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| SmallOPS9904JPEG | **ONTARIO****PROVINCIAL****STANDARD****SPECIFICATION** | **DRAFT OPSS.PROV 803** **APRIL 2023** |
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### CONSTRUCTION SPECIFICATION FOR

**VEGETATIVE COVER**

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**803.01 SCOPE**

This specification covers the requirements for the application of vegetative cover.

**803.02 REFERENCES**

This specification refers to the following standards, specifications, or publications:

###### Ontario Provincial Standard Specifications, Construction

OPSS 206 Grading

OPSS 802 Topsoil

OPSS 804 Temporary Erosion Control

OPSS 805 Temporary Sediment Control

**Canadian and Provincial Statutes**

Seeds Act (R.S., 1985, c. S-8)

Invasive Species Act (S.O. 2015)

Weed Control Act (R.S.O., 1990, c.W.5)

**803.03 DEFINITIONS**

For the purposes of this specification the definitions in OPSS 182 and the following definitions shall apply:

**Invasive Species** means as defined in the Invasive Species Act.

**Local Seed Bank** means the seeds of species native to a project site and the topsoil the seeds are contained in, located within a vegetated area.

**Local Vegetation Block** means a salvaged layer of topsoil containing grass and herbaceous plant material that has a dense, intact root structure.

**Northern Ontario** means the area of Ontario north of a line joining Waubaushene, Severn Bridge, Bancroft and Ottawa.

**Noxious Vegetation** means a plant that has been listed in the Schedule of Noxious Weeds found in Regulation 1096 made under the Weed Control Act.

**Seeded Earth Area** means the prepared earth area that has received the applied seed and fertilizer.

**Southern Ontario** means the area of Ontario between the northern and southern boundaries of Southwestern Ontario and Northern Ontario respectively.

**Southwestern Ontario** means the area of Ontario south of a line joining Grand Bend and Clarkson.

**Vegetative Cover** means seed, sod, local seed bank, and local vegetation blocks.

**Winter dormant period** means as defined in Table 1 and 2 for the specified vegetative cover.

**803.04 DESIGN AND SUBMISSION REQUIREMENTS**

**803.04.01 Submission Requirements**

A certificate of seed analysis from a seed testing laboratory approved by the Canadian Food Inspection Agency for all permanent seed mixes to be used in the Work shall be submitted to the Contract Administrator for review a minimum of 24 hours prior to any seeding operations.

The certificate of seed analysis shall identify the seed supplier's lot designation numbers, germination and purity for each seed species of the mix, as well as the seed mix composition expressed as a percentage of each seed species by mass for each seed mix as specified in the Contract Documents.

Written confirmation shall be submitted to the Contract Administrator within 30 Days of the pre-start meeting that the seeds specified in the Contact Documents have been sourced.

**803.05 MATERIALS**

**803.05.01 Seed**

**803.05.01.01 Certificate of Seed Analysis**

Permanent seed mixes shall have a valid certificate of seed analysis.

**803.05.01.02 Seed Packaging, Labeling, and Storage**

All permanent seed mixes and annual nurse crop seeds shall be in the original factory sealed package with the original label securely attached.

Labeling shall be in accordance with the requirements of the Seeds Act and Regulations. Each package shall be labeled to show:

a) The name and address of the seed supplier.

b) The name of the seed mix and the various individual seed species that comprise the seed mix and the percentage by mass of each.

c) The grade of the seed or seed mix.

d) The supplier's lot designation number corresponding to the certificate of seed analysis.

e) Mass in kilograms of the seed mix.

f) The inoculant type, strain, and expiry date.

All seed and inoculant shall be stored in cool, dry locations until use. Inoculant is only required for permanent seed mixes containing crown vetch or Birdsfoot trefoil.

**803.05.01.03 Permanent Seed Mixes**

Permanent seed mixes shall be according to Table 3.

**803.05.01.04 Annual Nurse Cover Crop Seed**

Annual nurse crop seed sowing time shall be according to Table 4.

