



<p><b>SUPERSEDED BY EB 99-066</b>  <b>EFFECTIVE 11/4/99</b></p>		<p><i>New York State  Department of  Transportation</i>  <b>ENGINEERING  INSTRUCTION</b></p>	<p><b>EI</b>  <b>96-050</b></p>
<p><b>Title: Revision to §713-01 TOPSOIL and §713-15 ORGANIC MATERIAL  of the Standard Specifications.</b></p>			
<p>Distribution:</p> <p><input type="checkbox"/> Manufacturers (18)      <input type="checkbox"/> Surveyors (33)</p> <p><input checked="" type="checkbox"/> Main Office (30)      <input checked="" type="checkbox"/> Consultants (34)</p> <p><input checked="" type="checkbox"/> Local Govt. (31)      <input checked="" type="checkbox"/> Contractors/AGC (39)</p> <p><input checked="" type="checkbox"/> Regions/Agencies (32)      <input type="checkbox"/> _____ ( )</p>		<p>Approved:</p> <p>  _____  P. J. Clark, Deputy Chief Engineer,  Design Division</p> <p style="text-align: right;">12/20/96  Date</p>	

**EFFECTIVE DATE.** The specifications transmitted herewith are effective with the letting of April 24, 1997.

**BACKGROUND.** Until recently, there were no generally accepted specifications for composts. Therefore, the Standard Specifications for recycled and/or composted organics that are found in Section 713-15 Organic Materials are not detailed.

A project initiated by the Coalition of Northeastern Governors (CONEG) was designed to provide northeast state agencies with consistent specifications for source-separated compost. A CONEG task force developed model specifications with assistance from northeast state environmental and transportation agencies, private companies, trade groups, public interest organizations, and academic institutions with expertise in compost technology. The technical content of CONEG's model specifications reflects the best available knowledge of those who participated in the project. Drafts of the specifications were subjected to rigorous internal reviews by agencies of the northeastern states and concerned federal agencies. The consensus of the experts involved in the development of the specifications is that the heavy metals content of source-separated composts has been proven to be far below the U.S. Environmental Protection Agency's heavy metals standard. Therefore, a test for heavy metals content in source-separated composts is not required.

Providing an opportunity for contractor's to use source-separated compost to amend or manufacture topsoil used on Department projects is an element of the State's program to reduce or divert wastes that would otherwise have to be disposed of in landfills or elsewhere.

For your additional information, we have been advised by the Geotechnical Engineering Bureau that they are not able to test topsoil which has been amended with sewage sludge. Therefore, the testing section of 713-01 TOPSOIL has been revised. The revision requires that the Contractor must have topsoil amended with sewage sludge tested by an established Engineering or Agronomy firm which provides soils laboratory services. The testing shall be at the Contractor's sole expense.

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**PURPOSE.** This EI revises the English and Metric versions of Standard Specifications Sections 713-01 TOPSOIL and 713-15 ORGANIC MATERIAL.

### **TRANSMITTED SPECIFICATIONS.**

1. **TOPSOIL.** This revises 1990 and 1995 Standard Specification Section 713-01. The attached shelf notes will be incorporated into the next update of the Standard Specifications. Until that time, they will be inserts in contract proposals beginning with the effective date of this instruction for projects containing 611.xx, 612.xx and 613.0101 pay items.
2. **ORGANIC MATERIAL.** This amends 1990 and 1995 Standard Specification Section 713-15. The attached shelf notes will be incorporated into the next update of the Standard Specifications. Until that time, they will be inserts in contract proposals beginning with the effective date of this instruction for projects containing 611.xx, 612.xx and 613.0101 pay items.

**COST.** The implementation of these revised specifications will have little or no effect on the cost of topsoil or organic materials used to amend or manufacture topsoil. Contractors may continue to select from a variety of materials or methods in order to provide topsoil that meets the Department's specifications.

**CONTACT.** Questions regarding this Engineering Instruction should be directed to Gary Glath in the Landscape Architecture Bureau. He may be reached at 518-457-4460.

## 713-01 TOPSOIL

Make the following changes to the Standard Specifications of January 2, 1990:

Page 7-105

Under §713-01 delete the entire section 713-01 TOPSOIL and replace with the following:

## 713-01 TOPSOIL

**SCOPE.** This specification covers the material requirements for topsoil for use in turf and wildflower establishment, sodding or planting.

