ADDENDUM No. 1

RFP No. 23-11

Geddes Avenue and 2190 South State Street Retaining Walls

Due: April 25, 2023 at 10:00 AM (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes forty-three (43) pages.**

The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.
The following forms provided within the RFP Document should be included in submitted proposal:

- **Attachment D - Prevailing Wage Declaration of Compliance**
- **Attachment E - Living Wage Declaration of Compliance**
- **Attachment G - Vendor Conflict of Interest Disclosure Form**
- **Attachment H - Non-Discrimination Declaration of Compliance**

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)	Change
Page 13 Section III.D	Replace with page Addendum 1-5. Corrected language in Paragraph 1 related to a statement from the bidder as to what percentage of its workforce resides in the City of Ann Arbor and in Washtenaw County, Michigan.
Pages 15-17 Section III.E	Schedule of Pricing/Cost Forms; replace with pages Addendum 1-6 to 8. Changes are as follows:

Pages 15-17 Section III.E (continued)	Replaced pay items 2047010 - _Timber Wall, Rem with 2047011 - _Timber Wall, Rem to reflect pay unit correction; 803100 – Steps, Conc with pay item 8037050 – Steps, Conc, Modified; and 8150547 - Betula nigra, tree form, 2 inch with 8150808 - Cercis canadensis, tree form, 2 inch. Remove pay item 2020002 – Tree, Rem, 19 inch to 36 inch. Revised estimated quantities for pay items 2020002 – Tree, Rem, 6 inch to 18 inch; 8167011 - _Turf Establishment, Performance; 8087001 - _Fence, Ornamental, Alternate 1; and 8087001 - _Fence, Ornamental, Alternate 2.
Pages DS-9 to DS-10 Detailed Specifications	Detailed Specification for Project Schedule and Payment; replace with pages Addendum 1-9 to 11. Revised sequence of work requirements and overall project completion date. Added calendar day completion and open to traffic requirements for each location.
Pages DS-25 to DS-26 Detailed Specifications	Detailed Specification for Cast in Place Concrete Retaining Wall with Thin Stone Veneer; replace with pages Addendum 1-12 to 13. Revised Materials section and added color and technique requirements related to the grout/mortar for the thin natural stone veneer.
Pages DS-27 to DS-30 Detailed Specifications	Detailed Specification for Modular Block Retaining Wall; replace with pages Addendum 1-14 to 17. Revised Materials section.
Detailed Specifications	Insert Detailed Specification for Steps, Conc, Modified pages Addendum 1-18.
Appendix MDOT Standard Plans/ Special Details	Insert MDOT Standard Plans R-28-J – Curb Ramp and Detectable Warning Details and R-96-E – Soil Erosion & Sedimentation Control Measures pages Addendum-1-19 to 31.
Attachments	Attachment E – City of Ann Arbor Living Wage Ordinance Declaration of Compliance; replace with page Addendum-1-32. Updated the minimum hourly wage rates.
Attachments	Attachment F – City of Ann Arbor Living Wage Ordinance Poster; replace with page Addendum-1-33. Updated the minimum hourly wage rates.
Plans Sheets 1 to 10	Replace Plan Set in its entirety. Sheet revisions are noted below.
Sheet 1	Revised “Standard Plans” “Sheet Index” tables. Completed signature/seal block.

Sheet 4	Revised call outs on the “Wall Section View” detail. Revised “Wall Section View” and “Wall Reinforcement Section” details to show a flat wall cap. Revised “Sidewalk Construction Notes”.
Sheet 5	Revised “Removal Key” and “Construction Key” items and descriptions to be consistent with contract pay items being used as part of the project. Adjusted the grading and temporary construction easement limits on the “Removal Plan View” and the “construction Plan View”. Added and revised call outs including quantities related to removal and construction work to reflect revisions to the “Removal Key” and “Construction Key”.
Sheet 6	Adjusted the grading and temporary construction easement limits and related call outs.
Sheet 7	Revised “Removal Key” items and descriptions to be consistent with contract pay items being used as part of the project. Adjusted the grading limits. Added and revised call outs including quantities related to removal work to reflect revisions to the “Removal Key”. Added notation related to the landmark tree and business signing and lighting on site
Sheet 8	Revised “Construction Key” items and descriptions to be consistent with contract pay items being used as part of the project. Adjusted the grading limits. Added and revised call outs including quantities related to construction work to reflect revisions to the “Construction Key”. Added notation related to the landmark tree and business signing and lighting on site
Sheet 9	Adjusted the grading limits.

II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in their review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: What type of railing is to be used for the concrete steps at the Geddes Avenue location?

Answer 1: Furnished materials and construction of the stair railings proposed for the project must be in accordance with the Michigan Department of Transportation 2020 Standard Specifications for Construction and match the color of the ornamental fencing proposed for the project.

Question 2: Is soil boring information available for the 2190 South State location?

Answer 2: No, soil boring information is not available for that location.

Question 3: Will the City of Ann Arbor consider approving an alternative modular block type for use on the gravity retaining wall at the 2190 South State Street location should there be one that is a standard stock item or another that is more readily available?

Answer 3: The City may approve use of an alternative block type for the gravity retaining wall providing it meets the design requirements and contract specifications for the project.

Question 4: Would the City of Ann Arbor consider revising the completion date for the project and moving it further out to allow more time to perform the work at each location since it requires completion in sequential order?

Answer 4: The City will consider this request and may also revise the currently specified requirement for the work to be performed sequentially at each location and instead allow it to occur simultaneously. Revisions, if any, to the project schedule and sequencing of work will be addressed as part of an addendum.

Proposers are responsible for any conclusions that they may draw from the information contained in the Addendum.

Bidder must identify a designated qualified safety representative responsible for bidder's safety program who serves as a contact for safety related matters.

2. Provide the bidder's Experience Modification Rating ("EMR") for the last three consecutive years. Preference within this criterion will be given to an EMR of 1.0 or less based on a three-year average.

3. Evidence that all craft labor that will be employed by the bidder for the project has, or will have prior to project commencement, completed at least an authorized 10-hour OSHA Construction Safety Course.

4. For the last three years provide a copy of any documented violations and the bidder's corrective actions as a result of inspections conducted by the Michigan Occupational Safety & Health Administration (MIOSHA), U.S. Department of Labor – Occupational Safety and Health Administration (OSHA), or any other applicable safety agency.

C. Workforce Development – 20 Points

1. Documentation as to bidder's pay rates, health insurance, pension, or other retirement benefits, paid leave, or other fringe benefits to its employees.

2. Documentation that the bidder participates in a Registered Apprenticeship Program that is registered with the United States Department of Labor Office of Apprenticeship or by a State Apprenticeship Agency recognized by the USDOL Office of Apprenticeship. USDOL apprenticeship agreements shall be disclosed to the City in the solicitation response.

3. Bidders shall disclose the number of non-craft employees who will work on the project on a 1099 basis, and the bidders shall be awarded points based on their relative reliance on 1099 work arrangements with more points assigned to companies with fewer 1099 arrangements. Bidders will acknowledge that the City may ask them to produce payroll records at points during the project to verify compliance with this section.

D. Social Equity and Sustainability – 20 Points

1. A statement from the bidder as to what percentage of its workforce resides in the City of Ann Arbor and in Washtenaw County, Michigan. The City will consider in evaluating which bids best serve its interests, the extent to which responsible and qualified bidders employ individuals in either the city or the county. Washtenaw County jurisdiction is prioritized for evaluation purposes for this solicitation.

2. Evidence of Equal Employment Opportunity Programs for minorities, women, veterans, returning citizens, and small businesses.

E. Schedule of Pricing/Cost – 20 Points

Company: _____

Unit Price Bid

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Total Price
1047051	_Certified Payroll Compliance and Reporting	LSUM	1.00	$ _____	$ _____
1047051	_General Conditions, Max $30,000.00	LSUM	1.00	$ _____	$ _____
2020004	Tree, Rem, 6 inch to 18 inch	Ea	4.00	$ _____	$ _____
2040025	Fence, Rem	Ft	142.00	$ _____	$ _____
2047001	_Exploratory Excavation, Vertical	Ft	10.00	$ _____	$ _____
2047011	_Rockery Wall, Rem	Syd	8.00	$ _____	$ _____
2047011	_Rockery Wall, Rem and Salv	Syd	5.00	$ _____	$ _____
2047011	_Timber Wall, Rem	Syd	275.00	$ _____	$ _____
2057011	_Sidewalk and Stairway, Any Type and Thickness, Rem	Syd	156.00	$ _____	$ _____
2057011	_Grading, Curb Ramps	Syd	14.00	$ _____	$ _____
2057011	_Grading, Sidewalk	Syd	177.00	$ _____	$ _____
2057021	_Undercutting, Type IIB	Cyd	5.00	$ _____	$ _____
2087050	_Erosion Control, Inlet Filter	Ea	4.00	$ _____	$ _____
2090001	Project Cleanup	LSUM	1.00	_____	_____
3010002	Subbase, CIP	Cyd	20.00	$ _____	$ _____
4030304	Dr Structure, Tap, 4 inch	Ea	1.00	$ _____	$ _____

TOTAL THIS PAGE $ _____

7067010	_Retaining Wall, Modular Block	Sft	275.00	$ _____	$ _____
7067010	_Retaining Wall, Conc, with Thin Stone Veneer	Sft	640.00	$ _____	$ _____
7067010	_Rockery Wall, Install Salv	Sft	41.00	$ _____	$ _____
8030020	Railing for Steps	Ft	12.00	$ _____	$ _____
8037001	_Detectable Warning Surface, Modified	Ft	12.00	$ _____	$ _____
8037010	_Curb Ramp, Conc, 6 inch, Modified	Sft	105.00	$ _____	$ _____
8037010	_Sidewalk, Conc, 4 inch, Modified	Sft	1,321.00	$ _____	$ _____
8037050	_Step, Conc, Modified	Ea	12.00	$ _____	$ _____
8087001	_Fence, Ornamental, Alternate 1	Ft	164.00	$ _____	$ _____
8087001	_Fence, Ornamental, Alternate 2	Ft	164.00	$ _____	$ _____
8087001	_Fence, Protective, Modified	Ft	65.00	$ _____	$ _____
8087050	_Fence Gate, 6 foot, for Alternate 1 Fence	Ea	2.00	$ _____	$ _____
8087050	_Fence Gate, 6 foot, for Alternate 2 Fence	Ea	2.00	$ _____	$ _____
8120026	Pedestrian Type II Barricade, Temp	Ea	4.00	$ _____	$ _____
8120035	Channelizing Device, 42 inch, Fluorescent, Furn	Ea	125.00	$ _____	$ _____
8120036	Channelizing Device, 42 inch, Fluorescent, Oper	Ea	125.00	$ _____	$ _____
8120140	Lighted Arrow, Type C, Furn	Ea	1.00	$ _____	$ _____
8120141	Lighted Arrow, Type C, Oper	Ea	1.00	$ _____	$ _____
8120310	Sign Cover	Ea	20.00	$ _____	$ _____

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8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	368.00	$ _____	$ _____
8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	368.00	$ _____	$ _____
8120370	Traf Regulator Control	LSUM	1.00	$ _____	$ _____
8127051	_Minor Traffic Control, Max $15,000.00	LSUM	1.00	$ _____	$ _____
8150808	Cercis canadensis, tree form, 2 inch	Ea	1.00	$ _____	$ _____
8152540	Pachysandra terminalis, 2 inch pot	Ea	272.00	$ _____	$ _____
8167011	_Turf Establishment, Performance	Syd	359.00	$ _____	$ _____
8100403	Sign, Type III, Rem	Ea	1.00	$ _____	$ _____

TOTAL THIS PAGE $ _____

TOTAL FROM PAGE ADDENDUM 1- 6 $ _____

TOTAL FROM PAGE ADDENDUM 1- 7 $ _____

TOTAL BASE BID $ _____

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

SDA:DAD 1 of 3 04/21/23

a. Description.

Examination of Plans, Specifications, and Work Site: Proposer shall carefully examine the Bid Form, plans, specifications, and the work site until it is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the contract.

Complete the entirety of work under this Contract in accordance with, and subject to, the scheduling requirements as outlined below, and all other requirements of the Contract Documents.

1. The City expects to furnish the Contractor with two (2) copies of the Contract, for its execution, on or before **May 12, 2023**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance documentation, to the City within **fifteen (15) working days**. City Council approval to award this contract is expected on **June 5, 2023**.

2. By no later than the **Pre-Construction Meeting** the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. Work shall not start until a schedule is approved in writing by the Engineer. The Contractor shall update the approved work schedule at the request of the Engineer and present it to the Engineer within seven (7) calendar days of said request. It shall also be prepared to present an up-to-date approved work schedule at all progress meetings scheduled for the project.

3. The Contractor shall begin the work of this project on or before **July 5, 2023**, and only upon approval from the Project Engineer, and in no case without an approved detailed schedule of work, receipt of the fully executed Contract, and Notice to Proceed. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date.

4. Conduct the work as shown on the plans and as specified in the contract. Perform and complete all work at the Geddes Avenue project location with exception to landscape plantings and turf restoration before mobilizing and working to complete the 2190 S. State Street location. With approval, the Engineer may allow the Contractor's operations to include work at both project locations simultaneously using separate crews if, in its opinion, this appears reasonable to allow for proper and thorough inspection, and the Contractor’s work progresses without delay at each location. If approved, should the Contractor fail to meet the above expectations, the Engineer will direct that simultaneous work be discontinued. Should this occur, the Contractor will complete work at the location the has progressed furthest and the remobilize to complete the other.

5. Complete work and open to traffic the Geddes Avenue location within 25 calendar days of commencing work. Complete work and open to traffic the 2190 South State Street location within 22 calendar days of commencing work. Complete work on the entire project on or before the final completion date of **August 23, 2023**. Project completion includes but is not limited to the following: existing concrete sidewalk, ramp, and stair removals; rockery wall removals and salvaging, timber wall removal; cast-in-place and modular block retaining wall construction; stairway construction; rockery wall reinstallation; sidewalk and curb ramp construction; decorative fence installation; landscape plantings; restoration of all disturbed areas; and removal of all temporary traffic control devices.

6. The City of Ann Arbor will impose the following workday, hour and other work restrictions.

Contractor operations shall be limited by local municipality work time, noise, and dust ordinance:

- Monday through Friday: 7:00 a.m. – 8:00 p.m.
- Saturday: 7:00 a.m. – 8:00 p.m. with notice given to City of Ann Arbor no less than 48 hours and no more than five (5) days.
- Sunday: only with written approval from the City of Ann Arbor.

No work shall be performed during holiday periods as follows, unless approved by the City of Ann Arbor:

- Independence Day: from 3:00 p.m., Monday, July 3 through 7:00 a.m., Wednesday, July 5

Time is of the essence in the performance of the work of this contract. The Contractor is expected to mobilize sufficient personnel and equipment and work throughout all authorized hours to complete the project by the intermediate (location specific) and final completion dates. Should the Contractor demonstrate that they must work on some Sundays in order to maintain the project schedule, they may do so between the hours of 9:00 a.m. and 5:00 p.m. with prior approval from the City. There will be no additional compensation due to the Contractor for work performed on Sundays.

Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **$800.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the contract completion times/dates required by this Detailed Specification.

Assessment of Liquidated Damages will occur until the required work is complete in the current construction season. If, with the Engineer's approval, work extends beyond seasonal limitations, the assessment of Liquidated Damages will discontinue until the work resumes in the following construction season.

b. Measurement and Payment.

If the construction contract is not complete by the specified completion date including any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor it may terminate the Contract. Should this occur, no additional compensation will be due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least three (3) years. If the Engineer elects to terminate the Contract, payment for contract items with a Lump Sum unit price will be up to a maximum amount equal to the percentage of the contract work that is complete at the time of termination.

No additional compensation will be paid to the Contractor to remobilize at a project location.

Include any/all Contractor costs associated with efforts to organize, coordinate, and schedule the project work in the contract unit price bid for the pay item **General Conditions, Max $___**.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
CAST IN PLACE CONCRETE RETAINING WALL WITH THIN STONE VENEER

SDA:DAD 1 of 2 04/21/23

a. Description. This work consists of providing all labor, equipment, and materials to construct a reinforced cast in place (CIP) concrete retaining wall with a natural stone veneer. Perform all work according to the plans and section 706 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except as modified herein, and as directed by the Engineer.

b. Materials. Provide materials in accordance with subsection 706.02 of the MDOT 2020 Standard Specifications for Construction. Use Grade S2 concrete. Use Grade 60 epoxy coated steel reinforcement.

Furnish a natural stone veneer for the reinforced CIP concrete retaining wall from the following manufacturer or approved equal:

The Quarry Mill
2670 Stone Rd, Sturgeon Bay, WI 54235
(920) 213-7792
www.quarrymill.com
Veneer Type: Castle Rock Style “Monroe” Natural Granite Thin Stone Veneer with “Antique White” grout.

Ensure the furnished reinforced CIP concrete retaining wall natural stone veneer and other components are from one manufacturer.

Furnish a wall cap for the top of the reinforced CIP concrete retaining wall from the following manufacturer or approved equal:

Stepstone, Inc.
17025 South Main Street, Gardena, CA 90248
(800) 572-9029
https://www.stepstoneinc.com/products/wall-cap/sonorastone/flat
Cap Unit Type: Sonorastone® Flat Wall Cap 3

Ensure the furnished reinforced CIP concrete retaining wall caps and other components are from one manufacturer.

