ADDENDUM NO. 2
TO
CONTRACT DOCUMENTS
FOR
PONTIAC TRAIL IMPROVEMENTS PROJECT
FOR THE
CITY OF ANN ARBOR, MICHIGAN

The following changes, additions, and/or deletions shall be made to the Contract Documents for the Pontiac Trail Improvements Project for the City of Ann Arbor, Michigan, Bid No. ITB-4324 on which proposals will be received on, or before 10:00 A.M., Friday, April 11, 2014.

The information contained herein shall take precedence over the original documents and all previous addenda and is appended thereto. This Addendum includes a total of 15 pages.

The Contractor is to acknowledge receipt of this Addendum No. 2 on page ITB-1 of the Contract Documents prior to submitting its Proposal.

1. Changes in the Contract Documents

Changes in the Contract Documents which are outlined below are referenced to a page or in which they appear conspicuously. The bidder is to take note in its review of the documents and include these changes as they affect work or details in other areas not specifically referenced here.

PAGE(S)	**CHANGE**
DS-6 – R-1	The name of the pay item on page DS-6 was changed to "Project Supervision, Max $45,000."
DS-7 – R-1	The name of the pay item on page DS-7 was changed to "General Conditions, Max. $45,000."
DS-8 – R-1	The name of the pay item on page DS-8 was changed to "Minor Traffic Devices, Max. $35,000."
DS-16 – R-1	The page break was changed on DS-16.
DS-17 – R-1	The page break was changed on DS-17.
DS-18 – R-1	The page break was changed on DS-18, which resulted in item "w" moving to page DS-19.
DS-19 – R-1	The first sentence of item "w" was changed to read, "Estimated Earthwork & Pavement Removal Quantities.- The table shown below contains the Engineer's

estimate of the earth excavation (cut), the embankment (fill), and pavement removal required to prepare the foundation as defined herein for the project."

The following table was added:

Machine Grading Modified Item of Work	Est. volume of earth excavation (cut), cubic yards	Est. volume of embankment (fill), cubic yards	Pavement Removal square yards
Pontiac Trail	13,610	1850	13,750

The pay unit for this pay item was changed to Station.

DS-21 – R-1 The name of the pay item #208 on pages DS-21 and DS-22, was changed to "Non-Woven Geotextile Fabric, Biaxial or Triaxial." In addition, the description
DS-22 – R-1 "non-woven" was added to material description on page DS-21

DS-57 – R-1 The name of the pay items #261 and #262 on pages DS-57 and DS-58, were changed to "Aggregate Base Course, 21AA Limestone, 6 inch, C.I.P." and
DS-58 – R-1 "Aggregate Base Course, 21AA Limestone, 8 inch, C.I.P.", respectively.

DS-95 – R-1 The Detailed Specification for pay items #294 Gravel Filter Berm and #295 Check Dam were added.

DS-96 – R-1 The Detailed Specification for pay items #297 Culvert End Section and #298 Galvanized Corrugated Metal Pipe, 12 inch were added.

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:

PAY ITEM	PAY UNIT
Project Supervision, Max. $45,000	Lump Sum

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 #202 - GENERAL CONDITIONS, MAX. $45,000

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, bikepaths, mail deliveries, and solid waste/recycle pick-ups
- Storing all materials and equipment off lawn areas
- 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.
- 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.

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:

PAY ITEM	PAY UNIT
General Conditions, Max. $45,000	Lump Sum

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 #203 – MINOR TRAFFIC DEVICES, MAX. $35,000

DESCRIPTION

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;
- Any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.

Where there is metered parking, the Contractor shall either rent and install meter bags, or, with the Engineer's authorization, coordinate with the City Transportation Division to have meter heads removed and reinstalled.

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.

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:

PAY ITEM	PAY UNIT
Minor Traffic Devices, Max $35,000	Lump Sum

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.

"Machine Grading, Modified" includes the removal of any surface feature located within the grading limits which must be removed and for which there is no specific pay item established in the proposal for its removal.

h. Protection of the Grade.- The work shall be kept well drained at all times. Foundation, roadway embankment or subgrade that becomes damaged by rain shall be undercut and backfilled, or otherwise remedied, by the Contractor, at his/her sole expense, as directed by the Engineer.