**MATERIAL REQUIREMENTS.** Topsoil may be naturally occurring or may be manufactured. Topsoil shall be free from refuse, material toxic or otherwise deleterious to plant growth, subsoil, woody vegetation and stumps, roots, brush, stones, clay lumps or similar objects. Manufactured topsoil shall consist of a mineral component and amendments to meet the specified organic content, pH and other requirements. Sod and herbaceous growth such as grass and weeds need not be removed but shall be thoroughly broken up and mixed with the soil during handling or manufacturing operations.

Topsoil shall meet the following requirements unless otherwise specifically stated in the contract documents:

1. The pH of the material shall be between 5.5 and 7.6.
2. The organic content shall be not less than 2% or more than 20%.
3. Gradation:

Sieve Size	Percent Passing by Weight
2 inches	100
1 inch	85 to 100
1/4 inch	65 to 100
No. 200 mesh	20 to 80

The maximum size of objects other than stones shall be 2 inches.

4. The Contractor may amend topsoil with approved materials and by approved methods to meet the above specifications. Materials used to amend the organic content of topsoil shall conform with the requirements of 713-15 Organic Material. Amendments shall not contain any material that is deleterious to soil structure, plant growth or seed germination.

**STOCKPILING.** Topsoil may be acquired from sites that are designated in the contract documents or approved by the Engineer. If no topsoil sites are designated in the contract documents, the material proposed for use as either naturally occurring topsoil or manufactured topsoil must be stockpiled, sampled and tested prior to its use. Topsoil deficient in organic content and/or pH may be used prior to amending and retesting only when used for turf and wildflower establishment or sodding.

Stockpiles shall contain not less than 200 cubic yards, or the minimum required for the contract, shall have a height of at least four feet unless otherwise approved, and shall be trimmed to uniform surfaces and slopes.

**SAMPLING.** Samples of naturally occurring topsoil, manufactured topsoil or amended soil mixture will be taken by a representative of the Department. Samples taken for topsoil that has been amended or manufactured with approved composted sewage sludge shall be identified as such. Topsoil containing foreign material may be rejected on the basis of a visual examination prior to testing. The topsoil sampling procedure shall be as required in the Department's "Sampling Procedures for Topsoil." Contractors may obtain copies of the procedures from the Engineer. Contractors who believe that an error was made in sampling the topsoil shall, within one work day, indicate the alleged error in writing to the Engineer.

**TESTING.** All material tests required by this section, except for the testing of composted sewage sludge and topsoil containing composted sewage sludge, will be done by the Department in conformance with the procedures contained in the appropriate Department publications or test methods current on the date of advertisement for bids.

Composted sewage sludge used to amend or manufacture topsoil shall conform to the applicable requirements of 713-15 Organic Material. Composted sewage sludge shall require a certificate, from a laboratory approved by the DEC, verifying compliance with all applicable laws, rules and regulations. The certification shall be supplied by the Contractor, at the Contractor's sole expense, and prior to the delivery of any composted sewage sludge, soil containing composted sewage sludge or other such regulated material to the contract site. The material shall be approved before it is used. A copy of the specifications shall be furnished to the laboratory by the Contractor.

Topsoil that has been amended with approved composted sewage sludge or other such regulated material shall be tested by an established Engineering or Agronomy firm which provides soils laboratory services. The test is to assure compliance with the pH, organic content and gradation requirements of this section. A copy of the specification and the Department's current test methods shall be furnished to the laboratory by the Contractor. The testing of topsoil amended with approved composted sewage sludge shall be done at the Contractor's sole expense. Samples shall be taken by a representative of the Department and the laboratory results shall be returned to the Regional Landscape Architect.

*The Contractor shall notify the Engineer of the intended source of the material at least three weeks in advance of the scheduled use of the material to allow time for sampling, shipping of the sample and testing.*

***BASIS OF ACCEPTANCE.*** *Acceptance of topsoil will be based upon the test results unless otherwise specified. Tested topsoil must be approved in writing by the Engineer before any material is used, except that topsoil used for establishing turf and wildflowers or sodding may be placed at the Contractor's option, prior to amending it to correct deficiencies in its organic content and/or pH. Acceptance of topsoil placed prior to correcting organic content and/or pH deficiencies will be based on retest results of samples taken after the placed topsoil has been amended.*

## 713 -01 TOPSOIL

Make the following changes to the Standard Specifications of January 2, 1995:

Page 7-135

Under §713-01 delete the entire section 713-01 TOPSOIL and replace with the following:

### 713-01 TOPSOIL

**SCOPE.** This specification covers the material requirements for topsoil for use in turf and wildflower establishment, sodding or planting.