The Engineer must approve the materials and installation methods for the natural stone veneer including the mortar/grout and wall caps prior to construction.

c. Construction Methods. Construct the wall according to the plans, section 706 of the Standard Specifications for Construction and as specified herein. Excavate as required, prepare leveling pad or base, furnish and place drainage system, furnish and place backfill and construct the reinforced CIP concrete retaining wall of varying heights in the location shown on the plans. Examine the site and notify the Engineer of any site conditions that may adversely affect the installation or performance of the wall. Obtain the Engineer’s approval before beginning the

installation. Construct the wall according to the Engineer approved shop drawings, manufacturer's recommendations, and the following:

1. Excavate as required for footing. Do not disturb base beyond the lines shown. Over-excavation, not approved by the Engineer, will not be paid for and replacement with compacted fill and/or wall components will be required.

2. Undercut according to this specification, the plans, section 205 of the MDOT 2020 Standard Specifications for Construction and as directed by the engineer.

3. Place aggregate base on undisturbed soils or foundation soils prepared in accordance with section 302 of the MDOT 2020 Standard Specifications for Construction. Compact aggregate base to 95% dry density to provide a level, hard surface on which to place the footing concrete.

4. Install geotextile fabric and drainage as shown on the plans.

5. Outlet the underdrain to a drainage structure as approved by the Engineer.

6. Place geotextile fabric over top of backfill and place restoration items to finished grade.

No additional time or compensation will be granted in securing the Engineer's approval.

Construct grout/mortar joints for the natural stone veneer using a "Grapevine" technique.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	**Pay Unit**
Retaining Wall, Conc, with Thin Stone Veneer	Square Foot

Retaining Wall, Conc, with Thin Stone Veneer includes all materials, labor, and equipment necessary to complete the work as described in this specification. The Engineer will measure the vertical dimension between from the bottom of the natural stone veneer to the top of the wall cap multiplied by wall length. The Engineer will measure the horizontal dimension along the base of the front of the retaining wall.

The contract unit price for **Retaining Wall, Conc, with Thin Stone Veneer** shall include all earthwork required to complete the wall system as described and shown on the detailed wall plans and as directed by the Engineer. Payment for this item includes excavating, removing, and disposing of unsuitable material, and backfilling and compacting. Furnishing and installing levelling pad, underdrain and geotextile fabric as shown on the plan shall be included in the contract unit price for **Retaining Wall, Modular Block**.

Retaining Wall, Conc, with Thin Stone Veneer includes concrete and steel reinforcement except as specified on the plans.

Retaining Wall, Conc, with Thin Stone Veneer includes the cost of forming, finishing and curing and low temperature protection.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
MODULAR BLOCK RETAINING WALL

SDA:DAD 1 of 4 04/21/23

a. Description. This item includes furnishing all materials and labor required for the design and construction of a precast concrete modular block (PMB) gravity retaining wall without geosynthetic reinforcement. Perform work in accordance with the requirements of this specification and in acceptable conformity with the lines, grades, design and dimensions shown in the project plans. This work also includes the preparation and submittal of detailed shop drawings for Owner's approval. Complete this work per section 706 of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, details shown on the plans, the wall system manufacturer's recommended installation procedures, approved shop drawings, and this detailed specification.

Plan and elevation sheets in the shop drawings shall include, but are not limited to the following information:

1. Elevation view of the wall noting elevations at the top of the wall, at all horizontal and vertical break points, and at least every 25 feet along the face of the wall, all steps in the wall bottom, the length, the original and final ground lines, and applied bearing pressures.

2. Plan view of the wall that indicate the offsets from the construction centerline to the wall reference line at all changes in horizontal alignment and the centerline and size of any drainage structure or drainage pipe behind, passing through, or under the wall.

3. Typical cross sections showing the relationship between existing ground elevations and proposed grades, construction limits, excavations limits, and fill requirements.

4. General notes for constructing the wall.

5. Horizontal and vertical curve data for layout and constructing the wall.

6. Summary of material quantities on the elevation sheet of the wall.

7. Detail sheets for the wall showing the following:

   A. Details for placement of modular block facing elements.

   B. Details for construction around utilities, drainage structures, and other appurtenances or obstructions.

   C. Details that show end treatment at the wall point of beginning (POB) and wall point of ending (POE).

Design calculations shall be provided for each wall height change. Plans and calculations shall be signed and sealed by a Professional Engineer actively licensed in the state of Michigan.

b. Materials. Furnish precast modular block (PBM) gravity retaining wall from the following manufacturer or approved equal:

Keystone Retaining Wall Systems LLC
4444 West 78th Street, Minneapolis, MN 55435
(952) 897-1040
www.keystonewalls.com
Block Unit Type: Keystone Standard III Unit 21 Straight Split (Color: Walnut Blend)
Cap Unit Type: Single Face Soft Split Unit (Color: Walnut Blend)

Ensure the furnished precast modular block wall (PMB) and all components are from one manufacturer.

The Engineer must approve the installation method, face texture, and color of the block wall system prior to construction.

1. Wall – Provide Straight Split texturing in "Walnut Blend" color as manufactured by Keystone or approved equal. Provide the manufacturer's sample photos of completed 3 completed projects prior to ordering for confirmation by the Engineer. Top blocks shall be flat tops with textured faces on front and back with accessory cap blocks on top. Steps and corner blocks shall also have the exposed ends textured as indicated on the plans.

A. Minimum compressive strength of the blocks must meet manufacturer's recommendation. Blocks must be fabricated with air-entrained concrete.

B. Provide manufacturer's test data certification, according to the MDOT Quality Assurance Procedures Manual, documenting that the blocks meet these specifications when tested as specified in ASTM C 1372. Freeze-thaw data must represent testing completed within the 12 months prior to delivery. Freeze-thaw testing must be conducted in saline solution as specified in ASTM C 1262. Freeze-thaw test results must be reported in 10-cycle intervals.

If project sampling and testing is required, sampling frequency and sample size will be as stated for concrete brick in Section G of the Materials Quality Assurance Procedures Manual.

C. Protect blocks from damage, chipping, and soiling during delivery and storage. Store off the ground, on pallets or wood platforms. Do not use blocks with chips, cracks, voids, discoloration, or other visible defects exceeding the finish and appearance limits in ASTM C 1372.

D. Blocks must conform to the manufacturer's requirements and sizes. Top blocks must be straight top. Corner block widths may be reduced by half. Provide accessory cap blocks with finished sides for all exposed edges.

E. The Contractor shall provide appropriately sized blocks for the wall, given the design parameters and subject to approved shop drawings.

F. Wall Color – The wall shall be standard concrete color.

2. Leveling Pad – Provide a 21AA aggregate leveling pad compacted in place at a

thickness that meets load requirements, or 2,000 psi concrete, per manufacturer's recommendations.

3. Drainage System – Provide underdrain and underdrain bedding per MDOT Specification Section 404 and as recommended by the wall manufacturer.

4. Backfill - Use open graded 6A material for drainage fill and as recommended by the manufacturer.

5. Non-woven geotextile separator – Per MDOT Specification 910 as a separator layer and as recommended by the manufacturer.

c. Construction Methods. Excavate as required, prepare leveling pad or base, furnish and place drainage system, furnish and place backfill and erect a nonreinforced mortarless PMB gravity retaining wall of varying heights in the location shown on the plans. Examine the site and notify the Engineer of any site conditions that may adversely affect the installation or performance of the wall. Obtain the Engineer's approval before beginning the installation. Erect the wall according to the Engineer approved shop drawings, manufacturer's recommendations, and the following:

1. Excavate as required for footing. Do not disturb base beyond the lines shown. Over- excavation, not approved by the Engineer, will not be paid for and replacement with compacted fill and/or wall components will be required.

2. Undercut according to this specification, the plans, section 205 of the Standard Specifications and as directed by the engineer.

3. Place aggregate base on undisturbed soils or foundation soils prepared in accordance with section 302 of the Standard Specifications for Construction. Compact aggregate base to 95% dry density to provide a level, hard surface on which to place the first course of blocks.

4. Place the first course of blocks in full contact with the prepared aggregate or concrete base material. Check each block for level and alignment. Ensure that the top of all blocks in base course are at the same elevation.

5. Place each course of blocks for the full length of wall. Install geotextile fabric and drainage as recommended by the manufacturer.

6. Outlet the underdrain to a drainage structure as approved by the Engineer.

7. Place geotextile fabric over top of backfill and place restoration items to finished grade.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	**Pay Unit**
Retaining Wall, Modular Block	Square Yard

Retaining Wall, Modular Block includes all materials, labor, and equipment necessary to complete the work as described in this specification. Quantities will be computed based on plan quantities from the bottom of bottom block to top of top block unit multiplied by wall length. The leveling pad will not be paid for separately.

The contract unit price for **Retaining Wall, Modular Block** shall include all earthwork required to complete the wall system as described and shown on the detailed wall plans and as directed by the Engineer. Payment for this item includes excavating, removing, and disposing of unsuitable material, and backfilling and compacting. Furnishing and installing levelling pad, underdrain and geotextile fabric as shown on the plan shall be included in the contract unit price for **Retaining Wall, Modular Block**.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
CONCRETE STEPS

SDA:DAD 1 of 1 04/21/23

a. Description. This work consists of installing precast concrete step units in accordance with section 803 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction as shown on the Plans and described herein, and as directed by the Engineer.

b. Materials. Provided materials meeting the requirements specified in applicable subsection 803.02 of the MDOT 2020 Standard Specifications for Construction and as specified herein.

Furnish precast concrete step unit from the following manufacturer or approved equal:

Belgard®
(877) 235-4273
https://www.belgard.com/products/accessories/landings-step/
Step Unit Type: Landings™ Step

The Contractor shall submit product data sheets and a sample of the step unit to the Engineer for approval prior to ordering materials.

The Engineer must approve the installation method, face texture, and color of step units prior to construction.

c. Construction. Perform this work in accordance with subsection 803.03 of the MDOT 2020 Standard Specifications for Construction and as required herein. The Contractor is responsible for constructing steps in accordance with current ADAAG and PROWAG standards and guidelines and applicable building codes.

Place step units according to manufacturer's specifications.

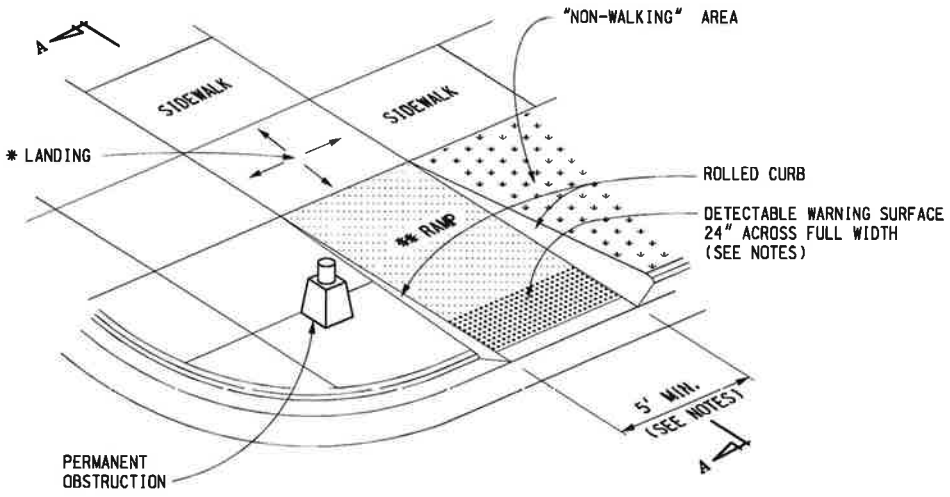
d. Measurement and Payment. Measure and pay for the completed work, as described, at the contract unit prices using the following pay items:

Pay Item	**Pay Unit**
Step, Conc, Modified	Each

Measure **Step, Conc, Modified** individually in place by unit each and pay for it at the contract unit price, which price include the costs for all labor, equipment and materials to complete the work.

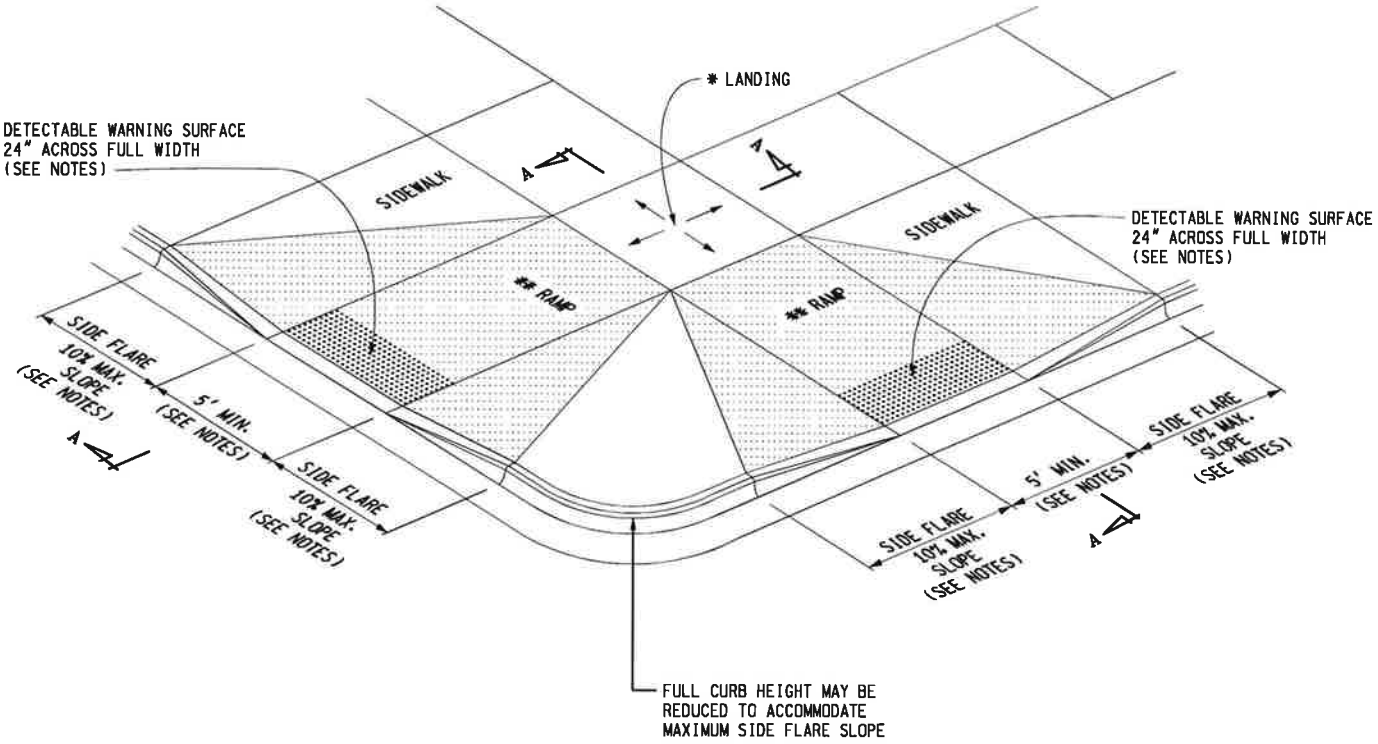
* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



CURB RAMP TYPE R

(ROLLED SIDES)



CURB RAMP TYPE F

(FLARED SIDES, TWO RAMPS SHOWN)

MDOT Michigan Department of Transportation

PREPARED BY DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Paul C. Ajegba

APPROVED BY: Gregg Brunner, P.E. Gregg Brunner Oct 14 2021 12:32 PM
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: Bradley C. Wieferich Bradley C. Wieferich Oct 14 2021 11:01 AM
DIRECTOR, BUREAU OF DEVELOPMENT

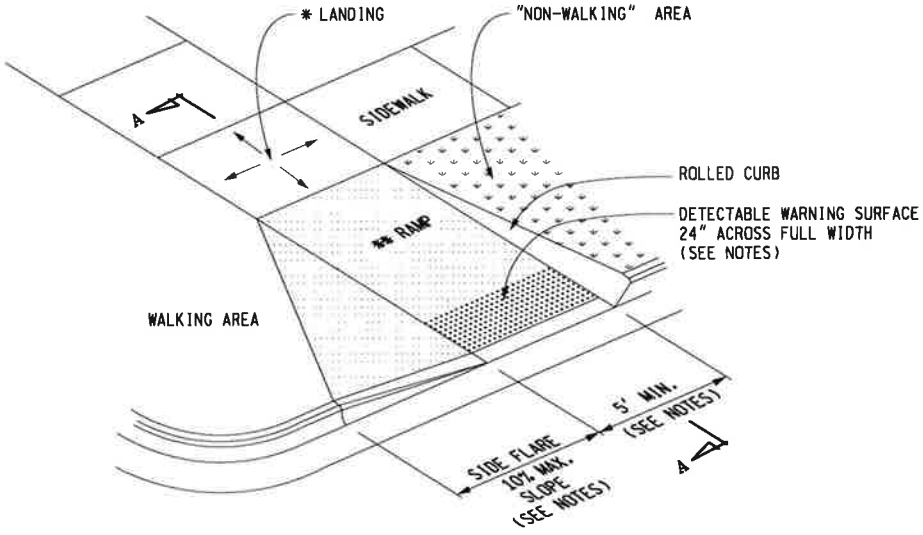
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 1 OF 7