**803.05.02 Seed Fertilizer**

Fertilizer shall be supplied in original factory sealed bags bearing the manufacturer's original label indicating mass and analysis. All fertilizer shall be in granular form being dry, free flowing, free from lumps, and according to Table 5.

**803.05.03 Local Seed Bank**

Local seed bank shall be sourced on-site from designated salvage areas as specified in the Contract Documents and shall not contain invasive species.

**803.05.04 Local Vegetation Blocks**

Local vegetation blocks shall be sourced on-site from designated salvage areas as specified in the Contract Documents and shall not contain invasive species.

**803.06 EQUIPMENT**

**803.06.01 Hydraulic Seeder**

The hydraulic seeder shall be capable of mixing the materials into a homogeneous slurry and maintaining the slurry in a homogeneous state until it is applied. The discharge pumps and gun nozzles shall be capable of applying the materials uniformly over the specified area. A hose extension for the hydraulic seeder shall be on site and available for use for areas outside of the range of the gun nozzle. Equipment shall provide constant agitation to prevent seed and slurry from clogging equipment.

The seeding equipment shall be calibrated to provide the coverage shown in Table 5.

**803.06.02 Drill Seeder**

The drill seeder shall be a pasture or rangeland type. It shall accommodate the seed sizes and weight of seed to be applied using as many compartments as required. Seeds of compatible size and weight may be mixed and placed in the same compartment. The seeder shall be capable of planting seeds 6 to 13 mm in depth.

**803.06.03** **Mechanical Seeder**

A manually operated mechanical or broadcast seeder may be used for smaller or inaccessible locations as specified in the Contract Documents, or as approved by the Contract Administrator.

**803.07 CONSTRUCTION**

**803.07.01 General**

When placement of vegetative cover is required on a waterbody bank, material from the waterbody bank shall not enter the waterbody during preparation or grading of the waterbody bank.

**803.07.01.01 Control of Spread of Invasive Species and Noxious Vegetation**

Work shall occur in a manner to prevent the spread of invasive species and noxious vegetation to, from and within the Working Area.

Soil from areas impacted by invasive species shall not be stockpiled for reuse.

Debris including earth clods and invasive and noxious vegetation material attached to the outside surfaces of equipment is prohibited from entering the Working Area. Equipment coming on site shall be inspected as close to the site entrance as possible for debris. If present, debris shall be completely removed prior to the equipment proceeding to the Working Area and shall be collected and managed by disposal to a licensed waste disposal site as non-hazardous solid industrial waste prior to the equipment proceeding to the Working Area.

Equipment shall also be inspected for debris prior to leaving the Working Area. Any debris shall be removed and managed as specified above, and in a manner that prevents equipment from coming into further contact with standing, sprayed or cut invasive or noxious vegetation.

**803.07.02 Seeding**

**803.07.02.01 General**

Seed shall not enter any waterbodies.

The seeding operation shall not commence until the Contract Administrator has accepted that the surface preparation is according to OPSS 802 and the layout of seed mix locations are as specified in the Contract Documents.

Seeding on final grade shall occur prior to the application of temporary erosion control according to OPSS 804, unless the Contract Administrator approves the simultaneous application of seeding and temporary erosion control.

Seed applications or re-applications shall not be carried out under adverse weather conditions such as high wind or heavy rain or when field conditions are not conducive to seed germination such as frozen soil or soil covered with snow, ice, or standing water.

Where advanced seeding around high-risk areas is specified in the Contract Documents, seed and temporary erosion control shall be applied within 48 hours of final grade.

Seeding shall overlap the adjoining established ground cover by 300 mm.

**803.07.02.01 Surface Preparation for Seeding**

The surface to be seeded shall be prepared according to OPSS 802 and not more than five Days prior to the seeding operation.

At the time of seeding, all surface areas designated for seeding shall exhibit no evidence of erosion and shall be uniformly cultivated to a minimum depth of 50 mm.

Two weeks prior to seeding a prepared surface with the Native Grass and Forb mixes, a non-selective herbicide shall be applied.

