

**CONSTRUCTION SPECIFICATION FOR
DIRECT SEEDING**

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TS 5.20.01 SCOPE

This specification describes the requirements for the supply of all labour, materials, tools, and maintenance services related to direct seeding.

TS 5.20.02 REFERENCES

This specification refers to the following specifications and publications:

City of Toronto Specifications

TS 5.10 - Construction Specification for Topsoil

TS 5.20.03 DEFINITIONS – Not Used

TS 5.20.04 SUBMISSION AND DESIGN REQUIREMENTS

Seeding shall be conducted by qualified contractors with over 3 years of experience in direct seeding and hydromulching. Qualifications including description of previous work and recommendations from owners of previous work performed by the seeding contractors are to be submitted to the City prior to commencing the work under this section.

Confirm optimum seed mix option, with the City, in writing before commencing the work in this section.

TS 5.20.05 MATERIALS

TS 5.20.05.01 Topsoil

All topsoil shall conform to TS 5.10.

TS 5.20.05.02 Seed

Seed shall meet the requirements of the Seeds Act for Canada, No. 1 Seed, and shall and shall be guaranteed to be of this quality by the supplier. All quantity percentages indicate seed volume only. Seed Mix Options are listed below.

TS 5.20.05.02.01 Seed Mix for Upland Meadows

- (a) Nurse crop of oats or barley
- (b) Nature's Upland Meadow Seed mixture as supplied by PICKSEED or approved equal containing the following species by percentage of volume:
 - 15% Algonquin Alfalfa

5%	Florex Red Clover
5%	White Clover
10%	Birdsfoot Trefoil
10%	Sweet Clover
15%	Creeping Red Fescue
8%	Meadow Fescue
7%	Tournament Hard Fescue
5%	Highland Colonial Bentgrass
10%	Nugget Kentucky Bluegrass
10%	Fiesta Perennial Ryegrass

TS 5.20.05.02.02 Seed Mix for Steep Valley Slopes

25%	Pickseed Perennial Rye - "low grow"
25%	Pickseed Hard Fescue - "Spartan"
10%	Yarrow
10%	Arctic Poppy
20%	Black-eyed Susan
10%	Birdsfoot Trefoil with inoculant

TS 5.20.05.02.03 Seed Mix for Wildflower and Grass

45% Grass seed varieties:

Andropogon scoparium	- Little Bluestem
Elmus canadensis	- Prairie Wild Rye
Bouteloua curtipendula	- Side Oats Grama
Festuca elatior	- Meadow Fescue

45% Forb seed varieties:

Aster azureus	- Sky Blue Aster
Aster laevis	- Smooth Blue Aster
Aster ericoides	- Heath Aster
Aster novae-angliae	- New England Aster
Apocynum cannabinum	- Indian Hemp
Echinacea purpurea	- Purple Coneflower
Lespedeza capitata	- Round-Headed Bush Clover
Ratibida pinnata	- Gray-Headed Cornflower
Lupinus perennis	- Perennial Lupine
Baptisia australis	- Blue Wild indigo
Monarda fistulosa	- Wild Bergamot
Monarda punctata	- Spotted Horse Mint
Oenothera speciosa	- White Evening Primrose
Oenothera fruticosa	- Sundrops

Penstemon hirsutus	- Hairy Penstemoa
Pycnanthemum virginianum	- Mountain Mint
Liatrix cylindracea	- Dwarf Blazingstar
Liatrix pchnostachia	- Prairie Blazingstar
Verbina hastata	- Blue Verbena
Verbina canadensis	- Rose Verbena
Verbina rigida	- Rigid Verbena

10% Annual seed varieties:

Coreopsis lanceolata	- Lance-Leaved Coreopsis
Gaillardia aristata	- Blanket Flower
Gaillardia pulchella	- Indian Blanket
Oenothera biennis	- Common Evening Primrose
Rubeckia hirta	- Black-Eyed Susan
Chrysanthemum leucanthemum-	Ox-Eye Daisy

TS 5.20.05.02.04 Seed Mix for Wildflowers

5%	Iceland Poppy
5%	Yarrow
5%	Black Eye Susan
5%	Wild Bergamot
10%	Prairie Blazing Star
10%	Lance Leaf Coreopsis
10%	Smooth Blue Aster
10%	Blue Vervain
20%	Lupine
20%	Purple Coneflower

TS 5.20.05.02.05 Seed Mix for Grass in Droughty Boulevards

Seed Mix -100% Pickseed Futura Boulevard Mix or approved equal consisting of:

40%	"Shortstop" Tall Fescue
40%	"Mustang" Tall Fescue
10%	Bronco Kentucky Blue Grass
10%	"Low Gro" Perennial Rye

TS 5.20.05.03 Water

Used for hydraulic mulching shall be free of any impurities which would inhibit germination or otherwise adversely affect growth.

