ADDENDUM No. 1

ITB No. 4685

2021 SIDEWALK GAP ELIMINATION

Bids Due: June 24, 2021 at 2:00PM (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 eighty-one (81) pages. The entire drawing set has been included herein but only the drawings indicated on page Addendum-1-3 have been revised.

Bidder is to acknowledge receipt of this Addendum No. 1, including all attachments (if any) in its Bid by so indicating on page ITB-1 of the Invitation to Bid Form. Bids submitted without acknowledgment of receipt of this addendum may be considered nonconforming.

The following forms provided within the ITB document should be included in submitted bids:

- City of Ann Arbor Prevailing Wage Declaration of Compliance
- City of Ann Arbor Living Wage Ordinance Declaration of Compliance
- Vendor Conflict of Interest Disclosure Form
- City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance

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

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the Bid document which are outlined below are referenced to a page or Section in which they appear conspicuously. The Bidder is 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.

<table>
<thead>
<tr>
<th>Section/Page(s)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>As provided in ITB No. 4669 Bid Document:</td>
<td>As updated/replaced herein Addendum 1:</td>
</tr>
<tr>
<td>Bid Forms/ BF-1 to BF-2</td>
<td>Bid Form – Schedule of Prices, Pages Addendum1-BF-1 to Addendum1-BF-2. Pay Items revised:</td>
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<tr>
<td></td>
<td>• 201 revised maximum</td>
</tr>
<tr>
<td></td>
<td>• 202 revised maximum</td>
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<tr>
<td></td>
<td>• 204 revised maximum</td>
</tr>
<tr>
<td></td>
<td>• 213 and 214 revised units</td>
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<tr>
<td></td>
<td>• Revised quantity: 215, 216, 231-250, 252, 260-269, 271-275, 702</td>
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<td></td>
<td>• 1st 250 eliminated</td>
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<td></td>
<td>• 251 revised description to eliminate fibermesh</td>
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<td><strong>Section/Page(s)</strong></td>
<td><strong>Change</strong></td>
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<td>---------------------</td>
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<tr>
<td><strong>As provided in ITB No. 4669 Bid Document:</strong></td>
<td><strong>Former 276 renumbered to be 274</strong></td>
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<tr>
<td><strong>Bid Forms/ BF-1 thru BF-2</strong></td>
<td><strong>Pay Items revised (continued):</strong></td>
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<tr>
<td></td>
<td>- 275 description revised to match plan detail</td>
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<td></td>
<td>- 276 added pursuant to changes on Sheet 25.</td>
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<tr>
<td></td>
<td>- Added 292 for potential encounter</td>
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<tr>
<td><strong>Detailed Specifications/ Pages DS-1 to DS-2</strong></td>
<td><strong>Pages Addendum1-DS-1 to Addendum1-DS-2:</strong></td>
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<tr>
<td></td>
<td>- Construction activities shall not be at more than one location at the same time.</td>
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<tr>
<td></td>
<td>- Traver Blvd. area new sidewalk open and temporary route removed by August 30, 2021.</td>
</tr>
<tr>
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<td>- Reference to Traffic Control and General Conditions pay items revised to reflect updated Bid Form maximums.</td>
</tr>
<tr>
<td><strong>Detailed Specifications/ Pages DS-17 to DS-20</strong></td>
<td><strong>Pages Addendum1-DS-3 to Addendum1-DS-6; to reflect updated Bid Form maximums.</strong></td>
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<td><strong>Detailed Specifications/ Pages DS-21 to DS-23</strong></td>
<td><strong>Pages Addendum1-DS-7 to Addendum1-DS-9; corrected pay item number.</strong></td>
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<tr>
<td><strong>Detailed Specifications</strong></td>
<td><strong>Pages Addendum1-DS-10 to Addendum1-DS-13; added Detailed Specification for Item #204 - Minor Traffic Devices.</strong></td>
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<td><strong>Detailed Specifications</strong></td>
<td><strong>Page Addendum1-DS-14; added Detailed Specification for Item #206 – No Parking Signs.</strong></td>
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<td><strong>Detailed Specifications</strong></td>
<td><strong>Pages Addendum1-DS-15 to Addendum1-DS-16; added Detailed Specification for Item #208 - Restoration.</strong></td>
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<tr>
<td><strong>Detailed Specifications/ Pages DS-21 to DS-23</strong></td>
<td><strong>Pages Addendum1-DS-17 to Addendum1-DS-18; removed bolded statement regarding seven (7) days to complete final patching; added additional Item of Work “Sand Subbase Course, Class II C.I.P.” as directed.</strong></td>
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<tr>
<td><strong>Detailed Specifications</strong></td>
<td><strong>Pages Addendum1-DS-19 to Addendum1-DS-20; added Detailed Specifications for Items #230 and #231.</strong></td>
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<td><strong>Detailed Specifications/ Page DS-33</strong></td>
<td><strong>Page Addendum1-DS-21; corrected pay item number.</strong></td>
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<td><strong>Detailed Specifications</strong></td>
<td><strong>Pages Addendum1-DS-22 to Addendum1-DS-23; added Detailed Specifications for Items #233 - #234.</strong></td>
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<td><strong>Detailed Specifications/ Pages DS-39 to DS-40</strong></td>
<td><strong>Pages Addendum1-DS-24 to Addendum1-DS-25; corrected pay item number.</strong></td>
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<td><strong>Detailed Specifications/ Pages DS-35 to DS-37</strong></td>
<td><strong>Pages Addendum1-DS-27 to Addendum1-DS-29; corrected pay item numbers and added Item #251</strong></td>
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<td>Detailed Specifications/ Pages DS-31 to DS-32</td>
<td>Pages Addendum1-DS-30 to Addendum1-DS-31; corrected pay item number.</td>
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<tr>
<td>Detailed Specifications</td>
<td>Page Addendum1-DS-32; Added Detailed Specification for #253</td>
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<tr>
<td>Detailed Specifications</td>
<td>Pages Addendum1-DS-33 to Addendum1-DS-35; Added Detailed Specifications for #264 – #277.</td>
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<td>Pages Addendum1-DS-36 to Addendum1-DS-38; Added Detailed Specifications for #278 – #279.</td>
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<td>Pages Addendum1-DS-39 to Addendum1-DS-41; Added Detailed Specification for #280.</td>
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<tr>
<td>Detailed Specifications</td>
<td>Pages Addendum1-DS-42 to Addendum1-DS-43; Added Detailed Specification for #290.</td>
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<td>Pages Addendum1-DS-44 to Addendum1-DS-45; Added Detailed Specifications for #291 - #293.</td>
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<td>Detailed Specifications</td>
<td>Page Addendum1-DS-46; Added Detailed Specification for #702</td>
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**The entire drawing set has been included herein but only the following drawings have been revised:**

<table>
<thead>
<tr>
<th>Drawings/1</th>
<th>Revised Sheet List Table.</th>
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<tbody>
<tr>
<td>Drawings/2</td>
<td>Revised Construction Notes 7-9, 12, 14.</td>
</tr>
<tr>
<td>Drawings/11</td>
<td>Revised sidewalk type on the southwest corner of Barton and Northside.</td>
</tr>
<tr>
<td>Drawings/11-13</td>
<td>Profile grade labels indicate location south face of walk.</td>
</tr>
<tr>
<td>Drawings/17</td>
<td>Extended lane closure on north side; indicated temporary pavement markings; added pedestrian routing.</td>
</tr>
<tr>
<td>Drawings/18-19</td>
<td>Reduced removal and replacement limits on south side at east and west ends; added temporary grading easement.</td>
</tr>
<tr>
<td>Drawings/20-21</td>
<td>Added profile information.</td>
</tr>
<tr>
<td>Drawings/23</td>
<td>Removed barricades at southerly most driveway</td>
</tr>
<tr>
<td>Drawings/24</td>
<td>Revised sidewalk type through driveways to eliminate fibermesh</td>
</tr>
<tr>
<td>Drawings/25</td>
<td>Added pedestrian routing; reduced scope of MOT, eliminating north side of Traver and corners of Traver and Lakehurst/Lancashire intersection.</td>
</tr>
<tr>
<td>Drawings/26-29</td>
<td>Eliminated removal and replacement in median, at north side of Traver, and at all corners of Traver and Lakehurst/Lancashire intersection; eliminated extension of median at east leg of Traver and Lakehurst intersection.</td>
</tr>
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</table>
II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the ITB. Bidders 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: Is the City going to offer a multiple year contract, or offer yearly renewal options, for the Sidewalk Gap Elimination program since it is newly funded by a New Sidewalk Millage?

Answer 1: The City cannot offer a multiple year contract or yearly renewal option for this project due to time constraints. Next year's segments have not been programmed yet and therefore the potentially unique needs in those segments cannot be known and captured in this contract. However, a multiple year contract will be considered where feasible.

Bidders are responsible for any conclusions that they may draw from the information contained in the Addendum.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
<th>Estimated Quantity</th>
<th>Unit Price</th>
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<td>&quot;No Parking&quot; Signs</td>
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TOTAL THIS PAGE (BF-1) (Also to be entered on BF-2) $
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<tr>
<th>Item</th>
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<th>Quantity</th>
<th>Unit Price</th>
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<td>TOTAL BASE BID</td>
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</table>
DETAILED SPECIFICATION FOR PROJECT SCHEDULE

The Contractor shall begin work on this Contract within one week of the receipt of the Notice to Proceed. In no case shall any work begin prior to receipt of formal notice of award by the City of Ann Arbor, expected to be on August 2, 2021.

The estimated start date of construction activities is **August 9, 2021**.

This contract requires sidewalk, ramp, paving and pavement marking work at four separate locations (Work Areas), and shall be completed sequentially as listed below. With the exception of setting up/removing traffic control devices and restoration, the contractor may not perform any construction activities at more than one location at the same time.

The entire work of this Contract including all final asphalt patching, final clean-up and the completion of all restoration, and any other related project work shall be completed on, or before, November 15, 2021.

In addition to the final completion date, the contract also includes intermediate completion dates detailed as follows:

- **Traver Boulevard Work Area** - This area is in close proximity to schools that will be open to students starting August 30, 2021. The new concrete sidewalk shall be open and the temporary alternate pedestrian route and barricades shall be removed by **August 30, 2021**.

- **Barton Drive Work Area** – The entire work at this location as required by this Contract, including stabilization of all disturbed areas shall be completed by **September 25, 2021**.

- **Stimson Street and State Street Work Area** – This area is in close proximity to the U of M Stadium, and no home games are scheduled between **September 27, 2021 - October 21, 2021**. Therefore, the entire work at this location shall not commence until **September 27, 2021** and shall be complete by **October 21, 2021**, including stabilization of all disturbed areas.

- **Boardwalk Drive Work Area** - The entire work at this location as required by this Contract, including stabilization of all disturbed areas shall be completed by **November 15, 2021**.

This project is on an expedited schedule. 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 the required overtime to complete the project by the dates specified herein. Once construction has commenced, the Contractor shall work continuously on the project until it is satisfactorily completed and approved in writing by the Engineer. The Contractor shall not suspend work on this project unless authorized in writing by the Engineer or stipulated elsewhere in the contract documents. 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 work by the above described intermediate and final completion dates shall require the Contractor to pay the City as Liquidated Damages, and not as penalty, the sum of $750.00 dollars for each and every calendar day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or time extension(s) granted thereto.
All liquidated damages amounts are additive and may be charged concurrently. Should the Engineer approve a request for an extension of contract time and/or revise any intermediate or final completion date, liquidated damages will be based on the revised dates for which the time extensions specifically apply. Liquidated Damages will be charged for incomplete work during periods of seasonal suspensions.

The Detailed Specification entitled “Traffic Control, Max $5,000” shall govern the performance and execution of all construction operations.

Prior to the start of any construction, the Contractor shall submit a detailed schedule of work for the Engineer's review and acceptance. Work shall not commence until a satisfactory progress schedule is accepted in writing by the Engineer. The proposed progress schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The schedule shall clearly indicate, in detail, the start and the completion date for each Work Area (as described above) and the starting and completion dates for work on each street within the area. “Completion of Work” within an area is defined as the completion of the work as specified herein and as directed by the Engineer, including, but not limited to: completion of all driveway and sidewalk construction; final HMA patching; all surface restoration including the placement of Engineer-approved topsoil, seed, and mulch blankets; plantings; clean-up of all disturbed areas including street cleaning; and, the removal of all temporary traffic control devices and “No Parking” signs.