**MATERIAL REQUIREMENTS.** Topsoil may be naturally occurring or may be manufactured. Topsoil shall be free from refuse, material toxic or otherwise deleterious to plant growth, subsoil, woody vegetation and stumps, roots, brush, stones, clay lumps or similar objects. Manufactured topsoil shall consist of a mineral component and amendments to meet the specified organic content, pH and other requirements. Sod and herbaceous growth such as grass and weeds need not be removed but shall be thoroughly broken up and mixed with the soil during handling or manufacturing operations.

Topsoil shall meet the following requirements unless otherwise specifically stated in the contract documents:

1. The pH of the material shall be between 5.5 and 7.6.
2. The organic content shall be not less than 2% or more than 20%.
3. Gradation:

Sieve Size	Percent Passing by Weight
50.0 mm	100
25.0 mm	85 to 100
6.3 mm	65 to 100
75 $\mu$ m	20 to 80

The maximum size of objects other than stones shall be 50.0 mm.

4. The Contractor may amend topsoil with approved materials and by approved methods to meet the above specifications. Materials used to amend the organic content of topsoil shall conform with the requirements of 713-15 Organic Material. Amendments shall not contain any material that is deleterious to soil structure, plant growth or seed germination.

**STOCKPILING.** Topsoil may be acquired from sites that are designated in the contract documents or approved by the Engineer. If no topsoil sites are designated in the contract documents, the material proposed for use as either naturally occurring topsoil or manufactured topsoil must be stockpiled, sampled and tested prior to its use. Topsoil deficient in organic content and/or pH may be used prior to amending and retesting only when used for turf and wildflower establishment or sodding.

Stockpiles shall contain not less than 150 cubic meters, or the minimum required for the contract, shall have a height of at least 1.2 meters unless otherwise approved, and shall be trimmed to uniform surfaces and slopes.

**SAMPLING.** Samples of naturally occurring topsoil, manufactured topsoil or amended soil mixture will be taken by a representative of the Department. Samples taken for topsoil that has been amended or manufactured with approved composted sewage sludge shall be identified as such. Topsoil containing foreign material may be rejected on the basis of a visual examination prior to testing. The topsoil sampling procedure shall be as required in the Department's "Sampling Procedures for Topsoil." Contractors may obtain copies of the procedures from the Engineer. Contractors who believe that an error was made in sampling the topsoil shall, within one work day, indicate the alleged error in writing to the Engineer.

**TESTING.** All material tests required by this section, except for the testing of composted sewage sludge and topsoil containing composted sewage sludge, will be done by the Department in conformance with the procedures contained in the appropriate Department publications or test methods current on the date of advertisement for bids.

Composted sewage sludge used to amend or manufacture topsoil shall conform to the applicable requirements of 713-15 Organic Material. Composted sewage sludge shall require a certificate, from a laboratory approved by the DEC, verifying compliance with all applicable laws, rules and regulations. The certification shall be supplied by the Contractor, at the Contractor's sole expense, and prior to the delivery of any composted sewage sludge, topsoil containing composted sewage sludge or other such regulated material to the contract site. The material shall be approved before it is used. A copy of the specifications shall be furnished to the laboratory by the Contractor.

Topsoil that has been amended with approved composted sewage sludge or other such regulated material shall be tested by an established Engineering or Agronomy firm which provides soils laboratory services. The test is to assure compliance with the pH, organic content and gradation requirements of this section. A copy of the specification and the Department's current test methods shall be furnished to the laboratory by the Contractor. The testing of topsoil amended with approved composted sewage sludge shall be done at the Contractor's sole expense. Samples shall be taken by a representative of the Department and the laboratory results shall be returned to the Regional Landscape Architect.

