

1.0 GENERAL

1.1 Scope

- .1 This guideline addresses the materials, methodology and services necessary for complete installation of seeded or hydro-seeded lawns and meadows, which includes the control of noxious and pernicious weeds within seeded lawns and meadows.

1.2 Related Work

- .1 Related Work in Other Sections:

- .1 Section 32 80 00 Irrigation
- .2 Section 32 91 00 Planting Preparation
- .3 Section 32 93 00 Plants

1.3 Pertinent Standards and Legislation

- .1 Conform to the requirements of the latest editions of the following standards and legislation:

- .1 British Columbia Landscape Standard – Current Edition
- .2 British Columbia Standard for Turfgrass Sod
- .3 British Columbia Weed Control Act
- .4 Canada Seed and Fertilizer Act
- .5 Canada Pest Control Products Act

1.4 Submittals

- .1 Provide Project landscape Architect and UBCO Facilities Manager of Landscape and Building Services with guaranteed analysis of the seed mixtures. Submit specification data of seed prior to installation. Submit soil analysis of growing medium with seed specification data.
- .2 Provide sample product label and a sample of seed to the Project Landscape Architect and UBCO Facilities Manager of Landscape and Building Services.

1.5 Inspections and Approvals

- .1 Notify Project Landscape Architect, UBCO Facilities Manager of Landscape and Building Services at least forty-eight (48) hours before seeding or hydro-seeding for inspection of finished grades. All lawn and grass installations are subject to inspection and may be rejected for failure to comply with contract specifications at any time until Total Performance. Reseeding of deficient areas shall be done at no expense to UBC.
- .2 Notify Project Landscape Architect, UBCO Facilities Manager of Landscape and Building Services as required by project type, at the completion of work for an inspection for Substantial Performance.
- .3 Final inspection of seeded lawns and meadows will be made at the end of the specified warranty period. For release from the Contract, all lawns and meadows must be alive and in a healthy, satisfactory growing condition at the time of inspection. The Project Landscape Architect and UBCO Facilities Manager of Landscape and Building Services reserve the right to extend the Contractor's responsibility for another growing season, if in his/her opinion, development and growth of lawn and meadows is not sufficient to ensure satisfactory future growth.

- .4 The UBCO Facilities Manager of Landscape and Building Services at his/her discretion may waive one or more inspections, but this shall not impair the right of the UBCO Facilities Manager of Landscape and Building Services to inspect work or materials which have been damaged or in any way do not conform to the contract specifications.
- .5 Contractor to be present during all required inspections as specified or as may be required by the UBCO Facilities Manager of Landscape and Building Services.

2.0 MATERIALS AND DESIGN REQUIREMENTS

2.1 Product Handling

- .1 Deliver seed and hydro-mulch in original, labeled, and undamaged containers. During shipping, storage and installation, protect seed and hydro-mulch materials against moisture.

2.2 Protection

- .1 Protect all seeded areas against trespassing, and from pedestrian or vehicular damage at all times until Acceptance. If any seeded areas are damaged, they shall be repaired by the Contractor as required.

2.3 Approved Equals

- .1 All seed mixes and hydro-mulches as specified or pre-approved equals.

2.4 Warranty

- .1 All workmanship and materials covered under Work of this Section shall be warrantied for a period of one (1) full year from the date of Substantial Performance.

2.5 Materials

- .1 Fertilizer shall be as recommended for season of application (as per industry standards).
- .2 Dolomite Lime: Shall be finely and uniformly ground containing not less than 90% calcium carbonate.
- .3 Lawn and Meadow Seed:
 - .1 Seed mixtures shall be suited to the climate, growing medium, site orientation, sun exposure, terrain, establishment and lawn class designation or intended use under which they are to be grown.
 - .2 Selections of seed mixtures should take into account the current infestations and impacts of Chaffer Beetle and associated damages by crows and raccoons. Seed mixtures may be available which inhibit the proliferation of this pest. Designing with alternate groundcover or planting should also be considered. Consult with authorities, seed suppliers and UBCO Facilities Manager of Landscape and Building Services as required.
 - .3 Seed shall have a minimum germination rate of 75% and minimum purity of 97% except where otherwise required by the professional selecting such seed.
 - .4 Professional consultation is required in selecting or designing special purpose mixes for naturalizing or restoration purposes.