Initial inspections and markings for removal/repair and replacement shall be performed by the City in advance of the Contractor’s work in an Area, based on the Contractor’s approved work schedule, and City personnel availability. The Contractor may not start work in a new Area until work has been completed and approved by the Engineer in the previous Area, unless permission is granted in writing by the Engineer.

The Contractor shall provide written, updated, revisions to the approved progress schedule each week and present it to the Engineer at the weekly progress meeting, and must obtain the Engineer’s approval for any proposed deviations from the most current, approved, schedule.

Costs for the Contractor to organize, coordinate, and schedule all of the work of the project, will not be paid for separately, but shall be considered to be included in the bid price of the Contract Item “General Conditions, Max $12,500.”
DESCRIPTION

The Contractor shall designate a full-time Project Supervisor to act as the Contractor's agent/representative, and to be responsible for scheduling and coordination of all subcontractors, suppliers, other governmental agencies, and all public and private utility companies.

The Project Supervisor shall not be an active crew member of the Contractor, shall not be an active member or employee of any subcontractor's work force, and shall not perform general or specialized labor tasks.

The Project Supervisor shall work exclusively on this project, and shall put forth his/her full effort into the organization and coordination of the work of this project.

Prior to the pre-construction meeting, the Contractor shall designate a proposed Project Supervisor by name, and shall furnish the City with a current, thorough, detailed summary of the proposed Project Supervisor's work history, outlining all previous supervisory experience on projects of a similar size and nature. The detailed work history shall include personal and professional references (names and phone numbers) of persons (previous owners or agents) who can attest to the qualifications and work history of the proposed Project Supervisor. Proposed candidates for Project Supervisor shall have a demonstrated ability to work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature. The Supervising Professional will have the authority to reject a proposed Project Supervisor whom he/she considers unqualified.

The Project Supervisor shall be available 24 hours-per-day to provide proper supervision, coordination and scheduling of the project for the duration of the Contract. The Contractor shall furnish the City with telephone numbers of the Project Supervisor in order to provide 24 hour-per-day access during business and non-business hours, including weekends and holidays.

The Project Supervisor shall be equipped by the Contractor with a mobile telephone to provide the City with 24 hour-per-day access to him/her during daily construction activities, during transit to and from the construction site, and during all non-business hours including weekends and holidays.

The Project Supervisor shall be equipped with assistants as necessary to provide project supervision as specified herein, and in accordance with the Contract.

DUTIES AND RESPONSIBILITIES

The Project Supervisor work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature.

The Project Supervisor shall have a thorough, detailed understanding and working knowledge of all construction practices and methods specified elsewhere herein, as well as the handling, placement, testing and inspection of aggregates, aggregate products, HMA concrete, and portland cement concrete materials.

The Project Supervisor shall be responsible for all of the work of all of the Contractor's, subcontractors' and suppliers' work forces.

The Project Supervisor shall be responsible for proper and adequate maintenance (emissions, safety, and general operation) of all of the Contractor's, subcontractors' and suppliers' equipment and vehicles.
The Project Supervisor shall be responsible for the legal, proper and safe parking/storage of all of the Contractor's, subcontractors' and suppliers' equipment, work vehicles, and employee's vehicles.

The Project Supervisor shall schedule and coordinate the work of all parties involved in the project, including utility companies, testing agencies, governmental agencies, all City departments (such as Utilities and Transportation), and City inspectors.

The Project Supervisor shall coordinate and schedule the work of any independent survey crews that may be retained by the City to witness and reset existing and new geographic/benchmark monuments. Failure to have existing monuments witnessed and reset may result in delays to the Contractor's work. Costs for such delays will be the Contractor's sole responsibility.

The Project Supervisor shall coordinate and schedule both Testing inspectors and City inspectors in a timely manner, to assure proper and timely testing and inspection of the work.

The Project Supervisor shall review the Inspector's Daily Reports (IDRs) for accuracy, and shall sign all IDRs on a daily basis as the representative of the Contractor. Items to be reviewed include descriptions, locations and measurements of quantities of work performed, workforce, equipment, and weather. The Project Supervisor shall also be responsible for its subcontractors’ review and initialing of IDRs containing work items performed by each respective subcontractors.

The Project Supervisor shall submit to the Engineer, an updated, detailed schedule of the proposed work on a weekly basis, and an update of all proposed changes on a daily basis, all in accordance with the Detailed Specification for Project Schedule contained elsewhere herein.

The Project Supervisor shall schedule and chair a weekly progress meeting with the Engineer and all subcontractors to discuss the work. Upon the completion of each meeting, the Project Supervisor shall prepare and distribute, to all present, a written summary of the meeting's minutes. Those in attendance shall review the minutes and, if necessary, comment on any deficiencies or errors prior to or at the next scheduled progress meeting.

**ADDITIONAL PERFORMANCE REQUIREMENTS**

If, in the sole opinion of the Supervising Professional, the Project Supervisor is not adequately performing the duties as outlined in this Detailed Specification, the following system of notices will be given to the contractor with the associated penalties:

**First Notice** – A warning will be issued in writing to the contractor detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a second notice.

**Second Notice** – A second warning will be issued in writing to the contractor further detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a third notice. A deduction of 10% will be made from the original Project Supervision contract amount. At this time, the City
reserves the right to meet with personnel with the necessary authority within the Contractor’s organization to discuss the deficiencies in the Project Supervision.

Third Notice – An additional deduction of 25% will be made from the original Project Supervision contract amount, and the Project Supervisor shall be removed from the project, and replaced immediately with another individual to be approved by the Supervising Professional.

Should, in the sole opinion of the Supervising Professional, the Project Supervisor fail to perform his/her duties and responsibilities as described herein to such a degree that the successful completion of the project is put in jeopardy, the above system of notices may be foregone, and the Contractor shall immediately replace the Project Supervisor upon receipt of written notice. Failure to provide adequate project supervision, as determined by the Engineer, shall be considered basis for the Supervising Professional to suspend work without extension of contract time or additional compensation.

MEASUREMENT AND PAYMENT

This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Supervision, Max $9,000</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION

This item shall include all work described and required by the Plans and Specifications for which no item of work is listed in the Bid Form, including but not limited to:

- Scheduling and organization of all work, subcontractors, suppliers, testing, inspection, surveying, and staking
- Coordination of, and cooperation with, other contractors, agencies, departments, and utilities
- Protection and maintenance of Utilities
- Placing, maintaining, and removing all soil erosion and sedimentation controls
- Maintaining drainage
- Maintaining drives, drive openings, sidewalks, bike paths, mail deliveries, and solid waste/recycle pick-ups
- Storing all materials and equipment off lawn areas
- Temporary relocation and final replacement/re-setting of mailboxes
- Site clean-up
- Coordination efforts to furnish various HMA mixtures as directed by the Engineer
- Coordination efforts to furnish and operate various-size vehicles/equipment as directed by the Engineer
- Furnishing and operating vacuum-type street cleaning equipment
- Furnishing and operating vacuum-type utility structure cleaning equipment
- Furnishing and operating both vibratory plate and pneumatic-type (“pogo-stick”) compactors
- Furnishing and operating a backhoe during all work activities
- Furnishing and operating a jackhammer and air compressor during all work activities
- Noise and dust control
- Mobilization(s) and demobilization(s)
- Furnishing submittals and certifications for materials and supplies
- Parking meter bags
- Disposing of excavated materials and debris
- All miscellaneous and incidental items such as overhead, insurance, and permits.

MEASUREMENT AND PAYMENT

This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Conditions, Max $12,500</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION

This work shall include digital audiovisual record of the physical, structural, and aesthetic conditions of the construction site and adjacent areas as provided herein. This work will be performed for the entire project limits prior to the start of construction.

The audiovisual filming shall be:

1. Of professional quality, providing a clear and accurate audio and visual record of existing conditions.
2. Prepared within the two (2) week period immediately prior to the start of construction.
3. Furnished to the Engineer prior to bringing any materials or equipment within the areas described in this Detailed Specification.
4. Carried-out under the supervision of the Engineer.

The Contractor shall furnish one (1) copy of the completed audiovisual record to the Engineer. An index of the footage shall be included, which will enable any particular area of the project to be easily found. This includes indexing the files according to street and Station number as applicable. The Contractor shall retain a second copy of the audiovisual record for his/her own use.

Any portion of the film determined by the Engineer to be unacceptable for the documentation of existing conditions shall be filmed again at the Contractor’s sole expense prior to mobilizing onto the site.

PRODUCTION

The audiovisual filming shall be completed in accordance with the following minimum requirements:

1. DVD Format, No Editing - The filming shall be done in color using equipment that allows audio and visual information to be recorded. Editing of the video shall not be allowed and the speed and electronics of the recording equipment and DVD shall be equal to that which is standard to the videoing industry.

2. Perspective / Speed / Pan / Zoom - To ensure proper perspective, the distance from the ground to the camera lens shall not be less than 10 feet and the filming must proceed in the general direction of travel at a speed not to exceed 48 feet per minute. Pan and zoom rates shall be controlled sufficiently so that playback will ensure quality of the object viewed.

3. Display - The recording equipment shall have transparent time, date stamp and digital annotation capabilities. The final copies of the video shall continuously and simultaneously display the time (hours:minutes:seconds) and the date (month/date/year) in the upper left-hand corner of the frame. Accurate project stationing, where applicable, shall be included in the lower half of the frame in standard format (i.e. 1+00). Below the stationing periodic information is to be shown, including project name, name of area shown, street address, direction of travel, viewing direction, etc. If in the event, the stationing has not been established on-site, refer to the plans and approximate the proposed stationing.
4. Audio Commentary / Visual Features. Locations relative to project limits and landmarks must be identified by both audio and video means at intervals no longer than 100 feet along the filming route. Additional audio commentary shall be provided as necessary during filming to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.

5. Visibility / Ground Cover - The filming shall be performed during a time of good visibility. Filming shall not be performed during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being filmed. The Contractor shall notify the Engineer in writing in the event that the weather or snow cover is anticipated to cause a delay in filming.

**COVERAGE**

The audiovisual film coverage shall include the following:

1. General Criteria - This general criteria shall apply to all filming and shall include all areas where construction activities will take place or where construction vehicles or equipment will be operated or parked and where materials will be stored. The filming shall extend an additional 50 feet outside of all areas. The filming shall include all significant, existing man-made and natural features such as driveways, sidewalks, utility covers, utility markers, utility poles, other utility features, traffic signal structures and features, public signs, private signs, fences, landscaping, trees, shrubs, other vegetation, and other similar or significant features.

2. Other Areas - The Contractor shall film at his sole expense other areas where, in his/her opinion, the establishment of a record of existing conditions is warranted. The Contractor shall notify the Engineer in writing of such areas.

The Engineer may direct the filming of other minor areas not specified herein at the Contractor’s sole expense.

**AUDIOVISUAL FILMING SERVICES**

The following companies are known to be capable of providing the filming services required by this Detailed Specification and shall be utilized, unless the Contractor receives prior written approval from the Engineer to utilize another company of comparable or superior qualifications.

Construction Video Media
Midwest Company
Topo Video, Inc.
Pre-Construction Media
Video Media Corp.
Finishing Touch Photo & Video
MEASUREMENT AND PAYMENT

The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Audio Visual Coverage</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

Audiovisual Coverage shall include all labor, equipment, and materials required to perform the filming and to provide the finished video the Engineer. The unit price includes filming the entire project limits, for each and every project location, as described above.
DESCRIPTION

The work of Temporary Traffic Devices shall consist of protecting and maintaining vehicular and pedestrian traffic as shown on the plans, in the Maintenance of Traffic specification, and as directed by the Engineer, in accordance with Sections 103.05, 103.06, and 812 of the 2012 MDOT Standard Specifications for Construction; Part 6 of the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD); and the City Standard Specifications, except as modified herein. These devices include, but not limited to, advance, regulatory, and warning signs; barricades and channeling devices at intersecting streets on which traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets; changeable message signs; lighted arrow boards; sign/signal covers and pavement marking cover tape for construction operations.