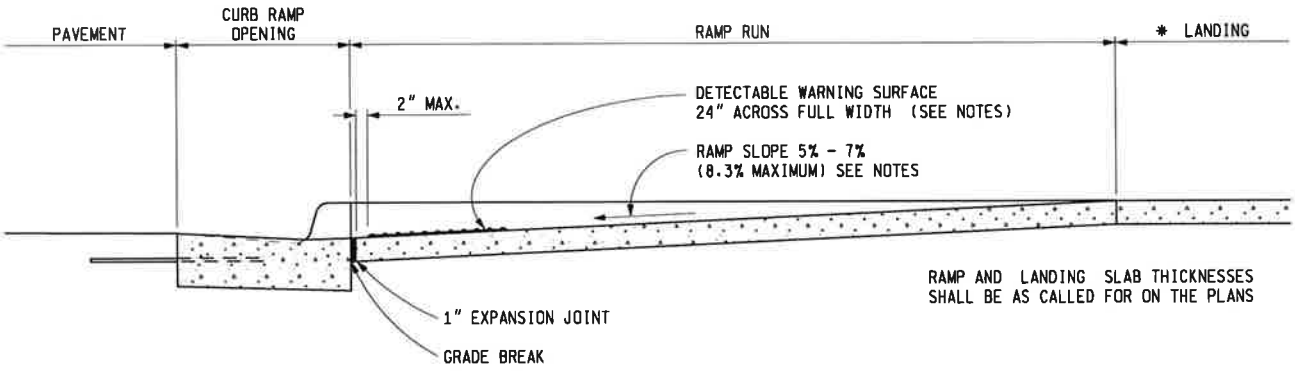
* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



CURB RAMP TYPE RF

(ROLLED / FLARED SIDES)

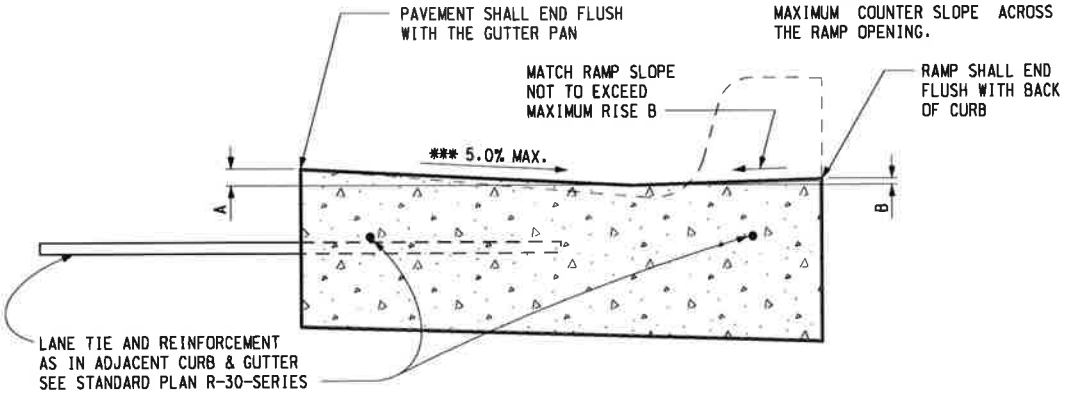


SECTION A-A

CURB TYPE	MAXIMUM RISE (INCHES)	
	A	B
B1	3/4	1
B2	3/4	1
B3	3/4	1
D1	3/4	1
D2	3/4	1
D3	3/4	1
C1	1/2	1/2
C2	1/2	1/2
C3	3/4	1/2
C4	3/4	1/2
C5	1	1/2
C6	1	1/2
F1	1/2	1/2
F2	1/2	1/2
F3	3/4	1/2
F4	3/4	1/2
F5	1	1/2
F6	1	1/2

FOR CURB TYPES SEE STANDARD PLAN R-30-SERIES

*** TRANSITION ADJACENT GUTTER PAN CROSS SECTION TO PROVIDE 5.0% MAXIMUM COUNTER SLOPE ACROSS THE RAMP OPENING.



SECTION THROUGH CURB RAMP OPENING

(TYPICAL ALL RAMP TYPES)

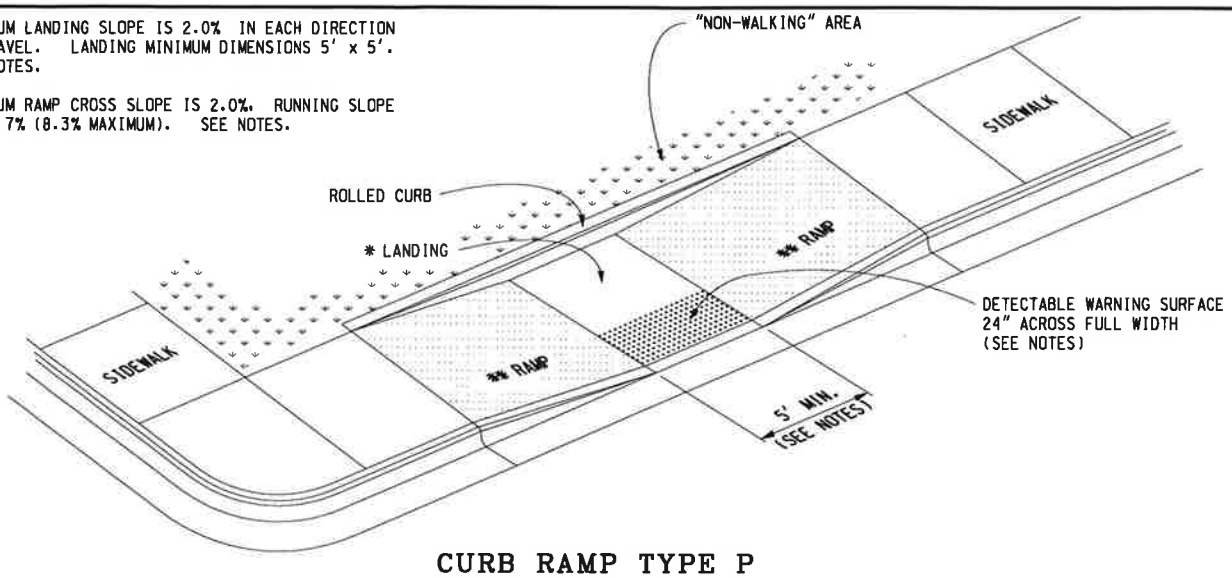
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 2 OF 7

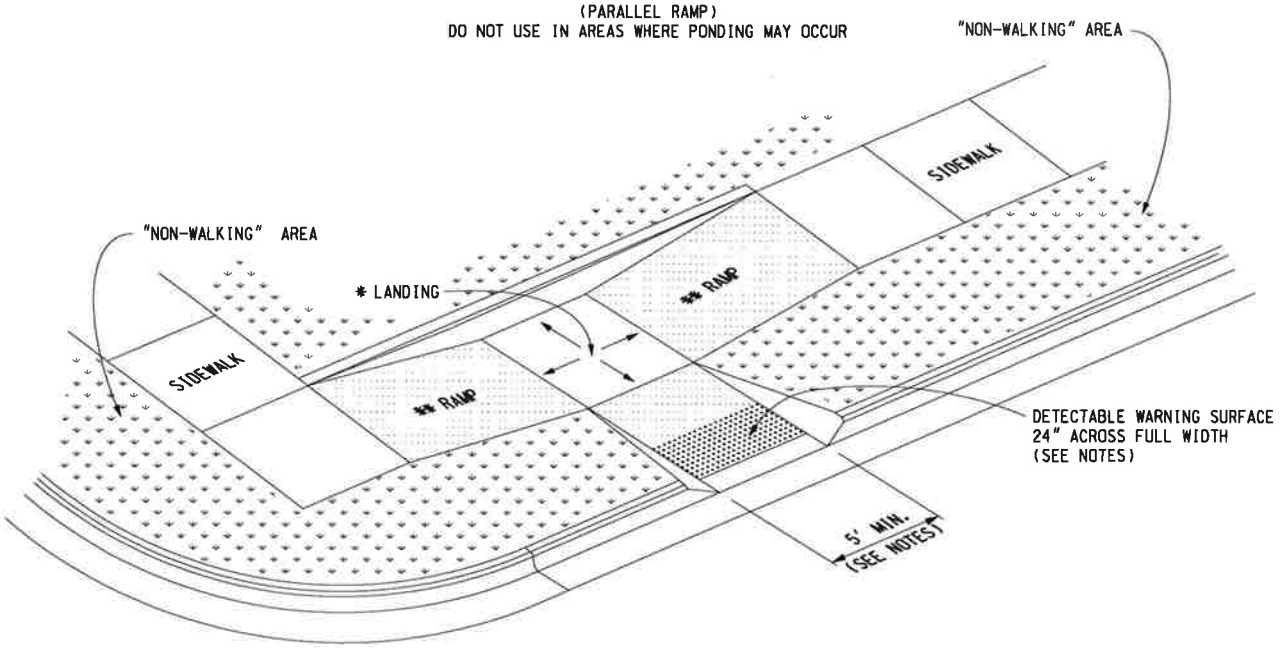
* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



CURB RAMP TYPE P

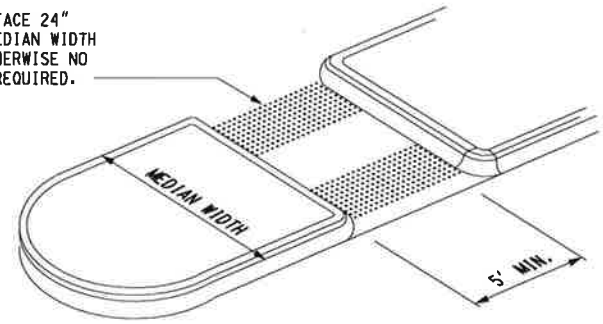
(PARALLEL RAMP)
DO NOT USE IN AREAS WHERE PONDING MAY OCCUR



CURB RAMP TYPE C

(COMBINATION RAMP)

DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH IF MEDIAN WIDTH IS AT LEAST 6'-0". OTHERWISE NO DETECTABLE WARNING IS REQUIRED.



CURB RAMP TYPE M

(MEDIAN ISLAND)

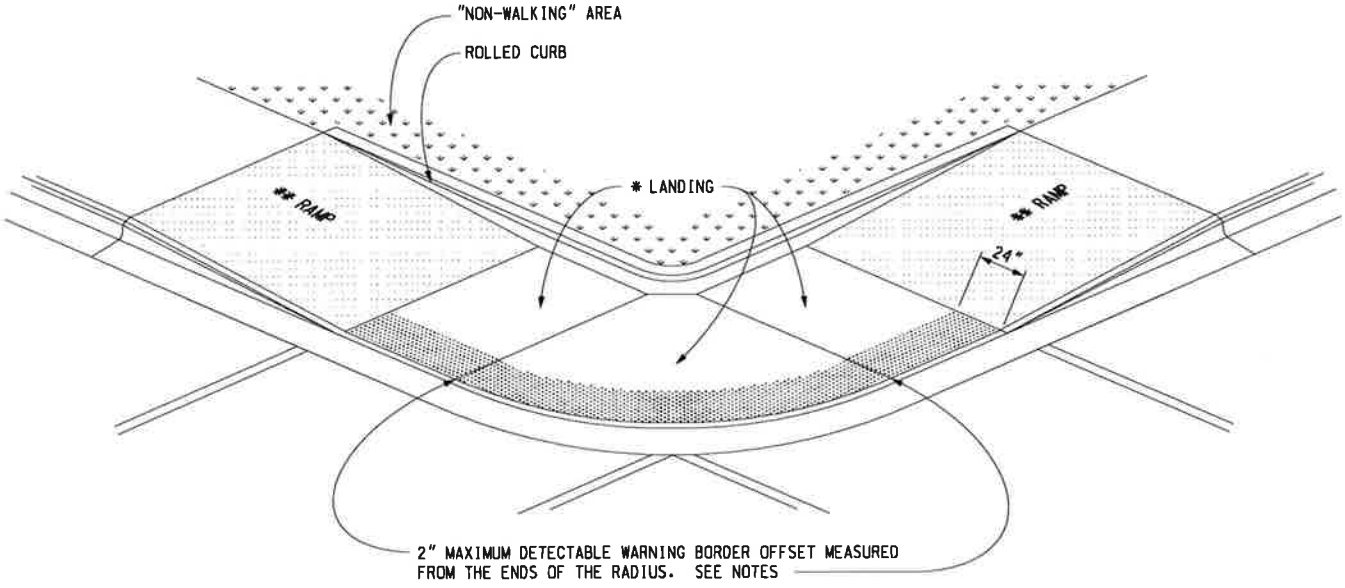
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

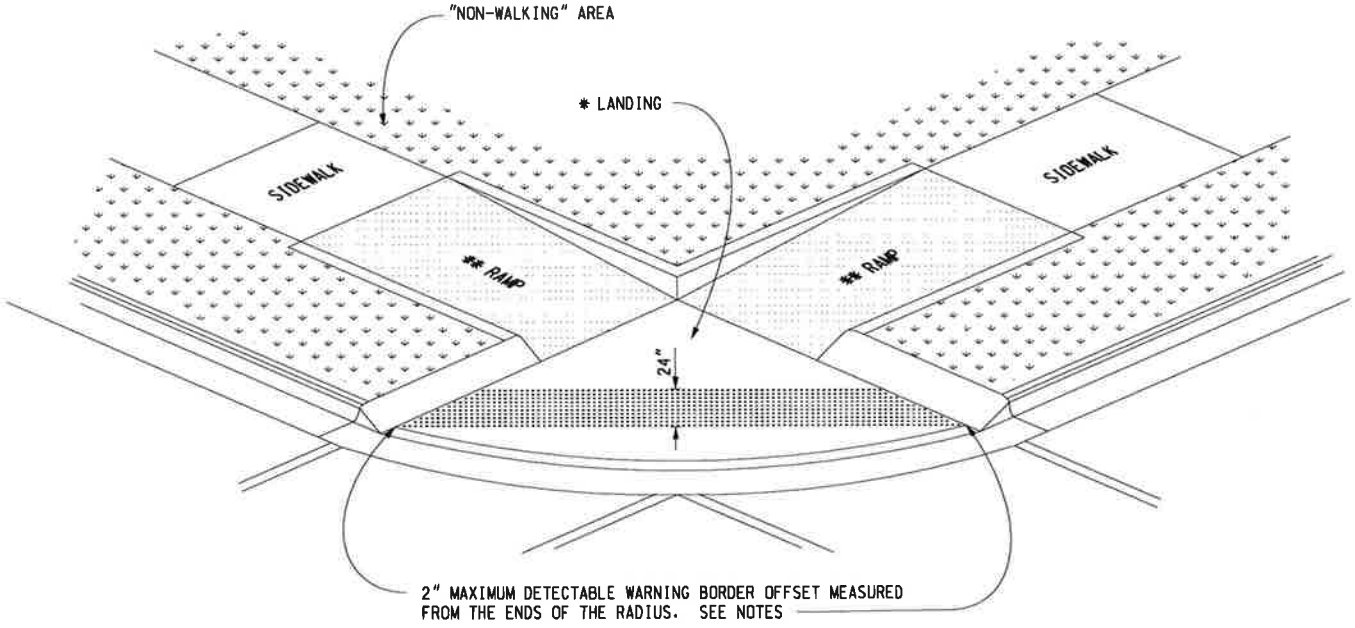
4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 3 OF 7

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



(RADIAL DETECTABLE WARNING SHOWN)



(TANGENT DETECTABLE WARNING SHOWN)

CURB RAMP TYPE D

(DEPRESSED CORNER)

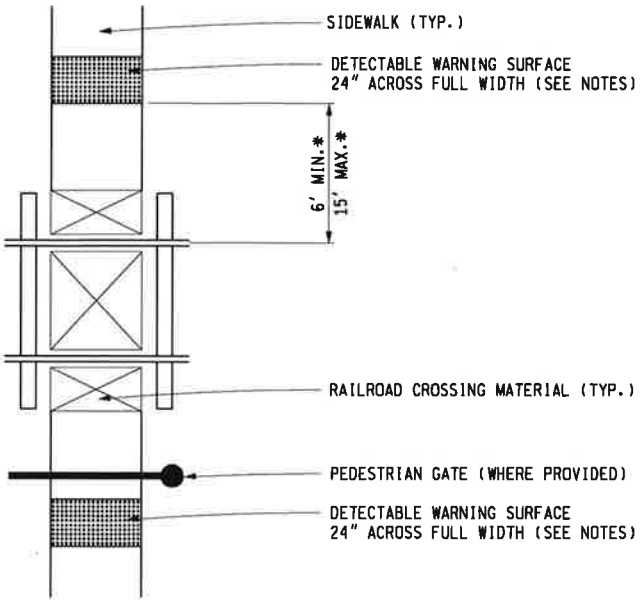
USE ONLY WHEN INDEPENDENT DIRECTIONAL RAMPS CAN NOT BE CONSTRUCTED FOR EACH CROSSING DIRECTION

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

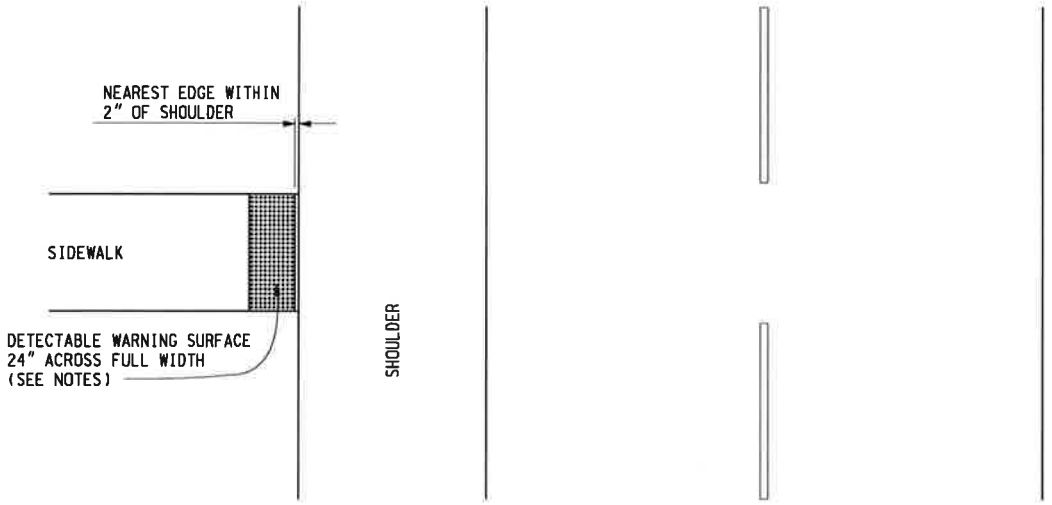
CURB RAMP AND DETECTABLE WARNING DETAILS

4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 4 OF 7

* THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE RAIL CROSSING IS 6' MINIMUM AND 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. DO NOT PLACE DETECTABLE WARNING ON RAILROAD CROSSING MATERIAL.



