

CHOCOLAY TRAIL AGGREGATE RESURFACING

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Mobilization shall be paid for at the Contract Unit Price per Lump Sum and shall include all work required to mobilize and demobilize..... 1 LS

Silt Fence - Shall be paid for at the contract unit price per foot and shall include all materials, equipment and labor required to install, maintain and remove silt fence as shown on the plans and specified..... 1600FT

Clearing, Subbase Grading and Vegetation Removal – Shall be paid at the contract unit price per lump sum and shall include all clearing, all sub base grading, all sub base preparation and vegetation removal work as specified and shown on the plans and specified..... 1 LS

Geotextile Separator - Shall be paid for at the contract unit price per foot of shall include all materials, equipment and labor required to install the fabric 10' wide..... 1,530 FT

Herbicide Application – Shall be paid for at the contract unit price per lump sum and shall include all labor equipment and materials as necessary to apply herbicide 12' wide for the full length of trail, as specified..... 1 LS

Aggregate Base Fill - Shall be paid for at the contract unit price per Ton and shall include all labor equipment and materials as necessary to place grade and compact additional aggregate base fill where required in order to bring slopes into compliance with the required longitudinal slopes and cross slopes as specified and shown on the plans..... 250 Ton

Bicycle Path Aggregate Surface, 4 inch - Shall be paid for at the contract unit price per lineal foot of trail and shall include all materials, equipment, and labor required to place shape and compact a 4 inch aggregate surface over sub base as shown on the plans and specified. 32700 Ft

Restoration - shall be paid for at the contract unit price per lump sum and shall include all equipment labor and materials necessary to provide smooth grassed and gravel slopes between the edge of gravel and the existing ground surface. On site ballast or earth will be used for slope construction and contractor will provide fertilizer, seed and mulch where required..... 1 LS

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DIVISION TWO - SITE WORK

MOBILIZATION

SECTION 02000

PART ONE - GENERAL

1.01 Description

- A. This item shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel equipment, supplies, and incidentals to the project site; for the establishment of the contractor's offices, buildings, and other facilities necessary to undertake the work on the project; and for other work operations which must be performed, or for expenses incurred, prior to beginning work on the various contract items on the project site.

1.02 Method of Payment

- A. Mobilization - shall be paid for at the Contract Unit Price per Lump Sum and shall include all work required to mobilize and demobilize.

END OF SECTION

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SECTION 02100

SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Protecting existing trees, shrubs, groundcovers, plants, and grass to remain.
 - 2. Removing existing trees, shrubs, groundcovers, .plants and grass.
 - 3. Clearing and grubbing.
 - 4. Stripping and stockpiling topsoil.
 - 5. Herbicide application
 - 6. Fine Grading Subbase
 - 7. Geotextile separator

1.2 QUALITY ASSURANCE

- A. The contractor shall insure that only those trees that are obstructing the work area are removed. Trees beyond the work area shall be protected.
- B. Tree removal shall be done using only workmen skilled in this type of work.

1.3 MATERIAL OWNERSHIP

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

1.4 Submittals

- A. Herbicide and Recommended rate of application.
- B. Verification of license and Michigan Department of Agriculture certification for commercial herbicide applicator.
- C. Manufacturer's Data for geotextile fabric

1.5 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

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- B. The contractor shall protect all existing utilities indicated or made known. Call "MISS-DIG" or other service as needed to identify utility locations. Utility line markers placed by the Architect/Engineer and MISS DIG shall be protected by the contractor and replaced at his expense.
- C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place. Requirements for erosion and sedimentation control measures are specified in Division 2, Section "Soil Erosion and Sedimentation Control."

1.6 METHOD OF PAYMENT

- A. Clearing, Subbase Grading and Vegetation Removal – Shall be paid at the contract unit price per lump sum and shall include all clearing, all sub base grading, all sub base preparation and vegetation removal work as specified and shown on the plans.
- B. Herbicide Application – Shall be paid for at the contract unit price per lump sum and shall include all labor equipment and materials as necessary to apply herbicide 12' wide for the full length of trail, as specified

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

2.2 HERBICIDE

- A. As specified by licensed commercial herbicide applicator and approved by engineer.

2.3 GEOTEXTILE SEPERATOR

- A. As specified MDOT (2003 Ed.) Standard Specifications, Section 910.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. The Contractor shall thoroughly inspect the premises prior to commencing work. The Contractor shall also determine the extent of work and the number and size of trees to be removed.