**803.07.02.02 Layout for Seeding**

Seeding areas shall be staked out as specified in the Contract Documents.

**803.07.02.03 Application Rates for Seed, Fertilizer, and Water**

Application rates for permanent seed mixes, annual nurse crop seed, and fertilizer shall be as shown in Table 5.

**803.07.02.03.01 Hydraulic Seeding**

There shall be a uniform dispersal of the mixed material over the entire area designated for seeding. The spray shall not dislodge soil or cause erosion.

**803.07.02.03.02 Drill Seeding**

Seeds shall be applied uniformly over the specified area at a depth of 6 mm to 8 mm and shall be applied along the contours of the ground.

**803.07.02.03.03** **Mechanical Seeding**

Seeds shall be sown in two directions with 50% of the seed applied with each direction. The application of these two directions shall be perpendicular to each other.

After application of seeds is complete, they shall be covered by raking and/or chain harrowing. If soil is uneven soil may be rolled with roller not exceeding 50 kg where conditions warrant.

Once the seed is covered the area shall be watered to a minimum depth of 50 mm. The application of water shall not cause movement of seeds or erosion.

**803.07.02.04 Cleanup**

When seed is applied to the foliage of trees, shrubs, or other susceptible plant material, the seed shall be immediately removed from the trees, shrubs, or plant material, and the trees, shrubs, and plant material washed with clean water.

When seed is applied to areas or objects other than those designated, the seed shall be removed from the areas and objects.

**803.07.03 Sodding**

**803.07.03.01 Fertilizer Application for Sodding**

Fertilizer shall be applied uniformly to the surface area designated for sodding, a maximum of 48 hours prior to sod placement, at the rate specified on its bag by the manufacturer.

**803.07.03.02 Sod Placement**

The locations specified for placement of sod shall be prepared and graded prior to placement according to OPSS 206.

Sod shall not be separated from its mineral soil base and not damaged during transportation, handling, and placement.

Sod shall be securely placed lengthwise across the face of slopes and parallel to the centreline of ditches in the locations as specified in the Contract Documents. Voids shall notbe left between the soil portion of the sod and the underlying ground surface. Sod shall be countersunk to existing grade level at all edges.

End joints of adjacent sod pieces shall be staggered. The edges of adjacent sod pieces shall be placed tightly against one another without overlapping. Joints shall be tamped to a uniform surface. Sod shall be placed up to the subgrade elevation on the roadway front slope.

Where required, sod shall be staked to the gradeto avoid movement.

**803.07.03.03 Maintenance of Completed Sodding**

Sod shall be maintained for 30 Days following placement. During this period, the placed sod shall be kept actively growing and green in colour. This requirement shall be suspended during the specified winter dormant period.

**803.07.04 Local Seed Bank Salvage**

Local seed bank shall be salvaged prior to the specified winter dormant period.

Designated salvage areas for local seed bank shall be excavated to a depth of 150 mm to 300 mm or as specified in the Contract Documents.

**803.07.04.01 Local Seed Bank Stockpiles**

Salvaged local seed bank may be stockpiled for storage in locations specified in the Contract Documents or as approved by the Contract Administrator for up to six months if it cannot be installed on designated receiving sites immediately.

Local seed bank stockpiles shall not be placed in areas with invasive or noxious vegetation and shall not exceed 1500 mm in height. Machinery shall not be allowed on stockpiles. Compaction of stockpiles shall be avoided.

Local seed bank stockpiles shall be kept moist to prevent seeds from drying out during storage.

To prevent soil erosion and contamination by weeds during storage local seed bank stockpiles shall be covered with tarps or apply temporary erosion control according to OPSS 804.

Light duty sediment barrier according to OPSS 805 shall be installed around the entire base of local seed bank stockpiles.

**803.07.04.02 Local Seed Bank Installation**

Salvaged local seed bank shall be installed on designated receiving sites as specified in the Contract Documents immediately, when practicable.

If any designated receiving area is subsequently re-graded after installation of local seed bank, additional local seed bank shall be salvaged and installed according to this specification.