TS 5.20.05.04 Hydromulch

Oat or Wheat mulch or an approved equivalent shall be used. All material must be dry and on being processed through a mulch blower shall form an evenly distributed mat.

TS 5.20.05.05 Asphalt Emulsion

An asphalt emulsion is to be used as an adhesive with the mulching material and shall be a specifically refined petroleum asphalt which has been emulsified in water containing no petroleum solvents or any other components known to be toxic to plant life.

TS 5.20.05.06 Mulch Blanket

ERO-MAT as manufactured by Verydol Research Ltd. Cookstown, On (705) 458-9601 may be used, or an approved equivalent. 'U' shaped steel pins (CPB-5) companion pins as supplied by Trans-Western or an approved equivalent, may be used.

TS 5.20.05.07 Fertilizer

Fertilizer shall be commercially produced from an approved manufacturer, containing not less than 60% urea formaldehyde with a 10-6-4 percentage by weight of nitrogen, phosphoric acid and potash, respectively.

TS 5.20.06 EQUIPMENT – Not Used

TS 5.20.07 CONSTRUCTION

TS 5.20.07.01 Workmanship

Keep the site well drained and clean up any soil or debris spilled onto pavements immediately.

TS 5.20.07.02 Delivery and Storage

Deliver seed, inoculant, fertilizer and lime in water proof bags to secured area on site. All containers shall be labeled and indicate weight, analysis and name of the manufacturer.

TS 5.20.07.03 Surface Preparation

Place and prepare topsoil in conformance with TS 5.10.

TS 5.20.07.07 Protection After Completion

The Contractor is responsible for the protection of seeded areas until acceptance of work. Erect and maintain protective barriers and post signs. Remove protective barriers and post signs after acceptance.

Repair all damages resulting from erosion, improper protection or other causes.

TS 5.20.07.08 Maintenance

All seeded areas are to be maintained by the contractor from completion of work until acceptance by the City. Maintenance of the seeded area is to consist of the following work by the contractor:

- (1) The contractor shall take all measures necessary to establish and maintain seeded areas in a healthy, vigorous growing condition, free of thin and bare patches and also free of noxious weeds.
- (2) If seeding occurs in spring or the summer months, the contractor shall water the seeded areas three times a week for the first six weeks after installation and supply additional water as required at the unit price tendered. Apply water in sufficient quantities to ensure moisture penetration of 75-100 mm taking sufficient precautions to prevent washouts.
- (3) The contractor shall fertilize seeded areas one month after seeding with an organic fertilizer. Spread evenly at a rate of 7.5 kg per 100 m² and water thoroughly. Postpone fertilizing until next spring if application falls within a four-week period prior to the expected end of the growing season.
- (4) When applicable, the contractor shall chop down the nurse crop just as it begins to seed.
- (5) The contractor shall use a flail mower or approved equivalent to cut the seeded material. Cut seeded areas when they have reached a height of 200 to 300 mm (8 to 12 inches) in the first growing season after installation. Do not cut again until once in the late fall.
- (6) The contractor shall re-seed all areas which show deterioration, or which are thin, bare or burned out and repair all damages resulting from erosion and washouts or any other causes during the maintenance period and before final acceptance.
- (7) The contractor shall selectively remove by cutting, all noxious weeds and unspecified plant material during every growing season during the maintenance period, before seed heads mature under the direction of the City, at the unit price tendered.

TS 5.20.08 QUALITY ASSURANCE

TS 5.20.08.09 Final Acceptance

Seeded areas will be accepted by the City provided that:

- (1) The seed has properly established itself
- (2) Seeded area is free of bare and dead spots
- (3) Seeded area is without weeds
- (4) No surface soil is to be visible when material is at height of 100 mm.

Seeded areas will be accepted the following spring one month before the start of the growing season.

TS 5.20.09 MEASUREMENT FOR PAYMENT

TS 5.20.09.01 Direct Seeding

Payment shall be by the area, acceptably seeded, measured in square metres (m²).

TS 5.20.10 BASIS OF PAYMENT

TS 5.20.10.01 Direct Seeding - Item

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work.

Payment shall include, but not be limited to, the soil preparation, application of seed and mulch, and maintenance to final acceptance.