The Contractor shall be responsible for the maintenance of the foundation, roadway embankment, and subgrade. Any damage caused, by traffic or the Contractor's operations, to the foundation, roadway embankment or subgrade, in the opinion of the Engineer, shall be remedied by the Contractor at his/her sole expense, as directed by the Engineer.

The Contractor shall not use rubber-tired equipment on the foundation, roadway embankment, or subgrade, when its use causes, in the opinion of the Engineer, unnecessary damage to the foundation, road embankment or subgrade. The Contractor shall conduct his/her operations and provide the necessary equipment to ensure the satisfactory completion of the work without damaging the foundation, roadway embankment or subgrade. This may require the transporting and movement of materials over additional distances.

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 an extension of time or any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

i. Protection of Utilities.- Utility lines may become exposed at, above, or below, the foundation or subgrade elevation during machine grading or subgrade undercutting operations. If this occurs, the Contractor shall excavate around, above and/or below the utility lines, as directed, to complete the machine grading or subgrade undercutting operations. Payment, at contract unit prices, for "Machine Grading, Modified" or "Subgrade Undercutting, Type __," whichever applies, will be considered as payment in full for this work.

j. Removal of Cable, Conduits and Pipe.- The Contractor shall remove, and properly dispose of off-site, all abandoned cables, conduit, and pipe encountered at, or above the bottom of any earthwork excavation or undercut. Where the inverts of abandoned, or to be abandoned or removed, conduits or pipe are less than 16 inches below the bottom of any earth excavation or undercut, the conduits and/or pipe shall be removed and the resulting void filled with an Engineer approved material. The fill material shall be compacted to 95% of its maximum unit weight in lifts not exceeding 12 inches. No separate payment will be made for removal of conduit or pipe, or any of the work, described in this section.

k. Foundation Preparation.- Foundation is defined as the original earth grade upon which roadway embankment is placed. The foundation work shall be completed in accordance with Section 205.03.A (Preparing Roadway Foundation) of the MDOT 2012 SSC as shown on the plans, and as specified herein.

l. The foundation shall be compacted to 95% of its maximum unit weight, as measured by the AASHTO T-180 method, to a depth of at least 10 inches. If this cannot be achieved, in the opinion of the Engineer, he/she will direct the Contractor to perform "Subgrade Undercutting, Type __" or "Subgrade Manipulation," as described herein, on the foundation.

m. Roadway Embankment Construction.- Roadway embankment is defined as the construction of earth on the prepared foundation to form the subgrade. Roadway embankment work shall be completed in accordance with Section 205.03 H (Roadway Embankment) of the MDOT 2012 SSC as shown on the plans, and as specified herein. Roadway embankment shall be compacted to a minimum of 95% of its maximum unit weight, as measured by the AASHTO T-180 method.

n. Subgrade Construction.- Subgrade is defined as the final earth grade which extends from grading limit to grading limit. The subgrade shall be constructed by performing earth excavation and roadway embankment work in accordance with Section 205.03.G (Earth Excavation) and Section 205.03 H (Roadway Embankment) of the MDOT 2012 SSC, as shown on the plans, and as specified herein.

The subgrade shall be constructed to the contours and cross-sections shown on the plans, as specified herein, and as directed by the Engineer. To achieve this, the work shall include, but not be limited to:

1. Removal and disposal off-site of any surplus or unsuitable materials.
2. Furnishing from off-site any additional Engineer approved fill materials necessary.
3. Moving existing and/or furnished materials longitudinally and transversely as necessary.
4. Cutting, placing, compacting, and trimming existing and/or furnished materials to construct the roadway embankment and subgrade to the specified tolerances.
5. Stockpiling, and moving again, any cut materials which cannot be immediately placed upon excavation due to construction staging.

The subgrade shall be graded to accommodate all subbases and aggregate bases wherever used, all bioswale and adjacent planting beds, all roadway pavements, curb and gutter, driveways, sidewalks, bicycle paths, other similar structures, bioswale planting mix, topsoil and any other features which the subgrade supports.

The subgrade shall be prepared so as to ensure uniform support for the pavement structure. The finished subgrade shall be placed to within 1 inch below and ¾ inch above plan grade. Variations within this tolerance shall be gradual.