Should local seed bank no longer be available, vegetative cover and temporary erosion control shall be applied to the area according to this specification and OPSS 804 respectively.

**803.07.05 Local Vegetation Blocks**

**803.07.05.01 Local Vegetation Block Harvest and Installation**

The locations specified for placement of local vegetation blocks shall be prepared and graded prior to placement as specified in the Contract Documents and according to OPSS 206.

Local vegetation blocks shall remain intact and undamaged during harvesting and installation.

Local vegetation blocks shall be mechanically harvested from and installed at the locations as specified in the Contract Documents on the same Day, or otherwise within 24 hours, and prior to the winter dormant period. Local vegetation blocks shall be sized as specified in the Contract Documents.

After harvesting, seed and temporary erosion control shall be applied to the source location of the vegetation blocks according to this specification and OPSS 804 respectively.

**803.07.06 Protection of Waterbodies and Waterbody Banks**

Protection of waterbodies and waterbody banks shall be as specified in the Contract Documents.

**803.07.07 Management of Excess Material**

Management of excess material shall be as specified in the Contract Documents.

**803.08 QUALITY ASSURANCE**

**803.08.01 Seeding**

**803.08.01.01 Acceptance Criteria for Seeding**

An inspection shall take place a minimum of 60 Days after the application of any seed. If application is completed too late in the year to achieve the performance measures after 60 Days, then the inspection will take place a minimum of 60 Days after the end of the specified winter dormant period.

Southwestern and Southern Ontario:

The following criteria shall be met for acceptance during the inspection:

a) The annual nurse crop shall be evident at mature height in an evenly dispersed, uniform ground cover.

b) Germination of the specified permanent seed species shall be visually evident in an evenly dispersed uniform ground cover.

c) A total of 65% of the total area shall be covered with permanent seeded species.

d) Bare areas shall not exceed 10% of the total seeded area.

Northern Ontario:

The following criteria shall be met for acceptance during the inspection:

a) The annual nurse crop shall be evident in an evenly dispersed, uniform ground cover.

b) Germination of the specified permanent seed species shall be visually evident in an evenly dispersed uniform ground cover.

c) A total of 50% of the total area shall be covered with permanent seeded species.

d) Bare areas shall not exceed 10% of the total seeded area.

Inspections shall not be made when site conditions prohibit a visual field inspection.

**803.08.01.02 Failure to Meet Acceptance**

If the completed work does not meet the acceptance criteria, written notification of the failed areas will be provided by the Contract Administrator. The specified permanent seed mixes and annual nurse crop seed shall be re-applied according to this specification within 14 Days of receipt of the notification, or within 14 Days of the end of the specified winter dormant period.

Upon reapplication of the specified permanent seed mixes and annual nurse crop seed the areas that did not previously meet acceptance will be inspected until the requirements in the Acceptance Criteria for Seeding clause have been achieved.

Locations that are specified in the Contract Documents to receive vegetative cover, that fail to meet the acceptance criteria specified in the Quality Assurance section by the winter dormant period, or where vegetative cover has not been applied prior to the winter dormant period, shall be protected from erosion according to OPSS 804 until vegetative cover can be applied or reapplied.

**803.08.02 Sodding**

**803.08.02.01 Acceptance of Sod**

After the 30 Days maintenance period has ended, the Contract Administrator shall inspect all placed sod based on the requirements specified in the Maintenance of Completed Sodding clause. If placement of sod is completed less than 30 Days prior to the start of the winter dormant period, then the inspection will take place 30 Days after the end of the winter dormant period.

The sod shall be in the same location as originally placed and shall not have moved, eroded, slipped, or sloughed. Sod shall show evidence of rooting into the underlying soil. The sod shall be of sufficient density that no surface soil is visible and there shall be no competitive growth, emerging from the sod or from between the sod joints.

803.08.02.02 Failure to Meet Acceptance

When the work does not meet the requirements specified herein, written notification will be provided by the Contract Administrator, and sod shall be reapplied according to this specification within 14 Days of receipt of the notification.

