APPENDIX F.3 TOPSOIL SPECIFICATION FOR VEGETATED STORMWATER SYSTEMS

The following specification is taken from the *2010 City of Portland Standard Construction Specifications,* as amended or corrected. Facilities include swales, planters, curb extensions, and basins.

(1) Standard Blend for Public and Private Facilities

NOTE: This specification is required for all public facilities and is recommended as a general guide for private facilities. Testing and submittals are not required for private facilities unless they are requested by the Bureau permitting the work.

SCS01040 (04-15-13 Excerpt) ***(This Section May Require SPP00415)***

01040.14 Topsoil - Furnish topsoil containing no substance detrimental to the growth of plants and that is free of plants designated by the Oregon Department of Agriculture as Type "A" or Type "B" weeds. Unsuitable topsoil, or topsoil placed by the Contractor without approval in areas to be planted, may be required to be replaced at no additional cost to the City.

(d) Stormwater Facility Topsoil - Furnish imported topsoil for vegetated stormwater facilities conforming to the following:

(1) Standard Blend for Public and Private Facilities - Use this blend for all vegetated stormwater management facilities.

a. General Composition - The material shall be any blend of loamy soil, sand, and compost that is 30-40% compost (by volume) and meets the other criteria in this specification.

b. Analysis Requirements for the Blended Material:

1. Particle Gradation - "A sieve analysis of the blended material, including compost, shall be conducted in conformance with ASTM C117/C136, AASHTO T11/T27, ASTM D422/D1140, or ASTM D6913." The analysis shall include the following sieve sizes: 1 inch, 3/8 inch, #4, #10, #20, #40, #60, #100, #200. The gradation of the blend shall meet the following gradation criteria.

Sieve Size	Percent Passing
1 inch	100
# 4	75 -100
# 10	40-100
# 40	15-50
# 100	5-25
# 200	5-15

The blend shall have a Coefficient of Uniformity (D60/D10) equal to or greater than 6 to ensure it is well graded (has a broad range of particle sizes). The coefficient is the ratio of two particle diameters on a grain-size distribution curve; it is the particle diameter at 60% passing divided by the particle diameter at 10% passing.

2. Acidity - The pH (Power of Hydrogen) of the blended material shall be tested and be between 6 to 8**.**

c. General Requirements for the Blended Material:

1. The material shall be loose and friable.

2. It shall be well mixed and homogenous.

3. It shall be free of wood pieces, plastic, and other foreign matter.

4. It shall have no visible free water.

d. Compost - The compost shall be derived from plant material and provided by a member of the US Composting Council Seal of Testing Assurance (STA) program. See www.compostingcouncil.org for a list of local providers.

The compost shall be the result of the biological degradation and transformation of plant-derived materials under conditions designed to promote aerobic decomposition. The material shall be well composted, free of viable weed seeds, and stable with regard to oxygen consumption and carbon dioxide generation. The compost shall have no visible free water and produce no dust when handled. It shall meet the following criteria, as reported by the US Composting Council STA Compost Technical Data Sheet provided by the vendor.

- 100% of the material must pass through a 1/2-inch screen.
- The pH of the material shall be between 6 and 8.
- Manufactured inert material (plastic, concrete, ceramics, metal, etc.) shall be less than 1.0% by weight.
- The organic matter content shall be between 30 and 70% (dry weight basis).
- Soluble salt content shall be less than 6.0 mmhos/cm.
- Maturity Indicator shall be greater than 80% for Germination and Vigor.
- Stability shall be ‘Stable’ to ‘Very Stable’.
- Carbon/Nitrogen (C/N) ratio shall be less than 25:1.
- Trace metals test result = “Pass.”

e. Submittals - At least 14 working days in advance of construction, submit the following:

1. Documentation for the two analyses described in section 01040.14(d)(1)(b) of this specification (particle gradation with calculated coefficient of uniformity; and pH) shall be performed by an accredited laboratory with certification maintained current. The date of the analyses shall be no more than 90 calendar days prior to the date of the submittal. The report shall include the following information:

- Name and address of the laboratory.
- Phone contact and e-mail address for the laboratory.
- Test data, including the date and name of the test procedure.

2. A compost technical data sheet from the compost vendor. The analysis and report must conform to the sampling and reporting requirements of the US Composting Council Seal of Testing Assurance (STA) program. The analysis shall be performed and reported by an approved independent STA program laboratory and be no more than 90 calendar days prior to the date of the submittal.

3. Two 5-gallon buckets of the blended material.

4. A description of the location, equipment, and method proposed to mix the material.

f. Stormwater Facility Topsoil Installation - See 01040.43(e).

Construction

01040.43 Topsoil:

(e) Stormwater Facility Topsoil Installation:

(1) Protection of the Topsoil - The material shall be protected from all sources of contamination, including weed seeds, while at the supplier, in conveyance, and at the project site.

(2) Placement of the Topsoil - The material shall be placed in loose lifts, not to exceed 8 inches each and each lift shall be compacted with a water-filled landscape roller. The material shall not otherwise be mechanically compacted**.**

(3) Timing of Plant Installation - Weather permitting and as approved, plants shall be installed as soon as possible after placing and grading the topsoil in order to minimize erosion and further compaction.

(4) Erosion Control - Temporary erosion control measures are required until permanent stabilization measures are functional.

(5) Protection of the Installed Topsoil - In all cases, the installed material must be protected from foot or equipment traffic and surface water runoff. Temporary fencing or walkways should be installed as needed to keep workers, pedestrians, and equipment out of the area. Under no circumstances should materials and equipment be stored on top of the installation area.

(6) Wet and Winter Conditions - Placement of the topsoil will not be allowed when the ground is frozen or saturated or when the weather is too wet as determined by the Owners Representative.