The subgrade shall be compacted to a minimum of 95% of its maximum unit weight, as measured by the AASHTO T-180 method, to a depth of 10 inches. If this cannot be achieved, in the opinion of the Engineer, he/she will direct the Contractor to perform ”Subgrade Undercutting, Type __” or “Subgrade Manipulation” as described herein.

The Contractor shall use equipment and methods of construction best suited, in the opinion of the Engineer, to the earthwork operations being performed and the project requirements. The use of various equipment and methods of construction are subject to the approval of the Engineer. The Engineer may disallow the use of certain equipment and methods of construction and require the use of other equipment and/or methods of construction. No additional compensation or extensions of contract time will be allowed for additional measures that are required for the protection of the grade as specified herein.

o. Test Rolling.- The Contractor shall test-roll the foundation and/or subgrade with a pneumatic tired roller with a suitable body for ballast loading and a gross load capacity that can be varied from 25 and 40 tons. In lieu of this test roller, with the approval of the Engineer, the Contractor may use a fully loaded single axle or tandem axle dump truck.

p. Subgrade Undercutting.- “Subgrade Undercutting, Type __” shall be performed on the foundation or subgrade in accordance with Section 205.03.E (Subgrade Undercutting) of the MDOT 2012 SSC, as shown on the plans, as specified herein, and as directed by the Engineer.

q. Subgrade Manipulation.- “Subgrade Manipulation” shall be performed on the foundation or subgrade in accordance with Section 205.03.F (Subgrade Manipulation) of the MDOT 2012 SSC, as shown on the plans, as specified herein, and as directed by the Engineer.

Where subgrade manipulation is required, the foundation or subgrade shall be thoroughly scarified, blended, and mixed to a depth of 12 inches. The work shall be accomplished by means of a large diameter disc, motor grader, or other equipment approved by the Engineer. After the foundation or subgrade has been manipulated to the satisfaction of the Engineer and allowed to dry, the soil shall be compacted to 95% of its maximum dry density as measured by the AASHTO T-180 method. The time required for drying the soil will not be a basis for an extension of time.

The cost of Subgrade Manipulation shall be included in the cost of "Machine Grading, Modified" unless a pay item for "Subgrade Manipulation" is included in the Proposal.

r. Rock Excavation.- Rock excavation shall be performed in accordance with Section 205.03.B (Rock Excavation) of the MDOT 2012 SSC, as shown on the plans, and as directed by the Engineer.

The pay item "Rock Excavation" will apply only to boulders over ½ cubic yard in volume. Boulders will be measured individually and the volume computed from the average dimension measured in three directions. The removal of rocks, concrete and masonry less than ½ cubic yard in volume shall not be included in the pay item "Rock Excavation," but shall be included in the pay item "Machine Grading, Modified."

If the proposal does not include a pay item for "Rock Excavation," rocks measuring over ½ cubic yard in volume shall be paid for as extra work.

s. Lowering Structures.- Prior to cutting the subgrade, the Contractor shall remove structure covers, lower the structures to a point between 8 inches and 12 inches below the proposed subgrade, and cover the structures with a steel plate. Structures shall not be raised prior to placing roadway embankment.

The steel plates for covering structure openings shall conform to the plan detail, be pegged and properly placed to prevent their movement under all traffic, be thick enough to carry all traffic, and prevent the infiltration of debris into the structures.

The Contractor shall lower valve boxes to a point between 8 inches and 12 inches below the proposed subgrade. Valve boxes shall not be raised prior to placing roadway embankment.

The void in the grade above the steel plates used for structure lowerings and valve box lowerings shall be backfilled, and compacted to 95% of its maximum dry density, with an Engineer approved coarse aggregate.

"Machine Grading, Modified" shall include all the work associated with lowering structures, including backfilling.