The site shall be maintained, and temporary erosion control will be provided OPSS 804 until the sod has been replaced.

Upon replacement of sod in the locations that did not previously meet acceptance will be inspected until the requirements in the Acceptance of Sod clause have been achieved.

**803.09 MEASUREMENT FOR PAYMENT**

**803.09.01 Actual Measurement**

**803.09.01.01 Seed**

Measurement shall be by area in square metres following the contours of the ground.

**803.09.01.02 Sod**

Measurement shall be by area in square metres following the contours of the ground.

**803.09.01.03 Local Seed Bank**

Measurement shall be by area in square metres following the contours of the ground.

**803.09.01.04 Local Vegetation Blocks**

Measurement shall be by area in square metres following the contours of the ground.

**803.09.02 Plan Quantity Payment**

When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clause under Actual Measurement.

**803.10 BASIS OF PAYMENT**

**803.10.01 Seed - Item**

 **Sod - Item**

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment, and Material to do the work.

Progress payments shall be based on the following percentages of the Contract price for milestones accepted by the Contract Administrator:

a) 50% for installation

b) 50% upon acceptance.

**803.10.02 Local Seed Bank - Item**

 **Local Vegetation Blocks - Item**

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment, and Material to do the work.

**TABLE 1**

**Winter Dormant Period - Seed and Local Seed Bank Salvage**

|  |  |  |
| --- | --- | --- |
| **SOUTHWESTERN ONTARIO** | **SOUTHERN ONTARIO** | **NORTHERN ONTARIO** |
| November 15 to April 15 inclusive | November 1 to April 30 inclusive | October 1 to June 1 inclusive |

**TABLE 2**

Winter Dormant Period - Sod and Local Vegetation Blocks

|  |  |  |
| --- | --- | --- |
| SOUTHWESTERN ONTARIO | SOUTHERN ONTARIO | NORTHERN ONTARIO |
| November 15 to April 15 inclusive | November 1 to April 30 inclusive | Oct 15 to May 15 inclusive |