DETECTABLE WARNING AT RAILROAD CROSSING

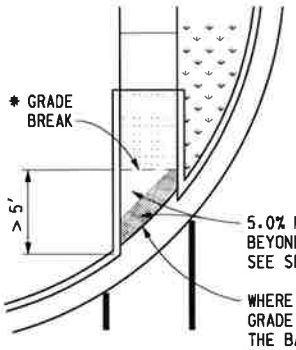


DETECTABLE WARNING AT FLUSH SHOULDER OR ROADWAY

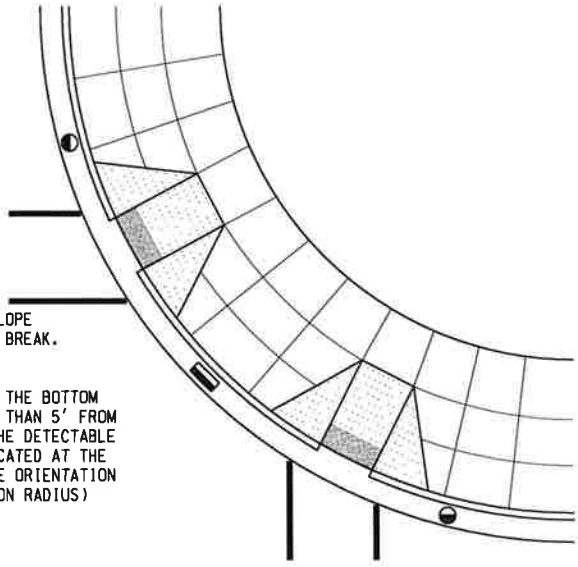
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 5 OF 7

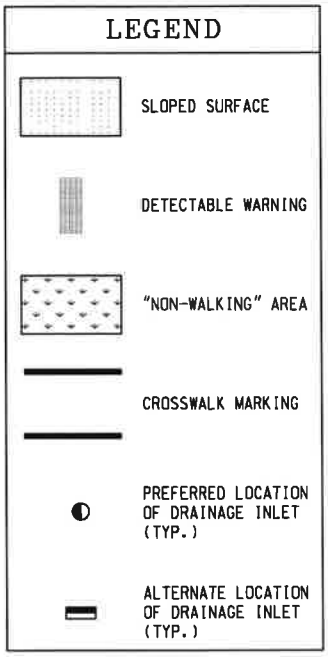


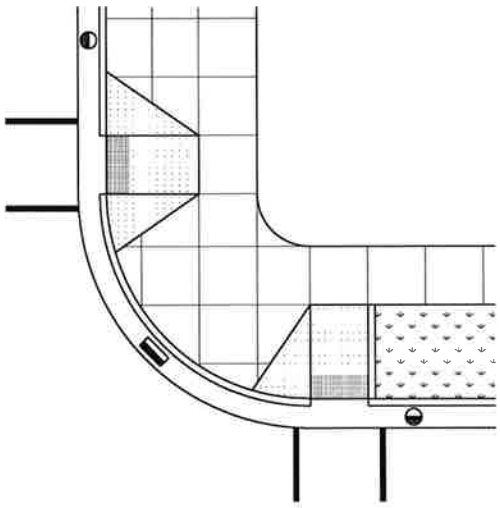
CURB RAMP LOCATED IN RADIUS (TYPE R SHOWN)
(GRADE BREAK OFFSET GREATER THAN 5')



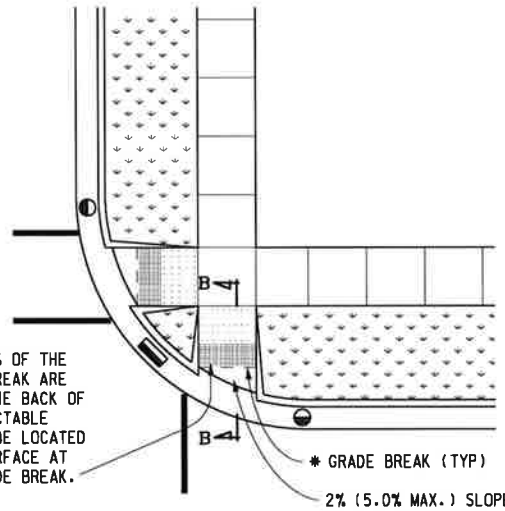
CURB RAMP PERPENDICULAR TO RADIAL CURB (TYPE F SHOWN)

(USE WITH RADIAL CURB WHEN THE CROSSWALK AND CURB RAMP ARE NOT ALIGNED)

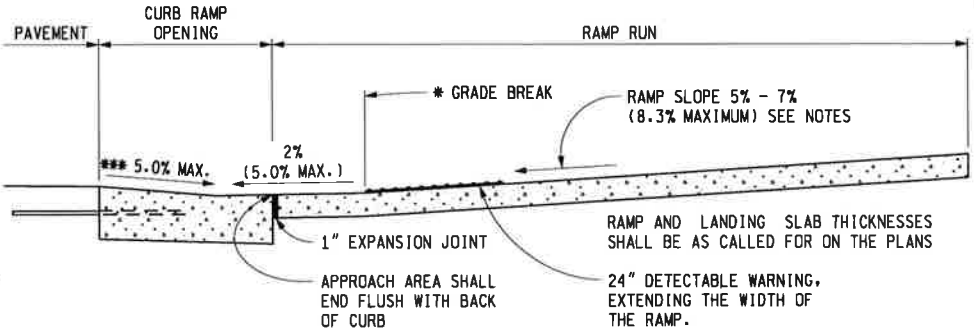




CURB RAMP PERPENDICULAR TO TANGENT CURB
(TYPE F AND TYPE RF SHOWN)



CURB RAMP LOCATED IN RADIUS (TYPE R SHOWN)
(GRADE BREAK OFFSET LESS THAN 5')



* GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL.

*** TRANSITION ADJACENT GUTTER PAN CROSS SECTION TO PROVIDE 5.0% MAXIMUM COUNTER SLOPE ACROSS THE RAMP OPENING.

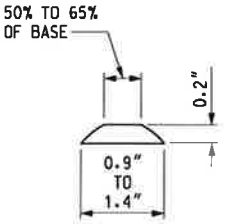
SEE SHEET 2 FOR CURB RAMP OPENING DETAILS.

SECTION B-B
CURB RAMP ORIENTATION

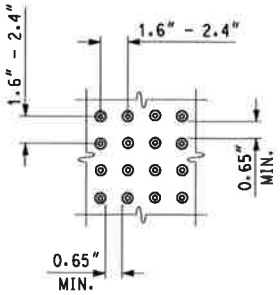
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

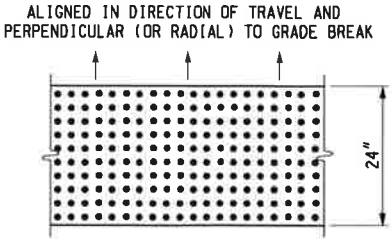
4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 6 OF 7



DOME SECTION



DOME SPACING



DOME ALIGNMENT

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

CURB RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

WHEN 5' MINIMUM WIDTHS ARE NOT PRACTICABLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDINGS TO NOT LESS THAN 4' x 4'.

CURB RAMPS WITH A RUNNING SLOPE ≤5% DO NOT REQUIRE A TOP LANDING. HOWEVER, ANY CONTINUOUS SIDEWALK OR PEDESTRIAN ROUTE CROSSING THROUGH OR INTERSECTING THE CURB RAMP MUST INDEPENDENTLY MAINTAIN A CROSS SLOPE NOT GREATER THAN 2% PERPENDICULAR TO ITS OWN DIRECTION(S) OF TRAVEL.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURBED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.0%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH NOT INCLUDING LANDINGS OR TRANSITIONS.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN $\frac{1}{2}$". ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE CURB RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS BORDERED BY LANDSCAPING, UNPAVED SURFACE OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING OR HEAVING.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 7 OF 7

APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

(COMPREHENSIVE DETAILS ARE LOCATED IN SECTION 6 OF THE SOIL EROSION & SEDIMENTATION CONTROL MANUAL)

A = SLOPES

B = STREAMS AND WATERWAYS

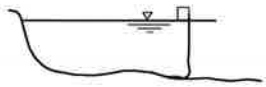
C = SURFACE DRAINAGEWAYS

D = ENCLOSED DRAINAGE (INLET & OUTFALL CONTROL)

E = LARGE FLAT SURFACE AREAS

F = BORROW AND STOCKPILE AREAS

G = DNRE PERMIT MAY BE REQUIRED

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
1	 TURBIDITY CURTAIN	A Turbidity Curtain is used when slack water area is necessary to isolate construction activities from the watercourse. The still water area contains the sediments within the construction limits.		•					
2	 GRUBBING OMITTED	Retains existing root mat which assists in stabilizing slopes. Assists in the revegetation process by providing sprout growth. Reduces sheet flow velocities preventing rilling and gullying. Discourages off-road vehicle use.	•				•		
3	 PERMANENT/TEMPORARY SEEDING	Inexpensive but effective erosion control measure to stabilize flat areas and mild slopes. Permits runoff to infiltrate soil, reducing runoff volumes. Proper preparation of the seed bed, fertilizing, mulching and watering is critical to its success.	•		•		•	•	
4	 DUST CONTROL	Dust control can be accomplished by watering, and/or applying calcium chloride. The disturbed areas should be kept to a minimum. PERMANENT/TEMPORARY SEEDING (KEY 3) should be applied as soon as possible.	•				•	•	
5	 SODDING	Provides immediate vegetative cover such as at spillways and ditch bottoms. Proper preparation of the topsoil, placement of the sod, and watering is critical to its success.	•				•	•	
6	 VEGETATED BUFFER STRIPS	Reduces sheet flow velocities preventing rilling and gullying. Assists in the collection of sediments by filtering runoff. Assists in the establishment of a permanent vegetative cover.	•				•		

MDOT Michigan Department of Transportation

PREPARED BY DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

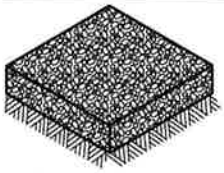
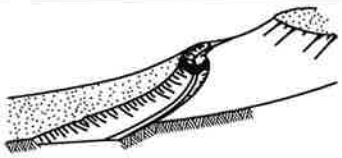
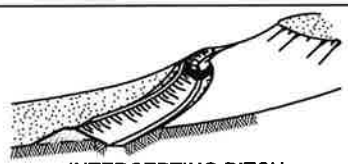
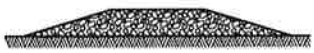
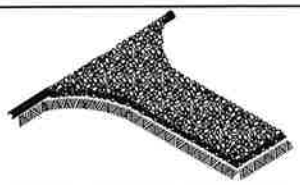
APPROVED BY: John C. Friend
ENGINEER OF DELIVERY

APPROVED BY: Paul A Van Poolen
ENGINEER OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

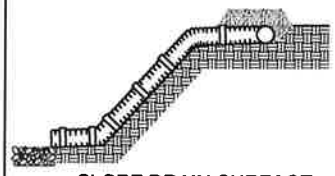
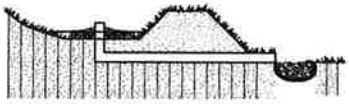
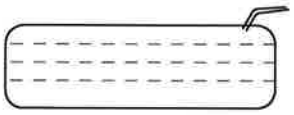
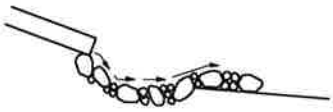
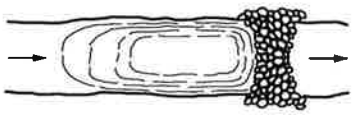
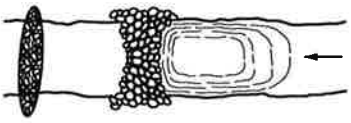
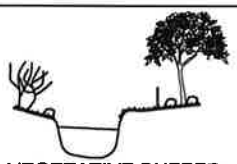
9-10-2010	6-3-2010	R-96-E	SHEET
F.H.W.A. APPROVAL	PLAN DATE		1 OF 6

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
7	 RIPRAP	Used where vegetation cannot be established. Very effective in protecting against high velocity flows. Should be placed over a geotextile liner.	•	•	•	•			•
8	 AGGREGATE COVER	Can be used in any area where a stable condition is needed for construction operations, equipment storage or in heavy traffic areas. Reduces potential soil erosion and fugitive dust by stabilizing raw areas.	•				•	•	
9	 BENCHES	Reduces sheet flow velocities preventing rilling and gullying. Assists in the collection and filtering of sediments. Provides access for stabilizing slopes.	•					•	
10	 DIVERSION DIKE	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying. Collects and diverts runoff to properly stabilized drainage ways. Works well with INTERCEPTING DITCH (KEY 11)	•				•	•	
11	 INTERCEPTING DITCH	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying. Works well with DIVERSION DIKE (KEY 10)	•				•	•	
12	 INTERCEPTING DITCH AND DIVERSION DIKE	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying.	•				•	•	
13	 GRAVEL FILTER BERM	Useful in filtering flow prior to its reentry into a lake, stream or wetland. Works well with SEDIMENT TRAP (KEY 20) and TEMPORARY BYPASS CHANNEL (KEY 35). Not to be used in lieu of a CHECK DAM (KEY 37) in a ditch.	•		•			•	
14	 GRAVEL ACCESS APPROACH	Provides a stable access to roadways minimizing fugitive dust and tracking of materials onto public streets and highways.					•	•	

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

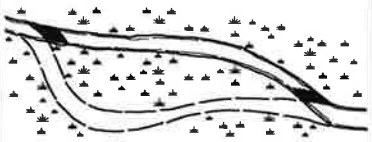
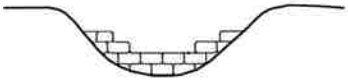
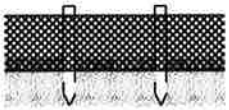
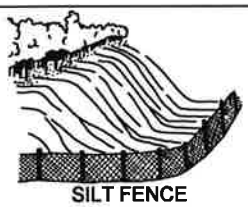
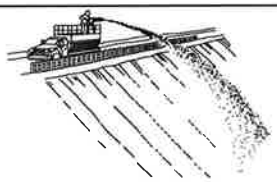
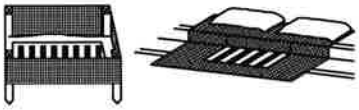
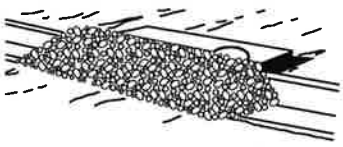
9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	R-96-E	SHEET 2 OF 6

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
15	 SLOPE DRAIN SURFACE	Excellent device for carrying water down slopes without creating an erosive condition. Generally used in conjunction with DIVERSION DIKE (KEY 10), INTERCEPTING DITCH (KEY 11) and INTERCEPTING DITCH AND DIVERSION DIKE (KEY 12) to direct flow to a stable discharge area or SEDIMENT TRAP (KEY 20).	●		●				
16	 TREES, SHRUBS AND PERENNIALS	Trees, shrubs and perennials can provide low maintenance long term erosion protection. These plants may be particularly useful where site aesthetics are important along the roadside slopes.	●				●		
17	 PIPE DROP	Effective way to allow water to drop in elevation very rapidly without causing an erosive condition. Also works as a sediment collector device. May be left in place as a permanent erosion control device.	●		●				
18	 DEWATERING WITH FILTER BAG	It may be necessary to dewater from behind a cofferdam or construction dam to create a dry work site. Discharged water must be pumped to a filter bag. A GRAVEL FILTER BERM (KEY 13) may be placed downslope of the filter bag to provide additional filtration prior to entering any stream or wetland.		●					●
19	 ENERGY DISSIPATORS	A device to prevent the erosive force of water from eroding soils. Used at outlets of culverts, drainage pipes or other conduits to reduce the velocity of the water. Prevents structure scouring and undermining.	●	●	●	●			
20	 SEDIMENT TRAP	Used to intercept concentrated flows and prevent sediments from being transported off site or into a watercourse or wetland. The size of a Sediment Trap is 5 cubic yards or less. Works well when used with CHECK DAM (KEY 37).	●		●	●			
21	 SEDIMENT BASIN	A Sediment Basin is used to trap sediments from an upstream construction site. Requires periodic inspections, repairs, and maintenance. Where practical, sediments should be contained on site. A Sediment Basin should be the last choice of sediment control. The size of a Sediment Basin is greater than 5 cubic yards.		●					●
22	 VEGETATIVE BUFFER AT WATERCOURSE	This practice is used to maintain a vegetative buffer adjacent to a watercourse. When utilized with SILT FENCE (KEY 26) it will, under normal circumstances, prevent sediment from leaving the construction site.	●	●	●		●	●	