The work of Minor Traffic Devices shall include, but not be limited to:

- The furnishing and operating of miscellaneous signs, warning devices, flag-persons, and cones;
- The operation of additional signs furnished by the City;
- Furnishing and installing meter bags;
- Coordinating with the City to have meter heads removed and reinstalled;
- Maintaining pedestrian traffic;
- Temporarily covering traffic controls;
- Temporarily covering existing signs as directed;
- Temporarily covering existing pavement markings and symbols as directed;
- Any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.

The Contractor shall maintain vehicular and pedestrian traffic during the work by the use of flag-persons, channelizing devices, and signs as necessary, as directed by the Engineer, and in accordance with MMUTCD. Typical applications for maintaining pedestrian traffic in accordance with the MMUTCD are included in this detailed specification.

MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS

General

Materials and equipment shall meet the requirements specified in the above-designated sections of the MDOT Standard Specifications.

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

All existing signs, and signs erected by the City of Ann Arbor on this project shall be preserved, protected, and maintained by the Contractor. Existing City owned signs which are damaged by the Contractor during the work will be repaired by the City at the Contractor's expense.

The Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer.

When traffic control devices have been damaged by, or due to, the negligence of the Contractor, his subcontractors or material suppliers, the traffic control devices shall be replaced at the Contractor's expense.
Lighted Plastic Drums; Barricades; Temporary Signs; Portable Changeable Message Signs; Lighted Arrow Boards; Pavement Marking Cover Tape; Temporary Pavement Markings

The Contractor shall furnish and operate these items as directed by the Engineer.

Traffic control devices meeting current MDOT and MMUTCD specifications shall be used on this project. Lighted plastic drums shall be sufficiently ballasted to minimize tipping.

Type I and III barricades shall have standard orange-and-white stripes on both sides of the barricade.

Sufficient signs shall be provided by the Contractor to ensure the safety of the workers and the general public in accordance with the current MMUTCD.

"Road Work Ahead" warning signs shall be placed, as indicated on the Plans, or as directed by the Engineer, prior to the start of work, regardless of the nature, magnitude or duration of the work.

Removable black pavement marking cover tape shall be used to cover conflicting pavement markings as directed by the Engineer.

Temporary pavement markings may be used within transition areas as directed by the Engineer and shall be removable.

**MEASUREMENT AND PAYMENT**

This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Traffic Devices, Max $5,000</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
Figure 6H-28. Sidewalk Detour or Diversion (TA-28)

Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

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Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)

Note: For long-term stationary work, the double yellow center line and/or lane lines should be removed between the crosswalk lines. See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 29
DESCRIPTION

This work shall consist of installing, maintaining and removing of "No Parking" signs and posts, as outlined herein and as referenced on the plans. "No Parking" signs shall be installed in accordance with the Public Services Department Standard Specifications and the most recent version of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

MATERIAL

All materials for this work shall conform to the requirements of the Public Services Department Standard Specifications.

CONSTRUCTION METHODS

Prior to the commencement of any construction activity, the Contractor will be required to place "No Parking" signs where directed by the Engineer. The Contractor shall obtain a form for "Temporary Permission to Reserve Parking Lane for Work-Related Purposes" for each street from the City of Ann Arbor Engineering Unit. This form shall be submitted a minimum of five (5) days prior to the posting of "No Parking" signs. The issued permit must be printed and displayed on site at all times.

The City will furnish "No Parking" signs to the Contractor at no cost. The Contractor shall furnish the signposts and shall securely bolt the signs to the signposts as directed by the Engineer. After MISS DIG Clearance, the Contractor shall install the signposts at least two feet deep into the ground, and there shall be a minimum 6-foot and maximum 7-foot clearance maintained between the bottom of the sign and the ground. The signs are to be placed at 150-foot intervals (or as necessary) to eliminate parking in the construction area.

The installation of "No Parking" signs shall be in accordance with the permit. "No Parking" signs shall be installed by the Contractor, as directed by the Engineer, at least 48 hours prior to the proposed start-of-work/enforcement date. "No Parking" signs shall be returned to the City at the completion of the work. The cost of unreturned signs will be back-charged to the Contractor. "No Parking" signs shall be covered by the Contractor, thereby allowing on-street parking, whenever there is no work being performed for a period of time longer than 72 hours.

MEASUREMENT AND PAYMENT

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

"No Parking" signs will be measured as the maximum number installed on each street at any one time. The unit price includes the removal and return of "No Parking" signs to the City upon completion of the project. The Contractor shall be back-charged for the replacement costs for damaged or unreturned signs.

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;No Parking&quot; Signs</td>
<td>Each</td>
</tr>
</tbody>
</table>
DESCRIPTION

This item of work shall conform to Item No. 882, “Seeding & Mulching” in Division IX, Section 6 Landscaping & Restoration Items of the Public Services Area Standard Specifications, except as specified herein.

This work shall include the removal of all surplus materials from the site including; but not limited to; tools, dirt, rubbish, construction debris, and excess excavated material. This work shall also include the restoration of all existing lawn areas, road surfaces, culverts, drives, and sidewalks disturbed by the work. This work includes placing topsoil, fertilizer, seeding, and furnishing and installing mulch blankets on all disturbed areas as approved by the Engineer. Mulch blankets are required on all seeded areas.

MATERIALS

The materials shall meet the requirements specified in the MDOT 2012 Standard Specifications as designated, as specified herein, and as approved by the Engineer:

- Seed shall be THM (Turf Loamy to Heavy) seed mixture as described in MDOT Table 816-1.
- Fertilizers shall be a Class A. The percentages by weight shall be 12-12-12, or as approved by the Engineer.
- Water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances.
- Mulch blankets shall be High Velocity Straw Mulch Blankets as specified in MDOT section 917.
- Topsoil shall be 4 inches furnished as specified in MDOT section 917.

MAINTENANCE AND ACCEPTANCE

It is the responsibility of the Contractor to establish a dense lawn of permanent grasses, free from mounds and depressions prior to final acceptance and payment of this project. Any portion of a seeded area that fails to show a uniform germination shall be reseeded. Such reseeding shall be at the Contractor's expense and shall continue until a dense lawn is established. The Contractor is responsible for restoring all areas disturbed by his construction.

The Contractor shall maintain all lawn areas until they have been accepted by the Engineer. Lawn maintenance shall begin immediately after the grass seed is in place and continue until final acceptance with the following requirements:

- Lawns shall be protected and maintained by watering, mowing, and reseeding as necessary, until the period of time when the final acceptance and payment is made by the Engineer for the project, to establish a uniform, weed-free, stand of the specified grasses. Maintenance includes furnishing and installing additional topsoil, and reseeding all as may be required to correct all settlement and erosion until the date of final acceptance.

Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over three (3) percent of the area nor greater than 6"x 6" in size.
When the above requirements have been fulfilled, the Engineer will accept the lawn.

Cleanup and Restoration must be performed upon the completion of each stage of work, to prevent erosion, and not as one single operation at the completion of the entire project. Restoration work must be performed within one week of the placement of the wearing course for each street.

The Contractor shall restore all disturbed areas to better than or equal to their original condition.

**MEASUREMENT AND PAYMENT**

Measurement and payment of this item of work shall conform to Item No. 882, “Seeding & Mulching” in Division IX, Section 6 Landscaping & Restoration Items of the Public Services Area Standard Specifications, except as specified herein.

The completed work for “Clean-Up & Restoration, Special” will be paid for on a lump sum (LS) basis. 80% of said lump sum shall be paid upon completion and approval of the site by the Engineer. By May 31st of the year following the completion of the project, the Engineer will inspect the seeded turf to ensure that the end product is well established; weed free, and in a growing and vibrant condition. If the Engineer determines that the restored areas meet the project requirements, the remaining 20% of the lump sum will be paid. If the Engineer determines that the restored areas do not meet the project requirements, the Contractor will continue with any and all measures necessary to meet the project requirements. All costs associated with the remedial measures shall be borne entirely by the Contractor.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoration</td>
<td>Syd</td>
</tr>
</tbody>
</table>
DESCRIPTION

This work shall consist of removing HMA surface/base as described in Section 204 and Division 5 of the 2012 edition of the MDOT Standard Specifications for Construction, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

CONSTRUCTION METHOD

The Contractor shall remove HMA surfaces, HMA bases, and brick bases of any thickness from any aggregate and/or concrete base course, without the removal of the aggregate or concrete base. Pavement removal limits shall be as directed by the Engineer.

The Contractor shall remove, salvage, deliver to any location within the City limits or City-owned property, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall remove and properly dispose of all excavated material and debris, including all asphalt and concrete. The Contractor shall not stockpile excavated material overnight on, or adjacent to, the site.

The Contractor shall place millings or stone in excavated areas to maintain pedestrian access where pedestrian access is not otherwise provided. The Contractor shall protect removal areas with lighted drums until such areas have received final patching.

HMA surfaces/pavements shall be cut for removal by the use of saws, jackhammers and/or other methods approved by the Engineer. Backhoe teeth, jackhammers equipped with spike points, and backhoe-mounted wheel cutters shall not be used for cutting the edges of patches, but may be used to break up pavement within patch areas for removal. The edges of patches shall be cut horizontally and vertically straight and uniform (as judged by the Engineer), without damaging adjacent pavement.

Damage to adjacent pavement, pavement base, subbase, curb, gutter, sidewalk, utility structures, or other site features, due to removal operations shall be repaired by the Contractor, at the Contractor's expense, as directed by the Engineer.

The Contractor shall remove pavement/pavement base full-depth or to a depth of 4-inches, whichever is greater. Removal of all granular or clay material located within the 4-inch minimum thickness is included in this item of work. Any additional aggregate or clay base removed without written approval of the Engineer shall be replaced by the Contractor at the Contractor's expense with 21AA Aggregate compacted-in-place, or with HMA asphalt, as directed by the Engineer.

The Contractor shall remove and/or re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer. Use of each specific piece of equipment is subject to the approval of the Engineer.
The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as the Item of Work: “21AA Limestone - C.I.P.” or “Sand Subbase Course, Class II C.I.P.”. Where the Engineer directs such materials to be removed, they will be paid for separately, as the Item of Work: “Subgrade Undercutting – Type II.”

The Contractor shall construct butt-joints, and trim butt-joints just prior to HMA paving as shown on the Plans, and as directed by the Engineer.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

**MEASUREMENT AND PAYMENT**

The areas to be removed shall be marked and measured prior to the removal of any material. Measurement shall take place with both the Engineer and the Contractor (or their agents) present. Both parties shall come to an agreement regarding removal quantities prior to the actual removal of HMA pavement.

The completed work as measured for these items of work will be paid at the Contract Unit Prices for the following Contract (Pay) Item:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove HMA Pathway</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Remove HMA Pavement</td>
<td>Square Foot</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DETAILED SPECIFICATION
FOR
ITEM #230 – STATION GRADING
ITEM #231 – SIDEWALK RAMP GRADING

DESCRIPTION
Remove miscellaneous structures and materials and complete all earthwork required to construct the proposed cross sections within the limits shown on the plans or stated in this special provision. All lines and grades will be as shown on the plans and as directed by the Engineer. Complete this work according to the MDOT 2012 Standard Specifications for Construction and this special provision.

MATERIALS
Furnish and place required subbase and embankment material conforming to the MDOT 2012 Standard Specifications for Construction as necessary to achieve the required typical cross sections. Excavated material, if suitable, may be used as embankment material as approved by the Engineer.

CONSTRUCTION METHOD
Complete this work according to applicable sections of the Standard Specifications for Construction. Station Grading includes, but is not limited to, the following work:

1. Strip and stockpile topsoil for use in turf establishment.
2. Furnish, place and compact additional material.
3. Clearing, including trees less than 8 inches in diameter.
4. Remove rocks or boulders less than 0.5 cubic yards in volume.
5. Remove and relocate mailbox posts and mailboxes.
6. Sawcut existing pavement.
7. Match drive and approach grades to new pavement grades.
8. Remove miscellaneous structures and materials.
9. Dispose of excess and unsuitable material according to Section 205.
10. Place embankment and reshape to proposed grades.
11. Excavate material to a depth necessary for construction.
12. Place embankment to a thickness necessary for construction.
13. Excavate for subbase material.
DETAILED SPECIFICATION
FOR
ITEM #230 – STATION GRADING
ITEM #231 – SIDEWALK RAMP GRADING

MEASUREMENT AND PAYMENT

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

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Grading</td>
<td>Linear Foot</td>
</tr>
<tr>
<td>Sidewalk Ramp Grading</td>
<td>Each</td>
</tr>
</tbody>
</table>

Station Grading includes all labor, equipment and materials necessary to complete the work as described and will be measured by length in stations along the road centerline.