**TABLE 3**

**Permanent Seed Mixes and Seed Certificate Analysis Values**

| **Permanent Seed Mix** | **Grade****Name** | **Minimum****Seed****Germination****%** | **Minimum****Seed****Purity****%** | **Maximum****Weed****Seed****%** | **Seed****Mix****%** | **Seed****Species****Composition****%** |
| --- | --- | --- | --- | --- | --- | --- |
| **Standard Roadside Mix** | **Canada #1****Lawn Grass Seed Mixture** | **70** | **85** | **0.5** |  |  |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 52 | 45 to 60 |
| Kentucky Bluegrass: *Poa pratensis* |  |  |  |  | 10 | 5 to 15 |
| Perennial Ryegrass: *Lolium perrenne* |  |  |  |  | 35 | 30 to 40 |
| White Clover: *Trifolium repens* |  |  |  |  | 3 | 2 to 7 |
|  |
| **Modified Native Standard Roadside Mix** | **Canada #1****Lawn Grass Seed Mixture** | **70** | **85** | **0.5** |  |  |
| Creeping Red Fescue: *Festuca Rubra* |  |  |  |  | 60 | 45 to 60 |
| Canada Bluegrass: *Poa compressa* |  |  |  |  | 10 | 5 to 15 |
| Colonial Bentgrass: *Agrostis capillaris* |  |  |  |  | 10 | 5 to 15 |
| Intermediate Ryegrass: Lolium hybridum |  |  |  |  | 20 | 15 to 25 |
| **Crown Vetch Mix** | **Common #1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 66 | 62 to 70 |
| Crown Vetch: *Coronilla varia* inoculated seed |  |  |  |  | 34 | 30 to 38 |
|  |
| **Birdsfoot Trefoil Mix** | **Common #1****Forage****Mixture** | **75** | **N/A** | **0.5** |  |  |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 66 | 62 to 70 |
| Birdsfoot Trefoil: *Lotus corniculatus* inoculated seed |  |  |  |  | 34 | 30 to 38 |
| *Continues on Next Page* |
| **Salt Tolerant Mix** | **Canada #1 Ground Cover** | **70** | **85** | **0.5** |  |  |
| Tall Fescue: *Festuca arundinacea* |  |  |  |  | 25 | 20 to 30 |
| Fults Alkali Grass: *Puccinellia distans* |  |  |  |  | 20 | 15 to 25 |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 25 | 15 to 30 |
| Perennial Ryegrass: *Lolium perrenne* |  |  |  |  | 20 | 15 to 25 |
| Hard Fescue: *Festuca trachyphylla* |  |  |  |  | 10 | 5 to 15 |
|  |
| **Lowland Mix** | **Canada #1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 35  | 30 to 40 |
| Brome Grass: *Bromus nerres* |  |  |  |  | 25 | 20 to 30 |
| Kentucky Bluegrass: *Poa pratensis* |  |  |  |  | 10 | 5 to 15 |
| Birdsfoot Trefoil: *Lotus corniculatus* inoculated seed |  |  |  |  | 5 | 3 to 7 |
| White Clover: *Trifolium repens* |  |  |  |  | 5 | 3 to 7 |
| Perennial Ryegrass: *Lolium perrenne* |  |  |  |  | 20 | 15 to 25 |
| *Continues on Next Page* |
| **Acidic Soil Mix** | **Canada #1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| Birdsfoot Trefoil: *Lotus corniculatus* inoculated seed |  |  |  |  | 30 | 25 to 40 |
| Red Top: *Agrostis gigantea* |  |  |  |  | 10 | 5 to 15 |
| Tall Fescue: *Festuca arundinacea* |  |  |  |  | 15 | 10 to 20 |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 30 | 25 to 35 |
| Hard Fescue: *Festuca trachyphylla* |  |  |  |  | 5 | 3 to 7 |
| Alsike Clover: *Trifolium hybridum* |  |  |  |  | 5 | 3 to 7 |
| Red Clover: *Trifolium pratense* |  |  |  |  | 5 | 3 to 7 |
|  |
| **Northern Ontario Mix** | **Canada #1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| Red Top: *Agrostis gigantean* |  |  |  |  | 3 | 1 to 5 |
| Canada Bluegrass: *Poa compressa* |  |  |  |  | 7 | 5 to 15 |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 40 | 35 to 45 |
| Birdsfoot Trefoil: *Lotus corniculatus* inoculated seed |  |  |  |  | 5 | 2 to 8 |
| Alsike Clover: *Trifolium hybridum* |  |  |  |  | 3 | 1 to 5 |
| White Clover: *Trifolium repens* |  |  |  |  | 2 | 1 to 5 |
| Perennial Rye Grass: *Lolium perrenne*  |  |  |  |  | 30 | 25 to 35 |
| Meadow Fescue: *Festuca pratensis* |  |  |  |  | 10 | 5 to 15 |
| *Continues on Next Page* |

| **Permanent Seed Mix** | **Grade****Name** | **Minimum****Seed****Germination****%** | **Minimum****Seed****Purity****%** | **Maximum****Weed****Seed****%** | **Seed****Mix****%** | **Seed****Species****Composition****%** |
| --- | --- | --- | --- | --- | --- | --- |
| **Old Field Mix** | **Canada # 1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| Flat-topped Aster: *Aster umbellatus* |  |  |  |  | 37 | 35 to 40 |
| New England Aster: *Aster novaeangliae* |  |  |  |  | 17 | 10 to 20 |
| Purple-stemmed Aster: *Aster punicens* |  |  |  |  | 16 | 10 to 20 |
| Canada Goldenrod: *Solidago Canadensis* |  |  |  |  | 12 | 10 to 15 |
| Panicled Aster: *Aster simplex/lanceolatus* |  |  |  |  | 8 | 6 to 10 |
| Heath Aster: *Aster simplex/lanceolatus* |  |  |  |  | 5 | 3 to 7 |
| Grass-leaved Goldenrod: *Solidago memoralis* |  |  |  |  | 5 | 3 to 7 |
|  |
| **Northern Ontario Mix** | **Canada # 1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| Red Top: *Agrostis gigantean* |  |  |  |  | 3 | 1 to 5 |
| Canada Bluegrass: *Poa compressa* |  |  |  |  | 7 | 5 to 15 |
| Creeping Red Fescue: *Festuca rubra* |  |  |  |  | 40 | 35 to 45 |
| Birdsfoot Trefoil: *Lotus corniculatus* ‘*Leo*’ inoculated seed |  |  |  |  | 5 | 2 to 8 |
| Alsike Clover: *Trifolium hybridum* |  |  |  |  | 3 | 1 to 5 |
| White Clover: *Trifolium repens* |  |  |  |  | 2 | 1 to 5 |
| Perennial Rye Grass: *Lolium perrenne* |  |  |  |  | 30 | 25 to 35 |
| Meadow Fescue: *Festuca pratensis* |  |  |  |  | 10 | 5 to 15 |
| *Continues on Next Page* |

