

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 35 00 – Special Requirement – Traffic Control.

1.2. REFERENCES

1. Not applicable.

1.3. DOCUMENTS AND SAMPLES TO SUBMIT

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit to the Departmental Representative a data sheet for the abrasives.

PART 2 - PRODUCTS

2.1. MATERIALS

1. Abrasives used to remove paint deposits, oil, grease or rubber must be patented products specially designed for cleaning roads and approved by the Departmental Representative.

PART 3 - EXECUTION

3.1. REMOVAL OF ROAD MARKINGS

- .1 In the areas to be repainted, remove the painted markings on the pavement by sand or water blasting, by milling with a machine with rotating drum, by a planing machine with heating element or other method approved by the Departmental Representative.
- .2 Take care not to detach large aggregates, nor to remove too many fines particles, nor to damage to the asphalt binder or fillings products for joints and cracks.
- .3 Do not heat the pavement over 120°C during the passage of the planer.
- .4 One lane of traffic must remain open at all times. Refer to Section 01 35 00 – Special Requirement – Traffic Control, for additional requirements.

1.2 PAVEMENT CLEANING

- .1 Remove oil, grease, dust, contaminants, loose particles and foreign bodies from the areas to be painted using a method approved by the Departmental Representative. Finish cleaning with a hand broom.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 74 11 – Cleaning.
2. Section 31 05 17 – Landscape Aggregate Materials.
3. Section 31 32 21 – Geotextiles.

1.2. REFERENCES

1. American Society for Testing and Materials (ASTM).
 1. ASTM D698-12 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort 600kN-m/m³.
 2. ASTM D1557-12 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort 2,700 kN-m/m³.

1.3. SUBMITTAL PROCEDURES

1. Not applicable.

1.4. WASTE MANAGEMENT AND DISPOSAL

1. Transport unused aggregates to a quarry.

1.5. DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle materials in accordance with Section 31 05 17 – Landscape Aggregate Materials and with manufacturer's written instructions.

PART 2 - PRODUCTS

2.1. MATERIALS

1. The materials of the aggregate base courses must comply with the requirements of Section 31 05 17 – Landscape Aggregate Materials.
2. The geotextile must comply with the requirements of Section 31 32 21 – Geotextiles.

PART 3 - EXECUTION

3.1. INSTALLATION

1. Install the geotextiles according to the requirements of Section 31 32 21 – Geotextiles.
2. Spread the base course materials once the subgrade is inspected and approved by the Departmental Representative.
3. Placing.
 1. Construct aggregate base course to the depth and grades in areas indicated on the plans.
 2. Ensure that no frozen material is placed or that no material is placed on frozen ground.
 3. Spread the materials onto a clean, unfrozen surface, free of snow and ice.
 4. Spread the material on the entire width of the work, in uniform layers not exceeding 150 mm in thickness after compaction.
 5. Shape each layer to smooth contour and compact to specified density before next layer is placed.
 6. Remove and replace that portion of layer in which material becomes segregated during spreading.

3.2. COMPACTION

1. Compact according to the instructions indicated on the plans, as per ASTM D698 and ASTM D1557.
2. Alternate between profiling and rolling to obtain a uniform base course layer, 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 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 base course is 10 mm, higher or lower than the prescribed spot elevations. This tolerance cannot, however, be uniform over the entire surface of the base course.
2. For granitic screening, tolerance shall be 3 mm along a 3 m long straightedge.

3.4. PROTECTION MEASURES

1. Maintain the finished base course in a state conforming to this section until the completion of the next layer or acceptance of the work by the Departmental Representative.

3.5. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Progress cleaning: leave work area clean at end of each day.
3. Final cleaning: upon completion of works, remove surplus materials, rubbish, tools and equipment and proceed with cleaning.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 74 11 – Cleaning.
3. Section 31 05 17 – Landscape Aggregate Materials.
4. Section 31 32 21 – Geotextiles.
5. Section 32 11 23 – Aggregate Base Courses.

1.2. REFERENCES

1. Ontario Provincial Standard Specification (OPSS).
 1. OPSS 302-April 1999 Construction Specification for Primary Granula Base.
 2. OPSS 310-November 2012 Construction Specification for Hot Mix Asphalt.
 3. OPSS 1010-March 1993 Material Specification for Aggregates, Granular A, B, M and select Subgrade Material.
 4. OPSS 1103-February 1996 Material Specification for Emulsified Ashpalt.
 5. OPSS 1150-November 2012 Material Specification for Hot Mix Asphalt.

1.3. DOCUMENTS AND SAMPLE TO SUBMIT

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit data sheets and mix formula for the product.
3. Materials must be submitted for testing, conducted by a testing laboratory designated by and paid by the Departmental Representative.

1.4. WASTE MANAGEMENT AND DISPOSAL

1. Divert unused bituminous concrete from landfill to facilities apable of recycling these materials.

PART 2 - PRODUCTS

2.1. MATERIALS

1. Aggregate Base Courses for HL3 asphalt: made of materials that conform to the requirements of Section 31 05 17 – Landscape Aggregate Materials.
2. Aggregate Base Course for SP 12.5 & SP 19.0: made of materials that conform to OPS 1010 standard.
 1. Heavy Duty sections or roadways.
 1. Granular A: 150 mm.
 2. Granular B: Type II: 450 mm.
 2. Light Duty section or parking areas.
 1. Granular A: 150 mm.
 2. Granular B: Type II: 400 mm.
3. Tack coat: SS-1, to OPSS 1103 standard.
4. Asphalt concrete: to OPSS 1150 standard.
 1. Do not change the mixture's composition without prior approval of the Departmental Representative. If a change of the source of supply of any material is proposed, a new formula for determining the mixture must be approved by the Departmental Representative.
5. Geotextile: According to the provisions of Section 31 32 21 – Geotextiles.
6. Water: Drinking water free of minerals and impurities that could harm the environment.

PART 3 - EXECUTION

3.1. PREPARATION AND INSPECTION OF SUBGRADE

1. Before placing materials of the aggregate base course, verify that the level of the elements embedded in the pavement matches the grades indicated on the drawings (elevations and sections) and have the subgrade approved by the Departmental Representative.