3.2 PREPARATION

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

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- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.3 TREE PROTECTION

- A. Extreme care should be taken to avoid damage to trees including seedlings and saplings. No damage is acceptable to existing trees with in the park (defined as breaking of the bark, broken tops or bending of trees from their natural position). All trees 3" diameter caliper or greater incurring bark damage during construction shall be addressed by the contractor by removing the damaged bark with a neat clean cut to a point on the tree trunk where the bark is undamaged. The repair shall be uniform in appearance and minimize the removal of any bark not damaged. All broken tree limbs shall be neatly trimmed at a branch joint or at the trunk of the tree. All damaged and exposed tree roots over ¼" in diameter shall be neatly trimmed prior to backfill placement.
- B. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
- C. Do not excavate within tree protection zones, unless otherwise indicated.
- D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Engineer.

3.4 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
 - 1. Arrange with utility companies to shut off indicated utilities.
 - 2. Notify Engineer not less than two days in advance of proposed utility interruptions.
 - 3. Utility lines which have been identified on the plans or on-site and then are damaged or disturbed by the contractor shall be repaired or replaced at no expense to the state.

3.5 CLEARING AND GRUBBING

- A. The contractor shall take care when removing trees to avoid damaging existing structures, roads, utilities, other trees, and state property. The contractor shall insure that non-construction employees are kept clear of the removal area at all times.
- B. Where trees indicated to be removed cannot be felled without danger to other trees, structures or property, they shall be cut down in sections.
- C. Tree roots shall be removed to at least 12" below the existing ground surface or sub-grade of new graded surface, whichever is lower.
- D. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

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E. TOPSOIL STRIPPING

1. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
2. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

F. FINE GRADING

1. Scarify, plow, disc, move, shape and compact subbase to establish cross sections shown on the plans and as required to prepare subbase for gravel surface.

G. HERBICIDE APPLICATION

1. Apply a pre-emergent herbicide 10' wide along complete length of new trail.
2. Shall be done by a commercial herbicide applicator licensed in the State of Michigan and certified by the Michigan Department of Agriculture in the appropriate category to apply herbicides. Use application procedures and materials according to federal, state and local regulations.
3. Select Herbicides and rate at which it will be used.

H. GEOTEXTILE SEPERATOR

1. Shall be placed flat on smooth fine graded subbase to the full trail width of 10'
2. Lap fabric per manufacturer's written instructions

END OF SECTION 02230

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SECTION 02230

SOIL EROSION AND SEDIMENT CONTROL

PART ONE - GENERAL

1.01 DESCRIPTION

- A. The contractor shall be responsible to provide soil erosion and sedimentation control measures as required in the approved Soil Erosion and Sedimentation Control (SESC) Plan and in conformance with state law.

1.02 SOIL EROSION AND SEDIMENTATION CONTROL

- A. The contractor shall take all precautions necessary to prevent soil erosion in areas that are disturbed by construction. The Contractor is required to ensure that all sedimentation is contained within the construction site and shall prevent any sediment from entering sewers or water courses.
- B. The Contractor shall comply with the soil erosion and sedimentation control requirements of Act No. 451 of the Public Acts of 1994, Natural Resource and Environmental Protection Act, Part 91 of the Michigan Compiled Laws.

1.03 STORMWATER DISCHARGE

- A. General
 - 1. The contractor shall not begin any work until notified by the Owner that the stormwater discharge permit has been obtained for the project. A stormwater discharge permit is required for all projects that disturb more than 5 acres of soil or are within 500 feet of a lake or stream.

1.04 MONITORING AND ENFORCEMENT

- 1. Regular inspections and monitoring will be conducted by the Owner. The Contractor shall correct any deficiencies noted by the Owner, Local Enforcement Agency or the MDEQ within 24 hours of receiving written notice that corrections are necessary. If the Contractor failed to make the corrections within the allotted time, the Owner shall have the right to do the work and deduct all costs from the amounts due to the Contractor under this Contract.

1.05 SUBMITTALS

- A. Prior to construction the Contractor shall submit a Final SESC Plan to the SESC program coordinator within the MDNR Office of Property Management for approval and Authorization to Proceed With Earth Change.
- B. The Final SESC Plan shall include the following items:
 - 1. The SESC plan included in the contract documents or modifications to the SESC plan as required by specific construction means and methods. All modifications shall adhere to the provisions of this section. There will be no additional compensation for modifications to the plan.
 - 2. Schedule of installation, maintenance and removal of SESC measures.

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- a. Contractor shall submit a detailed schedule of installation, maintenance and removal dates for all required SESC measures. A schedule form is included at the end of this section.
- 3. Maintenance procedures for Temporary SESC Measures.
- 4. Maintenance Procedures for Permanent SESC measures.
 - a. Contractor will be responsible to maintain these measures until they are permanently established and the soil is stabilized.