Sidewalk Ramp Grading will apply separately to each quadrant of an intersection where sidewalk is to be removed and/or graded for construction. The limits are specified on the plans or as directed by the Engineer.
DETAILED SPECIFICATION
FOR
ITEM #232 - SUBGRADE UNDERCUTTING TYPE II

DESCRIPTION

This work includes removal of unsuitable granular base, subbase, or clay material(s) to a depth of 4-inches, and installing 4-inches of MDOT Class II granular base material for sidewalk, sidewalk ramps, and drive approaches on a prepared subgrade in accordance with Sections 301, 302 and 307 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein.

MATERIAL

The materials used for this work shall be MDOT Class II granular base material meeting the requirements of the City of Ann Arbor Standard Specifications.

CONSTRUCTION METHOD

At any time after sidewalks, sidewalk ramps, and/or drives have been removed; the Engineer may inspect the grade to determine the need for, and the limits of, undercuts. After undercut areas are excavated to a depth of 4-inches, the areas shall be trimmed, shaped, evenly graded and recompacted to not less than 95% of the soils maximum unit weight as determined by the AASHTO T-180 test. The Contractor shall properly dispose of all excess materials.

The Contractor is solely responsible for the maintenance and protection of the grade. Further, any damage to the grade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or his/her subcontractors' or suppliers' operation(s), shall be repaired by the Contractor at the Contractor's expense. This includes any additional earthwork and/or maintenance materials as directed by the Engineer, for the purposes of the Contractor's maintenance and protection of the grade. The Contractor shall maintain the base, subbase and subgrade in a smooth, well drained condition at all times.

Subgrade Undercutting shall be backfilled with 4-inches of MDOT Class II granular backfill. The backfill material shall be compacted to not less than 95% of its maximum unit weight as determined by the AASHTO T-180 test.

Granular backfill shall not be placed if, in the opinion of the Engineer, there are any indications that they may become frozen before the specified densities are obtained. Granular backfill shall not be placed on a frozen base, subbase or subgrade.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

MEASUREMENT AND PAYMENT

The completed work, including subgrade undercutting and placement of granular backfill will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgrade Undercutting Type II</td>
<td>Square Foot</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION
This work shall consist of constructing an aggregate subbase or base course on an existing aggregate surface, or on a prepared subgrade in accordance with Sections 301, 302 and 307 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein.

MATERIAL
The materials used for this work shall be MDOT 21AA, and Class II granular material, as modified meeting the requirements of the City of Ann Arbor Standard Specifications.

CONSTRUCTION METHOD
Sand or aggregate courses shall not be placed if, in the opinion of the Engineer, there are any indications that they may become frozen before their specified densities are obtained.

Sand or aggregate courses shall not be placed on a frozen base, subbase or subgrade.

The Contractor shall not use rubber-tired equipment on the grade, when its use causes, or may cause, in the opinion of the Engineer, damage to the grade. The Contractor shall conduct his/her operation(s), and provide all necessary equipment, to insure the satisfactory completion of the work without damaging the grade. This includes the transporting, stockpiling, rehandling, and movement of materials over additional distances, in lieu of driving on an unprotected, or partially unprotected, grade.

The Contractor is solely responsible for the maintenance and protection of the grade. Further, any damage to the grade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or his/her subcontractors' or suppliers' operation(s), shall be repaired by the Contractor at the Contractor's expense. This includes any additional earthwork and/or maintenance materials as directed by the Engineer, for the purposes of the Contractor's maintenance and protection of the grade.

The Contractor shall shape the base, subbase and subgrade to the elevations, crowns, and grades as specified on the Plans and as directed by the Engineer. This may include regrading the subbase to provide different crown grades than those existing prior to the construction.

The Contractor shall remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

The Contractor shall maintain the base, subbase and subgrade in a smooth, well drained condition at all times.

Sand and aggregate courses shall be placed in uniform layers such that when compacted, they have the thicknesses shown on the Plans, or as directed by the Engineer. The loose measure of any layer shall not be more than 9-inches or less than 4-inches.

Sand subbase shall be compacted to not less than 95% of their respective maximum unit weights, as determined by the AASHTO T-180 test.

Aggregate base courses shall be compacted to not less than 98% of their respective maximum unit weights, as determined by the AASHTO T-180 test.
All granular materials shall be deposited from trucks or through a spreader in a manner that will minimize segregation of material.

Manholes, valve boxes, inlet structures and curbs shall be protected from damage. Manholes & inlet structures shall be continuously cleaned of construction debris and properly covered at all times during the construction. Upon completion of each day’s work, manholes, water valve boxes, inlets and catch basins shall be thoroughly cleaned of all extraneous material.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

**MEASUREMENT AND PAYMENT**

Where granular materials are used as base, as subbase, or as fill for excavations in Machine Grading areas, items of work "Aggregate Base Course, 21AA -C.I.P." and "Sand Subbase Course, CL II - C.I.P." shall be measured and paid accordingly.

Where granular materials are used as fill for undercuts at locations other than Machine Grading areas, item of work "21AA Limestone - C.I.P." shall be measured and paid accordingly.

The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand Subbase Course, Class II - C.I.P.</td>
<td>Cubic Yard</td>
</tr>
<tr>
<td>21AA Limestone - C.I.P.</td>
<td>Cubic Yard</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION
This work shall consist of constructing HMA pavement in accordance with Division 5 and Section 904 of the 2012 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS AND EQUIPMENT
General
The HMA mixtures to be used for this work shall be as follows:

<table>
<thead>
<tr>
<th>WORK ITEM</th>
<th>MDOT HMA MIXTURE #</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA Approach</td>
<td>LVSP (Superpave)</td>
</tr>
<tr>
<td>Handpatching</td>
<td>LVSP (Superpave)</td>
</tr>
</tbody>
</table>

Binders for LVSP Superpave mixes shall be PG 58-28, as directed by Engineer. These shall meet the requirements specified in Section 904 of the 2012 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

The Aggregate Wear Index (AWI) number is 220 for LVSP. This AWI number applies to all aggregates used in all top course mixtures. Blending aggregates to achieve this AWI requirement is permitted in accordance with current MDOT Standards, and Supplemental Specifications.

Reclaimed Asphalt Pavement (RAP) in HMA Mixtures

CONSTRUCTION METHODS
All concrete work shall be completed prior to placing HMA mixtures.

The Contractor shall have a 10-foot long straight-edge, backhoe, air-compressor and jackhammer available during all paving operations.

Prior to placing the bond coat, the Contractor shall remove all vegetation (within the area to be paved), shall thoroughly clean all joints & cracks in the existing pavement (and any gutter to be overlaid) with compressed air and/or vacuum-type street cleaning equipment to remove all dirt and debris to a depth of at least 1-inch, and shall thoroughly clean the entire surface to be paved, with a Vac-All or similar vacuum-type street cleaning equipment.

MDOT SS-1h bond coat shall be applied at a uniform rate of 0.10 gallons/square yard, on all exposed, existing HMA and concrete surfaces which will come in contact with the new HMA material. The Contractor shall take extra care to avoid covering surfaces which are not to be paved. If work after October 15, 2021 is allowed by the Engineer, the SS-1h bond coat shall not be diluted by more than 25%.

The Contractor shall place HMA wedges using the leveling or base mixture specified herein, as directed by the Engineer, prior to placing the top course. Such wedging shall be measured and paid for at the respective unit price of the appropriate HMA Pavement item.

Construction of butt joints, where directed by the Engineer, shall be measured and paid for as "HMA Surface Remove".

The Contractor shall schedule the paving operation to avoid longitudinal cold joints.

HMA Approach top and leveling courses shall be placed in a 2-inch lift.
Handpatching shall be placed in 0-inch to 4-inch lifts.

All specified HMA thickness dimensions are compacted-in-place.

The Contractor shall construct the pavement courses to provide the final cross-slopes (crowns) specified by the Engineer.

The Contractor shall construct feather joints, and shall feather the top course at structures, in drive approaches, and at intersection joints, as directed by the Engineer. Feather joints shall vary the thickness of the asphalt from 0.0-inches to the required full paving thickness (approximately 2 inches) over a 5-foot to 15-foot distance, or as directed by the Engineer. The Contractor shall rake all large aggregates out of the HMA mixture in feather joints, prior to compaction.

The Contractor shall provide a minimum of two rakers during the placement of all top courses. Further, the Contractor shall provide, when directed by the Engineer, a second "Break-Down" roller in order to achieve the specified asphalt densities.

The Contractor shall provide a minimum of 24-hour notice to the Engineer prior to paving, and shall obtain a "Permit To Pave" from the Engineer in advance of scheduling paving.

The Contractor and Engineer shall carefully observe the paving operation for signs of faulty mixtures. Points of weakness in the surface shall be removed or corrected by the Contractor, at his/her expense, prior to paving subsequent lifts of HMA material. Such corrective action may include the removal and replacement of thin or contaminated sections of pavement, including sections that are weak or unstable. Once the Contractor or his representative is notified by the Engineer that the material being placed is out of allowable tolerances, or there is a problem with the paving operation, the Contractor shall stop the paving operation at once, and shall not be permitted to continue placing HMA material until again authorized by the Engineer.

During the placement of all courses, the speed of the paving machine(s) shall not exceed 50-feet per minute.

The Contractor shall furnish and operate enough materials and equipment so as to keep the paving machine(s) moving continuously at all times. Failure to do so shall be cause for the suspension of the paving operation until the Contractor can demonstrate to the satisfaction of the Engineer, that sufficient resources have been dedicated to perform the work in accordance with the specifications.

Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

MEASUREMENT AND PAYMENT

Measurement of this HMA paving item shall be by the ton, in place. Unused portions of material loads shall be returned to the plant and re-weighed, and the corrected weight slip shall be provided to the Engineer. All weight slips must include the type of mixture (codes are not acceptable), as well as vehicle number, gross weight, tare weight and net weight.

Corrective action shall be enforced as described in the “Acceptance of HMA Mixtures” Detailed Specification and will be based on the City's testing reports.

All costs for furnishing and operating vacuum-type street cleaning equipment, backhoes, jackhammers, and air compressors shall be included in the bid prices for these items of work or in the item of work “General Conditions, Max $____.”
The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA Approach</td>
<td>Ton</td>
</tr>
<tr>
<td>Handpatching</td>
<td>Ton</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION

This work shall consist of constructing concrete items including sidewalks and drive approaches, of regular and high-early concrete, in accordance with Sections 601, 602, 603, 801, 802, and 803 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown on the Plans, as shown in this Detailed Specification, and as directed by the Engineer.

MATERIALS

Concrete mixtures shall be as follows (or as directed by the Engineer), and concrete materials shall meet the requirements specified in the referenced sections of the MDOT Standard Specifications:

<table>
<thead>
<tr>
<th>Concrete Item</th>
<th>Concrete Mixture</th>
<th>MDOT Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; or 6&quot; or 8&quot; Sidewalk/Ramp/Drive</td>
<td>P1, 6-sack</td>
<td>601</td>
</tr>
<tr>
<td>6&quot; or 8&quot; Sidewalk/Ramp/Drive - High-Early</td>
<td>P-NC, 7.0-sack</td>
<td>601</td>
</tr>
</tbody>
</table>

CONSTRUCTION METHODS

General
Sidewalk, sidewalk ramps, and drives shall be replaced within 24 hours of their removal.

The Contractor is responsible to construct all sidewalks, sidewalk ramps, and all other concrete items within ADAAG (Americans with Disabilities Act Accessibility Guidelines) compliance. All sidewalks and curb ramps must be constructed in accordance with MDOT Standard Detail R-28-J (or version in place at time of the bid letting). The Engineer shall approve of all proposed grades prior to any removals and/or placement of concrete.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall compact existing base as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots greater than 2 inches in diameter.

The Contractor is responsible for any damage to concrete items, including but not limited to vandalism; vehicular, pedestrian and/or miscellaneous structural damage; surface texture damage; and rain damage.

