section "Piped Utilities - Basic Materials and Methods." Where specific joint construction is not indicated, follow piping manufacturer's written instructions.

B. Join gravity-flow, nonpressure drainage piping according to the following:
1. Join corrugated PE piping according to CPPA 100 and the following:
a. Use siltight couplings for Type 1, siltight joints.
b. Use siltight couplings for Type 2, siltight joints.
2. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasket joints.
3. Join dissimilar pipe materials with nonpressure-type flexible or rigid couplings.
4. Join dissimilar pipe materials with pressure-type couplings.

3.5 CLEANOUT INSTALLATION

A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.

B. Set cleanout frames and covers in earth in cast-in-place-concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding grade.

C. Set cleanout frames and covers in pavement with tops flush with pavement surface.

3.6 MANHOLE INSTALLATION

A. General: Install manholes, complete with appurtenances and accessories indicated.

B. Install precast concrete sections with sealants according to ASTM C 891.

C. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops of frames and covers at elevations indicated.

3.7 CATCH BASIN INSTALLATION

A. General: Install catch basins, complete with appurtenances and accessories indicated.

B. Install precast concrete sections with sealants according to ASTM C 891.

C. Set tops of frames and covers at elevations indicated

3.8 SUBSURFACE STORM WATER STORAGE SYSTEM INSTALLATION

A. System layout shall be per project Drawings or as designed by manufacturer with Engineer's review and approval.

B. Contact Engineer if indications of a water table are observed during excavation.

C. Excavate and install subsurface storm water storage system in accordance with manufacturer's recommendations.

D. Install detectable warning tape along limits of the subsurface storm water storage system to a depth of 30-inches or less for future locating of the system.

E. Install Inspection and Maintenance Ports in locations noted on Drawings and as recommended by manufacturer.

F. Install connections as recommended by manufacturer.

G. Loading and compaction shall be per manufacturer's recommendations.

3.9 CONNECTIONS

A. Connect nonpressure, gravity-flow drainage piping to building's storm building drains specified in Division 22.

B. Make connections to existing piping and underground structures so that finished work will conform as nearly as practicable to the requirements specified for new work and with municipal storm system requirements.

3.10 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
1. Submit separate report for each system inspection.
2. Defects requiring correction include the following:
a. Alignment: Less than full diameter of inside of pipe is visible between structures.
b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
c. Crushed, broken, cracked, or otherwise damaged piping.
3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Leaks and loss in test pressure constitute defects that must be repaired in areas of where watertight storm drainage is intended.

C. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified in areas of where watertight storm drainage is intended.

3.11 CLEANING

A. Clean interior of piping and storm sewer system components to be free of dirt and superfluous materials.

B. Remove sediment from all manholes, catch basins, and leach basins at final completion of construction.

END OF SECTION 334100

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ROOD HALL BUS STOP
2101 WILBUR STREET, KALAMAZOO, 49007
SECTION 20, T02S, R11W
-FOR-
CENTRAL COUNTY TRANSPORTATION AUTHORITY
530 NORTH ROSE STREET, KALAMAZOO, MI 49007

ISSUED FOR:

1	OWNER REVIEW 05-11-2026	D: WKT C: JMT
2	CONSTRUCTION DOCS 05-22-2026	D: AVV C: JMT
3	CONSTRUCTION DOCS REV. 06-04-2026	D: AVV C: TJH
4	CONSTRUCTION DOCS REV. 06-17-2026	D: AVV C: TJH

Project Manager: TOM J HOHM
Project # 2450296.1A
Sheet Title: SPECIFICATIONS
Sheet # C-503
X of 5

File Name: Z:\Shared\Kalamazoo\Projects\2026\2650362.1A\dwg\2650362.1A - SITE 3.dwg Last Saved: 6/17/2026 10:16:49 AM

SECTION 334600 - UNDERDRAINAGE SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Attention is directed to Bidding and Contract Requirements, and General and Supplemental Requirements, which are hereby made a part of this Section.

1.2 DESCRIPTION OF WORK:

A. Extent of Underdrainage System work is shown on drawings.

B. Underdrainage System Work Includes the Following:
1. Perforated underdrains and connections to existing manholes and catch basins.
2. Rigid drainage system beneath pavement.
3. Segmental retaining walls.
4. Landscape areas.
5. Foundations.
6. Pavement and underslab areas.
7. Cast-in-place retaining walls.

1.3 SUBMITTALS:

A. Product Data: Submit manufacturer's technical product data and installation instructions for underdrainage system materials and products.

