

SECTION 02486

AMENDED TOPSOIL

PART 1 - GENERAL

1.01 SUMMARY

- A. Work described in this section includes requirements for soil amendments, soil preparation, preparation and finish grading of turf restoration areas, planting areas and mulching.

1.02 REFERENCES

- A. Local Watershed District Stormwater Guidance Documents
- B. United States Department of Agriculture (USDA) Soil Texture System of Classification.

1.03 DEFINITIONS

- A. Standard Specification: "Minnesota Department of Transportation Standard Specifications for Construction; 2000 Edition".

1.04 SUBMITTALS

- A. Soil Management Plan: Prior to commencement of site work, submit an approved copy of the project Soil Management Plan with an implementation schedule.
 - a. Soil Management Plan (SMP) shall include 11" x 17" or larger site map indicating the following:
 - i. Areas where native soil and vegetation will remain in place.
 - ii. Areas where topsoil or subsoil will be amended in place.
 - iii. Areas that will be stripped and stockpiled prior to grading for reuse.
 - iv. Areas where imported topsoil will be placed.
 - b. Calculations for soil volumes to be stockpiled and amounts of amendment or topsoil to be imported to achieve specified minimum organic matter content.
 - c. Specific organic amendments to be used with organic matter content and carbon to nitrogen ratio documented by producer supplied copies of laboratory analyses.
- B. Samples: Submit samples of all soil amendments. Include a list of sources and certification as specified. Soil amendments shall be submitted in one gallon containers.

- C. Submit load tickets, invoices, sales slips and other similar items requested by ENGINEER at time of Post-Construction Inspection.
- D. Location of off-site source of materials.
- E. Name, address, telephone number and contact person of independent soils laboratory.
- F. Method of off-site source soils material sampling and analyses.
- G. Off-site source material analyses.
- H. Source testing results shall be provided at least 7 days prior to installation.
- I. Proposed haul road plan for transportation of all off-site materials to the Project site.
- J. Submit method of placement and mixing
- K. Submit in accordance with Section 01300.

1.04 QUALITY ASSURANCE

- A. Contractor shall meet with OWNER or ENGINEER prior to initiating grading activities to discuss and verify requirements, schedule and proposed soil preparation methods.

1.07 FIELD MEASUREMENTS

- A. Verify control monuments and intended elevations for Work as shown on Drawings.

1.08 COORDINATION

- A. Coordinate work with others performing work at project site.
- B. Call utilities prior to beginning Work.
- C. Do not perform soil preparation work in areas subject to subsequent work of other sections unless approved by OWNER or ENGINEER.
- D. Perform work in accordance with approved schedule. Immediately notify OWNER/ENGINEER of any scheduling delays or problems.

PART 2 - PRODUCTS

2.01 TOPSOIL

- A. Salvaged Topsoil shall be salvaged from site grading activities:
 - 1. Friable soil; Horizon B soils, suitable soil used as a medium for establishing and sustaining healthy plant growth.
 - 2. Shall consist of subsoil, excess topsoil or sand that is free of wood, peat, rocks larger than 1.5 inches in any direction, or other unsuitable materials.
- B. Import Topsoil shall meet the requirements of Standard Specification Section 3877.2.B Select Topsoil Borrow.

2.02 COMPOST

- A. Compost for turf restoration areas shall meet the requirements of Standard Specification Section 3890.2.A; Grade 1 Compost.
- B. Compost for planting areas shall meet the requirements of Standard Specification Section 3890.2.B; Grade 2 Compost.

2.03 MULCH

- A. Mulch shall meet the requirements of Standard Specification Section 3882.2. – Type 3 Mulch

PART 3 - EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Examine and verify acceptability and condition of surfaces to perform Work.
- B. Identify required lines, grades, levels, contours, and datum.
- C. Protect benchmarks, structures, equipment, and partially completed Work.
- D. Install erosion protection measures as required prior to initiating earthwork.
- E. If Calculated Amendment Rates are being used, site soils to be amended and compost material to be characterized for the following properties:
 - a. Soil Bulk Density
 - b. Organic Matter Content
 - c. Carbon to Nitrogen Ratio
 - d. Moisture Content

- F. Soil Samples to be gathered following the distribution plan in the post construction inspection identified in Paragraph 3.08.C of This Section and be comprised of material from the entire depth to be amended excluding any surficial mulch layers. Calculations to be performed by Professional Soil Scientist licensed in Minnesota.
- G. Prepare subgrade in to meet lines, grades and cross-sections shown on Drawings.

3.03 AMENDMENT OPTIONS - GENERAL

- A. Select the soil preparation option which best suits specific areas of the project site. Different methods will be applicable to different areas of the project site. The selected soil preparation options(s) will be shown on the SMP described in Paragraph 1.04.A of this Section.

3.04 AMENDMENT OPTION 1 – Leave Native Vegetation and Soil Undisturbed

- A. Protect from compaction during construction
 - a. Identify areas that will not be stripped graded or trafficked excessively
 - b. Protect these areas using appropriate protection fencing
 - c. Maintain protection fencing throughout project.

