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**SITE TOPSOIL & FINISH GRADING**

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**PART 1 GENERAL****1.1 Related Work**

- .1 Section [02311](#) Site Grading
- .2 Section [02315](#) Excavating, Trenching, & Backfilling
- .3 Section [02906](#) Planting of Trees, Shrubs, Ground Covers & Transplanting
- .4 Section [02924](#) Seeding
- .5 Section [02938](#) Sodding

**1.2 Source Quality Control****.1 Testing of Topsoil**

- .1 All topsoil to be used on park sites, sports fields, planting beds, trees etc. must be tested by an approved testing in accordance with General Requirements:

Section [01600](#) **Materials, Equipment and Workmanship Quality**  
Section [01450](#) **Quality Control & Inspection**

- .2 Test topsoil from source prior to stripping and stockpiling for :
  - .1 Particle size analysis (percentage of sand, silt and clay by Hydrometer Method).
  - .2 Organic matter, phosphorus (sodium bicarb), potassium, magnesium, calcium, soil pH, buffer pH, percent base saturation and calculated CEC. (Cation Exchange Capacity)
  - .3 Test for Sulphur, Zinc, Manganese, Iron, Copper, Boron and soluble salts content, and Atrazine.
- .3 Use 25mm diameter sampling tube or spade and in the presence of the Consultant, take twenty-five (25) samples per hectare to full depth of topsoil at random across entire area to be stripped. Mix samples together thoroughly before submitting for testing.
- .4 Submit 0.5 kg sample of topsoil to testing laboratory and indicate present use, intended use, type of subsoil and quality of drainage. Prepare and ship sample in accordance with provincial regulations and testing laboratory requirements.
- .5 The Contractor shall arrange for and assume all costs for such testing of topsoil imported to the site and the amendment

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recommendation report. For onsite topsoil stockpiles, unless otherwise provided for in this document, the tests and report shall be arranged and paid for by the Contractor. A City of Brampton Representative must be present for the sample selection. Submit two (2) copies of soil analysis and recommendations for corrections to sustain vigorous plant growth including recommended fertilizer applications to the Consultant prior to commencing of topsoil spreading and topsoil delivery.

- .6 Stockpiled topsoil will be amended by shredder as per the recommendations for corrections in the presence of the Consultant.
- .7 When the source of such topsoil is exhausted, topsoil from a new source shall not be used until tested and approved.
- .8 The Contractor has one (1) growing season from the time of soil testing to implementation on site. Any test result that is older than one (1) growing season may be asked to be retested at the discretion of the Consultant.

**1.3 Scheduling of Work**

- .1 Schedule placing of topsoil and finish grading to permit sodding or seeding operations under optimum conditions.

**PART 2 PRODUCTS****2.1 Materials**

- .1 Topsoil: friable, neither heavy clay nor of very light sandy nature consisting of the following, within 5% +/-: 45% sand, 35% silt, 20% clay and pH of 6.2 to 7.2. Free from subsoil, roots, vegetation, debris, toxic materials, stones over 50 mm diameter, containing four percent (4%) **minimum** organic matter for clay loams and two percent (2%) **minimum** organic matter for sandy loams and must be capable of sustaining vigorous plant growth.
- .2 All topsoil whether existing or imported topsoil for use under sodded areas shall be screened topsoil having passed through a 25mm size screen and ensure that it is free from:
  - .1 Debris and stones over 25 mm diameter.
  - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.

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- .3 Planting Soil for planting of trees, shrubs and ground covers from the stockpile shall be mechanically shredded and amended as per the soil analysis recommendations for corrections. Rototilling or mixing by other means is not acceptable.
- .4 Manure: Well-rotted, unleached cattle manure, free from harmful chemicals and other injurious substances and saw dust, shavings, or similar refuse, at least eight (8) months old, but not more than two (2) years old, and with no more than 25% straw, leaves or **other unacceptable materials** for planting use.
- .5 Peat Moss: Shall be partially decomposed fibrous or cellular stems and leaves of Sphagnum Mosses with a texture varying from porous fibrous to spongy fibrous, fairly elastic and substantially homogeneous with a pH value of not less than 4.5 and not greater than 6.0. It shall be baled and free of decomposed colloidal residue, wood, sulphur and iron, be brown in colour and finely shredded, suitable for horticultural purposes. Shredded particles shall not exceed 5 mm in size.
- .6 Fertilizer: All fertilizer and soil amendment materials and quality to meet recommendations and standards outlined in the soil testing report.

