PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 31 05 17.02 – Aggregates.

.2 Section 31 32 21.02 – Geotextiles.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB 8.2-M88 Sieves, Testing, Woven Wire, Metric

.2 American Society for Testing and Materials (ASTM)
- .1 ASTM C117-04 Standard Test Method for Materials Finer than 75µm (No. 200) Sieve in Mineral Aggregates by Washing
- .2 ASTM C131-06 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregates by Abrasion and Impact in the Los Angeles Machine.
- .3 ASTM C136-06 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- .4 ASTM D422-63(2007) Standard Test Method for Particle-Size Analysis of Soils.
- .5 ASTM D698-07e1 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort 600kN-m/m^3.
- .6 ASTM D1557-09 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort 2,700 kN-m/m^3.
- .7 ASTM D1883-07e2 Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
- .8 ASTM D4318-10 Standard Test Method for Liquid, Plastic Limit, and Plasticity Index of Soils.

1.3 DOCUMENTS AND SAMPLES TO SUBMIT

.1 At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items :

.2 Aggregates
- .1 Submit a data sheet for each type of aggregate.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Transport unused aggregates to a quarry.

PART 2 PRODUCTS

2.1 MATERIALS

.1 The materials of the granular foundation must comply with the requirements of Section 31 05 17.02 – Aggregates.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Spread the foundation materials once the platform has been inspected and approved by the Departmental Representative.

.2 Create, where indicated, the granular foundation layers to the depth and level prescribed.

.3 Ensure that no frozen material is used.

.4 Spread the materials onto a clean, unfrozen surface, free of snow and ice.

.5 Use spreaders equipped with gauges or templates to ensure the application of materials in uniform layers of the thickness required.

.6 Spread the material on the entire width of the work, in uniform layers not exceeding 150 mm in thickness after compaction.

.7 Before spreading the materials of the next layer, give each layer a uniform profile, compacting it until the required density is obtained.

.8 Remove and replace any part of a layer in which there was segregation of materials during spreading or installation.

.9 Install the geotextiles, as needed, according to the indications on the plans and the requirements of Section 31 32 21.02 – Geotextiles.

3.2 COMPACTION

.1 Compact to at least 95% of the corrected maximum dry density.

.2 Alternate between profiling and rolling to obtain a uniform foundation layer, equally and evenly compacted.

.3 Add, during compaction, the water required to obtain the required density.

.4 In places where it is impractical to use compaction equipment (rolling equipment), compact the material until the required density with mechanical tampers (i.e. “Jumping Jack” or other) approved by the Departmental Representative.

.5 Correct surface irregularities by loosening the soil and adding or removing material until the surface level is in accordance with prescribed tolerances

3.3 Tolerances

.1 The tolerance for the finished foundation is 10 mm, higher or lower than the prescribed spot elevations. This tolerance cannot, however, be uniform over the entire surface of the foundation.

3.4 Protection

.1 Maintain the finished foundation in a state conforming to the requirements of this section until the completion of the next layer or reception of the work by the Departmental Representative.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 31 05 17.02 – Aggregates.

.2 Section 31 14 11.02 – Grading Works.

.3 Section 32 11 19.02 – Granular foundation.

1.2 REFERENCES

.1 Canadian Standards Association (CSA)
- .1 CAN/CSA A23.1-09 Concrete materials and methods of concrete construction.
- .2 CAN/CSA A165.2 Standards on Concrete Masonry Units
- .3 CAN/CSA A266.1 Air Entraining Admixture for Concrete
- .4 CAN/CSA G30.18-09 Cold-Drawn Steel Wire for Concrete Reinforcement.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB 19.13-M87 Sealing Compound, One-Component, Elastomeric, Chemical Curing.

.3 American Society for Testing and Materials (ASTM)
- .1 ASTM C568/C568M-10 Standard Specification for Limestone Dimension Stone

1.3 DOCUMENTS AND SAMPLES TO SUBMIT

.1 At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items :
- .1 Limestone borders
  - .1 Submit a full size sample for each type of elements.
  - .2 Submit three (3) copies of test reports and shop drawings for all limestone components (sizes and finishes) for approval prior to fabrication.
- .2 Sealant
  - .1 Submit a data sheet and sample of this product for approval.
- .3 Thin Concrete
  - .1 Submit a data sheet of this product for approval.
- .4 Aggregates
  - .1 Submit a data sheet for each type of aggregate.