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

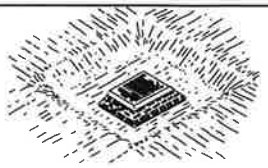
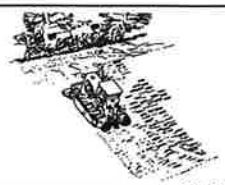
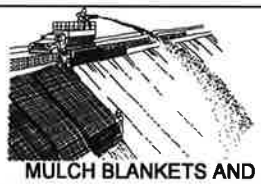
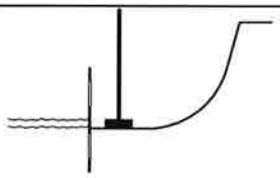
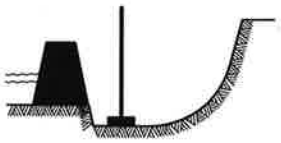
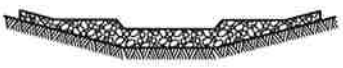
9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	R-96-E	SHEET 3 OF 6

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
23	 STREAM RELOCATION	A detail depicting the proper procedures for stream relocation. Maintains same width, depth, and flow velocity as the natural stream. Revegetate banks with PERMANENT/TEMPORARY SEEDING (KEY 3), MULCHING AND MULCH ANCHORING (KEY 28), MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS (KEY 33) and woody plants to shade the stream.		•					•
24	 SAND AND STONE BAGS	Sand and stone bags are a useful tool in the prevention of erosion. Can be used to divert water around a construction site by creating a DIVERSION DIKE (KEY 10). Works well for creating a CONSTRUCTION DAM (KEY 36) and temporary culvert end fill.	•	•	•	•	•	•	•
25	 SAND FENCE AND DUNE STABILIZATION	A Sand Fence traps blowing sand by reducing wind velocities. Can be used to prevent sand from blowing onto roads. Must be maintained until sand source is stabilized.	•				•	•	
26	 SILT FENCE	A permeable barrier erected below disturbed areas to capture sediments from sheet flow. Can be used to divert small volumes of water to stable outlets. Ineffective as a filter and should never be placed across streams or ditches where flow is concentrated.	•				•	•	
27	 PLASTIC SHEETS OR GEOTEXTILE COVER	Plastic Sheets can be used to create a liner in temporary channels. Can also be used to create a temporary cover to prevent erosion of stockpiled materials.	•	•	•			•	
28	 MULCHING AND MULCH ANCHORING	Anchored mulch provides erosion protection against rain and wind. Mulch must be used on seeded areas to promote water retention and growth. Should be inspected after every rainstorm and repaired as necessary until vegetation is well established.	•		•		•	•	
29	 INLET PROTECTION FABRIC DROP	Provides settling and filtering of silt laden water prior to its entry into the drainage system. Can be used in median and side ditches where vegetation will be disturbed. Allows for early use of drainage systems prior to project completion.			•		•		
30	 INLET PROTECTION GEOTEXTILE AND STONE	Provides settling and filtering of silt laden water prior to its entry into the drainage system. Should be used in paved areas where drainage structures are existing or proposed. Allows for early use of drainage systems prior to project completion.			•		•		

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	R-96-E	SHEET 4 OF 6

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
31	 INLET PROTECTION SEDIMENT TRAP	An Inlet Protection Sediment Trap is a temporary device that can be used in areas where medium flows are anticipated. Effective in trapping small quantities of sediments prior to water entering the drainage system. Can be used in areas such as median and side ditches.			●		●		
32	 SLOPE ROUGHENING AND SCARIFICATION	A simple and economical way to reduce soil erosion by wind and water. Can be accomplished by harrowing with a disk, back blading, or tracking with a dozer perpendicular to the slope.	●				●	●	
33	 MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS	Mulch blankets provide an immediate and effective cover over raw erodible slopes affording excellent protection against rain and wind erosion. High velocity mulch blankets work well for stabilizing the bottom of ditches in waterways.	●		●		●	●	
34	 COFFERDAM	Used to create a dry construction area and protect the stream from raw erodible areas. Must be pumped dry or dewatered according to DEWATERING WITH FILTER BAG (KEY 18).		●					●
35	 TEMPORARY BYPASS CHANNEL	Utilized when a dry construction area is needed. Isolates stream flows from raw erodible areas minimizing erosion and subsequent siltation. Can incorporate SEDIMENT BASIN (KEY 21), CHECK DAM (KEY 37), and GRAVEL FILTER BERM (KEY 13) to remove sediments from water. Construction sequence of events may be necessary.		●					●
36	 CONSTRUCTION DAM	Used to create a dry or slack water area for construction. Isolates the stream from raw erodible areas. Can be created out of any non-erodible materials such as SAND AND STONE BAGS (KEY 24), a gravel dike with clay core or plastic liner, steel plates or plywood.		●					●
37	 CHECK DAM	Can be constructed across ditches or any area of concentrated flow. Protects vegetation in early stages of growth. A Check Dam is intended to reduce water velocities and capture sediment. A Check Dam is not a filtering device.	●		●			●	

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	R-96-E	SHEET 5 OF 6

NOTES:

THIS STANDARD PLAN WILL SERVE AS A KEY IN THE SELECTION OF THE APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL DETAILS. THIS PLAN ALSO PROVIDES THE KEY TO THE NUMBERED EROSION CONTROL ITEMS SPECIFIED ON THE CONSTRUCTION PLANS. REFER TO THE MDOT SOIL EROSION & SEDIMENTATION CONTROL MANUAL, SECTION 6 FOR SPECIFIC DETAILS, CONTRACT ITEMS (PAY ITEMS), AND PAY UNITS.

COLLECTED SILT AND SEDIMENT SHALL BE REMOVED PERIODICALLY TO MAINTAIN THE EFFECTIVENESS OF THE SEDIMENT TRAP, SEDIMENT BASIN, AND SILT FENCE. AGGREGATES PLACED IN STREAMS SHOULD CONTAIN A MINIMUM OF FINES.

TEMPORARY EROSION AND SEDIMENTATION CONTROL PROVISIONS SHALL BE COORDINATED WITH THE PERMANENT CONTROL MEASURES TO ASSURE EFFECTIVE CONTROL OF SEDIMENTS DURING CONSTRUCTION OF THE PROJECT.

ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED AFTER VEGETATION ESTABLISHMENT OR AT THE DISCRETION OF THE ENGINEER. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE SILTATION IN NEARBY DRAINAGE COURSES.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	R-96-E	SHEET 6 OF 6

ATTACHMENT E
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

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

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

The Contractor or Grantee agrees:

(a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as $15.90/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than $17.73/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

Check the applicable box below which applies to your workforce

[___] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits

[___] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

(b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.

(c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.

(d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

(e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

_____	_____
Company Name	Street Address
_____	_____
Signature of Authorized Representative Date	City, State, Zip
_____	_____
Print Name and Title	Phone/Email address

City of Ann Arbor Procurement Office, 734/794-6500, procurement@a2gov.org Rev. 3/7/23

ATTACHMENT F

CITY OF ANN ARBOR
LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2023 - ENDING APRIL 29, 2024

$15.90 per hour
If the employer provides health care benefits*

$17.73 per hour
If the employer does **NOT** provide health care benefits*

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

ENFORCEMENT

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

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

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

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

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

Revised 2/1/2023

CITY OF ANN ARBOR
ENGINEERING

GEDDES AVENUE AND 2190 STATE STREET RETAINING WALLS

RFP NO. 23-11, FILE NOS. 2022-009 & 2023-003

NOTES:

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE THE 2020 EDITION OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, ITS DETAILS, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.

SHEET INDEX

STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE MDOT STANDARD PLANS GIVEN BELOW.

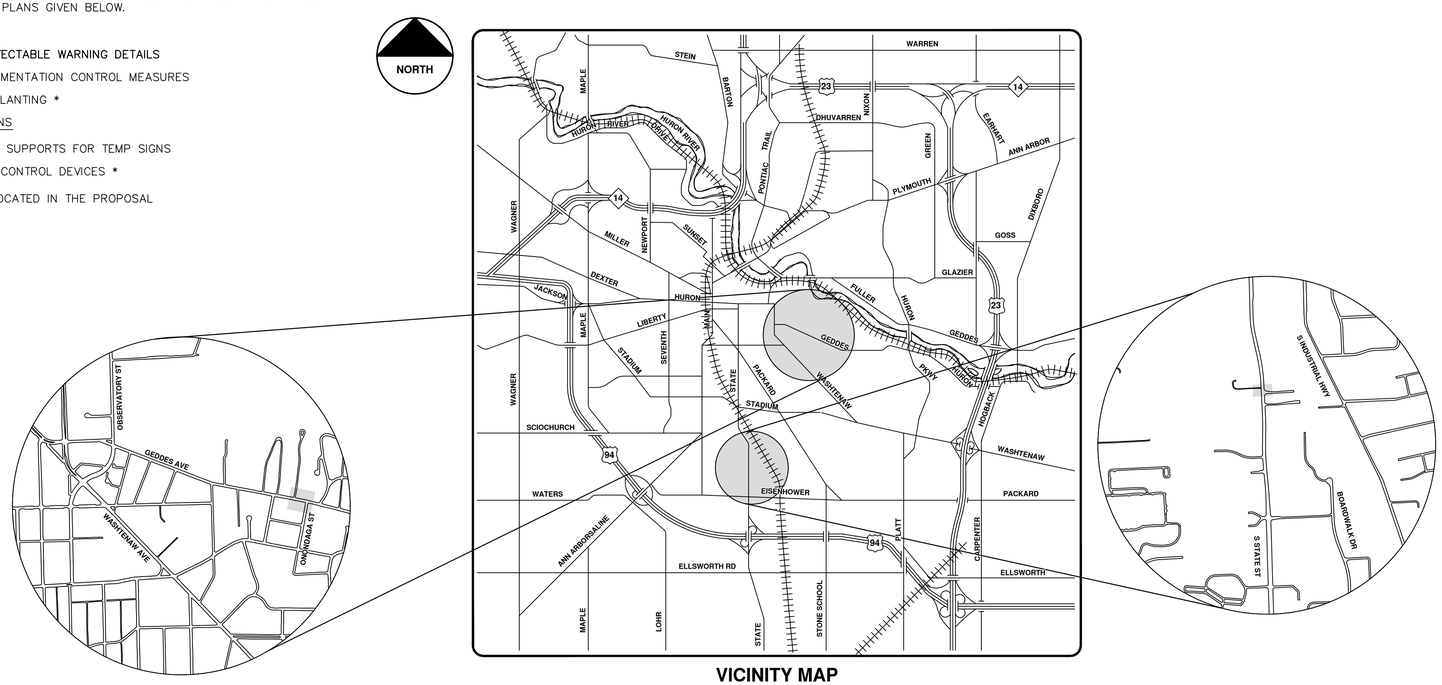
ROAD STANDARD PLANS

R-28-J	CURB RAMP AND DETECTABLE WARNING DETAILS
R-96-E	SOIL EROSION & SEDIMENTATION CONTROL MEASURES
R-100-I	SEEDING AND TREE PLANTING *

TRAFFIC AND SAFETY STANDARD PLANS

WZD-100-A	GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS
WZD-125-E	TEMPORARY TRAFFIC CONTROL DEVICES *

* = SPECIAL DETAILS LOCATED IN THE PROPOSAL



VICINITY MAP

PREPARED UNDER THE SUPERVISION OF

STATE OF MICHIGAN
David Arthur Dykman
License No. 6201052911
LICENSED PROFESSIONAL ENGINEER

DAVID DYKMAN, P.E.
PROJECT MANAGER

03 / 30 / 2023
DATE

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM No. 1	04/20/2023	JAB	DAD

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

COVER SHEET

SCALE: NTS

DRAWING No. 201400-1

SHEET No. 1 OF 10

J:\AA\Design\AA22009 - Geddes Avenue Retaining Wall\DWG\AA22009_Cov.dwg - _a2 standard bw.stb - Plot Date: 4/21/2023 10:16:19 AM

CONSTRUCTION NOTES:

1. Driveways and entrances to buildings, real property, and the like shall not be blocked except for short durations and only when approved by the Engineer. Vehicular and pedestrian access shall be maintained at all times. It shall be the Contractor's responsibility to coordinate all necessary driveway closures with the property owner(s) and resident(s) in the areas of construction.

2. The location and depth of all existing utilities and service leads are to be field verified by the Contractor prior to construction.

3. Location and depth of utilities as depicted on the plans is approximate and shown according to the best information available. It is the Contractor's responsibility to excavate ahead and adjust depth of conflict utilities accordingly. Any damage to utilities is the Contractor's responsibility to avoid and/or repair as necessary.

4. The Contractor is to take special care to protect the existing water main and be responsible for maintaining consistent water service.

5. During non–working hours no more than ten (10) feet of trench shall remain open; any open trench shall be properly secured with protective fencing. This work shall be included in the item of work "General Conditions".

6. Water main appurtenances, other than those specifically listed as separate pay items, which are required to complete the work, such as blow–off assemblies, concrete thrust blocks, solid sleeves and mechanical plugs, shall not be paid for separately, but shall be included in the pipe pay items.

7. "No Parking" signs shall be installed by the Contractor at locations as approved or directed by the Engineer. All signs shall be installed in accordance with the detailed specifications.

8. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.

9. All fittings, hydrants, valves and castings removed during construction are the property of the City of Ann Arbor. The Contractor within 48 hours shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.

10. Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.

11. The Contractor shall be responsible for the continuous maintenance of the temporary road surface and soil erosion control measures within the construction area until the full completion of the project. This work shall be included in the item of work "General Conditions".

12. All curb, sidewalk and driveway approach removals shall be approved by Engineer before the work is done.

13. The location of material stock piles and on–site staging areas to be approved by the Engineer. Soil erosion requirements shall apply to all staging areas.

14. For mainline HMA paving, the width of the mat for each pass of the paver shall be not less than 10.5' nor greater than 16', as directed by the Engineer. The Engineer will direct the layout of the longitudinal joints during construction.

15. All excavations required to construct sidewalk and sidewalk ramps shall be included in the contract pay item, "Grading, Sidewalk and Sidewalk Ramps."

16. Place 4 inches (minimum) thickness Granular Material Class II compacted to 95% of its own max. dry density under concrete sidewalk as shown on the details. This work shall be included in the contract item "Subbase, CIP."

17. Place 6 inches (minimum) Granular Material Class II compacted to 95% of its max. dry density under concrete driveway approaches, and 6 inches (minimum) dense–graded aggregate 21AA compacted to 98% of its max. dry density under HMA driveway approaches. This work shall be included in the respective contract pay items "Subbase, CIP" and "Aggregate Base, 6 inch, Modified."

18. A uniform coat(s) of curing compound shall be applied to new pavement according to the Standard Specifications and Special Provisions. The Contractor shall take care to prevent overspray when applying the compound. Application methods may vary depending on site specific conditions, but all methods used to prevent overspray of the curing compound shall be completely effective. Methods used shall be approved by the Engineer prior to use, however approval of a method does not guarantee success or acceptibility. This work shall not be paid for separately, but shall be included in the contract pay items for HMA pavement.

19. The Contractor shall remove and stockpile on site at a location mutually agreed upon by the Contractor and Engineer any/ all existing City owned structure covers designated for salvage, and within two days of their removal deliver them to the W.R. Wheeler Service Center (4251 Stone School Rd, Ann Arbor, MI). Any structure covers not designated for salvage shall become the property of the Contractor and disposed of, as required, by the Contractor.

20. Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.

21. Where sewer pipes of different sizes or materials are joined, Fernco flexible couplings with stainless steel shear rings shall be used. All costs associated with the installation of these devices shall be included in the payment for the sewer.

22. Where sewer and water main are to be removed & replaced or added, all pipe shall be installed using the Trench Details detailed in the specifications or shown on Plans. Backfill for sewer and water construction shall be MDOT Granular Material, Class II, Modified.

23. Existing street name, guide, and regulatory signs, and mailboxes which conflict with the proposed construction shall be removed prior to construction, stored in a manner which will prevent damage, and re–set in locations as directed by the Engineer. This work will not be paid for separately, but shall be included in "Machine Grading, Modified"

24. In areas where edge drain cannot be installed in accordance with City of Ann Arbor Detail SD–TD–11, the edge drain shall be installed at the depth as indicated on the plans, or as directed by Engineer. In no case shall the edge drain be installed at a grade less than 0.50% or at a depth of less than 2' below top of proposed pavement.

25. When not under construction, the Contractor is to maintain crosswalk ramp access within the project influence with maintenance aggregate and horse mats to reduce tripping hazards at the ramp opening. This work shall be paid for as "Maintenance Gravel" and the horse mats shall be included in "General Conditions, Max __" and not be paid for separately.