B. Certification: Submit certification signed by underdrainage system installer that installed materials conform to specified requirements and system was successfully checked and tested prior to covering with drainage fill.

C. Record Drawings: At project closeout, submit record drawings of installed underdrainage system piping and products.

1.4 QUALITY ASSURANCE:

A. Installers' Qualifications: Firm with at least 3 years of successful installation experience on projects with underdrainage system work similar to that required for project.

B. Codes and Standards:
1. Plumbing Code Compliance: Comply with applicable portions of National Standard Plumbing Code pertaining to selection and installation of underdrainage system's materials and products.

PART 2 - PRODUCTS

2.1 CONDUCTING PIPES AND PIPE FITTINGS:

A. General: Provide pipes of the following materials, of weight/class indicated. Provide pipefittings and accessories of same material and weight/class as pipes, with joining method as indicated. See drawings for size of pipe required.

2.2 PERFORATED DRAINS - SEGMENTAL RETAINING WALLS AND LANDSCAPE AREAS:

A. Furnish drainage pipe complete with bends, reducers, adapters, couplings, collars and joint materials.

B. Provide perforated, corrugated, single wall polyethylene tubing, ASTM F-405.

C. Manufacturer: Subject to compliance with requirements, provide drainage system products of one of the following:
1. Advanced Drainage Systems, Inc., 4640 Trueman Blvd., Hilliard, OH 43026, (800) 821-6710
2. Other approved.

2.3 RIGID DRAINAGE SYSTEM BENEATH PAVEMENT - SEGMENTAL RETAINING WALLS AND LANDSCAPE AREAS:

A. Provide polyvinyl chloride tubing for drainage and sleeving; see plans for sizing. All material shall be rigid, unplasticized, extruded from virgin parent material. Tubing shall conform with ASTM D-2241 Classification. Pipe shall be Schedule 40, homogeneous throughout and free from visible cracks, holes, foreign materials, blisters, wormholes or dents.

B. Provide insert polyethylene fittings, ASTM D-2609, or PVC fittings with gasketed joints.

2.4 TRENCH MATERIALS - SEGMENTAL RETAINING WALLS AND LANDSCAPE AREAS:

A. Drainage Fill (Perforated): Evenly graded mixture of clean, washed pea stone.

B. Impervious Fill (Rigid): Clayey gravel and sand mixture capable of compacting to a dense composite.

C. Filter Fabric: Approved non-woven cloth filter fabric from one of the following suppliers, or approved substitute:
1. US Fabrics US 160NW
2. Mirafi 140 N.

2.5 PERFORATED DRAINS AND FITTINGS - UNDER PAVEMENT AND AT FOUNDATIONS AND CIP RETAINING WALLS:

A. Smooth PE Pipe and Fittings:
1. NPS 6 and Smaller: ASTM F 405 or AASHTO M 252, Type CP; corrugated, for coupled joints.
2. NPS 8 and Larger: ASTM F 667; AASHTO M 252, Type CP; or AASHTO M 294, Type CP; corrugated; for coupled joints.
3. Couplings: Manufacturer's standard, band type.

B. Smooth PVC Sewer Pipe and Fittings: shall meet AASHTO M 278.

C. Corrugated Pipe and Fittings:
1. Rigid PE Pipe shall conform to AASHTO M 294 and AASHTO M 278, and shall be smooth lined.
2. Flexible PE Pipe shall conform to AASHTO M 252
3. PVC Pipe shall conform to ASTM F 949
4. Corrugations shall conform to AASHTO M 252.

2.6 SOLID-WALL PIPES AND FITTINGS - UNDER PAVEMENT AND AT FOUNDATIONS AND CIP RETAINING WALLS:

A. PE Drainage Tubing and Fittings: AASHTO M 252, Type S, corrugated, with smooth waterway, for coupled joints.
1. Couplings: AASHTO M 252; corrugated, band type, matching tubing and fittings.

B. PE Pipe and Fittings: AASHTO M 294, Type S, corrugated, with smooth waterway, for coupled joints.
1. Couplings: AASHTO M 294, corrugated, band type, matching tubing and fittings.

C. PVC Sewer Pipe and Fittings: ASTM D 3034, SDR 35, bell-and-spigot ends, for gasketed joints.
1. Gaskets: ASTM F 477, elastomeric seal.