- .5 The seed mixture shall be mixed, labeled and supplied by a recognized seed supplier. Labels shall include complete details including species names germination percentages, purity of analysis, year of production, and contact info for supplier.

2.6 Hydro-Seeding Materials

- .1 Hydro-mulch materials shall consist of a mixture of fiber, seed, fertilizer and water designed for hydro-seeding and dyed for ease of monitoring application.
- .2 Hydro-mulch shall contain no growth or germination inhibiting factors, be dry, be free of invasive and other foreign materials.
- .3 Hydro-mulch shall be supplied in packages bearing the manufacturers label clearly indicating weight and product name.
- .4 Fiber should be coloured, fibrous, wood cellulose or paper based mulch, not containing any growth or germination inhibitors and shall be manufactured so that it will form a uniformly suspended homogeneous slurry when added to the fertilizer, seed and water in a tank when agitated.
- .5 When applied, the hydro-mulch shall be applied uniformly and in such a manner as to prevent puddling and movement of the soil surface and be capable of forming an absorptive mat, which will allow moisture to percolate into the underlying soil.
- .6 Hydro-mulch may contain a colloidal polythacuride (or equivalent) industry accepted, non-asphaltic, tackifier for adhesion to the mulch material to form a mat on slopes as erosion control, and to avoid chemical agglomeration during mixing in the hydro-mulching equipment.

2.7 Fertilizer

- .1 Apply fertilizer at manufacturers' recommended rates. Ensure equal distribution. Mix into top 50 mm. (2") of growing medium by disking, raking or harrowing. Application of fertilizer shall be 48 hours before seeding lawns.

2.8 Liming

- .1 Add lime as required to ensure pH 6.0 to 6.5. Mix into full depth of growing medium. Coordinate with soils analysis.

2.9 Subgrade Preparation and Finishing

- .1 Obtain approval of Project Landscape Architect and UBCO Facilities Manager of Landscape and Building Services of subgrade and growing medium prior to seeding of lawns or grasses. Ensure that growing medium is placed to required depths and tolerances as specified and detailed in the Contract Documents and spread evenly over the approved subgrade. Ensure the growing medium is firm against footprints, loose in texture and free of all stones, roots branches etc. as required under Section 32 91 00 Planting Preparation.
- .2 Where lawns interface with drip-strips or the like in close proximity to building façades, design should account for potential soiling of glass and painted surfaces with grass clippings. Therefore, baffles, extrusions or other design details should be considered to minimize or alleviate this impact.
- .3 Ensure finish grade surfaces are tamped with roller before seeding, and finish grades are congruent with project drawings as specified.
- .4 Grades:

- .1 Lawns and grass areas must be graded at slopes safe for mowing by maintenance crews and safe for all other Campus users. Maximum allowable slope for lawns is 5:1. Slopes over 5:1 are only permitted where pre-approved by Campus Landscape Architect in consultation with UBCO Facilities Manager of Landscape and Building Services. (See also Section 31 22 00 Grading, 1.1.1)
- .2 Areas to be seeded shall be at grades as shown at the time of seeding.
- .3 Restore all areas to be seeded which are misshapen or eroded to original specified condition, grade and slope as directed just prior to seeding. Minor adjustment and refinement of finish grade to be made as directed by the UBCO Facilities Manager of Landscape and Building Services.
- .4 Crown or slope for surface drainage and eliminate all low spots or depressions.
- .5 If the surface of the growing medium is dry, lightly moisten the growing medium immediately prior to seeding.