| **Permanent Seed Mix** | **Grade****Name** | **Minimum****Seed****Germination****%** | **Minimum****Seed****Purity****%** | **Maximum****Weed****Seed****%** | **Seed****Mix****%** | **Seed****Species****Composition****%** |
| --- | --- | --- | --- | --- | --- | --- |
| **West Region Native Grass and Forb Mix – Well Drained** | **Canada # 1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| **Grass species - shall be 85% of seed mix** |
| Big Blue Stem: *Andropogon gerardii* |  |  |  |  | 22 | 20 to 25 |
| Canada Wild Rye: *Elymus canadensis* |  |  |  |  | 11 | 10 to 15 |
| Switchgrass: *Panicum virgatum* |  |  |  |  | 16 | 15 to 20 |
| Little Bluestem: *Schizachyrium scoparium* |  |  |  |  | 16 | 15 to 20 |
| Indian Grass: *Sorghastrum nutans* |  |  |  |  | 20 | 15 to 25 |
| **Forb species - shall be 15% of seed mix and contain a minimum of 8 of the following species** |
| Common Milkweed: *Asclepias syriaca* |  |  |  |  | 1 | 1 to 3 |
| Sweet Ox-eye: *Heliopsis helianthoides* |  |  |  |  | 2 | 1 to 3 |
| Hairy Beardtongue: *Penstemon hirsutus* |  |  |  |  | 1 | 1 to 3 |
| Black eyed Susan: *Rudbeckia hirta* |  |  |  |  | 2 | 1 to 3 |
| Hoary Vervain: *Verbena stricta* |  |  |  |  | 1 | 1 to 3 |
| Wild Bergamot: *Monarda fistulosa var. fistulosa* |  |  |  |  | 1 | 1 to 3 |
| Path Rush: *Juncus tenuis* |  |  |  |  | 1 | 1 to 3 |
| Evening Primrose: *Oenothera biennis* |  |  |  |  | 2 | 1 to 3 |
| Smooth Aster: *Symphyotrichum laeve* |  |  |  |  | 1 | 1 to 3 |
| Round-headed Bush-clover: *Lespedeza capitata* |  |  |  |  | 1 | 1 to 3 |
| Foxglove Beardtongue: *Penstemon digitalis* |  |  |  |  | 1 | 1 to 3 |
| Showy Tick-trefoil: *Desmodium canadense* |  |  |  |  | 1 | 1 to 3 |
| *Continues on Next Page* |