The Contractor shall coordinate the lowering of private utility structures with the private utility companies.

t. Structure Covers.- As directed by the Engineer and within two days of their removal, the Contractor shall stockpile on-site, in a location that is mutually agreeable to the Engineer and Contractor, the existing structure covers. The City of Ann Arbor's forces will pick-up the structure covers at a time that is convenient to them and mutually agreeable to the Contractor. The Contractor shall provide the equipment and manpower to load the castings on the City's vehicle(s) so that they can be removed from the site by the City.

u. Structure and Sewer Cleanliness.- All sewers, and structures, including manholes, gate wells, valve boxes, inlet structures and curbs shall be protected from damage and contamination by debris and construction materials. Structures shall be maintained clean of construction debris and properly covered at all times during the construction. The Contractor shall immediately clean any structures and/or sewers that become contaminated with construction debris. The Contractor shall be responsible for all direct and indirect damages which are caused by sewers or structures which have been made unclean or have been damaged by the Contractor.

v. Contractor's Calculations.- Existing and proposed cross sections are provided in the plans. The Contractor shall perform his/her own computations and is responsible to inspect the site to determine his/her own estimate of the quantities of work involved. Deviations between the existing contours and the existing and proposed cross-sections shown on the plans shall not be cause for additional compensation.

w. Estimated Earthwork & Pavement Removal Quantities.- The table shown below contains the Engineer's estimate of the earth excavation (cut), the embankment (fill), and pavement removal required to prepare the foundation as defined herein for the project. These quantities do not take into consideration the suitability of the soils for their intended use, their possible availability due to construction staging or storage limitations, bulking of the material upon excavation, changes in volumes due to moisture content or soil types, or other similar related issues. The Contractor shall remain responsible for determining the actual amount(s) of work to be performed to complete the project as shown on the plans and as specified herein.

Machine Grading Modified Item of Work	**Est. volume of earth excavation (cut), cubic yards**	**Est. volume of embankment (fill), cubic yards**	**Pavement Removal square yards**
Pontiac Trail	13,610	1850	13,750

x. Tree trimming. - The Contractor shall coordinate with the City Field Services Unit to schedule trimming of trees by City forces or authorized subcontractor. The Contractor shall not be entitled to an extension of time or any additional compensation for the coordination of this work.

MEASUREMENT AND PAYMENT

Measurement for payment for the item "Machine Grading" shall be the computed in square yard quantity of excavated material (pavement, soil, rock, brick, etc.) from the top of existing grade down to the bottom of the excavation. Embankment, fill, subgrade protection/maintenance, drainage maintenance, topsoil, seeding, and restoration quantities will not be paid for separately, and are included in this item of 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:

PAY ITEM	**PAY UNIT**
Machine Grading, Modified	Station

Subsection 205.04.G of the MDOT 2012 SSC, which reads "Machine Grading will be measured by length along the surface edge. The Engineer will measure each side of the road, where work is performed, separately." is hereby deleted. "Machine Grading, Modified" will be measured once, and only once, along the centerline of the roadway or feature being constructed.

"Machine Grading, Modified" will be measured by length in 100 foot long stations, or portions thereof, along the centerline of the feature being constructed.

The various pay items included herein shall include all labor, materials and equipment required to complete the work.

The Contractor shall include all of his/her costs to complete all of the Machine Grading, Modified work in the Machine Grading, Modified pay item and plan quantities included in the proposal. No additional payment will be made for Machine Grading, Modified work which, although, shown on the plans and specified herein as work which needs to be completed, may not be included in a particular Machine Grading, Modified pay item. Plan quantities will be paid for the work, and will only be adjusted due to changes in the limits of the work, as directed by the Engineer, in writing.

The pay item "Machine Grading, Modified" shall include all the work specified herein, including, but not limited to, the removal and offsite disposal of any surplus or unsuitable materials and the furnishing from off-site any additional Engineer approved fill materials necessary to construct the embankment and subgrade to the contours and cross-sections shown on the plans.

DETAILED SPECIFICATION
FOR
ITEM #207 – INFILTRATION TRENCH WITH STONE RESERVOIR, AGGREGATE 6A
ITEM #208 – N0N-WOVEN GEOTEXTILE FABRIC, BIAXIAL OR TRIAXIAL

DESCRIPTION

This work includes subgrade preparation, furnishing and installation of infiltration trench with a stone reservoir, and geosynthetic materials, as specified herein, as shown on the Plans, and as directed by the Engineer.