2.10 Seeding

- .1 Scheduling:
 - .1 Seeding should be carried out during periods when seasonal conditions are likely to ensure successful germination and continued growth of all species in seed in the grass mix.
 - .2 All seeding should be conducted during calm weather, and shall be done on soil that is free of ground frost, snow, and standing water.
 - .3 Hydro-seeding shall not be carried out during periods of moderate to heavy rainfall.
- .2 Methods
 - .1 Seed shall be applied by mechanical dry seeding, hydro-seeding or as specified for designated areas within the site(s) to be developed.
 - .2 All seeding should be conducted during calm weather, and shall be done on soil that is free of ground frost, snow, and standing water.
 - .3 Hand seeding shall only be carried out when patching limited areas of lawns or where site conditions preclude the above two methods.
- .3 Rates of Application
 - .1 Rates of application of seed species mixtures, hydro-mulch and other components shall be based on analysis of season, climate, terrain, growing media and establishment and maintenance conditions for intended use.
- .4 Mechanical Dry Seeding
 - .1 Fertilizer, if required, shall be uniformly applied at the rate required and worked well into topsoil by hand cultivating, raking or disk ing and harrowing to a minimum depth of 5cm (2in).
 - .2 All grass seed, nurse crop seed and fertilizer shall be measured accurately prior to application.

- .3 Seed and fertilizers shall be applied evenly by means of an accurately calibrated, approved mechanical dry seeder at the rate required, or as specified.
- .4 Seed shall be applied in two intersecting directions, except where conditions dictate seeding in one direction only.
- .5 Seeded areas shall be lightly raked and rolled after seeding to ensure good contact between seed and growing medium.
- .6 Mulch may be applied with seed or spread manually following seeding, or with an approved mulcher. Straw mulches must be free of hay, foreign seeds or contaminants detrimental to seed growth and establishment. No area shall be seeded that cannot also be mulched on the same day. The mulch shall be applied to form a uniform mat over the entire area.

2.11 Hydro-Seeding

- .1 The quantities of each of the materials to be charged into the hydro-seeder / mulcher tank shall be accurately measured whether by mass or by mass-calibrated volume measurements.
- .2 Materials for hydro-seeding shall be added to the tank while it is being filled with water, and in the following sequence: seed, fertilizer, and where applicable, fibrous materials.
- .3 Materials shall be thoroughly mixed and agitated into a homogeneous water slurry in the various combinations as described and specified, and shall be distributed according to recommended seed-sowing rates to uniformly cover the surface area with the hydro-seeder / mulcher.
- .4 Hydro-seeding equipment shall:
 - .1 have the tank volume certified by an identification plate or sticker that shall be affixed in plain view on the equipment and shall not be removed or altered.
 - .2 be thoroughly cleaned prior to any and all seeding applications.
 - .3 be capable of sufficient agitation to mix the materials into a homogeneous slurry and to maintain the slurry in a homogeneous state until it is applied.
- .5 After charging, no water or other material shall be added to the mixture in the hydro-mulcher.
- .6 Water slurry and other components should not be left in the tank for more than four hours unless required for specific purposes of application.
- .7 Wildflower seed mix, if required, should be applied prior to or during grass hydro-seeding.
- .8 The wildflower seed mix shall be such that it meets the requirements of the Seed Act and be free of any invasive plant species or potentially invasive pernicious weeds.
- .9 Hydro-seeding shall be done with care to ensure that the fertilizer in solution does not come in contact with the foliage of any trees, shrubs or other susceptible vegetation. Seed or mulch shall not be sprayed in areas or on objects not expected to grow grass.
- .10 Existing site equipment, roadways, landscaping, reference points, monuments, markers, structures and vehicles shall be protected as required from over-spray damage.
- .11 Over-spray or damage that occurs during hydro-seeding shall be rectified by the Contractor at no expense to UBCO.

.12 Temporary fencing, barriers, barricades or signage shall be provided and maintained to protect newly seeded areas from damage including but not limited to, erosion, pedestrian and vehicular traffic or wildlife.