3.2. AGGREGATE BASE COURSE

1. Create the aggregate base course according to the requirements of Section 32 11 23 – Aggregate Base Courses.

3.3. PAVEMENT THICKNESS

1. Pavement for Heavy Duty sections or roadways:
 1. Base Course: 50 mm SP 19.0

2. Wear course: 40 mm SP 12.5
2. Pavement for Light Duty section or parking areas
 1. Wear course: 50 mm SP 12.5
3. Pedestrian paths: See L401.

3.4. ASPHALT PAVING

1. Proceed with the installation of the asphalt paving according to the OPSS 310 standard.

3.5. DRAINAGE

1. The asphalt surfaces should be installed so that no runoff water can accumulate on it. Paved surfaces shall in no case block or impede surface drainage.

3.6. TOLERANCES

1. According to the OPSS 310 standard.

3.7. PROTECTION MEASURES

1. Do not let any vehicles circulate on the freshly laid surface before the temperature of the pavement surface is below 38 degrees Celsius. Do not allow static loads on the surface within 24 hours after its introduction.
2. Ensure free access to buildings, as needed, and ensure that the installation work of the pavement does not interfere with the normal use of the premises.

3.8. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Remove excess product at the locations indicated by the expert advice and eliminate these waste products as directed by the Departmental Representative.
3. Remove oil, grease, dust, contaminants, loose particles and foreign bodies designated surfaces by using a method approved by the Departmental Representative.
4. Finish cleaning with a vacuum sweeper, then a hand broom.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 74 11 – Cleaning.
2. Section 01 33 00 – Submittal Procedures.
3. Section 32 11 23 – Aggregate Base Courses.

1.2. REFERENCES

1. Canadian Standards Association (CSA International).
 1. CAN/CSA-A23.1-14 Concrete Materials and Methods of Construction
 2. CAN/CSA-A23.2-14 Methods of Test for Concrete.
 3. CAN/CSA-A179-14 Mortar and Grout for Unit Masonry.
2. Canadian General Standards Board (CGSB).
 1. CAN/CGSB-8.2-M88 Sieves, Testing, Woven Wire, Metric.
3. American Society for Testing and Materials (ASTM).
 1. ASTM C568/C568M-10 Standard Specification for Limestone Dimension Stone.
 2. ASTM D1621-10 Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 3. ASTM D1777-96(2001)e1 Standard Test Method for Thickness of Textile Materials
 4. ASTM D3776-09a(2013) Standard Test Method for Mass per Unit Area (Weight) of Fabric.
 5. ASTM D3786-13 Standard Test Method for Bursting Strength of Textile Fabrics – Diaphragm Bursting Strength Tester Method.
 6. ASTM D4355-14 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
 7. ASTM D4491-99a(2014)e1 Standard Test Method for Water Permeability of Geotextiles by Permittivity.
 8. ASTM D4533-11 Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
 9. ASTM D4632-08(2013)e2 Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
 10. ASTM D4751-12 Standard Test Method for Determining Apparent Opening Size of a Geotextile.
 11. ASTM D4833-07(2013)e1 Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
 12. ASTM D5261-10 Standard Test Method for Measuring Mass per Unit Area of Geotextile.

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. Within six (6) weeks of contract award, submit to the Departmental Representative the following items:
 1. Limestone pavers.
 1. Submit three (3) 300x300mm (x100mm thick) paver samples for each type of finishing, including 3mm chamfer on two edges of the finished side and 1mm chamfer on the other two edges.
 2. Submit three (3) copies of shop drawings for all limestone components (sizes and finishes) for approval prior to fabrication.
 3. Submit a data sheet for the limestone.
 2. Bedding sand.
 1. Submit a data sheet of this product for approval.
 3. Joint sand.
 1. Submit a data sheet of this product for approval.
 2. Submit a 1kg sample of this product for approval.

1.4. INSPECTIONS

1. The Departmental Representative will inspect the stone for acceptance of quality and dimensions at the following stages:
 1. Stage 1. Cut slabs at supplier holding yard, with at least one clean side:
 1. The purpose of this visit is to establish a baseline of what is available from the quarry at the time of the project start and forecast for extraction, review supplier facilities, determine acceptable or unacceptable stone based on what can be reviewed on the rough slabs.
 2. Rough slabs to be reviewed: cut one side, perpendicular to the stone's bedding.
 3. It should be noted that hidden defects such as fissures, inclusions and cracks cannot be reviewed on the rough slabs. It remains the Contractor's responsibility to supply stone cut to specified dimensions matching the required quality.
 2. Stage 2: After cutting to indicated dimensions and finishing after acceptance of finish samples:
 1. Inspections to take place at Contractor's storage facility located within 50 km of the National Capital Area (Ottawa).
 2. Two inspections will take place at this stage, the first inspection to review about 50% of the required stone quantities, the second inspection to review the remaining quantities and any of the stones deemed unacceptable during the first review.
 3. Any stone units deemed unacceptable during the first inspection will need to be replaced for the second inspection. Should additional stone be rejected during the second inspection (more than 15%) additional quality reviews for the remaining stone will be performed at the Contractor's expense.
 4. The Contractor will ensure that all the stones are unpacked, arranged and ready for review by Departmental Representative such that each individual unit can be reviewed with no manipulation; all faces will be reviewed.

3. Stage 3: Inspections during installation of the pavers.
2. If the stone is not found to meet the required quality and dimensions:
 1. The Contractor will provide additional material at no additional cost to the project until all material is accepted by the Departmental Representative.
 2. The Contractor will pay costs associated with re-inspections by the Departmental Representative.
3. For inspection of the rough slabs at the supplier yard and for the inspections of the cut six-sides finished blocks, the Contractor to ensure water is available to wet down the cut.

1.5. OFF-SITE STORAGE

1. Provide the necessary stable ground and protection for limestone pavers stored for prolonged periods to prevent accidental shock, staining or other damage.
2. Maintain inventory to permit delivery of limestone pavers on seven (7) days' notice.

1.6. TRANSPORTATION AND HANDLING

1. Pack and load limestone pieces carefully using all necessary precautions to prevent damage during loading, in transit and when in storage before installation.
2. Bond limestone pieces together properly in manageable volumes in hard wooden crates or other appropriate packing system.
3. Use no material that may cause staining or discoloration for blocking or packing.
4. Provide forklifts and other equipment required for loading and handling limestone pieces.
5. Deliver to the job site all the specified limestone pavers.
6. Coordinate shipping schedules to ensure uninterrupted timely deliveries and availability when required at the job site.
7. Coordinate specific location of unloading at installation sites with Departmental Representative.
8. Unload limestone pieces only onto stable secure ground.