This work shall be completed in accordance with the drawings and detailed specifications of this contract, the City of Ann Arbor Standard Specification, and the MDOT 2012 Standard Specifications for Construction, and as herein specified, including any detailed specifications.

QUALITY CONTROL/QUALITY ASSURANCE

a. Installation personnel qualifications. - Trained and experienced in the fabrication and installation of the materials and equipment, including but not limited to the installation of the approved geotextile fabric.
b. Weight or packing slips. - Furnish weight or packing slips for material supplied for use in the infiltration trench.
c. Delivery, storage and handling. - Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's specifications.
d. Protection. - Use all means necessary to protect the materials before, during, and after installation. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to the City.

MATERIALS

The materials shall meet the requirements referenced detailed below:

a. Aggregate reservoir: MDOT 6A
The stone reservoir shall consist of MDOT 6A and shall meet the following requirements:
Minimum 90% crushed.
Voids ≥ 30%.
Gradation as follows:

Sieve	% Passing
1.5-inch	100
1.0-inch	95-100
0.5-inch	30-60
#4	0-8
Loss by Wash	1.0 max

The thickness shall be in accordance with the plans. If approved aggregate has less than 30% voids, increase thickness to accommodate design volume as directed by the Engineer shall be at the Contractor's expense.

b. Geotextile fabric: Non-woven, Polypropylene biaxial or triaxial grid
Minimum Properties:
Minimum Rib Thickness: 0.03 inches (0.76 mm)
Tensile Strength @2% Strain (ASTM D6637): 280 lbs/ft
Tensile Strength @5% Strain (ASTM D6637): 580 lbs/ft
Ultimate Tensile Strength (ASTM D6637): 850 lbs/ft
Flexural Stiffness (ASTM D5732): 250,000 mg-cm
Resistance to Installation Damage (ASTM D5818 & D6637): 93%

Tensar BX1100 or approved equal.

CONSTRUCTION METHODS

a. Subgrade preparation. - Avoid compaction of subgrade soil unless directed or approved by Engineer. Scarify compacted or disturbed subgrade soils to a minimum depth of 6 inches with York rake; or equivalent method and light tractor. Remove accumulation of fine materials due to ponding or surface erosion with light equipment. Conform to line, grade, and elevations indicated. Excavate, fill, re-grade, and scarify areas damaged by erosion, ponding or traffic compaction. Use light equipment. Proof rolling, with light equipment, of suspected unstable areas may be requested by Engineer. Do not place geotextile or permeable media bed until subgrade surface has been inspected and approved by Engineer.

b. Geotextile fabric installation. - Do not place geotextile fabric on a frozen base, subgrade. Place geotextile and reservoir course immediately after subgrade approval. Remove any accumulation of debris or sediment which has taken place after approval of subgrade prior to installation of the geotextile, at the contractor's expense. Place geotextile in accordance with Manufacturer's standards and recommendations.

   Overlap Adjacent Strips: Minimum 16 inches.
   Prevent runoff or sediment from entering the storage bed.

c. Place aggregate reservoir in accordance with the plans.

   Maximum Lift Thickness: 10 inches.
   Minimum Lift Thickness: 6 inches.

   Compact each layer to a minimum of 95% of the maximum density as per City of Ann Arbor Standard Specifications. Fine grade as necessary to conform to elevations and cross section indicated on the Drawings. Roll aggregate layer with paving roller until smooth, as directed by Engineer.

MEASUREMENT AND PAYMENT

The items of work included in this Detailed Specification shall include all labor, material and equipment needed to accomplish all the work described in this detailed specification, which includes, but is not limited to: furnishing, placement, and compaction of all sand and aggregate materials and furnishing and placement of geotextile.

All costs for furnishing and operating vacuum-type street cleaning equipment, backhoes, jackhammers, air compressors, and other equipment necessary to complete the work shall be included in the bid prices for these items of work or in the item of work "General Conditions."

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:

PAY ITEM	PAY UNIT
Infiltration Trench with stone reservoir, Aggregate 6A	Lineal Foot
Non-woven geotextile fabric, biaxial or triaxiald	Square Yard

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 #260 - SAND SUBBASE COURSE, CLASS II - C.I.P.
ITEM #261 – AGGREGATE BASE COURSE, 21AA LIMESTONE, 6 INCH, C.I.P.
ITEM #262 - AGGREGATE BASE COURSE, 21AA LIMESTONE, 8 INCH, C.I.P.