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR ENGINEERING
"NO PARKING" SIGNS PERMIT*	CITY OF ANN ARBOR ENGINEERING
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT–OF–WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
* NO COST TO CONTRACTOR	

PERMITS REQUIRED TO BE OBTAINED BY THE CITY OF ANN ARBOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
N/A	N/A

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER		
SANITARY		
STORM	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794–6350
FORESTRY		
SIGNS SIGNALS STREET LIGHTS		(734) 794–6361

PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544–7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	ANTHONY IGNASIAK (734) 397–4447
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SUTHERLAND (313) 999–8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	STEVEN ALLSHOUSE (734) 996–5334
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729–6016
FIBER OPTICS	WINDSTREAM 1295 S LINDEN ROAD, SUITE B FLINT, MI 48532	GREG SERICH (810) 244–3500
STREET LIGHTING	DTE ENERGY 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	LANCE ALLEY (734) 397–4188

PROJECT NAME BENCHMARKS

BM #	ELEV	DESCRIPTION
4	913.74	SET BENCH TIE S SIDE PP N SIDE OF GEDDES AVE 15'± E OF HARVARD PL
5	910.91	SET BENCH TIE N SIDE PP S SIDE OF GEDDES AVE 20'± W OF HIGHLAND RD
101	869.25	ARROW ON HYDRANT, LOCATED ON THE SOUTHWEST CORNER OF S. STATE STREET AND PARKCREST AVENUE.

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM No. 1	04/20/2023	JAB	DAD

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107–8647
734–794–6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

GEDDES AVENUE RETAINING WALL

RETAINING WALL PLANS

STANDARD NOTES

SCALE : NTS

DRAWING No. 2022-009 & 2023-003-2

SHEET No. 2 OF 10

EXISTING LEGEND

- FIRE HYDRANT
- GATE VALVE IN BOX
- GATE VALVE IN WELL
- STOP BOX
- WATER VAULT
- WELL
- CATCH BASIN (SQ)
- CATCH BASIN (RD)
- STORM MANHOLE
- NON-CURB CATCH BASIN (SQ)
- END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- POST
- PEDESTRIAN SIGNAL
- SIGN
- HAND HOLE
- ORNAMENTAL LIGHT
- FLOOD LIGHT
- UNKNOWN MANHOLE
- TELEPHONE MANHOLE
- TELEPHONE RISER
- GAS VALVE
- GAS VENT
- GAS BOX
- ELECTRICAL RISER
- TRANSFORMER
- UTILITY POLE
- LAMP POLE
- GUY ANCHOR
- GUY POLE
- MONITORING WELL
- MAILBOX
- SOIL BORING
- TRAVERSE POINT
- BENCH MARK
- IRON PIPE
- MON BOX

- WATER MAIN
- WATER MAIN ABANDONED
- STORM SEWER
- STORM SEWER ABANDONED
- SANITARY SEWER
- SANITARY SEWER ABANDONED
- GAS MAIN
- GAS MAIN (DEAD)
- ELECTRICAL OVER HEAD
- ELECTRICAL UNDER GROUND
- ELECTRICAL DUCT BANK
- TELEPHONE OVER HEAD
- TELEPHONE UNDER GROUND
- TELEPHONE DUCT BANK
- CABLE TV OVER HEAD
- CABLE TV UNDER GROUND
- FIBER OPTIC
- FIBER OPTIC DUCT BANK
- BOUNDARY
- BUILDING
- CENTERLINE OF DITCH
- CENTERLINE/CROWN OF ROAD
- CONTOUR MAJOR
- CONTOUR MINOR
- EDGE OF WATER
- FLOODPLAIN
- FENCE
- GRAVEL
- GUARDRAIL
- STONE WALL
- R.O.W.
- TREELINE
- WETLAND
- EDGE OF BRUSH
- HEDGE
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- SHRUB (DECIDUOUS)
- STUMP
- TREE TO REMAIN & PROTECT (DECIDUOUS)
  CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10
- TREE TO REMAIN & PROTECT (CONIFEROUS)
  CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10

PROPOSED LEGEND

- HYDRANT (PLAN)
- WATER GATE WELL
- REDUCER
- WATER GATE VALVE
- WATER STOP BOX
- WATER VAULT
- INLET
- DOUBLE INLET
- INLET JUNCTION CHAMBER
- ROUND CATCH BASIN
- STORM MANHOLE
- DRAIN ARROW
- FLARED END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- BARREL
- SIGN
- PUSH BUTTON
- HAND HOLE

- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- FIBER OPTIC
- ELECTRICAL
- CENTERLINE OF DITCH
- CENTERLINE OF ROAD
- FENCE
- GRAVEL
- SILT FENCE
- PROTECTIVE FENCE
- GUARDRAIL
- LOT/UNIT
- CURB
- TEMPORARY GRADING PERMIT
- CONTOUR MAJOR
- CONTOUR MINOR
- WATER EASMENT
- STORM EASEMENT
- SANITARY EASEMENT
- R.O.W.
- LIMITS OF CONSTRUCTION
- LIMIT OF GRADING
- STONE WALL
- DETECTABLE WARNING
- ASPHALT
- CONCRETE
- SIDEWALK
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- TREE TO BE REMOVED (DECIDUOUS)
- TREE TO BE REMOVED (CONIFEROUS)
- STUMP TO BE REMOVED

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM No. 1	04/20/2023	JAB	DAD

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PUBLIC SERVICES
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P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

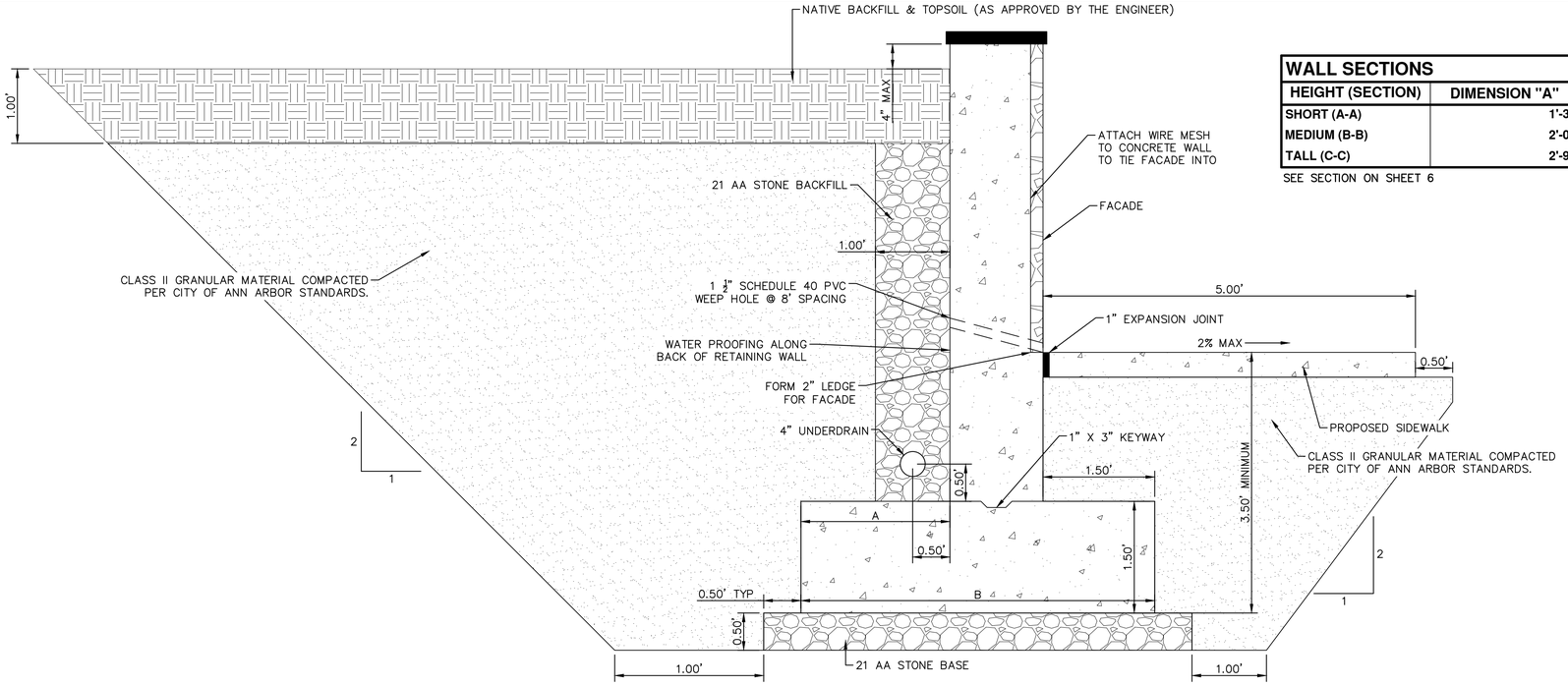
GEDDES AVENUE RETAINING WALL
RETAINING WALL PLANS
LEGEND

SCALE : NTS

DRAWING No.
2022-009 & 2023-003-3

SHEET No.
3 OF 10

J: \AA\Design\AA22009 - Geddes Avenue Retaining Wall\DWG\AA22009_Leg.dwg - _a2 standard bw.stb - Plot Date: 4/21/2023 10:17:22 AM



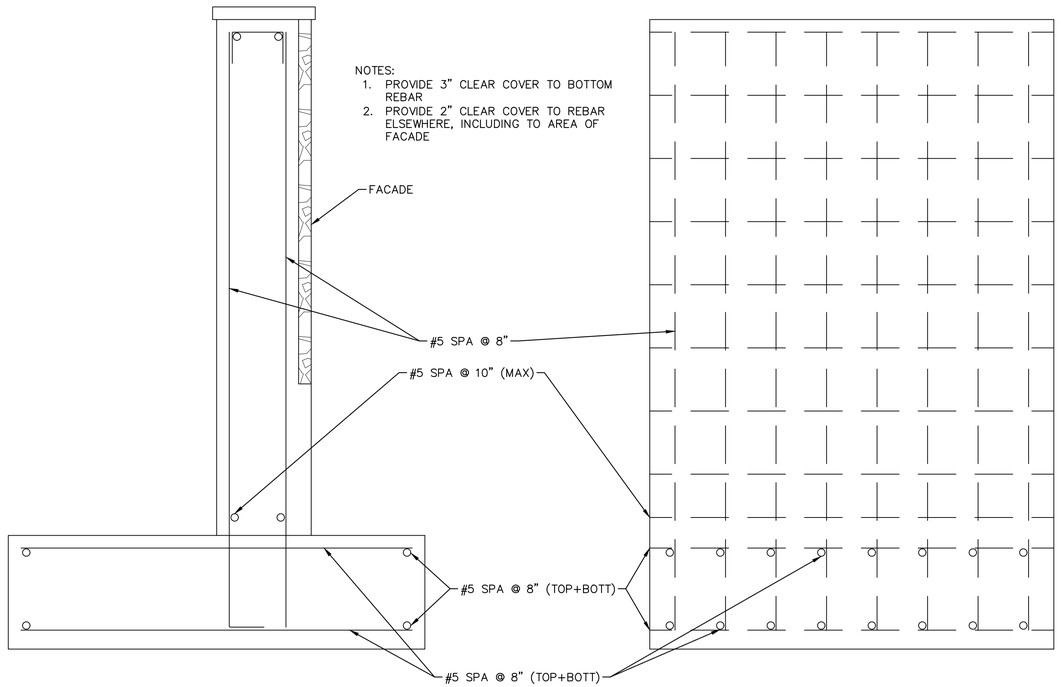
WALL SECTION VIEW

WALL SECTIONS		
HEIGHT (SECTION)	**DIMENSION "A"**	**DIMENSION "B"**
SHORT (A-A)	**1'-3"**	**4'-0"**
MEDIUM (B-B)	**2'-0"**	**4'-9"**
TALL (C-C)	**2'-9"**	**5'-6"**

SEE SECTION ON SHEET 6

SIDEWALK CONSTRUCTION NOTES:

1. SIDEWALK SHALL BE A DESIGNED AND CONSTRUCTED TO MEET ALL ADA STANDARDS AND REQUIREMENTS.
2. CITY OF ANN ARBOR MINIMUM STANDARD WIDTH OF SIDEWALK IS FIVE (5) FEET.
3. CONCRETE SIDEWALK THICKNESS SHALL BE A MINIMUM OF FOUR (4) INCHES.
4. SUBBASE BEDDING (GRANULAR MATERIAL CL II) THICKNESS FOR SIDEWALK SHALL BE A MINIMUM OF FOUR (4) INCHES.
5. IF EXISTING SUBGRADE MATERIAL IS APPROVED BY THE ENGINEER FOR USE, COMPACT THE EXISTING SUBGRADE TO 95% OF THE MATERIAL'S MAXIMUM DRY DENSITY.
6. SIDEWALK RAMPS SHALL BE CONSTRUCTED AT STREET INTERSECTIONS AS DIRECTED AND SHALL COMPLY WITH THE REQUIREMENTS OF MDOT DETAIL R-28-J (LATEST VERSION).
7. SIDEWALKS MAY MEANDER WITHIN THE RIGHT-OF-WAY TO PROTECT AND PRESERVE NATURAL FEATURES.
8. EXPANSION AND CONTRACTION JOINTS SHALL BE PROVIDED PER CITY OF ANN ARBOR STANDARD DETAILS AND SPECIFICATIONS.



WALL REINFORCEMENT SECTION

BAR LAYOUT

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM No. 1	04/20/2023	JAB	DAD

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CITY OF ANN ARBOR MICHIGAN

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

GEDDES AVENUE RETAINING WALL

RETAINING WALL PLANS

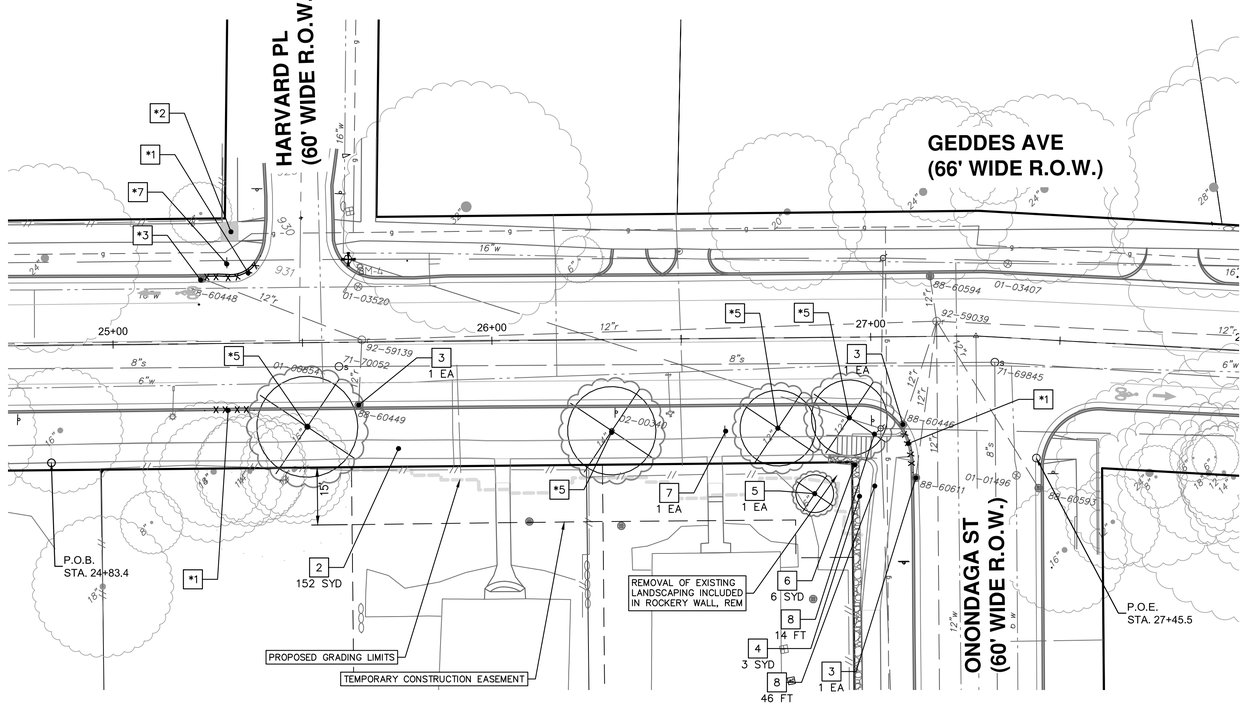
RETAINING WALL DETAILS - GEDDES AVENUE

SCALE : **NTS**

DRAWING No. **2022-009 & 2023-003-4**

SHEET No. **4 OF 10**

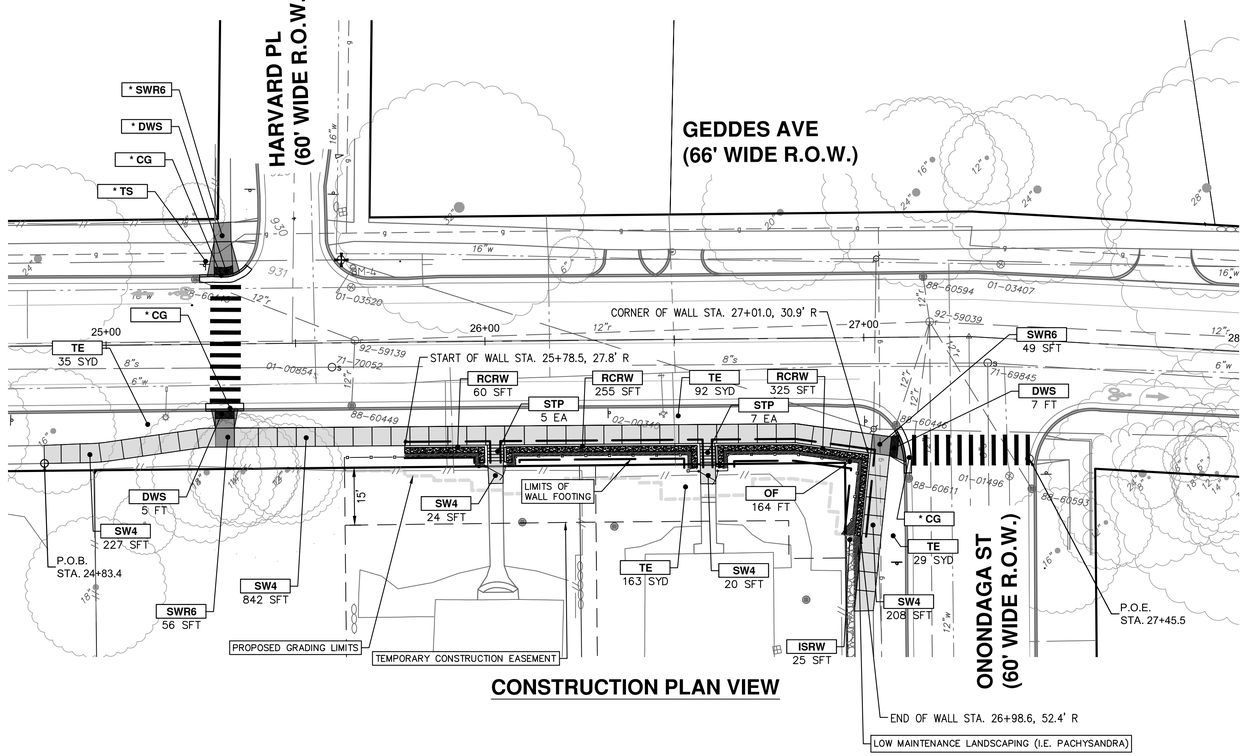
J:\AA\Design\AA22009 - Geddes Avenue Retaining Wall\DWG\AA22009_Det1.dwg Dwg Created: 28-Mar-23 - _a2 standard bw.stb - Plot Date: 21-Apr-23