1.7. JOB SITE STORAGE

1. Store limestone pieces at the job site in an area acceptable to the Departmental Representative, where they do not interfere with circulation and will be protected from damage or staining. Organize limestone pieces to allow for qualitative and quantitative checks.
2. Supply forklifts and similiary machinery required to unload and handle limestone pieces.
3. Do not remove limestone pieces from their original packaging until installation.

1.8. MOCK-UP

1. Prepare a mock-up of limestone pavers.
2. This mock-up will be the on-site reference for installation and workmanship. Only stone pavers' installation matching the approved final mock-up will be acceptable.
3. The mock-up location :

1. For Type 1 pavers on granular base course, will be approximately 3.0m long, spanning the width of the pathway, extending across a pier.
1. The mock-up for Type 1 pavers shall also be the standard of quality for Type 2 pavers.
2. Location shall be approved by Departmental Representative before proceeding with works.
4. Allow five (5) work days for inspection of mock-up before proceeding with work.
5. When accepted, mock-up will demonstrate minimum standard of quality required for this work.
6. Approved mock-up may remain as part of finished work.

1.9. WASTE MANAGEMENT

1. Remove from job site and dispose of packaging materials at appropriate recycling facilities.
2. Fold up metal banding, flatten and place in designated area for recycling.
3. Remove from the job site stone cutting debris.

PART 2 - PRODUCTS

2.1. LIMESTONE PAVERS

1. General.
 1. Obtain new stone from a single quarry source acceptable to Departmental Representative.
 1. Ensure single quarry source has resources to provide materials of consistent quality and matching existing stone.
 2. 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.
 3. 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.
 4. Limestone: mezozoic age, fossiliferous semi-crystalline limestone with common geologic features of dark colour, and stylolitic inclusions to ASTM C568, category II – Medium Density, colour and texture to match approved sample.
 1. Stone shall be free of imperfections; no open stylolytes (resembling faults and/or fissures), no clay, no iron or other inclusions, no holes. Acceptable stylolytes are very thin and discontinuous.
 2. No open or continuous stylolites are acceptable in the top 60mm of the paver.
 3. Saw-cutting through stylolites at the top face of limestone pieces is not acceptable.
 4. Erratic changes of porosity and texture or excessive interweaving of stylolitic bedding will not be accepted.
 5. No secondary calcitic vein deposits will be accepted.
 6. Free from oil or other organic pockets.
5. Source: ANSA - Pierre grise de Montréal or alternative approved by Departmental Representative.

2. Characteristics.

1. Sizes and finish types.

1. Pattern Type 1.

1. Size 10: 100 x 147 x 147 mm, Finish A.
2. Size 11: 100 x 147 x 297 mm, Finish A.
3. Size 12: 100 x 147 x 447 mm, Finish B.
4. Size 13: 100 x 297 x 297 mm, Finish A.
5. Size 14: 100 x 297 x 447 mm, Finish C.
6. Size 15: 100 x 297 x 597 mm, Finish B.
7. All Pattern Type 1 pavers shall have a 1mm chamfer on the four edges of their top side.

2. Oversized pavers (Type 1).

1. Size 16: 100 x 397 x 397 mm, Finish A.
2. Size 17 : 100 x 397 x 697 mm, Finish B.
3. Size 18: 100 x 397 x 547 mm, Finish C.
4. All Oversized Type 1 pavers shall have a 1mm chamfer on the four edges of their top side.

3. Pattern Type 2.

1. Size 20: 150 x 297 x 297 mm, Finish A.
2. Size 21: 150 x 297 x 597 mm, Finish A.
3. Size 22: 150 x 297 x 897 mm, Finish B.
4. Size 23: 150 x 597 x 597 mm, Finish A.
5. Size 24: 150 x 597 x 897 mm, Finish C.
6. Size 25: 150 x 597 x 1197 mm, Finish B.
7. All Pattern Type 2 pavers shall have a 3mm chamfer on the four edges of their top side.

4. Oversized pavers (Type 2).

1. Size 26: 100 x 697 x 697 mm, Finish A.
2. Size 27 : 100 x 697 x 1297 mm, Finish B.
3. Size 28: 100 x 697 x 997 mm, Finish C.
4. All Oversized Type 2 pavers shall have a 3mm chamfer on the four edges of their top side.

5. Across path and around Summer Pavilion (Soldiers)

1. Size S: 100 x 297 x 495 mm, Finish B.
2. All "Size S" pavers shall have a 1mm chamfer on the four edges of their top side.

2. Finishes.

1. Top.

1. Finish A: Bush hammered 1.4 dots per square centimetre.
2. Finish B: Smooth and sand blasted over.
3. Finish C : Layed.

2. Bottom, sides and ends: sawcut.

3. Size Tolerances (excluding chamfers).

1. Plus or minus 3mm, in any direction.

4. Quantities

1. The Contractor is responsible to supply sufficient quantities of each paver types to complete the works based on the plans. Contingencies are to be provided for cuttings, damages and other losses.
2. Oversized paver quantities is also the responsibility of the Contractor.

2.2. BEDDING SAND

1. Manufactured sand for bedding: hard, durable, crushed stone particles, conforming to gradation of concrete sand as specified in CAN/CSA A23.1. Sand: free from clay lumps, cementation, organic material, frozen material and other deleterious materials. Do not use limestone screenings or stone dust.

1. Gradations: within limits specified when tested to CAN/CSA A23.2. Sieve sizes to CAN/CGSB-8.2-M88.

Sieve Designation	% Passing
10 mm	100
5 mm	95-100
2.5 mm	80-100
1.25 mm	50-90
0.630 mm	25-65
0.315 mm	10-35
0.160 mm	2-10
0.080 mm	0-3

2. Micro-Deval : max 35%

2.3. JOINT SAND

1. Joint sand: to CSA A179 standard. Hard, durable, angular particles, free from clay lumps, cementation, organic material, frozen material and other deleterious materials. Do not use limestone screenings or stone dust.