The Contractor shall maintain on-site at all times, a sufficient quantity of adequate materials to protect concrete items. The Engineer may suspend or defer concrete placement if rain protection is not available. The Contractor shall not be entitled to any additional compensation due to work suspension or deferral resulting from a lack of adequate rain protection.
The subbase and adjacent concrete shall be sufficiently wet-down with water prior to placing concrete, to prevent water loss from the new concrete, and to form a better bond between old and new concrete. If a cold-joint becomes necessary, (the) existing concrete surface(s) shall be cleaned with compressed air to expose the aggregate in the concrete.

All concrete items shall be placed with the use for rigid forms, except along edges where the new concrete abuts an existing sidewalk or pavement. Any concrete placed without the use of forms shall be removed and replaced at the Contractor’s expense. Where it is necessary to remove existing pavement to provide space for concrete formwork, a sufficient amount of the existing pavement shall be removed to allow for the use of a vibratory plate compactor in front of the curb.

Prior to compacting backfill in front of curb and gutter, the back of curb shall be backfilled with approved material and compacted by mechanical means to 95% of the material’s maximum unit weight.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

All concrete items shall be constructed such that positive drainage is maintained. Any areas that exhibit ponding water shall removed and replaced to the extents necessary to correct the problem as directed by the Engineer, at the Contractor’s sole expense.

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. This includes the placement of seed and topsoil in all turf restoration locations and at locations where concrete items are removed and turf is to be established, all in accordance with the Detailed Specification for “Topsoil and Seed Placement”. Restoration shall also include the replacement of any brickwork, decorative stone, or other adjacent materials.

Restoration work associated with the items of work described in this Detailed Specification shall include the area between the back of the curb (or edge of pavement) to the edge of the sidewalk, as well as the area within 12 inches of the back of the sidewalk.

All restoration work and materials shall be in accordance with the City Standard Specifications.

Contraction Joints in Sidewalk

Contraction joints shall be placed at 5-foot intervals and may be tooled or sawed. The method of forming joints and spacing shall be approved by the Engineer prior to construction.

Expansion Joints in Sidewalks

\( \frac{3}{4} \)-inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property lines, at all expansion joints in the abutting curb, gutter, and combination curb and gutter, and as directed by the Engineer. Transverse expansion joints shall be placed through the sidewalks at uniform intervals of not more than 300-feet.
DETAILED SPECIFICATION
FOR
ITEM #247  4-INCH SIDEWALK OR RAMP
ITEM #248  6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #249  6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY
ITEM #250  8-INCH FIBERMESH REINFORCED CONCRETE
ITEM #251  8-INCH CONCRETE – HIGH EARLY

½-inch wide expansion joints shall be placed between the sidewalk and back of abutting curb or gutter, at the juncture of two sidewalks, between the sidewalk and buildings and other rigid structures, and as directed by the Engineer.

MEASUREMENT AND PAYMENT

No additional compensation will be paid for the construction of concrete items adjacent to existing concrete curb, gutter, pavement, or any other pavement or surface feature(s).

Restoration work within the limits described above will not be paid for separately, but shall be included in the appropriate associated items of work.

Completed work as measured for these items of work will be paid for at Contract Unit Price for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEMS</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Inch Sidewalk or Ramp</td>
<td>Square Foot</td>
</tr>
<tr>
<td>6-Inch Drive Approach, Ramp or Sidewalk</td>
<td>Square Foot</td>
</tr>
<tr>
<td>6-Inch Drive Approach, Ramp or Sidewalk - High Early</td>
<td>Square Foot</td>
</tr>
<tr>
<td>8-Inch Fibermesh Reinforced Concrete</td>
<td>Square Foot</td>
</tr>
<tr>
<td>8-Inch Concrete - High Early</td>
<td>Square Foot</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DETAILED SPECIFICATION  
FOR  
ITEM #252 – DETECTABLE WARNING, CAST IN PLACE  

DESCRIPTION  
This work shall consist of furnishing and installing cast in place detectable warning units in compliance with the Americans with Disability Act (ADA). All work shall be in accordance with MDOT Standard Detail R-28-J (or version in place at time of the bid letting).  

MATERIALS  
The detectable warning tiles shall be colored as Federal Number 22144 (variously referred to as “Clay Red” or “Brick Red”). The detectable warning tiles shall meet the following material properties, dimensions, and tolerances using the most current test methods:  

1. Water Absorption: Not to exceed 0.35% when tested in accordance with ASTM-D570  
2. Slip Resistance: 0.80 minimum combined wet/dry static coefficient of friction on top domes and field area, when tested in accordance with ASTM C1028.  
3. Compressive Strength: 18,000 psi minimum, when tested in accordance with ASTM D695.  
4. Tensile Strength: 10,000 psi minimum, when tested in accordance with ASTM D638.  
5. Flexural Strength: 24,000 psi minimum, when tested in accordance with ASTM D790.  
6. Chemical Stain Resistance: No reaction to 1% hydrochloric acid, urine, chewing gum, soap solution, motor oil, bleach, calcium chloride, when tested in accordance with ASTM D543 or D1308.  
7. Wear Depth: 300 minimum, when tested in accordance with ASTM C501.  
8. Flame Spread: 25 maximum, when tested in accordance with ASTM E84.  
10. Accelerated Weathering of Tile when tested by ASTM-G155 or ASTM G151 shall exhibit the following result-ΔE≤6.0 as well as no deterioration, fading or chalking of surface when exposed to 3000 hours minimum exposure.  
11. Wheel Loading: The cast in place tile shall be mounted on a concrete platform with a ½” airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8,000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs using AASHTO-HB17 single sheet HS20-44 loading “Standard Specifications for Highways and Bridges.”  
12. Salt and Spray Performance of Tile and Adhesive System when tested to ASTM-B117 not to show any deterioration or other defects after 100 hours of exposure  

Addendum1-DS-30
DETAILED SPECIFICATION
FOR
ITEM #252 – DETECTABLE WARNING, CAST IN PLACE

CONSTRUCTION METHODS

Installer’s Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for this Project.

The contractor shall follow manufacturer specifications for installation, except where they conflict with MDOT Standard Detail R-28-J (or version in place at the time of bidding), or other project requirements.

MEASUREMENT AND PAYMENT

The completed work as measured for this item of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Item:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detectable Warning, Cast in Place</td>
<td>Square Foot</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DETAILED SPECIFICATION
FOR
ITEM #253 - PAVT MRKG, OVLY COLD PLASTIC, 12 INCH, CROSSWALK

DESCRIPTION
This work consists of providing and placing permanent pavement markings in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMTUTCD), lasted version published at time of advertisement. Provide pavement markings that conform to the Plans, the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, MDOT Pavement Marking Standard Plans, City of Ann Arbor Special Details, and as specified herein.

MATERIALS

CONSTRUCTION METHODS
The preparation and placement of permanent markings shall conform to section 811 of the MDOT 2012 Standard Specifications, the Plans, and as specified herein.

MEASUREMENT AND PAYMENT
Completed work, as described, will be measured and paid for at Contract Unit Prices for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEMS</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk</td>
<td>Foot</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the MDOT 2012 Standard Specifications for Construction and as modified by this Detailed Specification.
DETAILED SPECIFICATION
FOR
ITEM #264 PAVT MRKG COVER, TYPE R, BLACK
ITEM #266 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, YELLOW, TEMP
ITEM #267 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 6 INCH CROSSWALK
ITEM #269 – LIGHTED ARROW BOARD, FURNISH AND OPERATE
ITEM #270 – SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE
ITEM #271 – PLASTIC DRUM – LIGHTED, FURNISH & OPERATE
ITEM #272 – BARRICADE TYPE III – LIGHTED, FURNISH AND OPERATE
ITEM #273 – TEMPORARY SIGN - TYPE B, FURNISH AND OPERATE
ITEM #274 – PEDESTRIAN TYPE II BARRICADE, TEMP
ITEM #275 – PEDESTRIAN CHANNELIZER, TEMP
ITEM #276 – PEDESTRIAN CHANNELIZER BARRIER, TEMP
ITEM #277 – SIGN COVER

DESCRIPTION

This work shall consist of protecting and maintaining vehicular and pedestrian traffic, in accordance with Sections 812 and 922 of the 2012 MDOT Standard Specifications for Construction; Part 6 of the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD); and the City Standard Specifications, except as modified herein.

MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS

General

Materials and equipment shall meet the requirements specified in the above-designated sections of the MDOT Standard Specifications.

The Contractor shall maintain traffic such that no vehicle shall be required to drive into active work areas. Patch areas which extend more than halfway across the roadway shall always be removed and replaced to provide a minimum of half the pavement width for maintaining traffic.

The Contractor shall maintain pedestrian traffic at all times. For maintaining normal pedestrian traffic while performing sidewalk and driveway repair, Pedestrian Type II Barricade, Temp shall be placed by the Contractor, as directed by the Engineer. "Sidewalk Closed" and/or "Cross Here" signs shall be placed, by the Contractor, when directed by the Engineer.

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor, EXCEPT Temporary Curb for Bump-out. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

All existing signs, and signs erected by the City of Ann Arbor on this project shall be preserved, protected, and maintained by the Contractor. Existing City owned signs which are damaged by the Contractor during the work will be repaired by the City at the Contractor's expense.

Parking violation citations issued to the Contractor, subcontractor and material suppliers, including their employees, shall be enforced under appropriate City Code.

The Contractor shall replace missing or damaged traffic control devices, as directed by the Engineer. When traffic control devices have been damaged by, or due to, the negligence of the Contractor, his subcontractors...
or material suppliers, the traffic control devices shall be replaced at the Contractor's expense.

The Contractor shall furnish and operate these items as directed by the Engineer.

Installation shall follow the manufacturer’s installation requirements.

**Plastic Drum – Lighted, Furnish and Operate; Barricade Type III – Lighted, Furnish and Operate; Temporary Sign, Type B, Furnish and Operate; Pedestrian Type II Barricade, Temp; Pedestrian Channelizer; Pedestrian Channelizer Barrier**

The Contractor shall furnish and operate these items as directed by the Engineer.

Type II pedestrian barricades and type III barricades shall have standard orange-and-white stripes on both sides of the barricade.

Enough signs shall be provided by the Contractor to insure the safety of the workers and the general public in accordance with the current MMUTCD.

"Construction Ahead" warning signs shall be placed, as indicated on the Plans, or as directed by the Engineer, prior to the start of work, regardless of the nature, magnitude or duration of the work.

**MEASUREMENT AND PAYMENT**

**General**

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

Costs for transporting barricades and other traffic control devices shall be included in the bid prices for the individual items of work.

**Pavt Mrkg Cover, Type R, Black**

Payment for Type R Black Pavt Mrkg shall be for the maximum quantity used on each street.

**Pavt Mrkg, Type R, Tape**

Payment for Type R Tape shall be for the maximum quantity used on each street.

**Plastic Drum – Lighted, Furnish and Operate**

There will be a one-time payment for each street for the maximum number of lighted drums in-place (operated) at any one time, as directed by the Engineer.

**Barricade Type III – Lighted, Furnish and Operate**

Payment for furnishing and operating lighted type III barricades shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Temporary Sign - Type B, Furnish and Operate**

Payment for Type B signs shall be for the maximum quantity used on each street.

**Pedestrian Type II Barricade, Temp**

Payment for furnishing and operating type II pedestrian barricades shall be for the maximum quantity in-
place at any one time during the work of the entire project (all streets).

**Pedestrian Channelizer, Temp**
Payment for furnishing and operating pedestrian channelizers shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Pedestrian Channelizer Barrier, Temp**
Payment for furnishing and operating pedestrian channelizer barriers shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Lighted Arrow Board, Furnish and Operate**
Measurement for furnishing and operating lighted arrow board will be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Sign, Portable Changeable Message, Furnish and Operate**
Measurement for furnishing and operating portable changeable message signs will be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Sign Cover**
There will be a one-time payment for each street for the maximum number of sign covers in-place (operated) at any one time, as directed by the Engineer.