1.06 RELATED SPECIFICATIONS

- A. Section 02900 RESTORATION

1.07 METHOD OF PAYMENT

- A. Silt Fence - Shall be paid for at the contract unit price per foot and shall include all materials, equipment and labor required to install, maintain and remove silt fence as shown on the plans and specified.
- B. Dust Control and sweeping as required by this specification shall be incidental to other items in this contract, and no separate payment shall be made for these items

PART TWO - MATERIALS

2.01 GENERAL

- A. All materials required for the SESC measures shall be as specified by the MDMB Soil Erosion and Sedimentation Control Guidebook 2002, and by Section 916, and Section 917 of the MDOT Standard Specifications for Construction, 2003 Edition.
- B. Topsoil, Fertilizer, Seed and Mulch shall be as specified in Section 02900

PART THREE - EXECUTION

3.01 INSTALLATION AND MAINTENANCE OF CONTROLS

- A. General
 - 1. All SESC measures shown on the plans shall be installed and maintained in accordance with the MDMB Soil Erosion and Sedimentation Control Guidebook 2002, unless otherwise specified or approved by the Engineer.
 - 2. All required SESC measures shall be in place as required by the approved SESC plan prior to construction.
 - 3. Daily inspections shall be made by the contractor to determine effectiveness of erosion and sedimentation measures, and any necessary repairs shall be performed without delay.
 - 4. Permanent soil erosion control measures over disturbed land area shall be completed within 5 working days after final grading or final earth change has been completed.
- B. Silt Fence

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1. Install silt fence as shown in the approved SESC plan and in accordance with the MDMB Soil Erosion and Sedimentation Control Guidebook 2002, unless otherwise shown on the plans or approved by the Engineer.
- C. Dust Control
 1. Dust shall be in accordance with the MDMB Soil Erosion and Sedimentation Control Guidebook 2002.
- D. Sweeping
 1. All paved surfaces shall be swept as necessary to keep them free of sediment and vehicle tracking.
- E. Seeding and Mulching
 1. Seeding and mulching shall be in accordance with Section 02900 – Restoration.
- F. Cellular Confinement
 1. Cellular confinement shall be in accordance with the MDMB Soil Erosion and Sedimentation Control Guidebook 2002.

3.02 COMPLETION

- A. The contract will not be considered complete until the Engineer has certified the following items.
 1. All disturbed soil is permanently stabilized.
 2. All sewers, ditches, catch basins, and manholes and roadways are cleaned and cleared of sediment. Unless the contractor can document positively to what extent these items are silted prior to construction, no credit will be given for cleaning these items.
 3. All temporary SESC measures have been removed and the areas are restored and stabilized.

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**SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
INSTALLATION, MAINTENANCE AND REMOVAL SCHEDULE**

SESC MEASURE	INSTALLATION DATE	REMOVAL DATE	MAINTENANCE FREQUENCY

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END OF SECTION

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SECTION 02333

AGGREGATE SURFACE COURSE

PART ONE - GENERAL

1.01 DESCRIPTION

- A. Work included: The work under this Section includes, but is not necessarily limited to, all labor, materials, and equipment necessary to construct an aggregate surface course of the required depth as indicated on the drawings and specified herein.

1.02 QUALITY ASSURANCE

- A. Subgrade/Base Course:

- 1. The subgrade and base course shall be inspected and approved by the engineer prior to placing surface aggregate.

- B. Materials:

- 1. All materials used for aggregate base shall be approved by the Architect/Engineer, prior to placement.

- C. Compaction:

- 1. Subgrade shall be proof-rolled in presence of engineer.

1.03 METHOD OF PAYMENT

- A. Aggregate Base Fill - Shall be paid for at the contract unit price per Ton and shall include all labor equipment and materials as necessary to place grade and compact additional aggregate base fill where required in order to bring slopes into compliance with the required longitudinal slopes and cross slopes as specified and shown on the plans.
- B. Bicycle Path Aggregate Surface, 4 inch - Shall be paid for at the contract unit price per lineal foot of trail and shall include all materials, equipment, and labor required to place shape and compact a 4 inch aggregate surface over sub base as shown on the plans and specified.

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PART TWO - PRODUCTS

2.01 MATERIALS

A. Aggregate Surface Material:

1. Crushed limestone surface material shall conform to the following gradations:

Sieve Size	Total Percent Passing
3/8"	100
No. 4	70-85
No. 8	45-61
No. 16	30-45
No. 30	20-35
No. 50	15-25
No. 100	10-20
No. 200	7-12

- a. Limestone aggregate surface material shall be 100% crushed material and shall be free from all dirt, clay or other foreign materials.