1. Polymeric.

2. Gradations: within limits specified when tested to CAN/CSA A23.2. Sieve sizes to CAN/CGSB-8.2-M88.

Sieve Designation	% Passing
5 mm	100
2.5 mm	90-100
1.25 mm	85-100
0.630 mm	65-95

0.315 mm	15-80
0.160 mm	0-35
0.080 mm	0-1

3. Colour to harmonize with limestone pavers. Must be approved on the job site by Departmental Representative.

2.4. DRAINAGE MEMBRANE

1. Shall be a high-performance, high-resistance drain board for horizontal. The polypropylene membrane shall utilise a high-strength woven monofilament filter fabric for drainage and support under concrete, soil and beddings.
2. Properties; Core:
 1. Physical.
 1. Weight: 930g/sq.m, according to the ASTM D3776 standard.
 2. Thickness: 10mm, according to the ASTM D1777 standard.
 2. Mechanical.
 1. Compressive strength: 862kN/sq.m. minimum, according to the ASTM D1621 standard.
3. Properties; Filter fabric.
 1. Physical.
 1. Weight: 216g/sq.m. minimum, according to the ASTM D5261 standard.
 2. UV resistance (500hr): 70% minimum, according to the ASTM D4355 standard.
 2. Mechanical.
 1. Elongation: 24%, according to the ASTM D4632 standard.
 2. Mullen burst: 3100 kPa minimum, according to the ASTM D3786 standard.
 3. Puncture strength: 440N minimum, according to the ASTM D4833 standard.
 4. Grab tensile: 1620N minimum, according to the ASTM D4632 standard.
 5. Trapezoidal tear: 511N minimum, according to the ASTM D4533 standard.
 3. Hydraulic.
 1. Apparent opening size: 0.42mm minimum, according to the ASTM D4751 standard.
 2. Water flow rate: 4074L/min/sq.m. minimum, according to the ASTM D4491 standard.

PART 3 - EXECUTION

3.1. AGGREGATE BASE COURSES OR CONCRETE SLAB

1. Ensure that the aggregate base course conform to Section 32 11 23 – Aggregate Base Courses, before commencing works, or;

2. Ensure that the concrete slab meets the requirements set forth by the Departmental Representative before commencing works.

3.2. PROTECTION MEASURES

1. Prevent damage to stone wall, stone piers, lampposts, stairs, monuments, etc. Make good any damage.
2. Coordinate installation schedule to minimize interference with normal use of premises.

3.3. JOB SITE CONDITION

1. Carry out work only when surfaces are at least +2°C and the temperature is rising, unless otherwise specified.
 1. Suspend works when temperature falls below specified minimum.
2. Ensure bedding sand, aggregate base courses and underlying soils are not frozen or saturated with water prior to installation.

3.4. STONE CUTTING ON THE JOB SITE

1. Where required, cut limestone pavers accurately without damaging edges.
2. Provide suitable equipment, to cut limestone pavers to fit site conditions and specified paving patterns accurately.
3. Carry out all required cutting for site adjustments, within or adjacent to paved areas.
4. Limestone pavers cut on the job site shall, when set in position, not reveal a gap between adjacent surfaces of more than 3 mm, or 15mm at Wall or pier face.
5. Clean all sawn faces of rust stains and iron particles.
6. Paver wedges:
 1. Avoid installing pieces smaller than 50mm in length or width.
 2. Substitute (and cut to size) a suitable oversized paver to replace an adjoining standard-sized paver and the offending paver wedge, as shown on the plans.
 1. Oversized paver must be of the same finishing as the adjoining standard-sized paver.
7. Chamfers:
 1. Recreate the above-mentioned chamfers for on-site cutting works.

3.5. INSTALLATION OF PAVERS

1. Handle the pavers carefully so as not to chip the edges.
2. Install stone paving as indicated on the plans.
3. Paver alignment and orientation: as shown on the plans.
4. Provide for 3mm joint between pavers.
5. Installation.
 1. For installation on concrete slab:
 1. Install drainage membrane on concrete slab, according to the manufacturer's recommendations, over the entire surface to be paved.

2. Spread bedding sand to a maximum compacted thickness for sand bed as shown on the plans.
 1. Bedding sand may not be used to compensate for depressions that exceed specified tolerances in surface of aggregate base course.
 3. Do not use joint sand for bedding sand, or vice versa.
 4. Submit paver installation for approval by the Departmental Representative before proceeding with joint sand installation
 5. Fill joints with joint sand as indicated on the plans.
 6. Compact and level the stone with min. 22 kN force mechanical plate vibrator; use minimum 19 mm thick plywood or neoprene pad under plate compactor and over stone until units are true to grade and free of movement and to achieve compaction of sand in joints.
 7. Ensure joints are full with compacted joint sand upon completion of works.
 8. At completion of each work day, ensure work within 1 m of laying face is left fully compacted with sand filled joints.
6. Sweep surface clean and check final elevations for conformance to drawings.

3.6. TOLERANCES

1. Vertical
 1. 6 mm of established elevations and cross-sections shown on the plans.
 2. 1mm with the top of the adjoining limestone paver or border.
 3. 3 mm along a 3 m long straightedge.
2. Horizontal
 1. 10 mm of established location.
 2. 15 mm at junctions with stone wall.
 3. 3 mm at joints between: other paving types or borders, and other features within paved areas.
 4. Joints: 3mm, plus or minus 1mm

3.7. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Progress cleaning: leave work area clean at end of each day.
3. Final cleaning: upon completion of works, remove surplus materials, rubbish, tools and equipment and proceed with cleaning.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 32 13 11 – Limestone Pavers.
3. Section 32 13 19 – Aluminium Edgings.

1.2. REFERENCES

1. Canadian General Standards Board (CGSB).
 1. CAN/CGSB-8.2-M88 Sieves, Testing, Woven Wire, Metric.
2. Canadian Standards Association (CSA International).
 1. CSA-A23.1-14/A23.2-14 Concrete Materials and Methods of Construction/Methods of Test for Concrete.
 2. CAN/CSA A165.2-04 (R2014) Concrete Brick Masonry Units.
 3. CAN/CSA-A3000-A5 Concrete – Portland Cements.
3. American Society for Testing and Materials (ASTM).
 1. ASTM C568/C568M-10 Standard Specification for Limestone Dimension Stone.