1.4 QUALITY ASSURANCE

.1 The Contractor shall provide only skilled labour, supervised by a foreman experienced in the installation of limestone borders.

.2 Provide an adequate team and equipment to carry out the work efficiently.

.3 Only limestone works identical to the approved samples will be accepted.

1.5 HANDLING AND STORAGE

.1 New limestone border are to be supplied by the Contractor.

.2 Deliver to the site all the specified limestone pieces.

.3 Provide forklifts and other equipment required for loading, unloading and handling limestone pieces.

.4 Wrap finished limestone pieces carefully and take the necessary precautions to avoid damage during loading, transport, unloading and storage.

.5 Attach limestone pieces together in maneuverable packages on hardwood pallets.

.6 Adequately protect limestone pieces in storage at the plant site and on the job site to prevent soiling and damage.

.7 Load limestone pieces carefully taking every precaution to avoid any damage.

.8 Prepare reasonably uniform and level storage area.

.9 Store limestone pieces only on stable surfaces, free from accidental bumps, dirt and other potential damage.

.10 Supply materials to the site at least two (2) days prior to the start of construction so that the Departmental Representative can check the materials.

.11 Perform inspection of all limestone pieces upon delivery, in the presence of Departmental Representative and the supplier.

.12 Store limestone pieces in an area acceptable to the Departmental Representative, where they do not interfere with circulation and will be protected from damage. Organize limestone pieces to allow for their qualitative and quantitative checks.

.13 Provide all other materials and equipment necessary to carry out installation work of limestone pieces.

.14 Do not remove limestone pieces from their original packaging until installation.

PART 2PRODUCTS

2.1 AGGREGATES

.1 20-0 mm stone, according to the requirements of Section 31 05 17.02 – Aggregates.

2.2 FILL MATERIAL

.1 Use sandy gravelly fill material, conforming to the requirements of Section 31 05 17.02 – Aggregates for materials used to fill surface depressions.

2.3 LIMESTONE BORDERS

.1 Finished limestone borders must exactly match the properties, appearance and finish of the limestone borders recently installed between Piers 1 to 33.

.2 Limestone: to ASTM C 568, category II - Medium Density, colour and texture to match approved sample.
- .1 Stone shall be free of imperfections; no stylolytes (resembling faults and/or fissures), no clay, no iron or other inclusions, no holes. Acceptable stylolytes are very thin and discontinuous.
- .2 Source: Carrière St. Marc.
- .3 Finishing : Honed
- .4 Density: 2160 – 2560kg/m^3

.3 Obtain new stone for path border from a single quarry source acceptable to Departmental Representative.
- .1 Ensure single quarry source has resources to provide materials of consistent quality and matching identified characteristic requirements.
- .2 Extract all stone from the quarry by drilling, sawing, and feather and wedging. The use of any technique that may produce weaknesses in the stone may result in non-selection of quarry block.
- .3 Select stone from the areas of the quarry that meet or exceed the minimum acceptable quality for the stone and from where the accepted samples have been obtained.
- .4 Cure stone block for sufficient time to ensure that cracking, or any other deficiency resulting from insufficient curing shall not be present in the stone.
- .5 Stone shall be quarried in sufficient quantity to permit the Departmental Representative to select quarry block in accordance with the stone characteristic requirements.

.4 Submit a sample of the finished selected St-Marc type limestone borders

2.4 BEARING BRICKS

.1 Concrete brick, conforming to the requirements of the CAN/CSA A165.2, standard, type I-35, or limestone block.