REMOVAL PLAN VIEW

REMOVAL KEY	
KEY	**DESCRIPTION**
1	REMOVE CONCRETE CURB OR CURB & GUTTER, ANY TYPE
2	REMOVE CONCRETE SIDEWALK AND PAVEMENT – ANY THICKNESS
3	INLET FILTER
4	REMOVE & SALVAGE ROCKERY WALL
5	TREE, REM, 6" TO 18"
6	REMOVE ROCKERY WALL
7	REMOVE SIGN
8	REMOVE CONCRETE WALL

* WORK TO BE COMPLETED BY OTHERS AS PART OF ROAD WORK CONTRACT



CONSTRUCTION PLAN VIEW

CONSTRUCTION KEY	
KEY	**DESCRIPTION**
CG	CONCRETE CURB OR CURB & GUTTER, ALL TYPES
SW4	4 INCH CONCRETE SIDEWALK
SWR6	6 INCH CONCRETE RAMP, DRIVE APPROACH
ISRW	INSTALL SALVAGED ROCKERY WALL
DWS	DETECTABLE WARNING SURFACE, CAST IN PLACE
OF	ORNAMENTAL FENCE
RCRW	REINF CONCRETE RETAINING WALL
STP	STEPS, CONCRETE
TS	TRAFFIC SIGN
TE	TURF ESTABLISHMENT

* WORK TO BE COMPLETED BY OTHERS AS PART OF ROAD WORK CONTRACT

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM No. 1	04/20/2023	JAB	DAD

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PUBLIC SERVICES
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

GEDDES AVENUE RETAINING WALL
RETAINING WALL PLANS

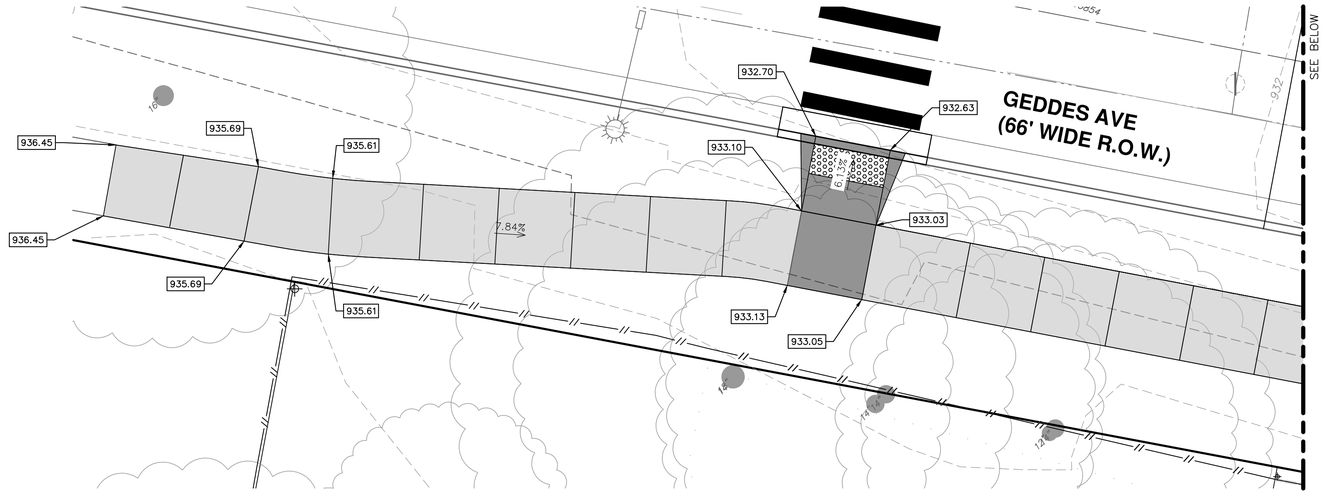
REMOVAL & CONSTRUCTION PLAN - GEDDES AVENUE

SCALE PLAN: 1" = 20'

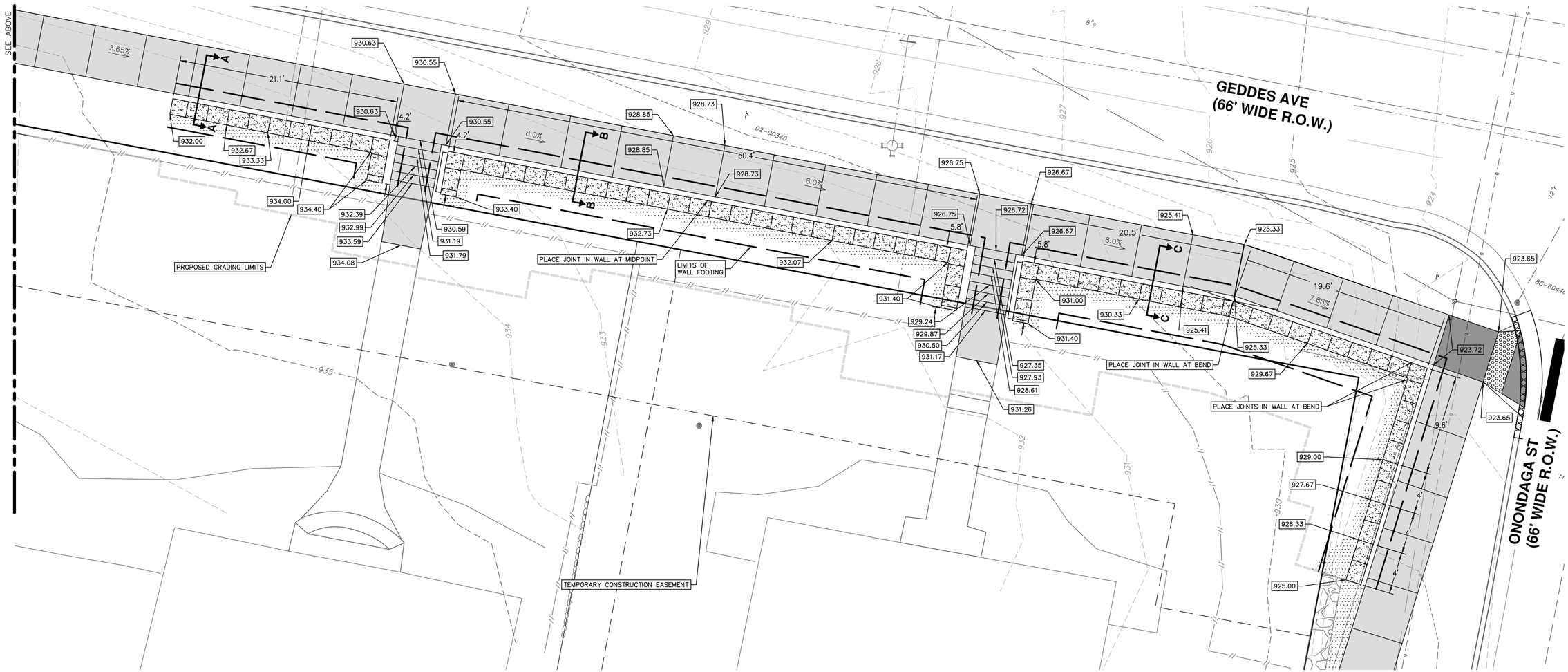
DRAWING No.
2022-009 & 2023-003-5

SHEET No.
5 OF 10

J: \AA \Design \AA22009 – Geddes Avenue Retaining Wall \DWG \AA22009_R_PP_PS.dwg Dwg Created: 21-Apr-23 – _a2 standard bw.stb – Plot Date: 21-Apr-23



PLAN VIEW



PLAN VIEW

J: \AA \Design \AA22009 — Geddes Avenue Retaining Wall \DWG \AA22009_Grd.dwg Dwg Created: 14-Mar-23 — _a2 standard bw.stb — Plot Date: 21-Apr-23

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM No. 1	04/20/2023	JAB	DAD

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

GEDDES AVENUE RETAINING WALL

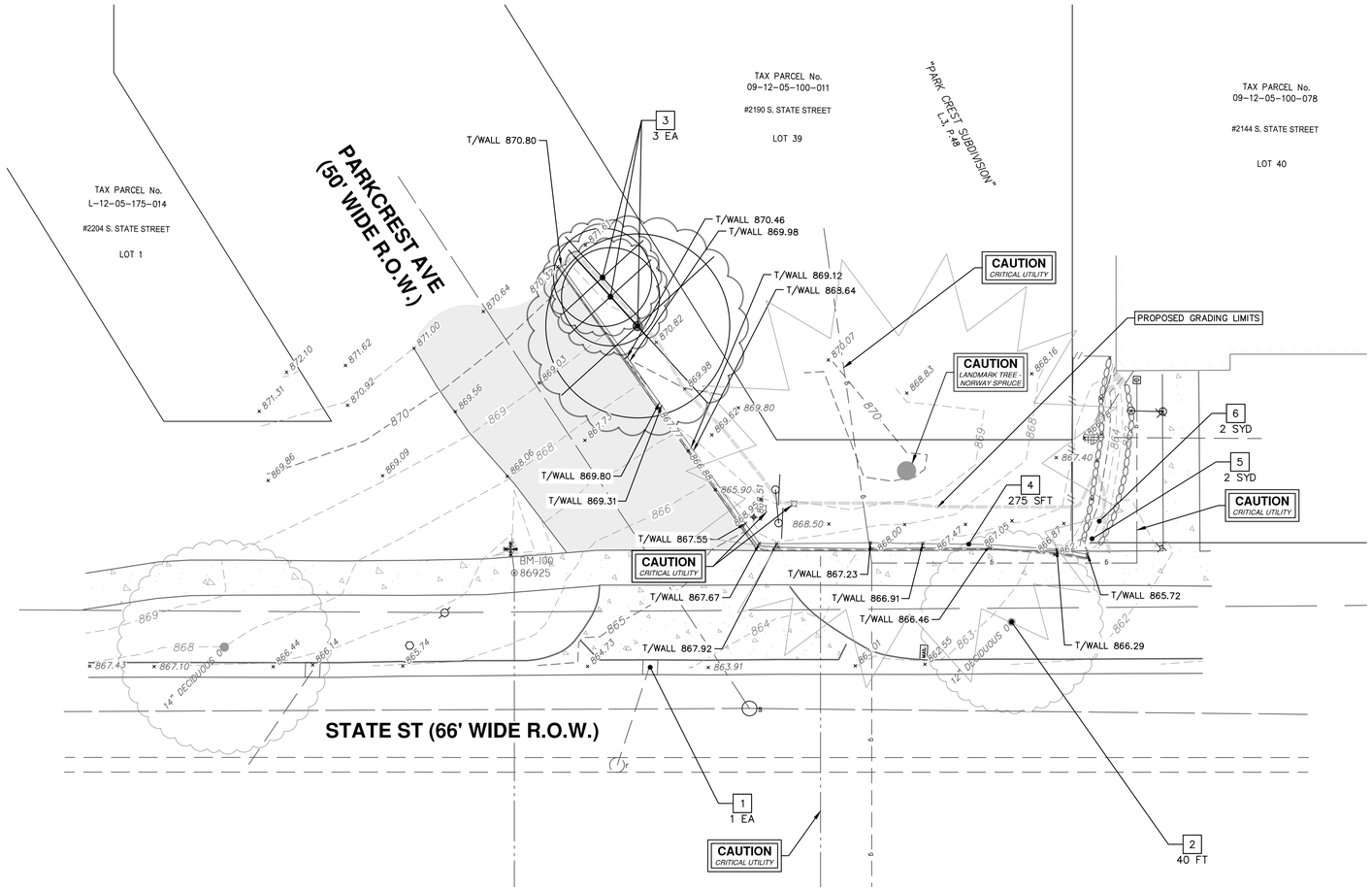
RETAINING WALL PLANS

DETAILED GRADING PLAN - GEDDES AVENUE

SCALE **PLAN: 1" = 5'**

DRAWING No. **2022-009 & 2023-003-6**

SHEET No. **6 OF 10**



REMOVAL PLAN VIEW

REMOVAL KEY	
KEY	DESCRIPTION
1	INLET FILTER
2	PROTECTIVE FENCING
3	TREE, REM, 6" TO 18"
4	REMOVE TIMBER WALL
5	REMOVE ROCKERY WALL
6	REMOVE & SALVAGE ROCKERY WALL

NOTES:
1) DURING CONSTRUCTION USE CAUTION AND DUE CARE WHEN REMOVING THE EXISTING TIMBER RETAINING WALL AND EXCAVATING FOR NEW MODULAR BLOCK RETAINING WALL TO MINIMIZE IMPACTS AND DISTURBANCE TO THE FOLLOWING:

A) ANY/ALL TREE ROOTS PRESENT FOR THE LANDMARK NORWAY SPRUCE.
B) THE EXISTING BUSINESS SIGN AND LIGHTING

2) CLEANLY PRUNE OR SAWCUT ANY ROOTS ENCOUNTERED AND REPAIR/REPLACE (AT CONTRACTOR'S EXPENSE) ANY LIGHTING AND/OR SIGNING COMPONENTS DAMAGED WHEN PERFORMING THIS WORK.