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. Within six (6) weeks of contract award, submit to the Departmental Representative the following items:
 1. Limestone borders
 1. Submit three (3) 300mm long sample for limestone border Type 1.
 2. Submit three (3) copies of shop drawings for all limestone components (sizes and finishes) for approval prior to fabrication.
 3. Submit a data sheet for the limestone.
 2. Lean concrete.
 1. Submit a data sheet of this product for approval.

1.4. INSPECTIONS

1. The Departmental Representative will inspect the stone for acceptance of quality and dimensions at the following stages:
 1. Stage 1. Cut slabs at supplier holding yard, with at least one clean side:

1. The purpose of this visit is to establish a baseline of what is available from the quarry at the time of the project start and forecast for extraction, review supplier facilities, determine acceptable or unacceptable stone based on what can be reviewed on the rough slabs.
2. Rough slabs to be reviewed: cut one side, perpendicular to the bedding.
3. It should be noted that hidden defects such as fissures, inclusions and cracks cannot be reviewed on the rough slabs. It remains the Contractor's responsibility to supply stone cut to specified dimensions matching the required quality.
2. Stage 2: After cutting to indicated dimensions and finishing after acceptance of finish samples:
 1. Inspections to take place at Contractor's storage facility located within 50 km of the National Capital Area (Ottawa).
 2. Two inspections will take place at this stage, the first inspection to review about 50% of the required stone quantities, the second inspection to review the remaining quantities and any of the stones deemed unacceptable during the first review.
 3. Any stone units deemed unacceptable during the first inspection will need to be replaced for the second inspection. Should additional stone be rejected during the second inspection (more than 15%) additional quality reviews for the remaining stone will be performed at the Contractor's expense.
 4. The Contractor will ensure that all the stones are unpacked, arranged and ready for review by Departmental Representative such that each individual unit can be reviewed with no manipulation; all faces will be reviewed.
3. Stage 3: Inspections during installation of the borders.
2. If the stone is not found to meet the required quality and dimensions:
 1. The Contractor will provide additional material at no additional cost to the project until all material is accepted by the Departmental Representative.
 2. The Contractor will pay costs associated with re-inspections by the Departmental Representative.
3. For inspection of the rough slabs at the supplier yard and for the inspections of the cut six-sides finished blocks, the Contractor to ensure water is available to wet down the cut.

1.5. OFF-SITE STORAGE

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

1.6. TRANSPORTATION AND HANDLING

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

1.7. JOB SITE STORAGE

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

1.8. MOCK-UP

1. Prepare a mock-up of limestone borders.
2. This mock-up will be the on-site reference for installation and workmanship. Only border installations matching the approved final mock-up will be acceptable.

3. The mock-up location shall be approved by Departmental Representative, and will be 5.0m in length, and include at least two different types of borders.
4. Allow five (5) work days for inspection of mock-up before proceeding with work.
5. When accepted, mock-up will demonstrate minimum standard of quality required for this work.
6. Approved mock-up may remain as part of finished work.

1.9. WASTE MANAGEMENT

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

PART 2 - PRODUCTS

2.1. LIMESTONE BORDERS

1. General.
 1. According to the requirements of Section 32 13 11 – Limestone Pavers.
2. Characteristics.
 1. Type 1 border.
 1. Dimensions: 100 x 1000 x 200 mm
 2. Finishing: honed on top, saw cut on other sides.
 2. Type 2 border.
 1. Dimensions: 100 x 1000 x 200 mm
 2. Radius (along 1000mm side)
 1. Inside: 1500mm
 2. Outside: 1600mm
 3. Finishing: honed on top, saw cut on other sides.
 3. Type 3 border.
 1. Dimensions: 100 x 1000 x 450 mm
 2. Finishing: honed on top and long (1000mm) sides, saw cut on other sides (bottom and ends).
 4. Type 4 border.
 1. Dimensions: 100 x 1000 x 450 mm
 2. Radius (along 1000mm side)
 1. Inside: 1500mm
 2. Outside: 1600mm
 3. Finishing: honed on top and long (1000mm) sides, saw cut on other sides (bottom and ends).

5. Type 5 border.
 1. Dimensions: 100 x 1000 x 100 mm
 2. Finishing: honed on top, saw cut on other sides.
6. Type 6 border.
 1. Dimensions: 100 x 1000 mm x variable.
 1. Border height goes from 200mm to 400mm. See plan L401.
 2. Finishing: honed on top and long (1000mm) sides, saw cut on other sides (bottom and ends).
7. Size tolerances for all border types
 1. Plus or minus 3mm, in any direction.
8. Chamfers for all border types.
 1. 1mm chamfer on the four edges of their top side.

2.2. BEDDING SAND

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

2.3. JOINT SAND

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

2.4. BEARING BRICKS

1. Concrete brick, conforming to the requirements of the CAN/CSA A165.2, standard, type I-35, or limestone block of approximate dimension 100mm x 100mm x 150mm.
 1. Limestone paver or border cuttings are accepted as bearing bricks, so long as they respect the dimensions above, at a minimum.

2.5. LEAN CONCRETE PROPORTIONING

1. Prepare the concrete in accordance with the CAN/CSA A23.1 standard.
 1. Use type 10 normal Portland cement, conforming to the CAN/CSA A3000-A5 standard.
 2. Minimum resistance to compression at 28 days: 15 MPa.
 3. Nominal coarse aggregate size: 19 mm, conforming to CAN/CSA A23.1 standard.
 4. Slumping at time and point of discharge: 75mm.

2.6. ALUMINIUM EDGINGS

1. According to the requirements of Section 32 13 19 – Aluminium Edgings.

2.7. DRAINAGE MEMBRANE

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

PART 3 - EXECUTION

3.1. AGGREGATE BASE COURSES OR CONCRETE SLAB

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

3.2. PROTECTION

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

3.3. JOB SITE CONDITION

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

3.4. STONE CUTTING ON-SITE

1. Where required, cut limestone borders accurately without damaging edges.
2. Provide suitable equipment to cut limestone borders to fit job site conditions.
3. Carry out all required cutting for site adjustments, within or adjacent to paved areas.
4. Limestone borders cut on the job site shall, when set in position, not reveal a gap between abutting object or surface of more than 3 mm.
5. Clean all sawn faces of rust stains and iron particles.
6. Avoid installing limestone border pieces less than 300mm in length. Shorten adjoining limestone border piece if necessary.
 1. Full pieces must be used whenever possible.
7. Chamfers.
 1. Recreate the above-mentioned chamfers for on-site cutting works.