The completed work as measured for these items of work will be paid for at the Contract Unit Price for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavt Mrkg Cover, Type R, Black</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 6 inch Crosswalk</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch Stop Bar</td>
<td>Foot</td>
</tr>
<tr>
<td>Lighted Arrow Board</td>
<td>Each</td>
</tr>
<tr>
<td>Sign, Portable Changeable Message, Furnish and Operate</td>
<td>Each</td>
</tr>
<tr>
<td>Plastic Drum - Lighted - Furnish&amp; Operate</td>
<td>Each</td>
</tr>
<tr>
<td>Barricade Type III - Lighted - Furnish and Operate</td>
<td>Each</td>
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<tr>
<td>Temporary Sign, Type B - Furnish and Operate</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Channelizing Device, 42 inch, Furnish and Operate</td>
<td>Each</td>
</tr>
<tr>
<td>Pedestrian Type II Barricade, Temp</td>
<td>Each</td>
</tr>
<tr>
<td>Pedestrian Channelizer, Temp</td>
<td>Each</td>
</tr>
<tr>
<td>Pedestrian Channelizer Barrier, Temp</td>
<td>Each</td>
</tr>
<tr>
<td>Sign Cover</td>
<td>Each</td>
</tr>
</tbody>
</table>
DETAILED Specification  
For  
Item #278 – Temporary Pedestrian Ramp  
Item #279 – Temporary Pedestrian Mat 

Page 1 of 3

Description

This work consists of furnishing, installing, maintaining, relocating, and removing a temporary pedestrian ramp as identified in the proposal or on the plans. Use temporary pedestrian ramps to facilitate pedestrian travel on accessible facilities over curbs or other uneven terrain features with a vertical difference of 1/2 inch or greater. Damaged pedestrian ramps will be replaced as directed by the Engineer.

Materials

A. Temporary Pedestrian Ramp

Provide materials to construct a temporary pedestrian ramp in accordance with the Americans with Disabilities Act (ADA), the standard specifications, and the following:

1. Ensure the material used to construct the temporary pedestrian ramp is firm, stable, skid resistant, and forms a continuous hard surface. Ensure the surface does not warp, buckle or otherwise become uneven, and materials support the weight of pedestrians as well as motorized scooters and wheelchairs. Suitable materials to construct the surface of the ramp include asphalt materials, Oriented Strand Board (OSB) or plywood, dimensional lumber, certain reclaimed or other materials as approved by the Engineer. Compacted soils, aggregate and sand are prohibited.

2. Provide a handrail on both sides of the ramp if the ramp is not exposed to vehicle traffic and has a total rise greater than 6 inches, and a length greater than 72 inches. Ensure the handrail is between 1.25 and 1.5 inches wide and configured to be a “graspable” cross-section. See construction subsection 2.A for additional details. When the ramp is exposed to traffic, in lieu of handrails, use a protective edge 2.5 inches minimum height above the ramp surface or 1:10 flare on both sides of the ramp.

3. Ensure the surface of the ramp is free draining; in addition provide features that allow drainage to move past the ramp installation (i.e. along the gutter pan underneath the ramp if the ramp is installed on a curb).

4. Provide materials to construct detectable edging along open sides of the ramp if required.

5. If asphalt materials are not used to construct the surface of the ramp, provide an antiskid coating or surface treatment approved by the Engineer.

B. Temporary Pedestrian Mat

Provide materials for a temporary pedestrian mat in accordance with the Americans with Disabilities Act (ADA), the standard specifications, and the following:

1. Ensure the material used for the temporary pedestrian mat is firm, stable, skid resistant, and forms a continuous hard surface. Ensure the surface does not warp, buckle or otherwise become uneven, and materials support the weight of pedestrians as well as motorized scooters and wheelchairs. Suitable materials will be determined by the Engineer after shop drawings or products information is provided.

Addendum1-DS-36
2. Mats shall be at least 60 inches wide and not have traversable edges more than ½ inch high.

3. Ensure the surface of the mat is free draining.

CONSTRUCTION METHOD
Construct the temporary pedestrian ramp in accordance with the manufacturer’s recommendations (if applicable), ADA, the plans, and the following:

1. Ensure the useable surface of the ramp is 48 inches wide and does not deflect due to pedestrian traffic. Ensure an anti-skid surface treatment is applied to the useable area of the ramp if it is not made from asphalt materials. The maximum cross slope of the ramp is 2 percent. Ensure both ends of the ramp smoothly transitions to the adjacent surface, with 1/4 inch or less vertical difference.

Construct the ramp to maintain a longitudinal slope from 1:10 to 1:12 where possible. Otherwise, a longitudinal slope from 1:8 to 1:10 may be used for a maximum rise of 3 inches. Temporary pedestrian ramps with longitudinal slopes greater than 1:8 are prohibited.

A. Provide a handrail on both sides of the ramp if required as stated herein. Ensure the top of the handrail is between 34 and 38 inches above the surface of the ramp. Ensure a minimum width of 36 inches is maintained between the handrails, with a minimum clearance of 1.5 inches behind and 18 inches above.

Construct the handrail such that the bending stress applied by a bending moment created by a 250 pound force is less than the allowable stress for the materials and the construction of the handrail. Construct the handrail to withstand the shear stress induced by a 250 pound force. Ensure all fasteners, mounting devices and support structures are also able to withstand shear stress induced by a 250 pound force.

2. Construct a detectable edging anytime a handrail is required, and anytime the path changes direction. This includes a turn onto the ramp from the path. Detectable edging must begin a maximum of 2.5 inches above the ramp surface, and extend at least 6 inches above the ramp surface.

3. Ensure a clear space (minimum 48 inches by 48 inches) is provided above and below the ramp.

4. Avoid locating ramps in areas of drainage collection, ponding or running water, which can produce slippery or unsafe conditions. If the ramp is located over a gutter pan or other drainage structure, provide features to facilitate water movement around or under the ramp as approved by the Engineer.

5. Ensure all debris and construction material is cleared from the surface of the ramp throughout its use. Ensure snow and ice is removed; the use of an approved de-icing agent may be required. Repair or replace the ramp if it becomes uneven, unstable, or displaces due to weather events, construction activities, or other causes as directed by the Engineer.
MEASUREMENT AND PAYMENT

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

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary Pedestrian Ramp</td>
<td>Each</td>
</tr>
<tr>
<td>Temporary Pedestrian Mat</td>
<td>Each</td>
</tr>
</tbody>
</table>

Temporary Pedestrian Ramp and Temporary Pedestrian Mat includes all labor, equipment, and materials to furnish, install and remove a temporary pedestrian ramp at the locations shown on the plans, as well as all costs for maintaining, clearing debris, deicing, reconfiguring, and relocating the temporary pedestrian ramps and mats throughout the life of the contract.
DETAILED SPECIFICATION
FOR
ITEM #280 – AUDIBLE MESSAGE DEVICE

DESCRIPTION
This work shall consist of furnishing and installing temporary audible message devices to be used in Temporary Pedestrian Alternate Routes (TPAR) for pedestrians with visual impairments in compliance with the latest version of the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) and the Public Right-of-Way Accessibility Guidelines (PROWAG), published in November 2005. All work shall be in accordance with the Special Provision for “Maintenance of Traffic” and as indicated on the plans, and as modified herein.

CATEGORIES
Audible message devices (AMDs) will have two categories:
1. AMDs without a pushbutton
   - These devices will operate based on a proximity sensor; the audible message content will be given when the sensor is activated.
2. AMDs with a pushbutton and locator tone
   - These devices will have the capability of utilizing a locator tone for pedestrians with visual impairments to locate the pushbutton on the AMD. The pushbutton on the AMD will activate the audible message content. The AMD may continuously sound the locator tone, or the locator tone may be activated with a proximity sensor.

CRITERIA
Following are the necessary criteria for all types of AMDs to be on the APL:
- Be weatherproof and fully operational between -20° F to +130° F and in a humidity range of 0-100% non-condensing.
- Be able to be battery operated.
- Proximity sensor shall be able to detect pedestrians from 15 feet away.
- The ability to verbalize a custom voice messages for a minimum of 60 seconds.
- Volume requirements
  - Volume measured at 3 feet from the AMD shall be 2 dB minimum and 5 dB maximum above ambient noise level in standard operations and shall be responsive to ambient noise level changes.
  - The ability to maximize volume at 100 dBA

Following are the additional necessary criteria for AMDs with pushbuttons and locator tones:
- The device shall be designed such that the pushbutton is within the Reach Ranges identified in PROWAG when the device is placed on level ground. In addition, the pushbutton shall be placed approximately at 42 inches (but no more than 48 inches) from the bottom of the device.
- Pushbuttons shall incorporate a locator tone at the pushbutton. Pushbutton locator tone volume measured at 3.0 feet from the pushbutton shall be 2 dB minimum and 5 dB maximum above ambient noise level and shall be responsive to ambient noise level changes. The duration of the
DETAILED SPECIFICATION
FOR
ITEM #280 – AUDIBLE MESSAGE DEVICE
locator tone shall be 0.15 seconds maximum and shall repeat at intervals of one second. The locator tone may be activated by a proximity sensor.

MATERIALS
Approved Temporary Audible Message Devices are as follows:

- Model 400ADA audible Device, manufactured by Empco-Lite, 1675 Shanahan Drive, South Elgin, IL USA 60177.
  - The 400ADA is an audible information device that can be mounted on various safety devices like the ADA Wall, 42" Cones, and the Safety Wall. Or it can just be a stand-alone device.
  - Easily program your message with built-in microphone and speaker.
  - Record up to a 60 second message.
  - Customize message for each location. See "Messages for Audible Information Devices" for message guidelines and helpful information.
  - When routes are blocked (especially mid-block closings), there are alternate crossings or alternate routes that are not continuous, these units provide positive guidance for the visually impaired by providing needed audible information. See 2009 MUTCD Section 6D.01 E, Section 6D.02, Section 6F.14, Section 6F.16 and notes on Figure 6H-28 and Figure 6H-29 (see PDF).
  - Unit can be mounted on a standard barricade light housing utilizing two 6V spring terminal batteries or can be a self contained unit operating on four D-Cell batteries.
  - Unit is triggered by motion detector when pedestrians get within 15 feet of the unit.

- SpeakMaster 500, manufactured by MDI Worldwide, 38271 W Twelve Mile Road, Farmington Hills, MI 48331.
  - The ADA SpeakMaster™ is an audible warning device that alerts pedestrians of a sidewalk closure ahead and provides navigation instructions Rugged design, simple to install and programmable through Bluetooth connectivity, the 9” DFB sign promotes safety where ever they’re installed.
  - The all aluminum ADA SpeakMaster stands 5.5 feet high, is completely weather resistant, and ADA compliant. The two-sided frame at the top has snap-open side rails to easily change custom signs. The frame can rotate 360° to accommodate the different requirements of multiple urban areas. The unit is powered by an extended-life battery stored in a key-locked compartment in the base, and the base can be weighted for added stability and security. The electronics are housed in the upright, also in a key-locked compartment, and messages can be programmed on site, by cell phone, or computer. The base tilts and rolls on hidden wheels.
  - The ADA SpeakMaster is positioned approximately 100 feet before the actual sidewalk closure. As the pedestrian approaches, he hears a unique locator tone, which the visually impaired have been taught to recognize. The tone is either on continuously or is activated by an optional motion sensor and indicates that there is more information. The pedestrian locates the push button and activates the voice module to hear navigation instructions. He can then safely pass through the temporary pedestrian accessible route.

CONSTRUCTION METHOD
Installer’s Qualifications: Engage an experienced Installer who has successfully completed AMD installations similar in material, design, and extent to that indicated for this Project.
DETAILED SPECIFICATION
FOR
ITEM #280 – AUDIBLE MESSAGE DEVICE

The contractor shall follow manufacturer specifications for installation, except where they conflict with MMUTCD or other project requirements.

MEASUREMENT AND PAYMENT
The completed work as measured for the following pay items will be paid for at the contract unit prices for the following contract items (pay items):

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audible Message Device</td>
<td>Each</td>
</tr>
</tbody>
</table>

The unit prices for this item of work shall include all labor, material, and equipment costs required to complete the work.
DESCRIPTION

Restore existing privately owned underground sprinkling systems within the project site as described herein. This work shall be paid with an allowance for the actual work required to restore and modify existing privately owned underground sprinkling systems. The Contractor shall take care to avoid disturbance of existing underground sprinkling systems within the project site. These typically will be encountered in the parkway adjacent to the roadway.