*The Contractor shall notify the Engineer of the intended source of the material at least three weeks in advance of the scheduled use of the material to allow time for sampling, shipping of the sample and testing.*

***BASIS OF ACCEPTANCE.*** *Acceptance of topsoil will be based upon the test results unless otherwise specified. Tested topsoil must be approved in writing by the Engineer before any material is used, except that topsoil used for establishing turf and wildflowers or sodding may be placed at the Contractor's option, prior to amending it to correct deficiencies in its organic content and/or pH. Acceptance of topsoil placed prior to correcting organic content and/or pH deficiencies will be based on retest results of samples taken after the placed topsoil has been amended.*

## **713-15 ORGANIC MATERIAL**

*Make the following changes to the Standard Specifications of January 2, 1990:*

*Page 7-112*

*Under §713-15 delete the entire section 713-15 ORGANIC MATERIAL (Addendum #1) and replace with the following:*

## **713-15 ORGANIC MATERIAL**

**SCOPE:** *This specification covers the material requirements for organic material used in conjunction with amending or manufacturing topsoil.*

**GENERAL.** *Organic materials regulated by the New York State Department of Environmental Conservation shall meet all applicable regulatory requirements.*

### **MATERIAL REQUIREMENTS**

**1. HUMUS OR PEAT.** *The material shall be commercially produced natural humus or peat from freshwater sources and may contain sedge peat, sphagnum peat or reed peat. The material shall be free from hard lumps, roots, stones and other objectionable materials. There shall be no admixture of refuse or material toxic to plant growth. It shall be in a shredded or granular form able to pass through a 1/2 inch sieve. According to methods of testing of A.O.A.C. in effect on the date of the invitation of bids, the acidity shall be not less than 3.5 pH and the organic matter shall be not less than 85% as determined by loss on ignition. The minimum water holding capacity shall be 200% by weight on an oven-dry basis.*

**2. PEAT MOSS.** *Peat moss shall be commercially produced and shall be composed of the partly decomposed stems and leaves of any or several species of sphagnum moss. It shall be free from wood, decomposed colloidal residue and other foreign matter. It shall have an acidity range of 3.5 pH to 5.5 pH as determined in accordance with methods of testing of A.O.A.C. in effect on the date of advertisement for bids. Its water absorbing ability shall be a minimum of 1100% by weight on an oven-dry basis.*

**3. SOURCE-SEPARATED COMPOST.** *Source-separated compost shall be commercially or municipally produced and shall be an organic substance produced by the biological and biochemical decomposition of source-separated compostable material that is separated at the point of waste generation. Source-separated compostable materials may include, but are not limited to, leaves and yard trimmings, food scraps, food processing residues, manure and/or other agricultural residuals, forest residues and bark, and soiled and/or unrecyclable paper.*

*Source-separated compost shall be reasonably free of sticks, stones, refuse, materials deleterious to soil structure, or any material toxic or detrimental to plant germination and growth. Source-separated compost shall also meet the following additional specifications:*

- A) Minimum organic matter shall be 30% (dry weight basis) as determined by loss on ignition;*
- B) Product shall be loose and friable, not dusty, and have a moisture content of 35% - 60%;*
- C) Particle size shall be < 1/2 inch.*
- D) Soluble salts content shall be < 4.0 mmhos/cm (ds/m);*
- E) Compost shall be stable to very stable according to the test method current on the date of advertisement for bids.*
- F) pH shall be between 6.0-8.0.*

**4. COMPOSTED SEWAGE SLUDGE.** *Composted sewage sludge is regulated by the New York State Department of Environmental Conservation (DEC) and must meet all applicable regulatory requirements.*

**5. TESTING.** *Source-separated compost will be subject to testing by the Department to assure it is stable.*

*Composted sewage sludge used to amend or manufacture topsoil shall require a certificate, from a laboratory approved by the DEC, verifying compliance with all applicable laws, rules and regulations. Only facilities permitted to compost sewage sludge under 6 NYCRR Part 360, SOLID WASTE MANAGEMENT FACILITIES, shall be allowed to furnish finished compost for use in topsoil. The certification shall be supplied by the Contractor, at the Contractor's sole expense, and prior to the delivery of any composted sewage sludge, topsoil containing composted sewage sludge or other such regulated material to the contract site. The material shall be approved before it is used. A copy of the specifications shall be furnished to the laboratory by the Contractor.*

**BASIS OF ACCEPTANCE.** *Acceptance of humus, peat and peat moss shall be based on the Producer's label or certificate of analysis by an established laboratory indicating compliance with the material requirements.*

*Acceptance of source-separated compost shall be based upon the Producer's label or certificate of analysis by an established laboratory indicating compliance with the material requirements; and a delivery inspection by the Engineer. Source-separated compost may be sampled and tested by the Department to assure compliance with the material requirements.*