2.5 LEAN CONCRETE PROPORTIONING

.1 Prepare the concrete in accordance with the CAN/CSA A23.1-09 standard.
- .1 Use type 10 normal Portland cement.
- .2 Minimum resistance to compression at 28 days: 15 MPa.
- .3 Nominal coarse aggregate size: 19 mm, conforming to CAN/CSA A23.1-09 standard.
- .4 Slumping at time and point of discharge: 75mm

2.6 SEALANT

.1 Polyurethane component, type CAN/CGSB-19.13, type II, classe "A".

.2 Colour matching that of the limestone borders

PART 3 EXECUTION

3.1 INSPECTION

.1 Have the work approved at the end of each step, and before the concrete pouring.

3.2 GRADING

.1 Perform excavation and backfilling as required in Section 31 14 11.02 – Grading Works.

3.3 GRANULAR FOUNDATION

.1 Place and compact granular materials according to the requirements of Section 32 11 19.02 – Granular Foundation.

.2 The permissible deviation for the surface of the finished granular foundation is ± 5 mm compared to the designed level, but the difference should not be uniform, above or below grade.

3.4 LIMESTONE BORDERS INSTALLATION

.1 Handle the borders carefully so as not to chip the edges. Borders must be laid in accordance with the slopes, levels, dimensions, layouts and patterns shown on the plans.

.2 When cutting is required, it must be done with appropriate tools in order to obtain clean and straight surfaces. No border should be cut to a length less than 300 mm.

3.5 LEAN CONCRETE

.1 Before pouring concrete, verify alignments and levels of concrete borders to ensure that they correspond to those indicated on the plans, within the tolerances prescribed below.

.2 Before pouring concrete, ensure area is free of debris and other impediments.

.3 The pumping of concrete is prohibited and will be permitted only after the material and mixing is approved.

.4 Ensure that the borders are not displaced during the concrete pouring.

.5 Maintain records of concrete works, indicating the date and location of each pouring, the concrete's characteristics, air temperature and test samples taken.

.6 Defective concrete: concrete will be considered defective:
- .1 When it does not meet all the requirements prescribed in these specifications;

.2 When it contains too many debris;
.3 When its average resistance to compression at 28 days in any specified point is less than 95% of the minimum resistance to compression required;

.7 All concrete work had been vandalized or damaged shall be demolished and rebuilt at the Contractor's expense.

.8 Any concrete work has been executed using concrete that is found defective by the Departmental Representative or the designated laboratory shall be demolished and rebuilt at the Contractor's expense.

3.6 TOLERANCE

.1 The borders should be installed with a maximum deviation of 10 mm compared to the prescribed alignment and elevation, and 2mm in relation to each adjoining border.

3.7 SEALANT

.1 Prime surfaces then apply the sealant in joints between borders, as recommended by the manufacturer, equal to the face edges.

.2 Clean excess sealant and overflow.

.3 The sealant should always be applied to clean, dry surfaces.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 31 05 17.02 – Aggregates.

.2 Section 31 32 21.02 – Geotextiles.

.3 Section 32 11 19.02 – Granular Foundation.

.4 Section 32 13 18.02 – Limestone Borders.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB 8.2-M88 Sieves, Testing, Woven Wire, Metric

.2 American Society for Testing and Materials (ASTM)
- .1 ASTM C117-04 Standard Test Method for Materials Finer than 75µm (No. 200) Sieve in Mineral Aggregates by Washing
- .2 ASTM C136-06 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- .3 ASTM D4318-10 Standard Test Method for Liquid, Plastic Limit, and Plasticity Index of Soils.
- .4 ASTM D698-07e1 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort 600kN-m/m^3.
- .5 ASTM E11-09e1 Standard Specification for Woven Wire Test Seive Cloth and Test Sieves.

1.3 DOCUMENTS AND SAMPLES TO SUBMIT

.1 At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items :
- .1 Granitic screening
  - .1 Data sheet.
  - .2 1kg sample.
- .2 Granular foundation
  - .1 Submit a data sheet for each type of aggregate.

1.4 QUALITY CONTROL ON THE JOB SITE

.1 Inspection and testing of granitic screening surfacing will be conducted by the designated testing laboratory.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Granular foundation
- .1 The granular materials must conform to the requirements of Section 31 05 17.02 – Aggregates.