3.5. INSTALLATION OF LIMESTONE BORDERS

1. Handle the borders carefully so as not to chip the edges.
2. Borders must be laid in accordance with the slopes, levels, dimensions, layouts and patterns shown on the plans.
3. Installation on bearing brick with lean concrete
 1. Bedding sand.
 1. Place and spread bedding sand to a maximum compacted thickness for sand bed as shown on the plans.
 1. Bedding sand may not be used to compensate for depressions that exceed specified tolerances in surface of base.
 2. Do not use joint sand for bedding sand, or vice versa.
 2. Bearing brick.
 1. Place bearing brick on bedding sand to ensure that limestone borders, once installed, will be within alignments and levels indicated on the plans, within the tolerances prescribed below.

2. Use at least two bearing bricks per limestone border piece.

3. 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. Submit for approval by the Departmental Representative.
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 has been vandalized or damaged shall be demolished and rebuilt at the Contractor's expense.
8. Any concrete work that 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.

4. Joints

1. Submit border installation for approval by the Departmental Representative before proceeding with joint sand installation
2. Fill joints with joint sand as indicated on the plans.
3. Once the lean concrete has fully hardened, compact and level the stone with min. 22 kN force mechanical plate vibrator; use minimum 19 mm thick plywood or neoprene pad under plate compactor and over stone until units are true to grade and free of movement and to achieve compaction of sand in joints.
4. Ensure joints are full with compacted joint sand upon completion of works.
5. At completion of each work day, ensure work within 1 m of laying face is left fully compacted with sand filled joints.

4. Installation on concrete slab.

1. Install drainage membrane on concrete slab, according to the manufacturer's recommendations, over the entire surface to be paved.
2. Place and spread bedding sand to a maximum compacted thickness for sand bed as shown on the plans.
 1. Bedding sand may not be used to compensate for depressions that exceed specified tolerances in surface of aggregate base course.

3. Do not use joint sand for bedding sand, or vice versa.
 4. Submit border installation for approval by the Departmental Representative before proceeding with joint sand installation
 5. Fill joints with joint sand as indicated on the plans.
 6. Compact and level the stone with min. 22 kN force mechanical plate vibrator; use minimum 19 mm thick plywood or neoprene pad under plate compactor and over stone until units are true to grade and free of movement and to achieve compaction of sand in joints.
 7. Ensure joints are full with compacted joint sand upon completion of works.
 8. At completion of each work day, ensure work within 1 m of laying face is left fully compacted with sand filled joints.
 9. Install aluminium edgings according to the plans and the requirements of Section 32 13 19 – Aluminium Edgings.
5. Sweep surface clean and check final elevations for conformance to drawings.

3.6. TOLERANCES

1. Vertical
 1. 6 mm of established elevations and cross-sections shown on the plans.
 2. 1mm with the top of the adjoining limestone paver or border.
 3. 3 mm along a 3 m long straightedge.
2. Horizontal
 1. 10 mm of established location.
 2. For straight sections, 2 mm along a 10 m long straightedge.
 3. 3 mm at joints between: other paving types or borders, or other features.
 4. Joints: 3mm, plus or minus 1mm.

3.7. CLEANING

1. According to the requirements of Section 32 13 11 – Limestone Pavers.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 74 11 – Cleaning.

1.2. REFERENCES

1. Not applicable.

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit to the Departmental Representative the data sheets for the following items:
 1. Aluminium edging.

PART 2 - PRODUCTS

2.1. ALUMINIUM EDGINGS

1. Interlocking, commercial grade, natural, aluminum edgings 6063 alloy containing silicon and magnesium, hardness T-6 according to The Aluminum Association, fitted with pegs, alloy 6061, T-6 hardness according to the Aluminum Association.
 1. Edgings:
 1. Dimension: 4.8 x 102 mm. Length as supplied by manufacturer.
 2. Anchoring devices: aluminum anchors designed for specified edgings, length of 305 mm.

PART 3 - EXECUTION

3.1. INSTALLATION

1. Install the aluminium edgings according to the manufacturer's recommendations.
 1. Place anchoring devices at a minimum rate of at least three (3) pegs per section of 2440 mm, or five (5) pegs per section 4900 mm, and within 100 mm of any edging ends.

3.2. TOLERANCE

1. The aluminium edgings should be installed with a maximum deviation of 6 mm compared to the prescribed alignment and elevation.
2. Aluminium edgings can be within 2mm of the adjoining edging, both vertically and horizontally.

3.3. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Progress cleaning: leave work area clean at end of each day.
3. Final cleaning: upon completion of works, remove surplus materials, rubbish, tools and equipment and proceed with cleaning.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 35 00 – Special Procedures – Traffic Control.
3. Section 32 01 12 – Removal of Road Markings.

1.2. REFERENCES

1. Canadian General Standards Board (CGSB)
 1. CAN/CGSB 1.5-M91 Low Flash Petroleum Spirits Thinner.
 2. CGSB 1-GP-12C:1990 Standard Paint Colours
 3. CGSB 1.74-2001 Alkyd Traffic Paint.

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit to the Departmental Representative the data sheets for the following items:
 1. Submit a data sheet for the paint and the thinner.

PART 2 - PRODUCTS

2.1. MATERIALS

1. Paint
 1. Road marking paint with alkyd resin, for pavement, conforming to the CGSB 1.74 standard.
 2. Colour: conforming to the CGSB 1-GP-12C standard.
 1. Yellow 505-308.
 3. Upon request, the Departmental Representative will provide a list of approved paint products suitable for the work. Paint from recognized brands may be used, however the Departmental Representative reserves the right to conduct further tests.
2. Thinner: conforming to the CAN/CGSB 1.5 standard.

2.2. EQUIPMENTS

1. Use approved marking equipment, operating under pressure, mobile, capable of applying the paint evenly in one continuous line, in two continuous lines and in broken lines. The equipment used must be capable of applying the marking product uniformly, at the prescribed application rates and recommended size, and must be fitted with a safe shutdown.

