1 General

1.01 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 Version 1.0-[2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations (including Addendum [2007]).
- .2 LEED Canada-CI Version 1.0-[2007], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.

1.02 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 contaminates.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 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.

1.04 WASTE MANAGEMENT AND DISPOSAL

.1 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.

2 Products

2.01 TOPSOIL

.1 Topsoil for seeded areas: mixture of particulates, microorganisms and organic matter which provides suitable medium for supporting intended plant growth.
- .1 Contain no toxic elements or growth inhibiting materials.

.2 Finished surface 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.
.3 Consistence: friable when moist.
.4 Containing minimum of 4% organic matter for clay loams and 2% for sandy loams to maximum of 25% by volume, and having a pH of 5.5 to 7.5.
.5 Topsoil containing subsoil, roots, stones larger than 15 mm, weeds, couch grass, crabgrass or foreign objects is not acceptable

2.02 SOIL AMENDMENTS

.1 Limestone:
  .1 Ground agricultural limestone.
  .2 Gradation requirements: percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 0.125 mm sieve.

.2 Fertilizer: industry accepted standard medium containing nitrogen, phosphorous, potassium and other micro-nutrients suitable to specific plant species or application or defined by soil test.

2.03 SOURCE QUALITY CONTROL

.1 Advise Consultant of sources of 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 Consultant.
  .1 Soil sampling, testing and analysis to be in accordance with Provincial standards.

3 Execution

3.01 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

.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.

3.02 PREPARATION OF EXISTING GRADE

.1 Verify that grades are correct.

.2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.

.3 Remove debris, roots, branches, stones in excess of 25 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.

3.03 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

.1 Place topsoil after Consultant has accepted subgrade.

.2 Spread topsoil in uniform layers not exceeding 150 mm.

.3 For sodded areas keep topsoil 15 mm below finished grade.

.4 Spread topsoil [as indicated] to following minimum depths after settlement.
.1 150 mm for seeded areas.
.2 135 mm for sodded areas.
.3 300 mm for flower beds.
.4 500 mm for shrub beds.

.5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.04 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.

END OF SECTION

1 General

1.01 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for seed, and fertilizer.

.3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.02 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements:
- .1 Labelled bags of fertilizer identifying mass in kg, mix components and percentages, date of bagging, supplier's name and lot number.
- .2 Fertilizer must be dry.

.3 Storage and Handling Requirements:
- .1 Store fertilizer in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Replace defective or damaged materials with new.

1.03 WARRANTY

.1 For seeding, 12 months warranty period is extended to 1 full growing season.

.2 Contractor hereby warrants that seeding will remain free of defects in accordance with General Conditions CCDC GC 12.3, but for 1 full growing season.

.3 End-of-warranty inspection will be conducted by Consultant.

2 Products

2.01 GRASS SEED

.1 Canada "Certified" seed, "Canada No. 1 Lawn Grass Mixture" in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".
- .1 Grass seed mixture.
  - .1 Mixture composition:
    - .1 50% Kentucky Blue Grass.
    - .2 40% Creeping Fescue.
    - .3 10% Perennial Rye Grass
    - .4 [_____]% [_____].

.2 In packages individually labelled in accordance with "Seeds Regulations" and indicating name of supplier.

2.02 WATER

.1 Free of impurities that would inhibit germination and growth.

2.03 FERTILIZER

.1 To Canada "Fertilizers Act" and Regulations.

.2 Complete synthetic fertilizer with guaranteed minimum analysis as specified.

3 Execution

3.01 EXAMINATION

.1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for mechanical seeding installation in accordance with manufacturer's written instructions.
- .1 Inform Consultant of unacceptable conditions immediately upon discovery.
- .2 Proceed with installation only after unacceptable conditions have been remedied Consultant.

3.02 SEED BED PREPARATION

.1 Do not perform work under adverse field conditions as determined by Consultant.

.2 Remove and dispose of weeds; debris; stones 25 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials off site.

.3 Verify that grades are correct. If discrepancies occur, notify Consultant.

.4 Fine grade surface free of humps and hollows to smooth, even grade to elevations indicated to tolerance of plus or minus 15 mm, surface draining naturally.

.5 Cultivate fine graded surface approved by Consultant to 25 mm depth immediately prior to seeding.

3.03 SEED PLACEMENT

.1 Ensure seed is placed under supervision of certified Landscape Planting Supervisor.

.2 For mechanical seeding:
- .1 Mechanical landscape drill seeder ("Brillion" type or equivalent) which accurately places seed at specified depth and rate and rolls in single operation.
- .2 Use equipment and method acceptable to Consultant.

.3 For manual seeding:
- .1 Use manually operated drop seeder ("Cyclone" type or equivalent).
- .2 Use manually operated, water ballast, landscaping type, smooth steel drum roller. Ballast as directed by Consultant.

.4 On cultivated surfaces, sow seed uniformly at rate of:
- .1 2kg/100m2 lawn grass mixture.

.5 Blend applications 150 mm into adjacent grass areas to form uniform surfaces.

.6 Sow half of required amount of seed in one direction and remainder at right angles as applicable.

.7 Incorporate seed by light raking in cross directions.

.8 Consolidate mechanically seeded areas by rolling area if soil conditions warrant or if directed by Consultant with equipment approved by Consultant immediately after seeding.

3.04 CLEANING

.1 Progress Cleaning:
- .1 Leave Work area clean at end of each day.
- .2 Keep pavement and area adjacent to site clean and free from mud, dirt, and debris at all times.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .1 Clean and reinstate areas affected by Work.

3.05 PROTECTION

.1 Erect plastic snow fence around newly seeded areas sufficient to protect against deterioration due to pedestrian or other traffic.

3.06 MAINTENANCE DURING ESTABLISHMENT PERIOD

.1 Ensure maintenance is carried out under supervision of certified Landscape Maintenance Supervisor.

.2 Perform following operations from time of seed application until acceptance by Consultant:
- .1 Water seeded area to maintain optimum soil moisture level for germination and continued growth of grass. Control watering to prevent washouts.
- .2 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.
- .3 Cut grass to 50 mm whenever it reaches height of 70 mm. Remove clippings which will smother grass [as directed by Consultant.
- .4 Fertilize seeded areas after first cutting. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.
- .5 Control weeds by mechanical or chemical means utilizing acceptable integrated pest management practices.
- .6 Adjust protection barrier as necessary to protect against deterioration due to pedestrian or other traffic as needed.

3.07 FINAL ACCEPTANCE

.1 Seeded areas will be accepted by Consultant provided that:
- .1 Areas are uniformly established free of rutted, eroded, bare or dead spots and extent of weeds apparent in grass is acceptable.
- .2 Areas have been cut at least twice.
- .3 Areas have been fertilized.

.2 Areas seeded in fall will be accepted in following spring, one month after start of growing season provided acceptance conditions are fulfilled.

3.08 MAINTENANCE DURING WARRANTY PERIOD

.1 Perform following operations from time of acceptance until end of warranty period.
- .1 Water seeded area to maintain optimum soil moisture level for continued growth of

grass. Control watering to prevent washouts.

.2 Repair and reseed dead or bare spots to satisfaction of Consultant.

.3 Cut grass to 50 mm whenever it reaches height of 70 mm. Remove clippings which will smother grass Consultant.

.4 Fertilize seeded areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.

.5 Control weeds by mechanical or chemical means utilizing acceptable integrated pest management practices.

END OF SECTION