

This specification outlines the requirements for fertilizing, supply and placement of limestone, supplying and placing topsoil and appropriate finished grading, and the supply and placement of sod.

REFERENCES

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

ASTM International

D698-12 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³))

Canadian Standards Associations

A23.1-14/A23.2-14 Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete"

Government of Newfoundland and Labrador, Department of Transportation and Works (DTW), Highway Design

Section 631.02.01 Seeding: Topsoil

PART 1 - GENERAL

1.1 SOURCE QUALITY CONTROL

- .1 Inform the Engineer of proposed source of topsoil to be supplied and provide access for sampling. Acceptance of topsoil subject to inspection and/or soil analysis test results. Do not commence work until topsoil is accepted by the Engineer.
- .2 The Contractor shall notify the Engineer not less than three (3) days before cutting of sod begins. Sod will be approved by the Engineer in its original position before cutting and delivery to the project.

1.3 SCHEDULING OF WORK

- .1 Schedule placing of topsoil and finish grading to permit sodding operations under optimum conditions. Sods placed in the Fall will not be accepted until the following growing season.

1.5 MEASUREMENT FOR PAYMENT

- .1 Supply and application of agricultural limestone will be measured in square metres Of area treated.
- .2 Supply and application of fertilizer will be measured in square metres of area treated.

- .3 Measurement for sodding will be by actual area of sod placed by the square metre.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 The topsoil shall be obtained from approved areas off the site. The soil shall be reasonably free from subsoil, clay lumps, brush, objectionable weeds and other litter, and shall be free from stones, stumps and other objects larger than 50 mm in diameter, from roots, toxic substances and from any other material or substances that might harm growth or be a hindrance to grading, planting, or maintenance operation.
- .2 Fertilizer shall be 6-12-12 grade, uniform in composition, free flowing and suitable for application with approved equipment delivered to the site in bags or other convenient containers, each fully labelled, conforming to the applicable local government laws, and bearing the name, trademark or tradename and warranty of the producer.
- .3 Lime shall be ground limestone containing not less than 85% of total carbonates and shall be ground to such fineness that at least 50% will pass through a 100 mesh sieve and at least 90% will pass through a 20 mesh sieve. Coarser materials will be acceptable provided the specified rates of application are increased proportionally on the basis of quantities passing the 100 mesh sieve, but no additional payment will be made for the increased quantity.

PART 3 - EXECUTION

3.1 TOPSOIL

- .1 The topsoil shall be uniformly distributed on the designated areas and evenly spread to an average thickness of 100 mm with a minimum thickness of 75 mm. The spreading shall be performed in such a manner that planting can proceed requiring little additional soil preparation or tillage. Irregularities in the surface resulting from topsoiling or other operations shall be corrected so as to prevent the formation of depressions where water will stand. Topsoil shall not be placed where the subgrade is frozen, excessively wet, extremely dry or in a condition otherwise detrimental to the proposed planting or to proper grading.
- .2 After the topsoil has been spread and graded as required, the surface shall be cleared of stone, stumps or other objects larger than 50 mm in thickness or diameter, and or root, brush, wire or other objects that might be a hindrance to planting or maintenance operations.

3.2 APPLICATION OF FERTILIZER

- .1 Fertilizer shall be distributed uniformly at a rate of 1,125 kg/ha over the areas indicated on the drawings to be seeded, and shall be incorporated into the soil to a depth of at least 100 mm by disking, harrowing, or other acceptable methods. The incorporation of fertilizer may be a part of the tillage operation specified in other parts of this specification. Distribution by means of an approved seed drill equipped to sow seeds and distribute fertilizer at the same time will be acceptable.

3.3 APPLICATION OF LIME

- .1 Immediately following the incorporation of the fertilizer, lime shall be distributed uniformly at a rate of 1125 kg/ha and shall be incorporated into the soil to a depth of at least 25 mm by disking, harrowing, or other acceptable methods.

3.4 PREPARATION OF SURFACES

- .1 Undulation or irregularities in the surface resulting from tillage, fertilizing, liming or other operations shall be levelled before seeding operations are begun. The grassed area when completed and settled shall be on such a grade necessary to facilitate drainage.

3.5 SODDING

- .1 Before sodding, the surface is to be raked smooth to provide uniform slopes. topsoil with a uniform organic content will be placed to a thickness of 75 mm or as directed on site by the Engineer, and raked smooth to conform with the preparation slopes. Lime will be added to the topsoil at the rate of 1,125 kg/ha. The lime may be placed up to three weeks ahead of placing of sod. Fertilizer will be spread evenly over the top 50 mm of the soil.
- .2 Fertilizer cannot be added at the same time as the lime. The fertilizer shall be applied at the rate of 1,125 kg/ha, and will have a plant food ratio of 10 nitrogen to 20 phosphorous to 20 potash plus 2% FTE. The fertilizer must be placed not more than one week ahead of sodding. After adding fertilizer, the surface shall be fine graded.
- .3 Sod shall be laid on the prepared sod bed within 24 hrs after cutting, except that sod may be stored in stacks or piles, grass to grass and roots to roots for not more than five (5) days. Sod shall be protected against drying from sun or wind and from freezing as necessary. The moving and laying of sod shall, as far as possible, be done when weather conditions and soil moisture are favourable. On slopes, stakes shall be driven flush with the top of the sod, spacing stakes shall not exceed 600 mm across the face of slopes.
- .4 If rainfall is insufficient during the period of sodding and initial grass growth, then

water shall be applied immediately before and after sodding and subsequently thereafter until the grass is established, as directed by the Engineer. Cost will be included in the unit price for laying sods.

3.6 MAINTENANCE

- .1 Ensure maintenance equipment suitable to the Engineer.
- .2 Keep soil moist during germination period and adequately water grassed areas until accepted by the Engineer.
- .3 Apply water to ensure moisture penetration of 75 to 100 mm. Control watering to prevent wash-outs.

3.7 PROTECTION AND REPAIR

- .1 The area shall be protected against traffic or other use by erecting barricades immediately after seeding is completed and by placing warning signs of an approved type on the various areas.
- .2 If at any time before completion and acceptance of the entire work covered by this contract any portion of the surface becomes gullied or otherwise damaged following sodding, or the sods have been winter-killed or otherwise destroyed the affected portion shall be repaired to re-establish the condition and grade of the soil prior to sodding and shall then be re-sodded as specified in previous sections.

3.8 ACCEPTANCE

- .1 Areas will be accepted by the Engineer provided that:
 - .1 Sodded areas are properly established.
 - .2 Turf is free of eroded, bare or dead spots and 98% free of weeds.
 - .3 No surface soil is visible when grass has been cut to height of 40 mm.
- .2 Areas sodded in fall will be accepted in following spring one month after start of growing season provided acceptance conditions are fulfilled.

3.9 BASIS OF PAYMENT

- .1 All costs associated with the work outlined in this specification shall be deemed to be included in the appropriate unit and lump sum prices quoted as outlined in subsection 1.4 Measurement for Payment and as included in the Schedule of Quantities and Prices.