PART 3 - EXECUTION

3.1. SURFACE CONDITION

1. Ensure that the state of the surface meets the requirements of Section 32 01 12 –Removal of Road Markings.
2. The pavement surface to be painted must be dry and free of standing water, frost, ice, dust, oil, grease and other foreign matter.

3.2. IMPLEMENTATION

1. Determine the location of the markings to be applied on the pavement and obtain approval by Departmental Representative.
 1. Line width and symbol dimensions shall be identical to what is found elsewhere on Parliament Hill.
2. Unless otherwise specified by the Departmental Representative, apply paint only when the wind speed is below 30 km/h, the air temperature is above 10°C and when no rain is forecast for the next 8 hours.
3. Apply paint evenly at a rate of 3 m² / L.
4. Do not dilute the paint without Departmental Representative's authorization.
5. The painted lines must have a uniform colour and density, and their edges must be clean.
6. Thoroughly clean the paint marking reservoir before filling with a paint of a different colour.
7. Ensure that markings do not interfere with the normal traffic.
8. All works shall be in accordance with Section 01 35 00 – Special Procedures – Traffic Control.

3.3. TOLERANCES

1. The tolerance allowed for marking dimensions on the pavement is 12mm, more or less, compared to the dimensions prescribed above.
2. Remove incorrect markings, according to the requirements of Section 32 01 12 – Removal of Road Markings.

3.4. MARKINGS PROTECTION

1. Protect all markings until the paint is dry.
2. The Contractor will be responsible for the supply and installation of all temporary obstacles for marking protection, as well as job site monitoring.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 74 11 – Cleaning.
3. Section 31 14 11 – Grading Works.

1.2. REFERENCES

1. Canadian Council of Ministers of the Environment
 1. PN1340-2005 Guidelines for Compost Quality.
2. American Society for Testing and Materials (ASTM).
 1. ASTM D2974-13 Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items:
 1. Submit a data sheet for the following products:
 1. Topsoil.

1.4. QUALITY CONTROL AT THE SOURCE

1. Advise Departmental Representative of sources of topsoil to be utilized with sufficient lead time for testing.
 1. Testing must be performed and topsoil approved before it can be delivered to the job site.
2. Soil testing should be performed by a recognized laboratory designated by and paid for by the Departmental Representative and cover pH, phosphorus, potassium and organic matter, as well as particle size, metals, PHC F1 to F4 and BTEX.
 1. Soil sampling, testing and analysis to be in accordance with Provincial standards.
3. The laboratory shall determine the need for amendment products so as to be able to provide topsoil that meets the requirements.
4. Incorporate the amendments required by the laboratory.
5. Before its placement, the Departmental Representative will examine the topsoil and the result of the analysis, and determine if the material is acceptable.

1.5. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials.

2. Take unused amendment products to a licensed site for hazardous waste collection approved by the Departmental Representative.
3. 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.

	Sieve	% passing
Sand 2 – 0,05 mm	2,5 mm	98 – 100
	1,25 mm	90 – 97
	0,63 mm	80 - 95
	0,315 mm	50 – 85
	0,160 mm	35 – 65
Loam 0,05 – 0,002 m	0,080 mm	25 - 35
Clay 0,002 mm or less	0,002 mm	7 - 10

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.
6. Nutrient content :

N (Nitrogen)	100 ppm
P (Phosphorus)	26 - 100 ppm
K (Potassium)	126 – 175 ppm
Mg (Magnesium)	157 – 200
Ca (Calcium)	1000 – 2000 ppm

7. CEC : 10-20 meq/100g

PART 3 - EXECUTION

3.1. TEMPORARY EROSION AND SEDIMENTATION CONTROL

1. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent surfaces or properties, according to requirements of authorities having jurisdiction.
2. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
3. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2. PREPARATION OF THE EXISTING SUBGRADE

1. Ensure that the existing subgrade meets the requirements of Section 31 14 11 – 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. Remove 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 the subgrade is compacted, according to the Departmental Representative.

3.3. TOPSOIL STOCKPILING AT THE JOB SITE

1. Stockpile topsoil by creating piles in the locations determined by the Departmental Representative. The height of the piles must not exceed 2.5 metres. Deposit the topsoil on higher, well-drained ground, and on a geotextile membrane to limit particle dispersion in the soil and towards any bodies of water.
2. Eliminate unused topsoil off the job site at the end of works.
3. Protect topsoil stockpiles from contamination and compaction.

3.4. 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. Manually spread the topsoil around trees, shrubs and obstacles

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

3.6. SURPLUS MATERIALS

1. Remove surplus material from the job site.

3.7. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Progress cleaning: leave work area clean at end of each day.
3. Final cleaning: upon completion of works, remove surplus materials, rubbish, tools and equipment and proceed with cleaning.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 74 11 – Cleaning.
3. Section 31 05 17 – Landscape Aggregate Materials.
4. Section 32 91 19 – Topsoil Placement & Finish Grading.
5. Section 32 93 10 – Planting Works.

1.2. REFERENCES

1. Canadian Food and Inspection Agency
 1. Fertilizers Act
 1. Fertilizers Regulations.
 2. Seeds Act
 1. Seeds regulations.

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items:
 1. Submit a data sheet for the following products:
 1. Seed: a legible, valid certificate of Seed Analysis from a Seed Testing Laboratory, approved by Agriculture and Agrifood Canada, shall be provided for all seed mixes to the Departmental Representative a minimum of 15 days prior to any seeding operations.
 2. Fertilizer.

1.4. SCHEDULE

1. Establish work schedules so that the work is immediately succeeded by the installation of stabilisation mats.
2. Schedule manual seeding works to coincide with preparation of soil surface.
3. Schedule manual seeding works between dates recommended by the Ontario Ministry of Agriculture, Food and Rural Affairs.
4. All seeding will be done in the spring, between May 1st and June 15th, or in the fall after August 15th and before October 15th, unless permitted outside these dates by the Departmental Representative.
5. If delays in seeding operations were to push the work out periods favorable for the seed growth, or if conditions are such that the seed growth could be affected due to excessive heat, drought, too strong wind

or any other factor, the Contractor shall suspend seeding operations, as determined by the Departmental Representative. The work will start once the conditions are favorable again, or when alternative or corrective measures have been used and approved.