PART THREE - EXECUTION

3.01 CONSTRUCTION METHODS

A. Aggregate Surface Coarse

1. Aggregate surface course shall be constructed as specified in MDOT (2003 Ed.) Standard Specifications, Section 306.

END OF SECTION

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SECTION 02900

RESTORATION

PART ONE - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Slope Restoration

a. Construct smooth grassed or gravel transition slope between edge of gravel and existing ground surface.

2. Surface restoration and final cleanup of all items removed or damaged by the Contractor shall include, but not be limited to:

- a. Concrete Walks or Slabs
- b. Bituminous Surfaces
- c. Graveled
- d. Lawn Areas

1.02 METHOD OF PAYMENT

A. Restoration - shall be paid for at the contract unit price per lump sum and shall include all equipment labor and materials necessary to provide smooth grassed and gravel slopes between the edge of gravel and the existing ground surface. On sight ballast or earth will be used for slope construction and contractor will provide fertilizer, seed and mulch where required.

PART TWO - MATERIALS

2.01 MATERIALS

- A. Seed mixture consisting of Kentucky Blue Grass - 10%, Perennial Ryegrass - 20%, Hard Fescue - 30%, Creeping Red Fescue - 40%, shall be applied at a uniform rate of 220 pounds per acre.
- B. Topsoil shall be a dark, organic, natural surface soil free of clay lumps, peat or muck, subsoil, noxious weeds or other foreign matter such as roots, sticks, rocks over 1/2 inch in diameter and not frozen or muddy. Material shall meet with the approval of the Architect/Engineer and be furnished from off state lands.
- C. Mulching Materials shall meet MDOT Standard Specification (2003) section 917.
- D. Fertilizer shall be evenly applied at a rate which will provide 240 pounds per acre of chemical fertilizer nutrients, in equal proportions, (10-10-10), of Nitrogen, Phosphoric Acid, and Potash.

PART THREE - EXECUTION

3.01 CONSTRUCTION METHODS

- A. Use onsite material to grade smooth transition slope not to exceed 1:4. Where gravel meets open graded ballast and transition slope is less than 2' wide, then slope can be constructed with ballast and seeding is not required. Where transition 1:4 transition slope exceeds 2' wide and organic soil is available, then slope shall be fertilized, seeded and mulched.

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- B. All areas disturbed by the contractor including but not limited to construction areas, stockpile areas, access roads, material and equipment storage areas shall be topsoiled and seeded.
- C. The earthen areas to receive topsoil shall be at the required grade and properly trimmed. Topsoil shall be spread on the prepared areas to a depth of not less than 4". After spreading, any large clods and lumps of topsoil shall be broken up and pulverized. Stones and rocks over 1" in diameter, roots, litter, and all other foreign matter shall be raked up and disposed of by the contractor. Place topsoil only when it can be followed within a reasonable time by seeding operations.
- D. For areas to be seeded, chemical fertilizer shall be evenly applied on the prepared topsoil surface at a rate which will provide 240 pounds per acre of chemical fertilizer nutrients, in equal proportions of Nitrogen, Phosphoric Acid, and Potash, or as directed by the Architect/Engineer.
- E. Fertilizer spread by drill or broadcast methods will be placed or worked into the soil to a depth of one to two inches.
- F. The seed shall be sown by broadcast method following the application of the fertilizer and while the seed bed is in a friable condition. The seeding shall be floated and lightly compacted to incorporate the seed into the uppermost one-half inch of the soil.
- G. Mulch consist of straw and shall be spread over the surface to a uniform thickness to allow sunlight to penetrate and air to slowly circulate, but thick enough to shade the ground, reduce rate of water evaporation, and prevent or reduce water or wind erosion. Straw mulch shall be anchored by crimping in place. Erosion control blankets shall be installed on all slopes which are 3 horizontal to 1 vertical or steeper.
- H. Mulch Blanket shall be installed and properly anchored according to manufacturer's instructions.
- I. Concrete Walks or Slabs - Shall be cut at contraction or expansion joints and replaced with air-entrained, 3500 psi concrete, meeting MDOT Grade 35S of the same thickness and finish as that which was removed.
- J. Bituminous Surfaces - Shall be cut back to straight-line joints. Replace with a 6" layer of compacted MDOT 22-A aggregate and a 2" layer of MDOT No. 1100-T Bituminous Mixture
- K. Graveled Surfaces - Shall be replaced with a 6" layer of MDOT 22-A compacted aggregate.

END OF SECTION