MATERIALS

Materials used to restore or modify existing underground sprinkling systems shall be of the same brand, model and specifications as the removed or damaged portion(s) of the sprinkling system and shall be compatible with the rest of the system.

CONSTRUCTION METHOD

The Contractor shall take precautions to prevent or minimize damage and disruption to private lawn sprinkling systems, including, but not limited to, completing visual inspections of the project site to determine areas in which lawn sprinkling equipment exists. This work of inspection shall be considered incidental to the disturbing work in the project area.

The Contractor shall repair or replace all lawn sprinkling systems disturbed by his/her operations and shall contact and coordinate any necessary work with the appropriate owners of such sprinkling systems. The Contractor shall obtain written permission from property owners prior to completing any work outside the R.O.W. on private property and shall provide copies of these documents to the Engineer for the project file.

The Contractor shall employ an underground sprinkling specialist to make necessary repairs or modifications to the affected underground sprinkling systems. During construction activities, the disturbed portions of the system shall be isolated and/or removed in such a way that the undisturbed portions of the system remain operational until the entire system is completely restored. The existing underground sprinkling systems shall be restored or modified so that spray from the sprinkler heads does not spray over sidewalks or into driving lanes of the road.

MEASUREMENT AND PAYMENT

The completed work shall be paid for at the contract unit price for the following contract item (pay item) which shall include all materials, equipment and labor required to complete this work.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground Sprinkling Systems, Restore</td>
<td>Dollar</td>
</tr>
</tbody>
</table>

Payment for Underground Sprinkling Systems, Restore will be paid for as an allowance after all disturbed sprinkling systems have been repaired and/or replaced, whichever occurs later. The Contractor shall supply the Engineer with actual invoices from the underground sprinkling specialist for this work effort and may add up to 5% markup.
The Contractor waives all claim for damages or delay which he/she may suffer by reason of the presence of lawn sprinkling equipment within the project site and understands that no extra compensation will be paid to him/her due to any lawn sprinkling equipment encountered.
DESCRIPTION
This work shall consist of adjusting, replacing, and pointing structures, handholes, valve wells or boxes, and monument boxes of concrete and concrete block masonry; the replacing, salvaging and transporting of new and existing metal covers, and/or castings; including all excavation, backfilling, patching and the removal and proper disposal off-site of all excavated material and debris, all in accordance with Division 4 of the 2012 edition of the MDOT Standard Specifications for Construction, and the City Standard Specifications, except as specified herein, and except as directed by the Engineer.

MATERIALS
Materials shall meet the requirements of sections 403 and 601 of the 2012 edition of the MDOT Standard Specifications, except that concrete shall be MDOT P-NC per Section 601 of the 2012 MDOT Standard Specifications.

CONSTRUCTION METHODS
General
Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials or equipment, including metal castings and steel plates, on any lawn area.

Hidden, or unknown utility structures may be encountered during the work. It is the Contractor's responsibility to inform the respective utility owner(s) of such findings. In such instances, the City may direct the Contractor to adjust the structure(s) to grade. This work will be paid as “Adjust Structure Cover”.

The pointing of structures is included in all adjustments.

Adjust Structure Cover
This item includes the final adjustment of castings of any type (including drop inlets) to their respective finished elevations, up or down. All materials required to make the adjustments shall be included in this item of work.

All underground structure covers shall be adjusted such that their finished surface elevation is within ¼-inch of the finished surface sections, grades, slopes, and elevations, as shown on the Plans, and as directed by the Engineer. The work shall be verified by the use of a 10-foot straight-edge placed parallel with the pavement centerline. Structures not meeting the ¼-inch tolerance shall be readjusted and finish patched, as directed by the Engineer, at the Contractor's expense.

The Contractor is responsible to coordinate and arrange for the adjustment of all non-City utility manholes and valves (Edison, Gas, Cable, Ameritech, etc.) during this project. The Contractor will not be given any additional compensation for delays due to other utilities work. The work of coordinating with other utilities shall be paid for under the Contract Item “General Conditions.”

All structure covers, utility covers, valve boxes or monument boxes shall be backfilled with MDOT P-NC concrete from the depth of excavation necessary for adjustment, up to an elevation 2-inches below the top flange of the adjusted
casting. This work shall be included in the respective items of work, and will not be paid for separately.

Adjust Monument Box or Valve Box, and Traffic Signal Handhole

This item includes the final adjustment of existing or new covers/castings and traffic signal handholes (traffic signal handhole adjustments will be paid for as “Adjust Structure Cover”) up or down, to their finished elevations. This also includes the replacement of the top half of the water boxes and monument boxes (furnished by the City) where required, and shall be included in this item of work.

Castings and covers for monument and water-valve boxes will be provided by the City. The Contractor shall transport these new castings and covers to the site from the City Utilities Department yard at 4251 Stone School Road (Wheeler Center).

Structure Covers

This item shall consist of replacing covers and/or castings for manhole structures and inlet structures as directed by the Engineer. All covers and/or castings shall conform to the model(s) specified in appendix.

The Contractor shall deliver all salvaged covers and castings to the Wheeler Center within two days of their removal.

MEASUREMENT AND PAYMENT

Payment for transporting new and salvaged castings and covers to and from the Wheeler Center is included in the appropriate items of work.

Furnishing and placing concrete as backfill for these items will not be paid separately, but shall be included in the bid prices for these items of work.

Completed work as measured for these items of work will be paid for at Contract Unit Price for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust Structure Cover</td>
<td>Each</td>
</tr>
<tr>
<td>Adjust Monument Box, Valve Box, or Gas Box</td>
<td>Each</td>
</tr>
<tr>
<td>Structure Cover</td>
<td>Pounds</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DETAILED SPECIFICATION
FOR
ITEM #702 – EROSION CONTROL, INLET PROTECTION

DESCRIPTION

The Contractor shall furnish, place, maintain, and remove soil erosion and sedimentation control measures, including but not limited to, silt fence and fabric filter protection at all drainage structures, all in accordance with all applicable City (and other governmental agencies) codes and standards, as directed by the Engineer, as detailed in the Standard Specifications, and as shown on the Plans.

This work consists of installing and maintaining inlet filters and silt fence in accordance with Section 208 of the 2012 Michigan Department of Transportation Standard Specifications for Construction and as shown on the plans. Filters in existing and proposed inlets, as well as silt fence downstream of construction area, shall be installed in order to minimize the erosion of soil and the sedimentation of water courses. The related work includes the installation, maintenance, and removal of the filters and fence, cleaning as required during the performance of the project work, removing and disposing of accumulated sediment, and replacement of filters if required by the Engineer so as to provide a properly working inlet filter and a well-drained site.

MATERIALS

The inlet protection filters shall be in accordance with the REGULAR FLOW SILTSACK® manufactured by ACF Environmental (800) 448-3636; FLEXSTORM® Style FX manufactured by Advanced Drainage Systems, Inc. (800) 821-6710; CATCH-ALL® manufactured by Price & Company (866) 960-4300, SLOT GUARD® manufactured by Ertec Environmental Systems (866) 521-0724, or Engineer approved equal.

The Contractor shall submit product data sheets and a sample of the filter material for inlet filters and silt fence for Engineer approval prior to ordering materials.

METHODS OF CONSTRUCTION

The Contractor shall install, maintain, clean, and re-install and/or replace inlet filters and silt fence in accordance with the manufacturer’s specifications and as directed by the Engineer. The Contractor shall dispose of debris off-site.

MEASUREMENT AND PAYMENT

Soil erosion and sedimentation control items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion Control, Inlet Protection</td>
<td>Each</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
**CONSTRUCTION NOTES:**

**PERMISSIONS:**
- To the best of our knowledge, all necessary permits have been obtained for the installation of the water main easement. The City of Ann Arbor, Public Services, Engineering, screens all applications for permits. Any information in this document is subject to change. Please contact the City of Ann Arbor, Public Services, Engineering, at 734-794-6410 or www.a2gov.org for the most current information.

**BARTON DRIVE BENCHMARKS**

<table>
<thead>
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<th>BM #</th>
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<tr>
<td>6</td>
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**STIMSON STREET BENCHMARKS**

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<tbody>
<tr>
<td>1</td>
<td>830.98</td>
<td>ARROW ON HYDRANT. 45± WEST OF &lt;br&gt;OF WHITE ST. AND 20'± NORTH OF &lt;br&gt;OF STIMSON ST.</td>
</tr>
<tr>
<td>2</td>
<td>843.75</td>
<td>E'LY FLANGE BOLT ON HYDRANT. 25'± EAST OF &lt;br&gt;OF S. STATE ST. AND &lt;br&gt;40'± NORTH OF &lt;br&gt;OF STIMSON ST.</td>
</tr>
</tbody>
</table>

**TRAVER BOULEVARD BENCHMARKS**

<table>
<thead>
<tr>
<th>BM #</th>
<th>Elev.</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>2020</td>
<td>909.06</td>
<td>CITY OF ANN ARBOR AAGRS #2020</td>
</tr>
<tr>
<td>1</td>
<td>908.38</td>
<td>SOUTH FLANGE BOLT ON HYDRANT, WEST SIDE DRIVEWAY ENTRANCE &lt;br&gt;BY CONDO #2630</td>
</tr>
<tr>
<td>2</td>
<td>908.02</td>
<td>NW BOLT ON LAMP POST, EAST SIDE OF WEST ENTRANCE TO CONDO &lt;br&gt;#: 2602-2626</td>
</tr>
<tr>
<td>3</td>
<td>912.21</td>
<td>NW BOLT ON LAMP POST, 70'± WEST OF ENTRANCE TO CONDO #2558</td>
</tr>
<tr>
<td>4</td>
<td>914.15</td>
<td>SE BOLT ON LAMP POST, NW CORNER OF TRAVER AND LAKEHURST</td>
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**BOARDWALK DRIVE BENCHMARKS**

<table>
<thead>
<tr>
<th>BM #</th>
<th>Elev.</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>830.51</td>
<td>WEST BOLT ON FLANGE OF HYDRANT, ON THE SW CORNER OF &lt;br&gt;BOARDWALK &amp; OAKBROOK ± 26' WEST OF CENTERLINE OF BOARDWALK &lt;br&gt;AND ± 37' SOUTH FROM CENTERLINE OF OAKBROOK.</td>
</tr>
<tr>
<td>2</td>
<td>837.53</td>
<td>ARROW ON HYDRANT, EAST SIDE OF BOARDWALK, JUST NORTH OF &lt;br&gt;GRANGER DRIVEWAY ENTRANCE #2915, AND SOUTH OF DRIVEWAY &lt;br&gt;ENTRANCE TO THE BOARDWALK COMMERCE CENTER #2801-2875</td>
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</tbody>
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**CONTACT INFORMATION**

**PUBLIC UTILITIES**

<table>
<thead>
<tr>
<th>Owner</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
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**PRIVATE UTILITIES**

<table>
<thead>
<tr>
<th>Owner</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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</table>
SIDEWALK CROSS SECTION, SD-R-9

EXISTING LEGEND

1. TARMAC
2. CURB
3. SIDEWALK
4. DRIVEWAY
5. GRASS

PROPOSED LEGEND

1. TARMAC
2. CURB
3. SIDEWALK
4. DRIVEWAY
5. GRASS

Know what's below. Call before you dig.
R \hfill SIDEWALK GAP ELIMINATION - 2021
\hfill Flags or other engineer-approved devices at no additional cost to the project.
\hfill Enough to create a hazard, the traffic control devices shall be delineated with firm, stable, and slip resistant temporary walkway surface to cover short segments of rough, soft, or uneven ground.
\hfill Provided at least every 200 feet. The surface of the TPAR shall be smooth and continuous for the length of the TPAR. The TPAR shall have a minimum unobstructed width of 4 feet. If the TPAR is adjacent to moving traffic, construction operations, equipment or signs in the pedestrian path of travel.
\hfill The contractor shall not store or place any construction materials, equipment or signs in the pedestrian path of travel.
\hfill The contractor shall not store or place any construction materials, equipment or signs in the pedestrian path of travel.

**General Notes**

When designing or locating crosswalks or sidewalks, the contractor shall be sure to design temporary facilities that are in harmony with permanent facilities and comply with existing pedestrian facilities.