.2 Granitic screening
- .1 Natural L.G. granitic crushed stone, 0-5mm, free from clay lumps, cementation, organic material, frozen material and other deleterious materials.
- .2 Gradations: within limits specified when tested to ASTM C 136 and ASTM C 117.

ASTM screen	% passing
10 mm	100
5 mm	95-100

2.50 mm	65-75
1.25 mm	45-60
0.630 mm	40-50
0.315 mm	30-40
0.160 mm	20-30
0.08 mm	12-18

.3 Complementary characteristics :
- .1 Micro Deval Max.30% LC 21-101
- .2 Friability Max.3% LC 21-080
- .3 Runoff coefficient Min. 80 LC 21-075
- .4 Absorption Max.2% LC 21-065

.3 Stabiliser
- .1 Non-toxic, organic, colourless and odorless concentrated powder formulated to bind crushed stone screenings.
- .2 Psyllium blend.
- .3 Swell volume: minimum 30%.

.4 Geotextile:
- .1 As prescribed in Section 31 32 21.02 – Geotextiles.

.5 Borders
- .1 Limestone borders : according to the requirements of Section 32 13 18.02 – Limestone Borders.

PART 3 EXECUTION

3.1 GRANULAR FOUNDATION

.1 Ensure that the granular foundation is prepared according to the requirements of Section 31 11 19.02 – Granular Foundation.

3.2 LIMESTONE BORDERS

.1 Place borders at locations prescribed, according to the layout shown and the requirements of Section 32 13 18.02 – Limestone Borders.

3.3 MIX

.1 The crushed granite stone required for the surface layer should be mixed with a stabiliser at a rate of 7kg per metric tonne, or at the rate recommended by the supplier, subject to the approval of the Departmental Representative.

.2 Mixing must be done on site by the supplier.

3.4 INSTALLATION

.1 Do not install stabilised granitic screening surface when the temperature is below +5c.

.2 Using a paver, install the stabilised granitic screening onto the prepared foundation, to the indicated on the plans, compacted in one layer.

3.5 WATERING

.1 Water thoroughly so that moisture penetrates throughout the thickness of the mixture. It is best to water with a low pressure hose to avoid deformations in the finished areas. As a guideline, the amount of water required is about 45 liters per square metre. This quantity is an average quantity which can vary depending on the humidity of the area. The water activates the “Stabiliser”, consequently it is essential that the entire thickness of material be saturated.

3.6 COMPACTION

.1 Once water is removed and while the surface remains moist (about 6 to 24 hours), drive a road roller (without vibration). A vibrating plate is prohibited.

.2 Avoid driving vehicles on the surface between its installation and compaction. Install fencing as necessary to do so.

3.7 FINISHING

.1 The finished surface must be smooth, uniform and solid, without cracks or apparent stratification. Dry, compacted material should be firm without showing spongy areas. Free materials should not be present on the surface before use.

.2 Free materials or a lack of cohesion of the materials on the surface is a sign of poor compaction or lack of water. Test area by adding water, having it penetrate, and compacting.

.3 A good finishing of the foundation layer will provide a uniform surface layer.

3.8 RESURFACING

.1 Resurface existing adjacent surfaces to new areas with similar existing materials (eg, topsoil, sodding or other) to match the immediate environment.

.2 The area to resurface is determined by the extent of inherent leveling work.

3.9 PROTECTION

.1 Protect the surface against any traffic (pedestrian or vehicular) for a period of 15 days, or as recommended by the Departmental representative.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 31 14 11.02 – Grading Works.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM D2974-07a Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.

1.3 DOCUMENTS AND SAMPLES TO SUBMIT

.1 At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items :
- .1 Topsoil
  - .1 Submit a data sheet of this product for approval.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Take unused amendment products to a licensed site for hazardous waste collection approved by the Departmental Representative.

.2 It is forbidden to dump unused amendment products into a sewer, a water course, a lake, into the soil or at any other place where it could pose a risk to health or the environment.