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 meeting the requirements of the City of Ann Arbor Standard Specifications. Material for aggregate shoulders shall be MDOT 22A.

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 nor less than 4-inches.

Sand subbase and 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 days 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 Limestone, __ inch, C.I.P." and "Sand Subbase Course, CL II - 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:

PAY ITEM	PAY UNIT
Sand Subbase Course Class II - C.I.P.	Cubic Yard
Aggregate Base Course, 21AA Limestone, 6 inch, C.I.P.	Cubic Yard
Aggregate Base Course, 21AA Limestone, 8 inch, C.I.P.	Cubic Yard

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 #294 – GRAVEL FILTER BERM
ITEM #295 – CHECK DAM

DESCRIPTION

This work consists of installing and maintaining erosion and sedimentation controls to minimize soil erosion and control sediment from leaving the right-of-way and affecting water resources of the State of Michigan and adjacent properties. Provide all labor and materials for the placement and maintenance of the gravel filter berms and check dams where shown on the plans. Complete this work according to the MDOT Soil Erosion and Sedimentation Control Manual and Sections 205, 208, 813, 910 & 916 of the MDOT 2012 Standard Specifications for Construction except as described herein.

The gravel filter berms and check dams shall be constructed and maintained in accordance with the Erosion and Sedimentation Details found in Section 6 of the MDOT SESC Manual listed below, except as modified herein:

Gravel Filter Berm	E&S - 37-A
Check Dam	E&S - 26-A

MATERIALS

Gravel filter berms shall consist of coarse aggregate 6A or open graded aggregate 34R. The stone size for check dams is per subsection 916.01 of MDOT Standard Specifications.

CONSTRUCTION AND MAINTENANCE

Gravel Filter Berm - Provide, place, maintain, remove, and dispose of gravel filter berms in accordance with the MDOT SESC Manual, as shown on the plans and as directed by the Engineer. Maintain gravel filter berms as necessary to ensure their effectiveness until stabilization of the disturbed area.

Check Dams - Install, maintain, and remove check dams in accordance with the MDOT SESC Manual as shown on the plans and as directed by the Engineer. Maintain check dams as necessary to ensure their effectiveness until project completion and acceptance. Repair damaged areas, replace lost devices, and remove sediment as required.

MEASUREMENT AND PAYMENT

The completed work as measured will be paid for at the Contract Unit Price for the following contract items (pay items):

PAY ITEM	**PAY UNIT**
Gravel Filter Berm	LF
Check Dam	LF

The unit price includes the cost of all labor, equipment, materials, and documents necessary to install, maintain and remove the gravel filter berms and the check dams as detailed in the plans.

The Contractor will be responsible for repairing or replacing temporary or permanent SESC measures damaged by the Contractor's negligence, at no additional cost to the City.

DETAILED SPECIFICATION
FOR
ITEM #297 – CULVERT END SECTION, C-76, CL IV RCP. 18 INCH
ITEM #298 – GALVANIZED CORRUGATED METAL PIPE, 12 INCH

DESCRIPTION

Provide all labor and materials needed for the complete and proper installation of culvert end sections and driveway culverts where shown on the plans. Complete this work according to the Sections 205, 208, 401, & 909 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction except as described herein.

MATERIALS

Provide materials in accordance with Section 909 of the 2012 MDOT Standard Specifications for Construction. The driveway culverts shall consist of Class A, galvanized corrugated metal pipe.

CONSTRUCTION

The installation of the culvert end sections and driveway culverts shall conform to Section 401 of the 2012 MDOT Standard Specifications for Construction, the City of Ann Arbor Standard Specifications, and the plans.

MEASUREMENT AND PAYMENT

The completed work as measured will be paid for at the Contract Unit Price for the following contract items (pay items):

PAY ITEM	PAY UNIT
Culvert End Section, C-76 CL IV RCP, 18 inch	Each
Galvanized Corrugated Metal Pipe, 12 inch	LF

The unit price includes all labor, equipment, materials, and documents necessary to install the 18 inch culvert end sections as detailed in the plans.