**PART 3 EXECUTION****3.1 Soil Preparation of Existing Grade**

- .1 Grade soil, eliminating uneven areas and depressions, ensuring positive drainage. Remove soil contaminated with toxic materials. Dispose of removed materials as directed by Consultant.
- .2 Cultivate entire area which is to receive topsoil to following depths:
  - .1 Sod: 150mm boulevard areas; 200mm building lots
  - .2 Seed: 150mm
  - .3 Flower beds: 300mm
  - .4 Shrub beds: 450mm
  - .5 Trees: as specified or as directed by the Consultant.
- .3 Repeat cultivation in those areas where equipment used for hauling and spreading has compacted soil.
- .4 Remove surface debris, roots, vegetation branches and stones in excess of 50 mm diameter.

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- .5 Special Conditions:
  - 1. Environmentally sensitive areas, wetlands, or natural heritage sites where existing soil conditions are sufficient to sustain additional plantings, the Consultant may request that plantings be installed in native, undisturbed soil.

**3.2 Soil Amendment Preparation**

- .1 The Consultant will accept three (3) means of soil amendment preparation for areas seeded, sodded, or planted. These means are as follows:
  - .1 Mixed and prepared by a mechanical shredder on site.
  - .2 Mixed and amended on the site.
  - .3 Pre-mixed soils imported to the site.
- .2 The Consultant will be responsible for reviewing soils during the preparation process and clarify in writing to the Owner that the final soil product(s) and installation conforms to the specification.

**3.3 Spreading of Topsoil or Planting Soil**

- .1 Spread topsoil after the Consultant has inspected and certified rough grading.
- .2 Spread topsoil with adequate moisture in uniform layers over approved, unfrozen subgrade, where, sodding or seeding is indicated. Irregularities in the surface resulting from topsoiling or other operations shall be corrected to avoid the formation of depressions causing standing water.
- .3 Apply topsoil to following minimum depths: 150mm for seeded areas, 100mm for sodded areas.
- .4 Apply planting soil to following **minimum** depths:
  - .1 Sod: 150mm boulevard areas; 200mm building lots.
  - .2 Seed: 150mm
  - .3 Flower beds: 300mm
  - .4 Shrub beds: 450mm
  - .5 Trees: as specified or as directed by the Consultant.
- 5. Manually spread topsoil or planting soil around existing trees, shrubs and obstacles.

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6. Where any portion of the surface becomes gullied or similarly damaged, the Contractor will repair affected area adding topsoil as necessary to restore to the satisfaction of the Consultant.
7. Contractor is to install and maintain erosion control fencing to prevent soil erosion.

**3.4 Soil Amendments**

- .1 Apply soil amendments at rate and number of applications as specified and as determined from soil test and report, including any maintenance recommendations.
- .2 Mix soil amendments into full depth of topsoil prior to application of fertilizer.

**3.5 Application for Fertilizer**

- .1 Spread fertilizer uniformly over entire area of topsoil at manufacturer's recommended timing and rate of application.
- .2 Mix fertilizer thoroughly to full depth of topsoil.

**3.6 Finish Grading**

- .1 Fine grade and loosen top soil. Eliminate rough spots and low areas to ensure positive drainage. Prepare loose friable bed by means of cultivation and subsequent raking.
- .2 Roll to consolidate topsoil for areas to be sodded leaving surface smooth, uniform, firm against deep foot printing, and with a fine loose, texture to approval of Consultant.

**3.7 Restoration of Stockpile Sites**

- .1 Restore stockpile sites to a 'rake clean' condition acceptable to the Consultant.

**3.8 Surplus Material**

- .1 Dispose of materials not required off site or as directed by the Consultant.

**END OF SECTION - 02911**