D. ABS Sewer Pipe and Fittings: ASTM D 2751.
1. Solvent Cement: ASTM D 2235.
2. Gaskets: ASTM F 477, elastomeric seal.

2.7 CLEANOUTS

A. Cast-Iron Cleanouts: Shall be used under traffic loading conditions and in accordance with ASME A112.36.2M, with round-flanged, cast-iron housing; and secured, scoriated, Medium-Duty Loading class, cast-iron cover. Include cast-iron ferrule and countersunk, brass cleanout plug.

B. PVC Cleanouts: Shall only be used in landscape areas, and in accordance with ASTM D 3034, PVC cleanout threaded plug and threaded pipe hub.

2.8 SOIL MATERIALS

A. Soil materials are specified in Section 31 2000 "Earth Moving."

2.9 WATERPROOFING FELTS

A. Material: Comply with ASTM D 226, Type I, asphalt) or ASTM D 227, coal-tar-saturated organic felt.

2.10 GEOTEXTILE FILTER FABRICS

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
1. Survivability: Class 2; AASHTO M 288.
2. Style(s): Flat or Sock.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Installer must examine the areas and conditions under which underdrainage system work is to be installed and notify the General Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

B. If subdrainage is required, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.

3.2 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 31 2000 "Earth Moving."

3.3 PERFORATED DRAINAGE SYSTEM - SEGMENTAL RETAINING WALLS AND LANDSCAPE AREAS:

A. Excavation:
1. Excavate for underdrainage system to provide a clear horizontal distance between drain pipe and trench wall on both sides not less than 2 times diameter of drain pipe and sufficient depth to provide not less than 4" compacted impervious fill unless subgrade is already equivalent of impervious fill. Grade bottom of trench excavations to required slope and compact to a firm, solid bed for drain system.
2. Install and compact drainage fill material to not less than 4" depth in bottom of trench.

B. Laying Drain Pipe:
1. Lay perforated pipe solidly bedded in filtering material (pea stone). Provide full bearing for each pipe section throughout its length to true grades and alignment, and continuous slope in the direction of flow.
2. Lay perforated pipe with perforations down and joints tightly closed in accordance with pipe manufacturer's recommendations. Provide collars and couplings as required.
3. Connect pipe runs per plans. Provide positive unobstructed flow.
4. Clean out drainage system, remove all soil and debris that has entered system during construction.

C. Testing Drainage Lines:
1. Test or check lines before backfilling to assure free flow. Remove obstructions, replace damaged components and retest system until satisfactory.
2. After testing drain lines, place not less than 4" additional drainage fill material on top of drain line and either side.

D. Drainage Fill: (Type 1 Drainage Trench)
1. Backfill trench with drainage fill to encapsulate, cover and fill trench to within 4" of finish grade.
2. Cover trench with non-woven cloth filter fabric prior to back filling with soil.
3. Install and compact topsoil over trench as indicated in typical detail.

E. Drainage Fill: (Type 2 Conducting Trench)
1. Backfill trench with drainage fill to encapsulate, cover and fill trench to minimum 4" over top of drainage pipe.
2. Cover backfill with non-woven cloth filter fabric. Ensure complete coverage of drainage fill prior to backfilling trench with soil.
3. Backfill remainder of trench with native excavated material, breakup clumps so as not to exceed 1" in diameter, to within 4" of finish grade.
4. Install and compact topsoil over trench as indicated in typical detail.

3.4 RIGID DRAIN SYSTEM - SEGMENTAL RETAINING WALLS AND LANDSCAPE AREAS:

A. Excavation:
1. Excavate for underdrainage system to provide a clear horizontal distance between drain pipe and trench wall on both sides not less than 2 times diameter of drain pipe and sufficient depth to provide not less than 4" compacted impervious fill unless subgrade is already equivalent of impervious fill. Grade bottom of trench excavations to required slope and compact to a firm, solid bed for drain system.
2. Install and compact impervious fill material to not less than 4" depth in bottom of trench.

B. Laying Drain Pipe:
1. Lay drainpipe solidly bedded in compacted sand material 95% density (see drawings). Provide full bearing for each pipe section throughout its length, to true grades and alignment, and continuous slope in the direction of flow.
2. Lay rigid pipe with joints tightly closed in accordance with pipe manufacturer's recommendations. Provide collars and couplings as required.
3. Connect rigid PVC to perforated drain tile at walks. Provide positive unobstructed flow.
4. Clean out drainage system, remove all soil and debris that has entered system during construction.

C. Testing Drain Lines:
1. Test or check lines before backfilling to assure free flow. Remove obstructions, replace damaged components, and retest system until satisfactory.
2. After testing drain lines, place not less than 4" additional impervious fill material top of drains and either side.