**Specific Notes**

1. Temporary curb ramps with detectable warnings.
2. Temporary paving surfaces for driveways and sidewalks.
3. An approved audible message device or tactile message shall be provided for quick warning purposes.
4. Vertical signs necessary for temporary pedestrian detours shall include information such as the beginning of the temporary restrictions (danger, alert, or warning).
5. Accessible temporary pedestrian detour ramps shall be used on the same side of the road as the closed sidewalk.
6. Temporary detour using opposite side of street.

**Pedestrian Temporary Traffic Control Notes**

1. The contractor shall maintain pedestrian flow through the area by making adjustments to the pedestrian facilities.
2. Pedestrian access shall be provided at all areas.
3. Temporary pedestrian access routes (TPARs) shall be provided on the same side of the road as the closed sidewalk. The TPAR shall have a minimum unobstructed width of 4 feet and shall be delineated with firm, stable, and slip resistant materials. The TPAR shall be provided on the same side of the road as the closed sidewalk. The TPAR shall not lead pedestrians into conflicts with vehicular, pedestrian, or construction traffic.
4. If the TPAR is adjacent to moving traffic, construction operations, equipment or signs in the pedestrian path of travel.
5. The contractor shall not store or place any construction materials, equipment or signs in the pedestrian path of travel.
6. The contractor shall not store or place any construction materials, equipment or signs in the pedestrian path of travel.

**Legend**

- **B**: No pedestrian surface
- **C**: Curb extension
- **D**: Pedestrian channelization device
- **E**: Temporary barrier
- **F**: Detour
- **G**: Direction of traffic
- **H**: Street control
Provide temporary sidewalk surface.

Provide a smooth, continuous, hard surface through the length of the apr.

Temporary traffic control devices for pedestrians are shown. Other devices may be necessary, especially during heavy traffic. It is necessary to provide an alternate pedestrian route (apr) at all times. For roadways with no available detours, maintain one open sidewalk at all times.

When closing or relocating crosswalks or sidewalks, the contractor shall coordinate this work with the engineer a minimum of 72 hours (not including weekends & holidays) prior to the beginning of work that requires a sidewalk closure.

When the engineer determines that the contractor’s operations or placement of temporary traffic control devices has caused a situation that the visibility of a traffic clearance from the bottom of the sign to the sidewalk surface would be reduced enough to create a hazard, the traffic control device is non-compliant to TPAR standards.

Primary temporary pedestrian detour shall be posted and an alternate route shall be posted when the primary temporary pedestrian detour is non-compliant to TPAR standards. The reason for the non-compliance shall be posted and an alternate route shall be posted where the primary temporary pedestrian detour was used.

Note: May only be used on roadway with posted speed of 45 MPH or less.

**General Notes**

When closing or relocating crosswalks or sidewalks, the contractor shall provide a smooth, continuous, hard surface through the length of the apr. Other devices may be necessary, especially during heavy traffic. It is necessary to provide an alternate pedestrian route (apr) at all times. For roadways with no available detours, maintain one open sidewalk at all times.

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Primary temporary pedestrian detour shall be posted and an alternate route shall be posted when the primary temporary pedestrian detour is non-compliant to TPAR standards. The reason for the non-compliance shall be posted and an alternate route shall be posted where the primary temporary pedestrian detour was used.

Note: May only be used on roadway with posted speed of 45 MPH or less.

**Specific Notes**

1. Temporary curb ramps with detectable warning.
2. Sidewalks at least 5’ wide, recommended when the closed area is used as an intersection.
3. Temporary traffic control device is non-compliant when the closed area is used as an intersection. Traffic lane or bypass lane. Street width required is 12 feet of the boxed blocks on the plans.
4. An approved audible message device or tactile message device shall be provided for temporary pedestrian detour.
5. A warning sign, delineation, and temporary pedestrian detour is non-compliant to TPAR standards. When closing or relocating crosswalks or sidewalks, the contractor shall coordinate this work with the engineer a minimum of 72 hours (not including weekends & holidays) prior to the beginning of work that requires a sidewalk closure.

When the engineer determines that the contractor’s operations or placement of temporary traffic control devices has caused a situation that the visibility of a traffic clearance from the bottom of the sign to the sidewalk surface would be reduced enough to create a hazard, the traffic control device is non-compliant to TPAR standards. The reason for the non-compliance shall be posted and an alternate route shall be posted when the primary temporary pedestrian detour is non-compliant to TPAR standards. The reason for the non-compliance shall be posted and an alternate route shall be posted where the primary temporary pedestrian detour was used.

Primary temporary pedestrian detour shall be posted and an alternate route shall be posted when the primary temporary pedestrian detour is non-compliant to TPAR standards. The reason for the non-compliance shall be posted and an alternate route shall be posted where the primary temporary pedestrian detour was used.
SPECIFIC NOTES

1. Curb ramps shall be 48" min. width with a firm, stable and slip resistant surface. Protective edging with a 2.5" min. height above the ramp shall be placed behind a curb ramp or landing platform. A vertical drop of 1' or less, a side apron slope deeper than 1:4 protective edging should be considered where curb ramps on landing platforms have a vertical drop of 2' or more.

Detectable edging is required any time the path changes direction. The deceleration curb ramp should not be used for ramps with detectable edge. Protective edging must be placed at the leading edge of the ramp and adjacent to the curb face.

2. Curb ramps and landing platforms have a vertical drop of 2' or more. Protective edging should be considered anytime a handrail is required, and anytime the path changes direction. This includes a turn onto the ramp from the path. Detectable edging must begin a maximum of 2.5" above the ramp surface, and extend at least 6" above the ramp surface. Contrasting color shall be placed on all curb ramp landings where the walkway changes direction (turns).

3. Curb ramps and landing ramps shall be a 2% max. cross slope.

4. Clear space of 48" x 48" min. shall be provided above and below the curb ramp.

5. Protective edging 2.5" min. height above ramp surface.

6. 2" to 4" wide edge marking

7. Non-slip surface

8. Detectable edging 6" min. height

9. Edge treatment

10. Joint gap treatment

11. Clear space

12. Drainage

13. Curb face

14. Cross slope 2% max.
NARROW TEMPORARY PEDESTRIAN ACCESS ROUTE PASSING DETAIL

GENERAL NOTES

PUTTING ON OTHER OBJECTS MAY PROTRUDE A MAXIMUM OF 4 INCHES INTO THE WALKWAY CLEAR SPACE AND HERRINGBONE A MAXIMUM OF 27 INCHES ABOVE THE WALKWAY SURFACE.

ANY PEDESTRIAN DEVICES USED TO PROVIDE POSITIVE PROTECTION FOR PEDESTRIANS OR WORKERS SHALL MEET CRASHWORTHY REQUIREMENTS APPLICABLE TO THE BARRIER APPLICATION.

PEDESTRIAN DEVICES SHALL BE PLACED CONTINUOUSLY ACROSS THE ENTIRE WIDTH OF THE WALKWAY SURFACE BEING CLOSED.

SPECIFIC NOTES

ANY PEDESTRIAN DEVICES IN THE WALKWAY NEAR A DETECTABLE EDGE SHALL BE LOCATED SHORING OR RETAINING TO THE DEVICE, ANY SUPPORT ON THE FRONT OF THE DEVICE SHALL NOT EXTEND INTO THE SHORING MINIMAL WALKWAY CLEAR SPACE AND SHALL NOT EXCEED 0.5 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.

PEDESTRIAN DEVICES SHALL CONTINUOUSLY AND A MINIMUM OF 6 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.

PEDESTRIAN DEVICES SHALL BE LOCATED BEHIND OR INTERNAL TO THE DEVICE. ANY SUPPORT ON THE FRONT OF THE DEVICE SHALL NOT EXCEED 0.5 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.

ANY PEDESTRIAN DEVICES USED TO PROVIDE POSITIVE PROTECTION FOR PEDESTRIANS OR WORKERS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS APPROPRIATE FOR THE BARRIER APPLICATION.

BARRICADES SHALL BE PLACED CONTINUOUSLY ACROSS THE ENTIRE WIDTH OF THE WALKWAY SURFACE BEING CLOSED.

SIDEWALK GAP ELIMINATION - 2021

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

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

7 OF 29

SIDEWALK GAP ELIMINATION - 2021
Know what's below. Call before you dig.
Know what's below. Call before you dig.

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

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SIDEWALK GAP ELIMINATION - 2021
BARTON DRIVE - REMOVALS
STA. 8+00 - STA. 9+69

CAUTION
HAZARDOUS OR FLAMMABLE MATERIAL

REMOVAL KEY

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<thead>
<tr>
<th>KEY</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>A</td>
<td>SIDEWALK Lining</td>
</tr>
<tr>
<td>B</td>
<td>SIDEWALK Edge</td>
</tr>
<tr>
<td>C</td>
<td>SIDEWALK Base</td>
</tr>
<tr>
<td>D</td>
<td>CURB &amp; GUTTER</td>
</tr>
<tr>
<td>E</td>
<td>SIDEWALK INFILL</td>
</tr>
<tr>
<td>F</td>
<td>SIDEWALK BROKEN</td>
</tr>
<tr>
<td>G</td>
<td>SIDEWALK ALTERED</td>
</tr>
</tbody>
</table>

PLAN:
1" = 20'
BARTON DR (66' R.O.W.)

CHANDLER RD (50' R.O.W.)

PLAN: 1" = 20'

PROFILE: 1" = 2'

Know what's below. Call before you dig.
BARTON DRIVE - PROPOSED SIDEWALK
STA. 8+00 - STA. 9+69

CONSTRUCTION KEY

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<thead>
<tr>
<th>KEY</th>
<th>DESCRIPTION</th>
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<tr>
<td>HMA</td>
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<td>HP</td>
<td>Hot-Mix Asphalt Overlay</td>
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<tr>
<td>HMA APP</td>
<td>Hot-Mix Asphalt Application</td>
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<tr>
<td>CG</td>
<td>Concrete Gutters</td>
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<tr>
<td>DC-6</td>
<td>Concrete Curb</td>
</tr>
<tr>
<td>SW-4</td>
<td>Concrete Sidewalk</td>
</tr>
<tr>
<td>SWR-6</td>
<td>Concrete Sidewalk Replacement</td>
</tr>
<tr>
<td>SW6-HE</td>
<td>Concrete Sidewalk Expansion Joint</td>
</tr>
<tr>
<td>SW8-FM</td>
<td>Concrete Sidewalk Finish</td>
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<tr>
<td>SW8-HE</td>
<td>Concrete Sidewalk Expansion Joint</td>
</tr>
<tr>
<td>DWS</td>
<td>Drainage Wells</td>
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<tr>
<td>ADJ</td>
<td>Adjacent Structures</td>
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</table>

CAUTION
HAZARDOUS OR FLAMMABLE MATERIAL

KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.
Know what's below. Call before you dig.
Know what's below. Call before you dig.
Call before you dig.
Know what's below.
Call before you dig.
STIMSON ST.

S. STATE ST.

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

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<thead>
<tr>
<th>REMOVAL KEY</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>HMA</td>
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</tr>
<tr>
<td>HP</td>
<td>Hot Mix Asphalt App</td>
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<tr>
<td>HMA APP</td>
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<tr>
<td>CG</td>
<td>Concrete</td>
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<tr>
<td>DC-6</td>
<td>Deep Concrete Beam</td>
</tr>
<tr>
<td>SW-4</td>
<td>Standard Wall Beam</td>
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<td>ADJ</td>
<td>Adjacent Elements</td>
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</table>

CAUTION: HAZARDOUS OR FLAMMABLE MATERIAL.
Know what's below. Call before you dig.
Know what's below. Call before you dig.
SIDEWALK GAP ELIMINATION - 2021

TRAVER BLVD

CONSTRUCTION KEY

- HMA: Hot Mix Asphalt
- HP: Hot Patch
- HMA APP: Hot Mix Asphalt Applicator
- CG: Cold Mix
- DC-6: 6" Deep Cold Mix
- SW-4: 4" Shoulder
- SWR-6: 6" Shoulder
- SW6-HE: 6" Shoulder
- SW8-HE: 8" Shoulder
- DWS: Directional Wrench
- ADJ: Adjacent

CAUTION: HAZARDOUS OR FLAMMABLE MATERIAL

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Know what's below. Call before you dig.