3.05 AMENDMENT OPTION 2 – Amend Existing Soil In-Place

- A. General
 - a. Scarify or till subgrade to depth of 8” or to depth needed to achieve total depth of 12 inches of uncompacted soil after calculated amount of amendment is added.
 - b. Scarify such that surface is evenly disturbed
 - c. Do not scarify within drip line of trees to remain in place.
- B. Planting Beds
 - a. Rake level and remove surface rocks and other deleterious material larger than 2-inches in diameter.
 - b. Mulch planting beds with 2-inches of Class 2 Mulch
 - c. Pre-Approved Rate: Place and till 2-inches of compost into 6-inches of soil (total amended depth of 8-inches).
 - d. Calculated Rate: Place and till calculated volume of compost into depth of soil needed to achieve 8-inches of soil (when compacted) with an organic content of 10%.
- C. Turf Areas
 - a. Water or roll to compact soil to 85% of Standard Proctor Dry Density
 - b. Rake level and remove surface woody debris, rocks and other deleterious material larger than 1-inch in diameter.
 - c. Pre-Approved Rate: Place and till 2-inches of compost into 6-inches of soil (total amended depth of 8-inches).

- d. Calculated Rate: Place and till calculated volume of compost into depth of soil needed to achieve 8-inches of soil (when compacted) with an organic content of 5%.

3.06 AMENDMENT OPTION 3 – Stockpile and Salvage Site Topsoil and Amend as necessary to achieve required organic content to 8-inches in depth.

A. General

- a. If placed topsoil in addition to compost will amount to less than 12-inches, scarify or till subgrade to depth needed to achieve 12-inches of loosened soil after topsoil and amendment are placed.
- b. Scarify such that surface is evenly disturbed.
- c. Do not scarify within drip line of trees to remain in place.

B. Planting Beds

- a. Stockpile and cover soil with weed barrier material that sheds moisture yet allows air movement in approved location prior to grading.
- b. Rake level and remove surface rocks and other deleterious material larger than 2-inches in diameter.
- c. Mulch planting beds with 2-inches of Class 2 Mulch
- d. Pre-Approved Rate: Place and till 3-inches of compost into 5-inches of soil (total amended depth of 8-inches).
- e. Calculated Rate: Place and till calculated volume of compost into depth of soil needed to achieve 8-inches of soil (when compacted) with an organic content of 10%.

C. Turf Areas

- a. Stockpile and cover soil with weed barrier material that sheds moisture yet allows air movement in approved location prior to grading.
- b. Water or roll to compact soil to 85% of Standard Proctor Dry Density
- c. Rake level and remove surface woody debris, rocks and other deleterious material larger than 1-inch in diameter.
- d. Pre-Approved Rate: Place and till 2-inches of compost into 6-inches of soil (total amended depth of 8-inches).
- e. Calculated Rate: Place and till calculated volume of compost into depth of soil needed to achieve 8-inches of soil (when compacted) with an organic content of 5%.

3.07 AMENDMENT OPTION 4 – Import Topsoil meeting organic matter content standards.

A. General

- a. Scarify or till subgrade in two directions to 6-inches in depth.
- b. Scarify such that surface is evenly disturbed.
- c. Do not scarify within drip line of trees to remain in place.

B. Planting Beds

- a. Use imported topsoil containing 10% organic matter.
- b. Place 3-inches of imported topsoil mix on surface and till into 2-inches of subsoil.

- c. Place 3-inches of imported topsoil on surface.
- d. Rake beds smooth.
- e. Remove rocks and other deleterious materials larger than 2-inches in diameter.
- f. Place 2-inches of Class 2 Mulch.

C. Turf Areas

- a. Use imported topsoil containing 5% organic matter.
- b. Place 3-inches of imported topsoil mix on surface and till into 2-inches of subsoil.
- c. Place 3-inches of imported topsoil on surface.
- d. Water or roll to compact to 85% of Standard Proctor Dry Density
- e. Rake beds smooth.
- f. Remove rocks and other deleterious materials larger than 1-inches in diameter.

3.08 INSPECTION AND VERIFICATION

A. Pre-Grading Inspection:

- a. Prior to commencement of work contact OWNER or ENGINEER to provide inspection to verify the delineation and protection of native soils and vegetation to remain in place.
- b. Verify the proposed location for topsoil and material stockpiles.
- c. Make Corrections and adjustments as directed by OWNER/ENGINEER.

B. Interim Grading Inspection:

- a. Prior to placement of soil amendments, contact OWNER/ENGINEER to provide inspection to verify the following:
 - i. Specified erosion control methods have been implemented.
 - ii. Location of stockpiles are consistent with SMP
 - iii. Subgrade is consistent with SMP
- b. Make corrections or adjustments as directed by OWNER/ENGINEER.

C. Post Installation Inspection:

- a. Prior to planting, contact OWNER/ENGINEER to provide inspection to verify that placement of amendments and soil preparation is consistent with SMP.
- b. Provide delivery tickets for soil amendments to verify the quantity of material specified in the SMP.
- c. Make corrections or adjustments as directed by OWNER/ENGINEER

D. Mulch Placement Verification: At the completion of planting, contact OWNER/ENGINEER to provide a review of mulch placement and make corrections or adjustments as directed.

E. Secondary Verification for Failing Sites: If OWNER/ENGINEER determines that the initial installation does not meet conditions of approved SMP, additional testing and subsequent correction by an independent Soil Scientist registered in the State of Minnesota will be performed at the CONTRACTOR's expense

3.09 TRANSPORTATION AND HAUL ROADS

A. Observe State, County, and Local traffic rules and weight restrictions.

B. All vehicle trips loaded or unloaded shall be on designated haul roads only.

- C. CONTRACTOR to coordinate selection of haul roads with the appropriate governing body and acquire any necessary permits.

3.10 ADJUSTMENT AND CLEANING

- A. The CONTRACTOR shall remove surplus materials and debris from the site.
- B. The CONTRACTOR shall satisfactorily dispose of all excess excavated material that cannot be used, unless arrangements are made with the OWNER.

END OF SECTION