NOTE:
1. T/WALL CALLOUTS AT TOP OF BACK OF WALL

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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PUBLIC SERVICES
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ANN ARBOR, MI 48107-8647
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

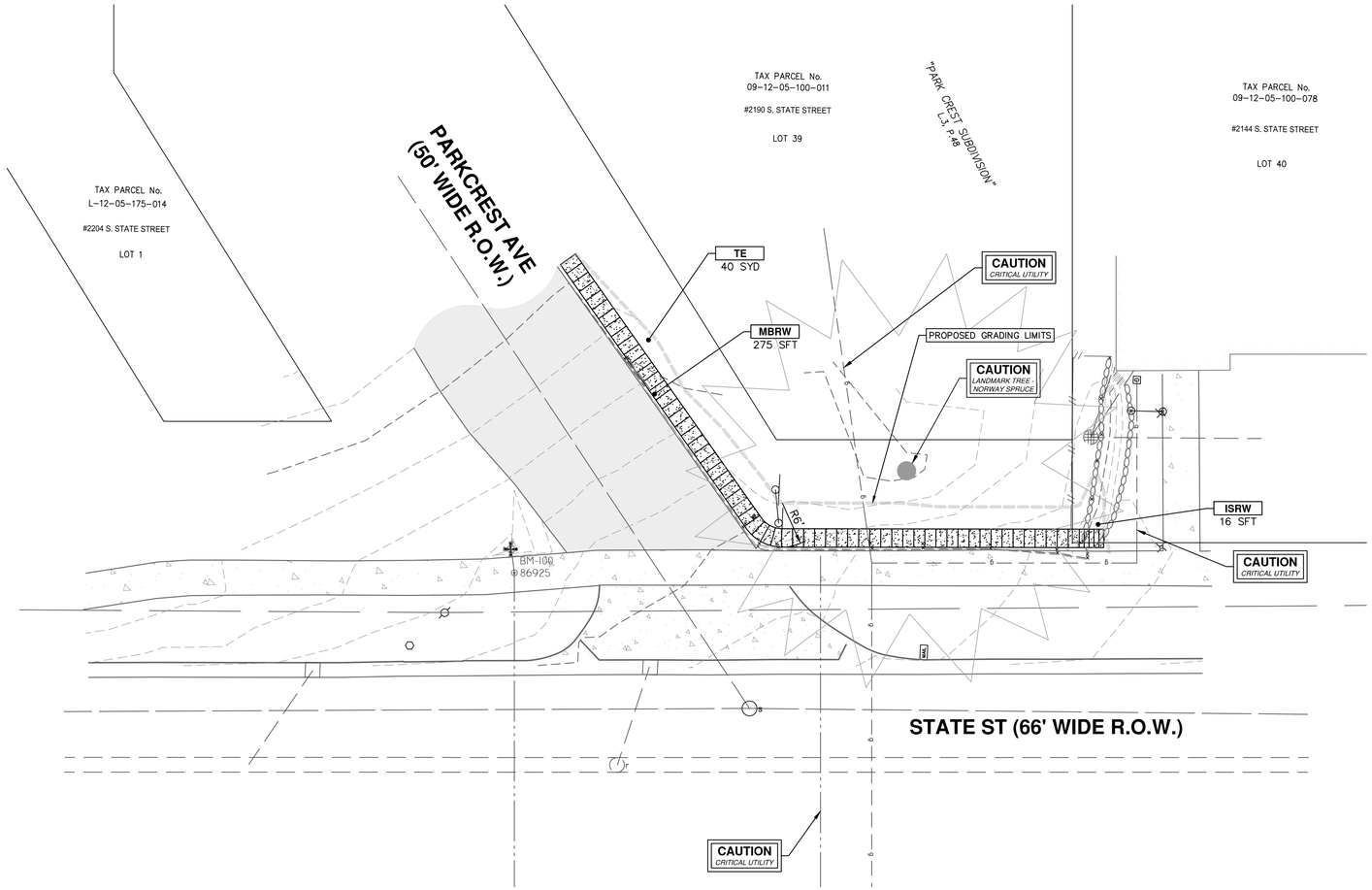
GEDDES AVENUE RETAINING WALL
STATE STREET
REMOVAL PLAN - STATE STREET

SCALE : 1" = 10'

DRAWING No.
2022-009 & 2023-003-7

SHEET No.
7 OF 10

J:\AA\Design\AA22008 - 2190 State Street Retaining Wall\DWG\AA22008_Rem_Rotated_View.dwg Dwg Created: 8-Mar-23 - _a2 standard bw.stb - Plot Date: 21-Apr-23



CONSTRUCTION PLAN VIEW

CONSTRUCTION KEY	
KEY	**DESCRIPTION**
MBRW	MODULAR BLOCK RETAINING WALL
TE	TURF ESTABLISHMENT
ISRW	INSTALL SALVAGED ROCKERY WALL

NOTES:
1) USE CAUTION AND DUE CARE WHEN CONSTRUCTING THE NEW MODULAR BLOCK RETAINING WALL TO MINIMIZE IMPACTS AND DISTURBANCE TO THE FOLLOWING:

A) ANY/ALL TREE ROOTS PRESENT FOR THE LANDMARK NORWAY SPRUCE.
B) THE EXISTING BUSINESS SIGN AND LIGHTING.

2) CLEANLY PRUNE OR SAWCUT ANY ROOTS ENCOUNTERED AND REPAIR/REPLACE (AT CONTRACTOR'S EXPENSE) ANY LIGHTING AND/OR SIGNING COMPONENTS DAMAGED WHEN PERFORMING THIS WORK.

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

CITY OF ANN ARBOR
PUBLIC SERVICES
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ANN ARBOR, MI 48107-8647
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

GEDDES AVENUE RETAINING WALL

STATE STREET

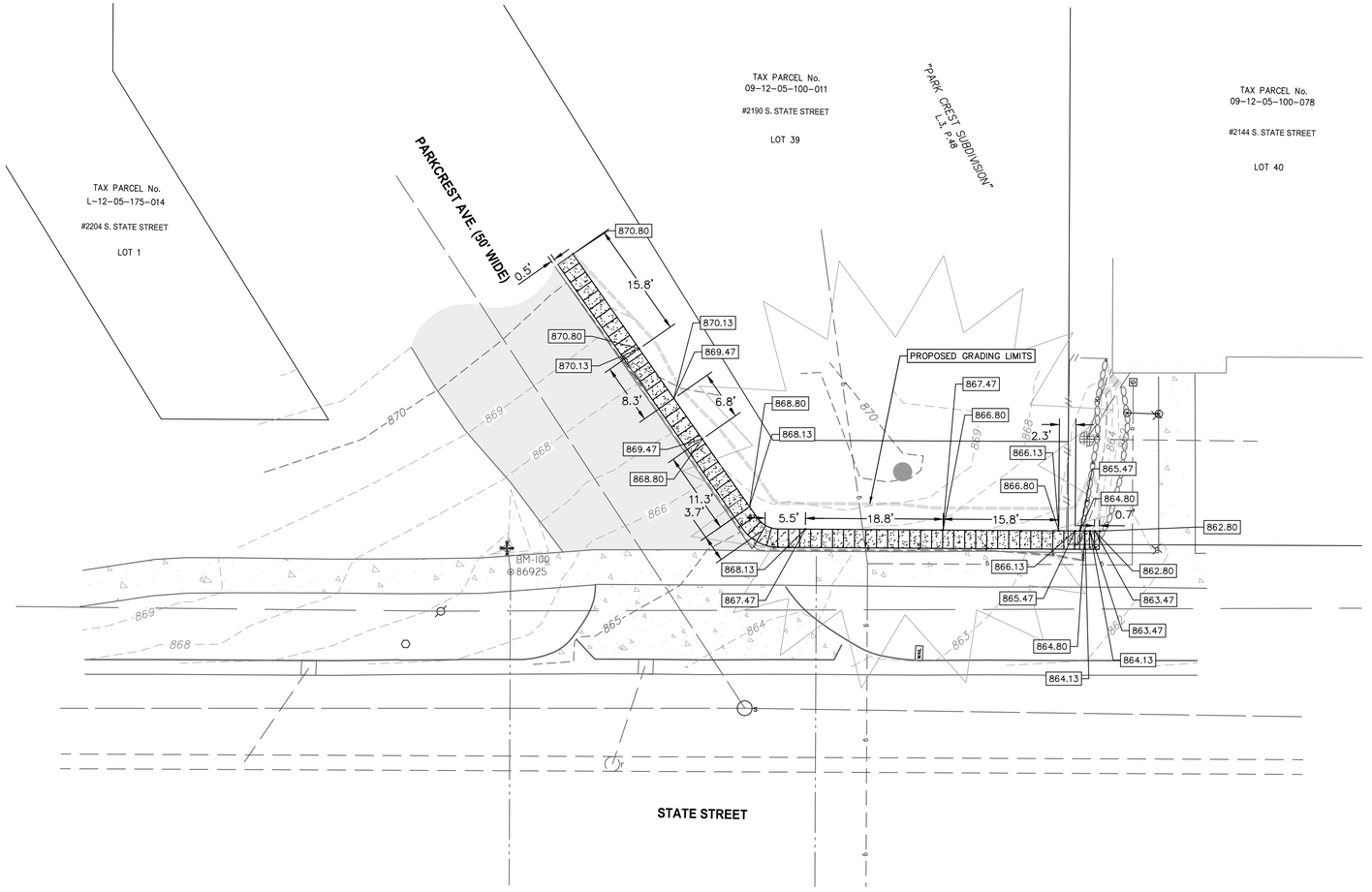
CONSTRUCTION PLAN - STATE STREET

SCALE : 1" = 10'

DRAWING No.
2022-009 & 2023-003-8

SHEET No.
8 OF 10

J:\AA\Design\AA22008 - 2190 State Street Retaining Wall\DWG\AA22008_Rem_Rotated_View.dwg Dwg Created: 8-Mar-23 - _a2 standard bw.stb - Plot Date: 21-Apr-23



GRADING PLAN VIEW

J:\AA\Design\AA22008 - 2190 State Street Retaining Wall\DWG\AA22008_Grp.dwg Dwg Created: 8-Mar-23 - _a2 standard bw.stb - Plot Date: 21-Apr-23

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	ADDENDUM NO. 1	3/14/2023	JAB	DAD

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PUBLIC SERVICES
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

GEDDES AVENUE RETAINING WALL

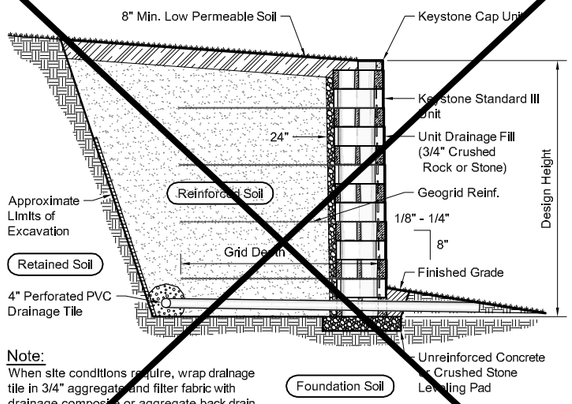
STATE STREET

DETAILED GRADING PLAN - STATE STREET

SCALE : 1" = 10'

DRAWING No.
2022-009 & 2023-003-9

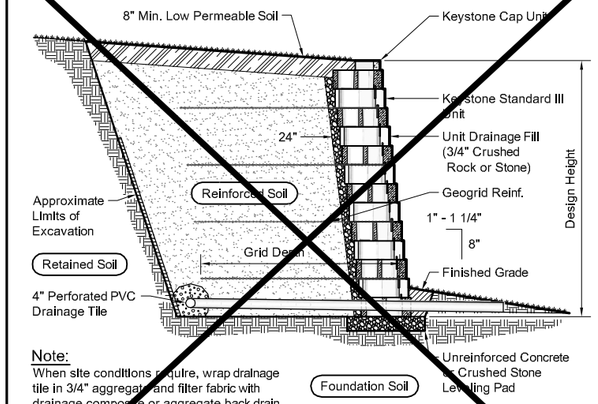
SHEET No.
9 OF 10



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

Typical Reinforced Wall Section

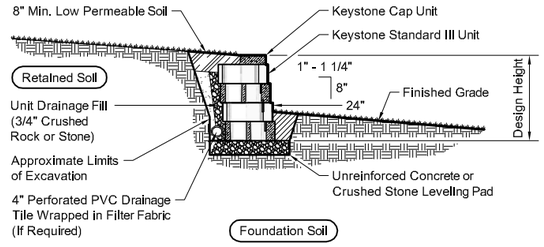
Standard III Unit - Near Vertical Setback



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

Typical Reinforced Wall Section

Standard III Unit - 1" Setback



Typical Gravity Wall Section

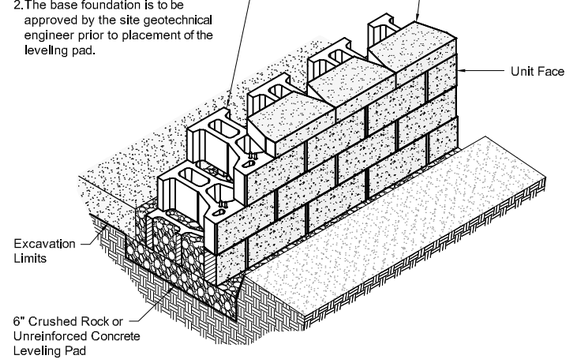
Standard III Unit - 1" Setback

Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the levelling pad.

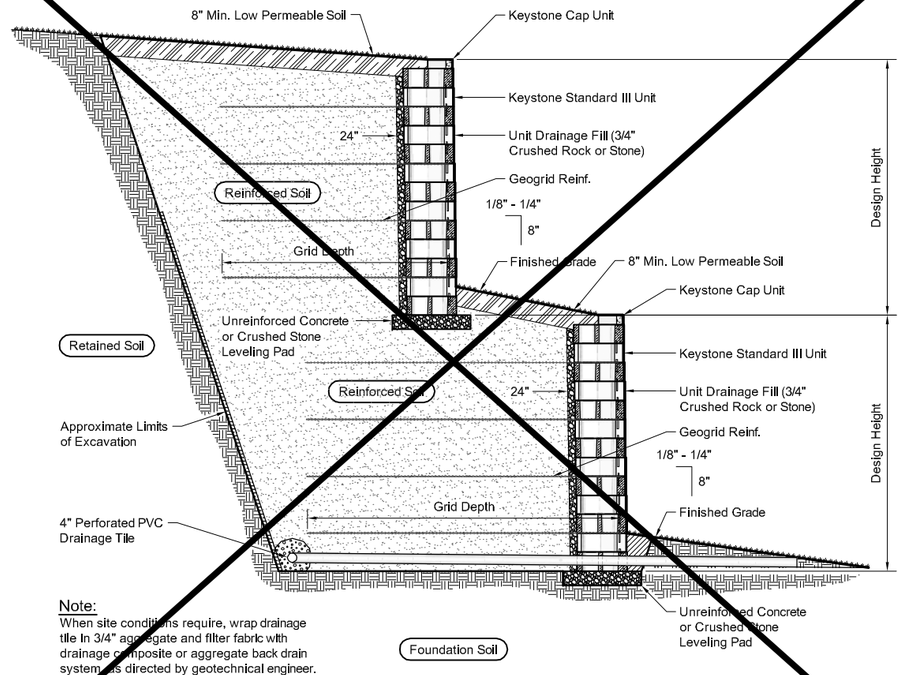
Standard III Unit	
Width:	18"
*Depth:	21"
Height:	8"
*Weight:	95 lbs

Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	50 lbs



Standard III Unit/Base Pad Isometric Section View

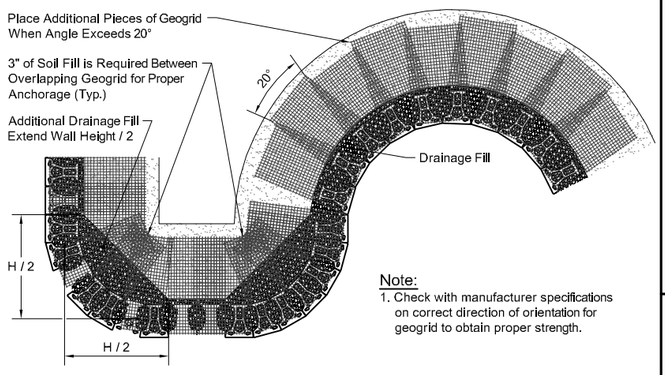
* Dimensions & Weight May Vary by Region



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

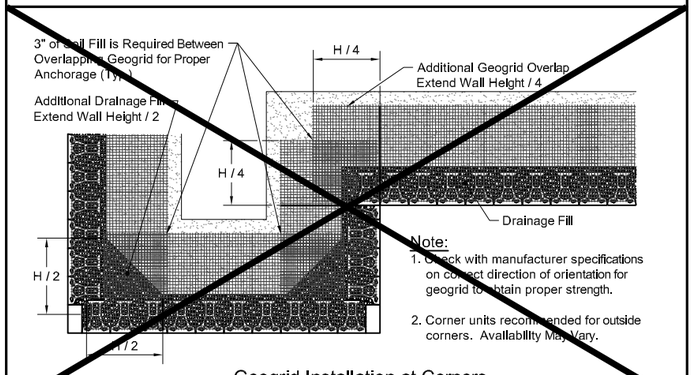
Typical Reinforced Tiered Wall Section

Standard III Unit - Near Vertical Setback



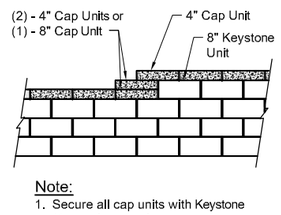
Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

Geogrid Installation on Curves



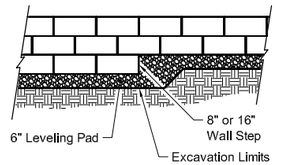
Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.

Geogrid Installation at Corners



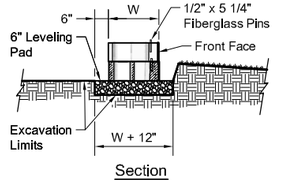
Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps



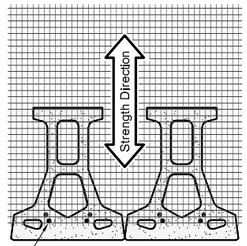
Elevation

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



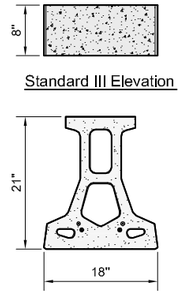
Section

Leveling Pad Detail



Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection

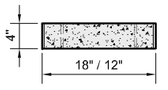


Standard III Elevation

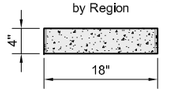
Standard III Plan

Standard III Unit

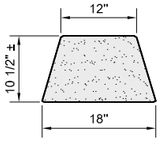
* Dimensions May Vary by Region



Cap Unit Elevation



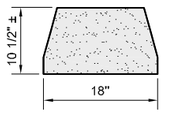
Cap Unit Elevation



Cap Unit Plan

Universal Cap Unit Option

* Dimensions & Availability Will Vary by Region



Cap Unit Plan

Straight Split Cap Unit Option

* Dimensions & Availability Will Vary by Region

Design is for internal stability of the KEYSTONE wall structure only. External stability, including but not limited to foundation and slope stability is the responsibility of the Owner. The design is based on the assumption that the materials within the retained mass, methods of construction, and quality of materials conform to KEYSTONE's specification for this project.

No.	Date	Revision	By

KEYSTONE RETAINING WALL SYSTEMS
A CONTECH COMPANY
4444 W 78th Street
Minneapolis, MN 55435
952-897-1040

Designed By: RKM	Title: Standard III Unit 21 - Straight Face Details	Date:	
Checked By: CDM	Project: Keystone Retaining Wall Systems Typical Wall Details	Project No:	
Scale: No Scale		Drawing No:	