

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 32 91 19.13 – Topsoil Placement and Grading

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Scheduling:
 - .1 Schedule hydraulic seeding to coincide with preparation of soil surface.
 - .2 Schedule seeding immediately following spreading of topsoil.
 - .3 Unless otherwise indicated, schedule seeding period after the last frost and the end of June (spring) and between mid-August and mid-September (fall).

1.3 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, mulch, tackifier, fertilizer, liquid soil amendments and micronutrients.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures and 01 35 29.06 - Health and Safety Requirements.
- .3 Submit in writing information below seven (7) days before the works begin.
 - .1 Volume capacity of hydraulic seeder in litres.
 - .2 Amount of material to be used per tank based on volume.
- .4 Samples:
 - .1 Submit 0.5 kg container of each type of seedling used.

1.4 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Landscape Contractor: to be a Member in Good Standing of Horticultural Trades Association.

1.5 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 Inoculant containers to be tagged with expiry date.
- .3 Storage and Handling Requirements:

- .1 Store fertilizer in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Replace defective or damaged materials with new.

1.6 WARRANTY

- .1 For seeding, 12 months warranty period is extended to one (1) full growing season.
- .2 End-of-warranty inspection will be conducted by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Seed: "Canada pedigreed grade" in accordance with Government of Canada Seeds Act and Regulations.
 - .1 Grass mixture: "Certified", "Canada No. 1 Lawn Grass Mixture" in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".
 - .1 Mixture composition for Gramisel seeding:

.1	25.00 %	Festuca rubra
.2	18.00 %	Beckmannia syzigachne
.3	18.00 %	Lolium perenne
.4	10,50 %	Elymus canadensis
.5	10.00 %	Lolium multiflorum
.6	8.50 %	Puccinellia distans
.7	4.50 %	Leymus mollis (Elymus arenarius)
.8	2.00 %	Agrostis stolonifera
.9	2.00 %	Poa pratensis
.10	1.50 %	Poa compressa
- .2 Mulch: specially manufactured for use in hydraulic seeding equipment, non-toxic, water activated, green colouring, free of germination and growth inhibiting factors with following properties:
 - .1 Type I mulch:
 - .1 Made from wood cellulose fibre.
 - .2 Organic matter content: 95% plus or minus 0.5%.
 - .3 Value of pH: 6.0.
 - .4 Potential water absorption: 900%.
- .3 Tackifier: water soluble vegetable carbohydrate powder ou water dilutable, liquid dispersion.
- .4 Water: free of impurities that would inhibit germination and growth.
- .5 Fertilizer:
 - .1 Conform to Canada "Fertilizers Act" and Regulations.

- .2 Complete synthetic, slow release with 35% of nitrogen content in water-insoluble form.
- .6 Inoculants: inoculant containers to be tagged with expiry date.
- .7 Liquid Soil Amendment and Micronutrients: Conform to Section 32 91 19.13 – Topsoil Placement and Grading.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for hydraulic seeding in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLERS

- .1 Use installers members in Good Standing of Horticultural Trades Association.

3.3 PREPARATION OF SURFACES

- .1 Do not perform work under adverse field conditions such as wind speeds over 10 km/h, frozen ground or ground covered with snow, ice or standing water.
- .2 Fine grade areas to be seeded free of humps and hollows.
 - .1 Ensure areas are free of deleterious and refuse materials.
- .3 Cultivated areas identified as requiring cultivation to depth of 25 mm.
- .4 Ensure areas to be seeded are moist to depth of 100 mm before seeding.
- .5 Obtain Departmental Representative's approval of grade and topsoil depth before starting to seed.

3.4 FERTILIZING PROGRAM

- .1 Fertilize prior to fine grading applying fertilizer equally distributed in accordance with manufacturer's recommendations.

3.5 PREPARATION OF SLURRY

- .1 Measure quantities of materials by weight or weight-calibrated volume measurement satisfactory to Departmental Representative. Supply equipment required for this work.
- .2 Charge required water into seeder. Add material into hydraulic seeder under agitation. Pulverize mulch and charge slowly into seeder.

- .3 After materials are in seeder and well mixed, charge tackifier into seeder and mix thoroughly to complete slurry.

3.6 SLURRY APPLICATION

- .1 Ensure seed is placed under supervision of certified Landscape Planting Supervisor.
- .2 Hydraulic seeding equipment:
 - .1 Slurry tank.
 - .2 Agitation system for slurry to be capable of operating during charging of tank and during seeding, consisting of recirculation of slurry and/or mechanical agitation method.
 - .3 Capable of seeding by 50 m hand operated hoses and appropriate nozzles.
 - .4 Tank volume to be certified by certifying authority and identified by authorities "Volume Certification Plate".
- .3 Slurry mixture applied per hectare, unless otherwise stated.
 - .1 Seed: grass mixture as specified in the paragraph – Materials, 2.5 kg to 100m² (250 kg/ha).
 - .2 Tackifier: 80 kg or as recommended by manufacturer.
 - .3 Water: Minimum 10,000 L or as recommended by manufacturer.
 - .4 Fertilizer: 50 kg or as recommended by manufacturer.
 - .5 Mulch: Type I, 3000 kg
- .4 Apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed.
 - .1 Using correct nozzle for application.
 - .2 Using hoses for surfaces difficult to reach and to control application.
- .5 Re-apply where application is not uniform.
- .6 Remove slurry from items and areas not designated to be sprayed.

3.7 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - 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 in accordance with Section 01 74 11 - Cleaning.
 - .1 Clean and reinstate areas affected by Work.

3.8 PROTECTION

- .1 Protect seeded areas from trespass until plants are established.
- .2 Remove protection devices as directed by Departmental Representative.

3.9 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 Departmental Representative.
- .3 Grass Mixture:
 - .1 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.
 - .2 Mow grasses to 150 mm whenever it reaches height of 450 mm or as recommended by Departmental Representative.
 - .3 Water seeded area to maintain optimum soil moisture level for germination and continued growth of grass. Control watering to prevent washouts.

3.10 ACCEPTANCE

- .1 Seeded areas will be accepted by Departmental Representative provided that:
 - .1 Grasses are uniformly established. Seeded areas are free of rutted, eroded, bare or dead spots.
 - .2 Areas have been mown at least once (1).
- .2 Areas seeded in fall will achieve final acceptance in following spring, one month after start of growing season provided acceptance conditions are fulfilled.

3.11 MAINTENANCE DURING WARRANTY PERIOD

- .1 Perform following operations from time of acceptance until end of warranty period:
 - .1 Repair and reseed dead or bare spots to satisfaction of Departmental Representative.

END OF SECTION