2.12 Maintenance

- .1 Refer to Section 32 01 90 Operation and Maintenance of Planting for complete maintenance guidelines.
- .2 The maintenance period begins at the time lawns and meadows are planted and continues for 55 days from the date of Substantial Performance.
- .3 Maintenance shall consist of all measures necessary to keep grass healthy, in a vigorous growing condition and well rooted into the underlying soil. Maintenance shall include, but shall not be limited to the following:
 - .4 Maintenance of Lawn Areas:
 - .1 Mowing: Once fully established, mow out at regular intervals as required to maintain grass at a standard maximum height of 60mm (2-1/2"). Not more than 1/3 of the blade shall be cut at any one mowing. Heavy clippings shall be removed immediately after mowing and trimming.
 - .2 Edging / Trimming: All lawn perimeters and around walkways, curbs, walls, bed edging, utilities and other fixtures shall be edged and trimmed at each mowing or at intervals sufficient to maintain a crisp and neat appearance. Absolutely do not use line trimmers around trees and shrubs. Sprinkler heads shall be trimmed to clear as often as necessary to keep them operating properly. The hard surface areas adjacent to the lawns shall be swept and cleaned after each operation.
 - .3 Fertilizing: Post-establishment fertilizer shall follow initial mowing and shall be carried out when grass is dry. Unless otherwise specified, use fertilizer that will provide at least 0.45kg/92.9 sq. m. (1 lb/1000 sq. ft.) of lawn area.
 - .4 Watering shall be carried out when required and with sufficient quantities to prevent grass and underlying growing medium from drying out.
 - .5 Rolling shall be carried out when required to remove any minor depressions or irregularities.
 - .6 Weed control shall be carried out before the density of weeds reaches 10 broadleaf weeds or 50 annual weedy grasses per 37 sq. M. (400 square feet).
 - .7 Weed control shall reduce the density of weeds to zero or near zero as dictated by intended use and lawn class (see Canadian Landscape Standard).
 - .8 Any lawn areas showing deterioration or bare spots shall be repaired immediately. All areas showing shrinkage due to lack of watering shall be top dressed and seeded with a seed mix matching the original seed mix.
 - .9 All lawn areas shall be adequately protected with warning signs and fencing as directed by Project Landscape Architect. Fencing shall be maintained in good condition to provide a continuous barrier until Acceptance. Except as otherwise required by the work of the Contract, the fencing shall be removed from the site only upon Acceptance.

- .10 Clean-up: Clean-up shall include removal of clippings from all walks, curbs and other paving.
- .5 Maintenance of Meadow Areas:
 - .1 Mowing: Once fully established, mow one time per year after seed has dried on mature plants – i.e. end of September through to mid-October. Additional mowings may be supplemented as required by site location, site condition, site usage, vigor and growth rate of meadow mix. Do not mow if the soil and meadow area are wet. Let clippings fall but clean all clippings from hard surface areas. During the growing season, unless otherwise specified, mow 1.5 meter width next to walkways, plazas, parking areas and roadways for a more tidy appearance.
 - .2 Edging / Trimming: Unless otherwise specified, all meadow perimeters and around walkways, curbs, walls, bed edging, utilities and other fixtures shall be edged and trimmed at each mowing or at intervals sufficient to maintain a crisp and neat appearance. Absolutely do not use line trimmers around trees and shrubs. Sprinkler heads shall be trimmed to clear as often as necessary to keep them operating properly. The hard surface areas adjacent to the meadows shall be swept and cleaned after each operation.
 - .3 Fertilizing: No fertilizer shall be used on meadows unless otherwise specified for special site or conditions.
 - .4 Watering shall be carried out only to ensure proper establishment of meadow and if required with sufficient quantities to prevent grass and underlying growing medium from drying out. Otherwise, post-establishment meadows should not require watering.
 - .5 Any meadow areas showing deterioration or bare spots shall be repaired immediately. All areas showing shrinkage due to lack of watering during establishment period shall be top dressed and seeded with a seed mix matching the original seed mix.
 - .6 Weed Control: the use of toxic pesticides for cosmetic purposes has been suspended on UBC Campus. Manual weed control is the preferred method and may be the only permitted methodology. Remove and replace significantly affected lawn and meadow areas. Consult with Project Landscape Architect and UBCO Facilities Manager of Landscape and Building Services for approval of any alternative organic weed control substances or methodologies.
 - .7 All meadow areas shall be adequately protected with warning signs and fencing as directed by Project Landscape Architect. Fencing shall be maintained in good condition to provide a continuous barrier until Acceptance. Except as otherwise required by the work of the Contract, the fencing shall be removed from the site only upon Acceptance.
 - .8 Maintenance clean-up: Clean-up shall include removal of clippings from all walks, curbs and other paving.

2.13 Clean-Up

- .1 All excess materials and other debris resulting from site development and seeding operations shall be removed from the job site.

*****END OF SECTION*****