PART 2 PRODUCTS

2.1 TOPSOIL

.1 Topsoil for seeded or sodded areas, a mixture of particles, micro-organisms and other organic matter constituting an environment conducive to plant growth desired.
- .1 Texture based on the Canadian System of Soil Classification: soil consisting of 50-70% sand, 25-35% of silt, 7 to 10% clay and 5 to 10% by weight of organic matter.
- .2 Do not contain toxic elements or growth inhibitors.
- .3 Producing a finished surface free of:
  - .1 Debris and stones over 50 mm in diameter;
  - .2 Coarse plant material 10 mm in diameter and 75 mm in length, and accounting for more than 2% of soil volume.
- .4 Consistency: crumbly soil when humid.
- .5 Acidity : pH between 6 and 7.

2.2 SOIL AMENDMENT PRODUCTS

.1 Fertilisers
- .1 100% natural.
- .2 Fertility: product providing key nutrients in the proportions of 3-14-3, 20 to 40 micrograms of available nitrogen per gram of topsoil.
- .3 Fertilizer current product accepted by the industry, containing nitrogen, phosphorus, potassium and other micronutrients suitable for plant species or for specific application, or determined by soil test

.2 Peat Moss
- .1 Composed of different varieties of partially decomposed sphagnum moss.
- .2 In elastic and uniform consistency, brown in colour.
- .3 Exempts of wood and harmful materials that could inhibit growth.
- .4 Composed of shredded particles of at least 5mm in diameter.

.3 Sand: medium to coarse texture.

.4 Lime
.1 Ground agricultural lime.
.2 Particle size requirements: 90% of the lime must pass through a sieve of 1.0 mm, and 50% through a sieve of 0.125 mm

.5 Compost
.1 Mixture of soil and decaying organic matter used as fertilizer, mulch or soil amendment product. The compost is made, at 40% or more, of processed organic matter, this percentage being determined by the Walkley-Black test or LOI (loss on ignition). The product must be stable enough (matter sufficiently decomposed) so as not to have any adverse effect on plant growth (C/N ratio below 25), and it must not contain any toxic elements or growth inhibitors. The composted solid matters of biological origin should conform to the guidelines for compost quality, category A, published by the Canadian Council of Ministers of the Environment, in January 1996.

.6 Organic Matter:
.1 Compost of category A, untreated organic matter such as decomposed manure, hay, straw, bark residue or sawdust, in accordance with applicable requirements for organic matter content, compost maturity and contaminants.

2.3 QUALITY CONTROL AT THE SOURCE

.1 Soil testing should be performed by a recognized laboratory and cover pH, phosphorus, potassium and organic matter, as well as particle size.

.2 The laboratory shall determine the need for amendment products so as to be able to provide topsoil that meets the requirements.

.3 Incorporate the amendments required by the laboratory.

.4 Before its placement, the Departmental Representative will examine the topsoil and the result of the analysis, and determine if the material is acceptable.

PART 3 EXECUTION

3.1 PREPARATION OF THE EXISTING SUBGRADE

.1 Ensure that the existing subgrade meets the requirements of Section 31 14 11.02 – Grading Works.

.2 Remove debris, roots, branches, stones over 50 mm in diameter and other harmful substances. As well, remove soil contaminated with calcium chloride, toxic materials and petroleum products, and any debris protruding from the surface. Evacuate from the job site all these unwanted materials.

.3 Loosen the soil over the entire area that is to receive a layer of topsoil, down to a depth of at least 100mm. Repeat this operation perpendicularly to the direction of the first pass on any surfaces where transport or spreading equipment has compacted the soil

3.2 PLACING AND SPREADING OF THE TOPSOIL

.1 Once the Departmental Representative has accepted the subgrade, spread the topsoil in order to create a uniform layer of a depth, after settlement, as indicated on the plans.

.2 If a thickness of over 150mm is required, spread topsoil in uniform layers not exceeding 150 mm thick.

.3 For areas to be sodded, bring the level of the topsoil to 15mm of the finished grade.

.4 Spread the topsoil by hand around trees, shrubs and obstacles

3.3 SOIL AMENDMENT

.1 Apply amendment products and mix them properly throughout the thickness of the layer of the prescribed topsoil, in the proportions prescribed in the soil test report.

