

PART 1 - GENERAL

1.1 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .1 The Canadian System of Soil Classification, Third Edition, 1998.
- .2 Canadian Council of Ministers of the Environment
 - .1 PN1340-2005, Guidelines for Compost Quality.
- .3 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

1.2 DEFINITIONS

- .1 Compost:
 - .1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.
 - .2 Compost is processed organic matter containing 40% or more organic matter as determined by Walkley-Black or Loss On Ignition (LOI) test.
 - .3 Product must be sufficiently decomposed (i.e. stable) so that any further decomposition does not adversely affect plant growth (C:N ratio below (25)), and contain no toxic or growth inhibiting contaminants.
 - .4 Composed bio-solids to: CCME Guidelines for Compost Quality, Category (A).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 LEED Submittals:
 - .1 Submit erosion and sedimentation control plan for Credit SSpl in accordance with LEED Canada-NC.

1.3 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .3 Quality control submittals :
 - .1 Soil testing: submit certified test reports showing compliance with specified performance characteristics and physical properties as described in PART 2 - SOURCE QUALITY CONTROL.
 - .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Divert unused soil amendments from landfill to official hazardous material collections site approved by Departmental Representative.
- .3 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 TOPSOIL

- .1 Topsoil for seeded areas and planting beds: mixture of particulates, micro organisms and organic matter which provides suitable medium for supporting intended plant growth.
 - .1 Soil texture based on The Canadian System of Soil Classification, to consist of 20 to 70 % sand, minimum 7 % clay, and contain 2 to 10 % organic matter by weight.
 - .2 Contain no toxic elements or growth inhibiting materials.
 - .3 Finished surface free from:
 - .1 Debris and stones over 50 mm diameter.
 - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.

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- 2.1 TOPSOIL .1 (Cont'd)
(Cont'd) .4 Consistence: friable when moist.
- 2.2 SOIL AMENDMENTS .1 Fertilizer:
.1 Fertility: major soil nutrients present
in following amounts:
.2 Nitrogen (N): 20 to 40 micrograms of
available N per gram of topsoil.
.3 Phosphorus (P): 40 to 50 micrograms of
phosphate per gram of topsoil.
.4 Potassium (K): 75 to 110 micrograms of
potassium per gram of topsoil.
.5 Calcium, magnesium, sulfur and
micro-nutrients present in balanced ratios to
support germination and/or establishment of
intended vegetation.
.6 Ph value: 6.5 to 8.0.
- .2 Peatmoss:
.1 Derived from partially decomposed
species of Sphagnum Mosses.
.2 Elastic and homogeneous, brown in
colour.
.3 Free of wood and deleterious material
which could prohibit growth.
.4 Shredded particle minimum size: 5 mm.
- .3 Sand: washed coarse silica sand, medium to
course textured.
- .4 Organic matter: compost Category A, in
accordance with CCME PN1340, unprocessed
organic matter, such as rotted manure, hay,
straw, bark residue or sawdust, meeting the
organic matter, stability and contaminant
requirements.
- .5 Use composts meeting Category B requirements
for land fill reclamation and large scale
industrial applications.
- .6 Limestone:
.1 Ground agricultural limestone.
.2 Gradation requirements: percentage
passing by weight, 90% passing 1.0 mm sieve,
50% passing 0.125 mm sieve.
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2.2 SOIL AMENDMENTS .7 Fertilizer: industry accepted standard medium
(Cont'd) containing nitrogen, phosphorous, potassium
and other micro-nutrients suitable to specific
plant species or application or defined by
soil test.

2.3 SOURCE QUALITY .1 Advise Departmental Representative of sources
CONTROL of topsoil and manufactured topsoil to be
utilized with sufficient lead time for
testing.

.2 Contractor is responsible for amendments to
supply topsoil as specified.

.3 Soil testing by recognized testing facility
for PH, P and K, and organic matter.

.4 Testing of topsoil will be carried out by
testing laboratory designated by Departmental
Representative. Costs of tests will be paid by
Departmental Representative in accordance with
Section 01 29 83 - Payment Procedures for
Testing Laboratory Services and Section 01 45
00 - Quality Control.
.1 Soil sampling, testing and analysis to
be in accordance with Provincial standards.

PART 3 - EXECUTION

3.1 TEMPORARY .1 Provide temporary erosion and sedimentation
EROSION AND control measures to prevent soil erosion and
SEDIMENTATION discharge of soil-bearing water runoff or
CONTROL airborne dust to adjacent properties and
walkways, according to sediment and erosion
control civil drawings.

.2 Inspect, repair, and maintain erosion and
sedimentation control measures during
construction until permanent vegetation has
been established.

.3 Remove erosion and sedimentation controls and
restore and stabilize areas disturbed during
removal.

3.2 STRIPPING OF
TOPSOIL

- .1 Begin topsoil stripping of areas as indicated after area has been cleared of unsuitable materials and removed from site.
- .2 Strip topsoil to depths as indicated.
 - .1 Avoid mixing topsoil with subsoil where textural quality will be moved outside acceptable range of intended application.
- .3 Stockpile in locations as directed by Departmental Representative.
 - .1 Stockpile height not to exceed 2 m.
- .4 Disposal of unused topsoil is to be in an environmentally responsible manner but not used as landfill.
- .5 Protect stockpiles from contamination and compaction.

3.3 PREPARATION OF
EXISTING GRADE

- .1 Verify that grades are correct.
 - .1 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.
 - .1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
 - .2 Remove debris which protrudes more than 75 mm above surface.
 - .3 Dispose of removed material off site.
- .4 Cultivate entire area which is to receive topsoil to minimum depth of 100 mm.
 - .1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

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- 3.4 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL
- .1 Place topsoil after Departmental Representative has accepted subgrade.
 - .2 Spread topsoil in uniform layers not exceeding 150 mm.
 - .3 For sodded areas keep topsoil 50/100 mm below finished grade.
 - .4 Spread topsoil as indicated to following minimum depths after settlement.
 - .1 150 mm for seeded areas.
 - .2 150 mm for sodded areas.
 - .3 500 mm for flower beds.
 - .4 500 mm for shrub beds.
 - .5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.
- 3.5 SOIL AMENDMENTS
- .1 For planting beds: apply and thoroughly mix soil amendments into full specified depth of topsoil at following rates:
 - .1 25% compost.
 - .2 25% peat moss.
 - .3 Slow release fertilizer, 10-10-10, once per season.
- 3.6 FINISH GRADING
- .1 Grade to eliminate rough spots and low areas and ensure positive drainage.
 - .1 Prepare loose friable bed by means of cultivation and subsequent raking.
 - .2 Consolidate topsoil to required bulk density using equipment approved by Departmental Representative.
 - .1 Leave surfaces smooth, uniform and firm against deep footprinting.
- 3.7 ACCEPTANCE
- .1 Departmental Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.
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TOPSOIL PLACEMENT AND
GRADING

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3.8 SURPLUS
MATERIAL

.1 Dispose of materials except topsoil not
required off site.

3.9 CLEANING

.1 Proceed in accordance with Section 01 74 11 -
Cleaning.

.2 Upon completion of installation, remove
surplus materials, rubbish, tools and
equipment barriers.

END