D. Drainage Fill:
1. Backfill impervious fill (gravel/sand mixture) to encapsulate, cover and fill trench. Compact to within 4" of finish grade depth as indicated in typical detail on drawings.
2. Install and compact topsoil over trench as indicated in typical detail.

3.5 FOUNDATION DRAINAGE INSTALLATION

A. Place impervious fill material on subgrade adjacent to bottom of footing after concrete footing forms have been removed. Place and compact impervious fill to dimensions indicated, but not less than 6 inches (150 mm) deep and 12 inches (300 mm) wide.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches (100 mm).

D. Encase pipe with sock-style geotextile filter fabric before installing pipe. Connect sock sections with adhesive or tape.

E. Install drainage piping as indicated in Part 3 "Piping Installation" Article for foundation subdrainage.

F. Add drainage course to width of at least 6 inches (150 mm) on side away from wall and to top of pipe to perform tests.

G. After satisfactory testing, cover drainage piping with drainage course to elevation of bottom of slab, and compact and wrap top of drainage course with flat-style geotextile filter fabric.

H. Install drainage panels as follows:
1. Coordinate placement with other drainage materials.
2. Lay perforated drainage pipe at base of footing. Install as indicated in Part 3 "Piping Installation" Article.
3. Separate 4 inches (100 mm) of fabric at beginning of roll and cut away 4 inches (100 mm) of core. Wrap fabric around end of remaining core.
4. Attach panels to wall beginning at subdrainage pipe. Place and secure molded-sheet drainage panels, with geotextile facing away from wall.

Place layer of **[flat-style geotextile filter fabric] [waterproofing felt]** over top of drainage course, overlapping edges at least 4 inches (100 mm).

I. Place layer of waterproofing felt over top of drainage course, overlapping edges at least 4 inches (100 mm).

J. Install drainage panels on foundation walls as follows:
1. Coordinate placement with other drainage materials.
2. Lay perforated drainage pipe at base of footing. Install as indicated in Part 3 "Piping Installation" Article.
3. Separate 4 inches (100 mm) of fabric at beginning of roll and cut away 4 inches (100 mm) of core. Wrap fabric around end of remaining core.
4. Attach panels to wall beginning at subdrainage pipe. Place and secure molded-sheet drainage panels, with geotextile facing away from wall.

Place layer of **[flat-style geotextile filter fabric] [waterproofing felt]** over top of drainage course, overlapping edges at least 4 inches (100 mm).

K. Place backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches (150 mm). Thoroughly compact each layer. Final backfill to finish elevations and slope away from building.

3.6 PAVEMENT AND UNDERSLAB DRAINAGE INSTALLATION

A. Excavate for underslab drainage system after subgrade material has been compacted but before drainage course has been placed. Include horizontal distance of at least 6 inches (150 mm) between drainage pipe and trench walls. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches (100 mm).

D. Encase pipe with sock-style geotextile filter fabric before installing pipe. Connect sock sections with adhesive or tape.

E. Install drainage piping as indicated in Part 3 "Piping Installation" Article for underslab subdrainage.

F. Add drainage course to width of at least 6 inches (150 mm) on side away from wall and to top of pipe to perform tests.

G. After satisfactory testing, cover drainage piping with drainage course to elevation of bottom of slab, and compact and wrap top of drainage course with flat-style geotextile filter fabric.

H. Install horizontal drainage panels as follows:
1. Coordinate placement with other drainage materials.
2. Lay perforated drainage pipe at inside edge of footing.
3. Place drainage panel over drainage pipe with core side up. Peel back fabric and wrap fabric around pipe. Locate top of core at bottom elevation of floor slab.
4. Butt additional panels against other installed panels. If panels have plastic flanges, overlap installed panel with flange.

3.7 CAST-IN-PLACE RETAINING/WALL DRAINAGE INSTALLATION

Retain one of first two paragraphs below.

A. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

B. Place supporting layer of drainage course over compacted subgrade to compacted depth of not less than 4 inches.

C. Encase pipe with sock-style geotextile filter fabric before installing pipe. Connect sock sections with adhesive or tape.

D. Install drainage piping as indicated in Part 3 "Piping Installation" Article for retaining-wall subdrainage.

E. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

F. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe to within 12 inches of finish grade.

G. Place drainage course in layers not exceeding 3 inches in loose depth; compact each layer placed and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Fill to Grade: Place satisfactory soil fill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish grade.