3.4 FINISH GRADING

.1 Do not perform work when conditions are unfavorable, such as when the ground is frozen or waterlogged, or when covered with snow, ice or standing water.

.2 Level the ground to eliminate any bumps and hollows and promote good drainage. All depressions or pockets that cannot drain themselves must be eliminated. Create a friable topsoil by loosening the soil and raking it. This tillage should only be done under adequate soil conditions, when it is dry, free of ice, snow, puddles or debris.

.3 Firm up the topsoil in order to obtain the required apparent bulk density, using equipment approved by the Departmental Representative. Leave the surfaces smooth, uniform and firm so it does not form deep scars under the weight of a person.

.4 Remove debris, roots, branches, stones larger than 50 mm in diameter and other harmful substances. Also remove soils contaminated by calcium chloride, toxic materials and petroleum products, as well as any debris protruding from the surface. Remove from the site all such unwanted material.

.5 All undulations or irregular variations of the finished grade which cannot be maintained with the Client's normal machinery of the Client without damaging the site must be removed in order to allow unimpeded maintenance.

3.5 RECEPTION

.1 The Departmental Representative will examine and analyze the topsoil in place, and will determine if the material, the thickness of the topsoil layer and finish grading are acceptable.

3.6 SURPLUS MATERIALS

.1 Evacuate surplus material from the job site.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 32 91 21.02 – Topsoil and Finish Grading.

1.2 REFERENCES

.1 Not applicable

1.3 DOCUMENTS AND SAMPLES TO SUBMIT

.1 At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items :

.1 Sod

.1 Submit a data sheet of this product for approval.

.2 Submit a one (1) sq.m. sample of this product for approval.

1.4 QUALITY CONTROL AT THE SOURCE

.1 The supply source of sod must be approved by the Departmental Representative. Once the sod's source of supply approved, no other sourcee can be used without the written authorisation of the Departmental Representative.

.2 The sod material must be approved at the source of supply by the Departmental Representative.

1.5 TRANSPORTATION AND HANDLING

.1 The sod must be delivered to the job site within 24 hours after its collection.

.2 The sod must be rolled or folded so as to limit the risk of breakage during handling and to reduce the risk of drying out during transportation..

.3 Properly cover the sod cover during transport to limit the drying of the roots.

.4 The sod will not be dumped from vehicles, but will be carefully unloaded and stored.

1.6 CONSTRUCTION SCHEDULE

.1 Establish the timetable for the laying of sod so that it coincides with the surface preparation and the spreading of the topsoil.

.2 Do not lay the sod during hot days (above 30^{o}C).

.3 The Contractor shall obtain the necessary authorization from the Departmental Representative before starting sodding works.

.4 Do not perform work when conditions are unfavorable, for example when the ground is frozen or waterlogged, or when covered with snow, ice or standing water.

1.7 WASTE MANAGEMENT AND ELIMINATION

.1 Send unused amendment and fertilizer products to a licensed site for the collection of hazardous materials approved by the Departmental Representative.

.2 It is forbidden to dump unused amendment and fertilizers products into sewers, watercourses, lakes, onto the soil or at any other place where it could pose a risk to health or the environment.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Number one grade cultivated grass : turf grass specially seeded and cultivated in sod nurseries.
- .1 Types of cultivated grass.
  - .1 Number one grade Kentucky Blue Grass / Fescue sod, grown only from seed mixtures of cultivars of Kentucky bluegrass and red fescue grass or creeping red fescue, and containing at least 40% of cultivars of Kentucky bluegrass and 30% creeping red fescue.
  - .2 Number one grade cultivars: grass grown from certified seed.
- .2 Quality of cultivated grass.
  - .1 Lawn containing more than 2 broadleaf weeds or 10 other type of seeds per 40 square meters.
  - .2 Turf with a density such that the soil is invisible from a height of 1500 mm, after mowing to a height of 60 mm.
  - .3 Maximum mowing height of 60-65 mm.
  - .4 The sod will come from a land where the soil surface is composed of particles of sand, silt and clay with properties of both sand and clay.
  - .5 The sod will be cut in a professional manner, using equipment designed for this work, according to the manufacturer's size, plus or minus 12mm in width, and 5% more or less in length.
  - .6 Thickness of sod soil: 15 mm
  - .7 The minimum age of sod will be 12 months, with roots that can withstand the weight of the sod roll, without tearing, when suspended vertically by holding the top corners.