*Acceptance of composted sewage sludge shall be based on certification by a DEC approved laboratory indicating compliance with the material requirements and all applicable regulations.*

## **713-15 ORGANIC MATERIAL**

*Make the following changes to the Standard Specifications of January 2, 1995:*

*Page 7-144*

*Under §713-15 delete the entire section 713-15 ORGANIC MATERIAL and replace with the following:*

## **713-15 ORGANIC MATERIAL**

**SCOPE:** *This specification covers the material requirements for organic material used in conjunction with amending or manufacturing topsoil.*

**GENERAL.** *Organic materials regulated by the New York State Department of Environmental Conservation shall meet all applicable regulatory requirements.*

### **MATERIAL REQUIREMENTS**

**1. HUMUS OR PEAT.** *The material shall be commercially produced natural humus or peat from freshwater sources and may contain sedge peat, sphagnum peat or reed peat. The material shall be free from hard lumps, roots, stones and other objectionable materials. There shall be no admixture of refuse or material toxic to plant growth. It shall be in a shredded or granular form able to pass through a 12.5 mm sieve. According to methods of testing of A.O.A.C. in effect on the date of the invitation of bids, the acidity shall be not less than 3.5 pH and the organic matter shall be not less than 85% as determined by loss on ignition. The minimum water holding capacity shall be 200% by weight on an oven-dry basis.*

**2. PEAT MOSS.** *Peat moss shall be commercially produced and shall be composed of the partly decomposed stems and leaves of any or several species of sphagnum moss. It shall be free from wood, decomposed colloidal residue and other foreign matter. It shall have an acidity range of 3.5 pH to 5.5 pH as determined in accordance with methods of testing of A.O.A.C. in effect on the date of advertisement for bids. Its water absorbing ability shall be a minimum of 1100% by weight on an oven-dry basis.*

**3. SOURCE-SEPARATED COMPOST.** *Source-separated compost shall be commercially or municipally produced and shall be an organic substance produced by the biological and biochemical decomposition of source-separated compostable material that is separated at the point of waste generation. Source-separated compostable materials may include, but are not limited to, leaves and yard trimmings, food scraps, food processing residues, manure and/or other agricultural residuals, forest residues and bark, and soiled and/or unrecyclable paper.*

*Source-separated compost shall be reasonably free of sticks, stones, refuse, materials deleterious to soil structure, or any material toxic or detrimental to plant germination and growth. Source-separated compost shall also meet the following additional specifications:*

- A) Minimum organic matter shall be 30% (dry weight basis) as determined by loss on ignition;*
- B) Product shall be loose and friable, not dusty, and have a moisture content of 35% - 60%;*
- C) Particle size shall be < 12.5 mm.*
- D) Soluble salts content shall be < 4.0 mmhos/cm (ds/m);*
- E) Compost shall be stable to very stable according to the test method current on the date of advertisement for bids.*
- F) pH shall be between 6.0-8.0.*

**4. COMPOSTED SEWAGE SLUDGE.** *Composted sewage sludge is regulated by the New York State Department of Environmental Conservation (DEC) and must meet all applicable regulatory requirements.*

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*Composted sewage sludge used to amend or manufacture topsoil require a certificate, from a laboratory approved by the DEC, verifying compliance with all applicable laws, rules and regulations. Only facilities permitted to compost sewage sludge under 6 NYCRR Part 360, SOLID WASTE MANAGEMENT FACILITIES, shall be allowed to furnish finished compost for use in topsoil. The certification shall be supplied by the Contractor, at the Contractor's sole expense, and prior to the delivery of any composted sewage sludge, topsoil containing composted sewage sludge or other such regulated material to the contract site. The material shall be approved before it is used. A copy of the specifications shall be furnished to the laboratory by the Contractor.*

**BASIS OF ACCEPTANCE.** *Acceptance of humus, peat and peat moss shall be based on the Producer's label or certificate of analysis by an established laboratory indicating compliance with the material requirements.*

*Acceptance of source-separated compost shall be based upon the Producer's label or certificate of analysis by an established laboratory indicating compliance with the material requirements; and a delivery inspection by the Engineer. Source-separated compost may be sampled and tested by the Department to assure compliance with the material requirements.*

*Acceptance of composted sewage sludge shall be based on certification by a DEC approved laboratory indicating compliance with the material requirements and all applicable regulations.*