3.8 PIPING INSTALLATION

A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.
1. Segmental Retaining-Wall Subdrainage: Install piping per section 3.3 B of this specification.
2. Landscape Bed Subdrainage: Install piping per section 3.4 B of this specification.
3. Foundation Subdrainage: Install piping level and with a minimum cover of 36 inches (915 mm) unless otherwise indicated.
4. Pavement and Underslab Subdrainage: Install piping level.
5. Cast-in-Place Retaining-Wall Subdrainage: When water discharges at end of wall into stormwater piping system, install piping level and with a minimum cover of 36 inches (915 mm) unless otherwise indicated.

Retaining-Wall Subdrainage:

Lay perforated pipe with perforations down.

Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

C. Install thermoplastic piping according to ASTM D 2321.

3.9 PIPE JOINT CONSTRUCTION

A. Join PE pipe, tubing, and fittings with couplings for soil-tight joints according to AASHTO's "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4, "Joint Properties."

B. Join perforated PE pipe and fittings with couplings according to ASTM D 3212 with loose banded, coupled, or push-on joints.

C. Join PVC pipe and fittings according to ASTM D 3034 with elastomeric seal gaskets according to ASTM D 2321.

D. Special Pipe Couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.10 CLEANOUT INSTALLATION

A. Comply with requirements for cleanouts specified in Section 33 4100 "Storm Utility Drainage Piping."

B. Cleanouts for Subdrainage:
1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
2. In vehicular-traffic areas, set cleanout frames and covers in a cast-in-place concrete anchor, 18 by 18 by 12 inches in depth. Set top of cleanout flush with grade.
3. In nonvehicular-traffic areas, set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches in depth. Set top of cleanout plug 1 inch above grade.

3.11 CONNECTIONS

A. Comply with requirements for piping specified in Section 33 4100 "Storm Utility Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect low elevations of subdrainage system to solid-wall-piping storm drainage system.

C. Where required, connect low elevations of subdrainage to stormwater sump pumps. Comply with requirements for sump pumps specified in Section 22 1429 "Sump Pumps."

3.12 BACKFILLING:

A. General: Conduct backfill operations closely following laying, jointing, and bedding of pipe, and after initial inspection and testing are completed.

3.13 FIELD QUALITY CONTROL:

A. Testing and Inspections:
1. Perform testing of completed piping in accordance with local authorities having jurisdiction.
2. After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling.
3. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

B. Drain piping will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.14 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION 334600

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

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CONSTRUCTION

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ROOD HALL BUS STOP
2101 WILBUR STREET, KALAMAZOO, 49007
SECTION 20, T02S, R11W
-FOR-
CENTRAL COUNTY TRANSPORTATION AUTHORITY
530 NORTH ROSE STREET, KALAMAZOO, MI 49007

ISSUED FOR:

1	OWNER REVIEW 05-11-2026	D: WKT C: JMT
2	CONSTRUCTION DOCS 05-22-2026	D: AVV C: JMT
3	CONSTRUCTION DOCS REV. 06-04-2026	D: AVV C: TJH
4	CONSTRUCTION DOCS REV. 06-17-2026	D: AVV C: TJH

Project Manager: TOM J HOHM

Project # 2450296.1A

Sheet Title: SPECIFICATIONS

Sheet # C-504

X of 5

Attachment C – ADDITIONAL - WMU Insurance Requirements

Rood Hall Bus Stop Site Improvements

Bid Reference #: 91244-053.0

Exhibit B

Office of Legal Affairs, Risk and Compliance

To: Sean McBride, Metro Executive Director

From: Michele Cole, Sr. Director, Risk Management

Re: Insurance Requirements

These are the insurance requirements for the project Metro has secured with the Michigan Department of Transportation.

*General Liability: $1M per occur/ $2M aggregate
*Workers' Comp and Employers' Liability: Statutory Limits & Employers' Liability $1M
*Auto Liability: $1M per accident
*Professional Liability / Pollution Liability: $1M per occur/$1M aggregate
(we will accept $500K/$500K for pollution if a separate policy or sublimit on prof liability policy)
*Umbrella: $1M per occurrence

- Policy shall contain a waiver of subrogation in favor of WMU and its Board of Trustees, officers, employees, agents, and volunteers
- Shall endorse Western Michigan University and its governing board, officers, agents and employees as additional insureds with respect to liability arising out of the activities performed by or on behalf of the vendor

Please let me know if you have any questions.

Sincerely,

Michele Cole

Michele Cole
Sr. Director, Risk Management & Business Services
Western Michigan University

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