| **Permanent Seed Mix** | **Grade****Name** | **Minimum****Seed****Germination****%** | **Minimum****Seed****Purity****%** | **Maximum****Weed****Seed****%** | **Seed****Mix****%** | **Seed****Species****Composition****%** |
| --- | --- | --- | --- | --- | --- | --- |
| **West Region Native Grass and Forb Mix - Poorly Drained** | **Canada # 1****Ground Cover** | **70** | **N/A** | **0.5** |  |  |
| **Grass species - shall be 85% of seed mix** |
| Big Blue Stem: *Andropogon gerardii* |  |  |  |  | 22 | 20 to 25 |
| Virginia Wild Rye: *Elymus virginicus* |  |  |  |  | 11 | 10 to 15 |
| Switchgrass: *Panicum virgtum* |  |  |  |  | 16 | 15 to 20 |
| Fox Sedge: *Carex vulpinoidea* |  |  |  |  | 16 | 15 to 20 |
| Indian Grass: *Sorghastrum nutans* |  |  |  |  | 20 | 15 to 25 |
| **Forb species - shall be 15% of seed mix and contain a minimum of 8 of the following species** |
| Swamp Milkweed: *Asclepias incarnata* |  |  |  |  | 1 | 1 to 3 |
| Sweet Ox-eye: *Heliopsis helianthoides* |  |  |  |  | 1 | 1 to 3 |
| Virginia Mountain Mint: *Pycnanthemum virginianum* |  |  |  |  | 1 | 1 to 3 |
| Black eyed Susan: *Rudbeckia hirta* |  |  |  |  | 2 | 1 to 3 |
| Blue Vervain: *Verbena hastata* |  |  |  |  | 1 | 1 to 3 |
| Wild Bergamot: *Monarda fistulosa var. fistulosa* |  |  |  |  | 1 | 1 to 3 |
| Path Rush: *Juncus tenuis* |  |  |  |  | 1 | 1 to 3 |
| Evening Primrose: *Oenothera biennis* |  |  |  |  | 2 | 1 to 3 |
| New England Aster: *Symphyotrichum novae-angliae* |  |  |  |  | 1 | 1 to 3 |
| Foxglove Beardtongue: *Penstemon digitalis* |  |  |  |  |  |  |
| Missouri Ironweed: *Vernonia missurica* |  |  |  |  | 1 | 1 to 3 |
| Spotted Joe Pye Weed: *Eupatorium maculatum var. maculatum* |  |  |  |  | 2 | 1 to 3 |

**TABLE 4**

**Annual Nurse Crop Seed Sowing Times**

|  |  |  |
| --- | --- | --- |
| **Nurse Crop** | **Sowing Time Southwest and Southern Ontario** | **Sowing Time Northern Ontario** |
| Annual Oats (Avena sativa) | April - May or late August - October | Late May - June orlate August - early October |
| Canada Wild Rye (Elymus canadensis) | Late August - October | Late August - early October |
| Virginia Wild Rye (Elymus virginicus) | Late August - October | Late August - early October |
| White Millet (Panicum milliaceum) | June - mid September | June - mid September |
| Fall Rye Grain (Secale cereale) | March - April or August - October | April - August to early October |

**TABLE 5**

**Application Rates for Seed and Fertilizer**

|  |  |  |  |
| --- | --- | --- | --- |
| **Permanent Seed Mixes** | **Permanent****Seed Mix Rate****kg/10,000 m²** | **Fertilizer Rate minimum 200 kg/ha** | **Nurse Crop Rate****kg/10,000 m²** |
| **8-32-16** | **0-46-0** | **0-0-60** |
| **Standard Roadside Mix** | 170 | 365 |  |  | 60 |
| **Crown Vetch Mix** | 140 | 365 | 260 |  | 60 |
| **Modified Native Standard Roadside Mix** | 170 | 365 |  |  | 60 |
| **Birdsfoot Trefoil Mix** | 140 | 365 | 260 |  | 60 |
| **Salt Tolerant Mix** | 170 | 350 |  |  | 60 |
| **Lowland Mix** | 170 | 350 |  |  | 60 |
| **Acidic Soil Mix** | 170 | 350 | 220 | 220 | 60 |
| **Northern Ontario Mix** | 170 | 365 |  |  | 60 |
| **Oldfield Mix** | 70 | 350 |  |  | 60 |
| **Southern Ontario Native Grass and Forb Mix - poorly drained areas** | 25 - 30 |  |  |  | 25 - 30 |
| **Southern Ontario Native Grass and Forb Mix - well drained areas** | 25 - 30 |  |  |  | 25 - 30 |