.2 Water
- .1 Potable water supplied by the Contractor at the designated location.

.3 Fertilisers
- .1 Fertilisers complying with the Fertilisers Act and Fertilisers Regulations of the Government of Canada.
- .2 100% natural fertiliser, of a 3-14-3 formula.

.4 Herbicide
- .1 The type, rate and method of application are subject to approval by the Departmental Representative.

PART 3 EXECUTION

3.1 PREPARATION WORK

.1 Ensure that the ground level is adequate and that the surfaces to be sodded conform to Section 32 91 21.02 – Topsoil and Finish Grading.

.2 Remove weeds, debris, stones of a diameter of 50mm or more, soil contaminated by oil, gasoline and other deleterious matter, and remove these from the job site.

.3 Have the finish grading approved by the Departmental Representative before commencing the sodding work.

3.2 SOD PLACEMENT

.1 Place the sod within 24 hours following its collection.

.2 Place the sod in parallel strips, with staggered joints. Place them tightly one against the other so as to leave no gap or overlap.

.3 Cut any narrow or or irregularly-shaped pieces using sharp tools.

.4 Perform a light rolling (light roll, 320 to 540kg/m^3), designed to ensure contact of the sod with the soil. It is forbidden to use a heavy roller to correct surface irregularities. If the soil is dry, water the sod before rolling.

3.3 FERTILISATION PROGRAMME

.1 Apply fertilizer during the turf's grow-in and guaranty periods, ie. a month after the completion of sodding.

.2 Apply natural 3-14-3 fertilizer uniformly, at a rate of 0.5 kg of nitrogen per 100 square meters, and water the grass properly.

3.4 MAINTENANCE DURING GROW-IN

.1 Perform the following maintenance work from the sodding date until the date of provisional reception of the work
- .1 Water sodded areas with sufficient quantity and frequency to maintain an optimal moisture in the lawn, to a depth of 75-100 mm.
- .2 Repair and re-sod bare areas and areas of dead grass, to the satisfaction of the Departmental Representative.
- .3 Mow the turf to 60mm in height before or when it reached 80mm, and remove any clippings that could smother the turf.
- .4 Keep lawns free of weeds at 98%.
  - .1 Weed by mechanical means using acceptable methods of integrated pest management.

3.5 WORK PROVISIONAL RECEPTION

.1 Sodded areas will be accepted by the Departmental Representative if the following conditions are met:
- .1 The turf has established properly;
- .2 Turf areas are free of dead grass and bare areas;
- .3 Soil remains invisible from a height of 1500 mm, after mowing the lawn to a height of 60 mm;
- .4 Lawns have been mowed at least two (2) times prior to the reception of the work;

.2 The turf will be accepted no sooner than one (1) month after sodding completion.

.3 Areas sodded after September 30th will be accepted the following spring, one month after the beginning of the growing season, if the above conditions are met.

3.6 MAINTENANCE DURING GUARANTY PERIOD

.1 Perform the following work from the date of reception of the work until the end of the guaranty period.
- .1 Water sodded areas on a weekly basis to maintain an optimal moisture in the lawn to a depth of 100mm.
- .2 Repair and re sod all barren areas and areas of dead grass, to the satisfaction of the Departmental Representative.
- .3 Mow grass at a height of 60 mm and remove clippings that could smother turf, according to the Departmental Representative.
- .4 Apply fertilizers on sodded areas based on the established turf fertilization programme. Apply in one direction half the required amount of fertilizer, then spread the rest perpendicularly. Water properly so that the fertiliser penetrates into the soil.
- .5 Keep lawns free of weeds at 98%, using acceptable mechanical methods of integrated pest management.

END OF SECTION