

ITEM 613.05----11 - NATURAL AREA RESTORATION SOIL

DESCRIPTION:

This work shall consist of furnishing, stockpiling and placing Natural Area Restoration Soil at the locations shown in the plans and in conformance with the lines, grades and thicknesses shown in the Contract Documents or as directed by the Engineer.

MATERIALS:

All the requirements of §713-01 Topsoil shall apply to Natural Area Restoration Soil except as follows:

Natural Area Restoration Soil shall be manufactured from a commercial source.

Natural Area Restoration Soil shall meet the following requirements:

The pH of the material shall be between 5.0 and 6.5

The organic content shall be not less than 4 percent or more than 7 percent (dry weight basis).

Soluble Salts (electrical conductivity) shall not exceed 4 mmhos/cubic centimeter.

Gradation:

Sieve Size	Percent Passing by weight
50mm	100
2.0mm	90-100
0.5mm	80-85
0.25mm	45-55
0.05mm	25-35
0.002mm	10-20

Levels of the following nutrients shall fall within the following:

Nutrient	Minimum	Maximum Value
Total nitrogen (TKN)	0	200 ppm
Nitrate	0	1 ppm
Phosphorous	0	10 ppm
Magnesium	2	10 ppm
Calcium	1	100 ppm

If the soil is deficient in any nutrient, supplementary fertilizer shall be added to meet these requirements.

CONSTRUCTION DETAILS:

Prior to procurement of topsoil and start of delivery of soil, all approvals for those items required in this specification must have been given in writing to and approved by NYSDOT.

- 1. Site Layout and Work Plan.** The Contractor shall stake out the limits of the areas proposed to receive topsoil. Access routes and a work plan shall be submitted to the Engineer describing the methodology and equipment that will be utilized to deliver and spread the topsoil, including the location of a stockpile area on-site and the proposed method of spreading the topsoil.

ITEM 613.05----11 - NATURAL AREA RESTORATION SOIL

2. **Preparation of Areas.** Once the subsoil has been properly graded under the appropriate excavation and embankment items so that the completed work after the woodland topsoil is placed shall conform to the specified final lines and grades, the Contractor shall scarify or till the surface of the subsoil to a depth of 150 mm before the Natural Area Restoration Soil is placed to permit bonding the woodland topsoil with the subsoil. Tillage by disking, harrowing, raking or other approved methods shall be accomplished in such a manner that depressions and ridges formed by tillage shall be parallel to the contours.

3. **Placing and Spreading.** Natural Area Restoration Soil in an unworkable condition due to excessive moisture, frost or other conditions shall not be placed until it is suitable for spreading.

Soil shall be evenly placed in lifts not to exceed 200 mm in depth until the surface is brought to proposed grades. The spreading shall be performed in such a manner as not to cause erosion or to overly compact the soil. Irregularities in the soil surface resulting from spreading or other operations shall be corrected so as to prevent the formation of depressions where water will stand. Bulk density tests will be conducted after placement of each lift, with any necessary corrections made prior to placement of subsequent lifts.

The final thickness of the in-place Natural Area Restoration Soil will be checked after the completion of the work on a 15 m by 15 m grid pattern (unless otherwise directed by the EIC) by digging holes in the topsoil to allow for the measurements to be taken. After measurements have been made, the Contractor shall backfill the holes with the Soil.

After the Natural Area Restoration Soil is spread all large stiff clods, rocks, roots and other foreign matter shall be cleared and disposed of by the Contractor so that the finished surface will be acceptable for subsequent work such as seeding, mulching or planting.

4. **Restoration.** The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding. Surplus Natural Area Restoration Soil shall be used to flatten embankment slopes or placed in other locations approved by the Engineer.

After placement and final grading, no heavy equipment, pickup trucks or other construction vehicles (other than low ground pressure equipment) shall be permitted to travel on these completed areas.

5. **Additional Testing:**

Bulk Density: Tests for bulk density of the soil shall be taken after spreading each lift of soil. A standard volume of testing shall be established between the Contractor and the EIC in consultation with the Regional Landscape Architect prior to taking samples. The Contractor is to supply all materials and equipment required to complete this test. This test will measure soil compaction from construction equipment. Acceptable range is 1.0 g/cm³ to 1.6 g/cm³. Locations that have readings that are outside of this range shall be corrected in the following manner: the contractor shall thoroughly disc areas to a minimum depth of 200 mm to reduce compaction.

Testing after delivery: For quality control, once delivery of Natural Area Restoration Soil to the Work Site commences, a minimum of two soil samples shall be taken by a Department representative, at locations on-site agreed upon by the EIC and Regional Landscape Architect, and shall be tested. Such samples and their processing shall conform to section 713.01 as amended here for all parameters tested

ITEM 613.05----11 - NATURAL AREA RESTORATION SOIL

before the topsoil was moved to the site. In the event that the samples of the delivered soil are not consistent with those approved prior to delivery, remove the delivered Natural Area Restoration Soil from the Work Site and replace it with material that does conform, at no expense to the State.

Alternative testing procedure: The EIC may allow the contractor to process soil tests at no additional cost to the State at a certified, independent soil testing laboratory if the NYSDOT Geotechnical Bureau indicates that they are unable to perform one or more of the tests within the time constraints of the project or for any other reason, Any such tests shall follow the Soil Testing Procedures for the Northeastern United States, 2nd Edition, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware, Bulletin # 493, 12/95.

METHOD OF MEASUREMENT:

The quantity to be measured for payment will be in cubic meters to the nearest 0.1 cubic meter of Natural Area Restoration Soil placed within the designated areas to the depth as shown in the Contract Documents.

BASIS OF PAYMENT:

The unit price bid shall include the cost of all labor, materials and equipment necessary to complete the work to the satisfaction of the engineer.

DISAPPROVED BY E12-0001