6. Do not perform the work when conditions are unfavorable (e.g. when the ground is frozen or waterlogged or when covered with snow, ice or standing water) in the judgment of the Departmental Representative.
7. The Contractor shall obtain authorization from the Departmental Representative before commencing seeding work.

1.5. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials.
2. Divert unused fertilizer from landfill to official hazardous material collections site approved by Departmental Representative.
3. Do not dispose of unused fertilizer into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1. PLANTING SOIL

1. Conforms to the requirements of Section 32 93 10 – Planting Works.

2.2. SEEDS

1. Seeds: Certified Canada No.1 Grade, in accordance with Government of Canada "Seeds Act" and "Seed Regulations" with minimal germination rate of 90% and minimal purity of 95%, and a maximum of 1% weeds.

1. Perennials Seed mix

1. 18% Sand Dropseed (*Sporobolus cryptandrus*).
2. 18% Little Bluestem (*Schyzachryrium scoparium*).
3. 20% Canada Wild Rye (*Elymus canadensis*).
4. 17% Indian Grass (*Sorghastrum nutans*).
5. 10% Black-eyed Susan (*Rudbeckia hirta*).
6. 3% Bergamot (*Monarda fistulosa*).
7. 3% Wild Blue Lupine (*Lupinus perennis*).
8. 3% Purple Coneflower (*Echinacea purpurea*).
9. 3% Showy Evening Primrose (*Oenothera speciosa*).
10. 5% Showy Tick Trefoil (*Desmodium canadense*).
11. Seeding rate: 22-25 kg/ha.

2. Annual Seed Mix

1. 100% cultivated oats (*Avena sativa*).
2. Seeding rate: 10g/m².
3. Seed mixes shall be mixed and supplied by a recognized, certified seed supplier.
4. Store seeds in their original containers. Each container shall be labelled with the following information:
 1. Composition of the seed mix.
 2. Year of production.
 3. Net mass.
 4. Date and place of packaging.
 5. Germination percentage.
 6. Supplier's name and address.

2.3. DRAINAGE SAND

1. According to the requirements of Section 31 05 17 – Landscape Aggregate Materials.

2.4. WATER

1. Water: free of impurities that would inhibit germination and growth.

2.5. FERTILIZER

1. Conforming to Canada "Fertilizers Act" and "Fertilizers Regulations".
2. Starter fertilizer containing mycorrhizae and other additives to support intended plant growth.
3. Application Rate: 45 kg/ha.

2.6. HERBICIDE

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

PART 3 - EXECUTION

3.1. WORKMANSHIP

1. Do not perform work under adverse field conditions, such as wind speeds over 10 km/h, frozen ground or ground covered with snow, ice or standing water.
2. Protect seeded areas from circulation until seeds are established.

3.2. PREPARATION WORK

1. Even though planting soil is used rather than topsoil for these works, ensure that the ground level is adequate and that the surfaces to be seeded conforms to Section 32 91 19 – Topsoil Placement & Finish Grading.
 1. It is forbidden to use a heavy roller to correct surface irregularities.

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 seeding work.
4. Examine ground conditions where materials will be applied. Record condition with photos and provide copies of photos to Departmental Representative.

3.1. SEED MIX PREPARATION

1. Mix together the perennial and annual seeds to the proper ratios.
2. Add drainage sand to provide more volume to help distribute the seeds uniformly.
 1. Add 30 liters of drainage sand to seed mix for each 100m² to be seeded.
3. Mix seeds and sand thoroughly for uniform distribution of the seeds within the sand.

3.2. MANUAL SEEDING

1. Use a Cyclone type mechanical seeder.
2. The equipment and method used must be approved by the Departmental Representative.
3. Apply the seed evenly over the loosened surfaces, at the rate prescribed for selected mixture.
4. To ensure uniform coverage of surfaces, overlap by 150mm application to adjacent areas or areas seeded in previous passes.
5. Bury the seeds in the soil by working it gently with a hand rake, first in one direction and then transversely.
6. Immediately after seeding, roll the areas manual seeded, using a light roller (320 to 540kg/m³) designed to ensure contact of the seed with the soil.

3.1. MAINTENANCE DURING ESTABLISHMENT PERIOD

1. Perform following operations from time of seed application during Establishment period until preliminary acceptance by the Departmental Representative:
 1. Water seeded area sparingly and in consultation with Departmental Representative, only as needed to maintain germination and continued growth of seed, ensuring coverage by a dense, cohesive mat is achieved as per recommended schedule:
 1. During first two weeks after seeding: Water lightly everyday in absence of rain.
 2. During the next 6 to 8 weeks: Water in depth every 5 to 6 days, in the morning, in absence of rain.
 3. After: Water deeply, in the morning, only during drought.
 2. Control watering to prevent washouts.
 3. Fertilization:
 1. Apply fertilizer after germination only.
 2. Use fertilizer as per manufacturer's recommendations during the first six (6) weeks after germination.
 4. Re-apply seeding to repair dead or bare spots as needed to allow establishment of seed prior to acceptance.

5. Eliminate noxious weeds by mechanical means. A herbicide shall not be used.

3.2. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Progress cleaning: leave work area clean at end of each day.
3. Final cleaning: upon completion of works, remove surplus materials, rubbish, tools and equipment and proceed with cleaning.

3.3. ACCEPTANCE OF WORKS

1. Areas will be given preliminary acceptance by Departmental Representative provided that:
 1. Seeded areas are uniformly established and are free of rutted, eroded, bare or dead spots, and free of noxious weeds. There shall not be any significant bare areas, both in terms of quantity and size. Non-seeded, non-specified vegetation shall not exceed 5% of the seeded area.
2. Areas seeded after September 30th will be accepted after June 1st, if the above conditions are met.

3.4. MAINTENANCE DURING GUARANTY PERIOD

1. Perform following operations from preliminary acceptance of works until the end of the guaranty period.
 1. Water seeded area sparingly and in consultation with Departmental Representative.
 2. Re-apply seeding to repair dead or bare spots as needed, to the satisfaction of the Departmental Representative.
 3. Eliminate noxious weeds by mechanical means. A herbicide shall not be used.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 74 11 – Cleaning.
3. Section 32 91 19 – Topsoil Placement & Finish Grading.

1.2. REFERENCES

1. Not applicable.

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items:
 1. Submit a data sheet for the following products:
 1. Sod.

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 sources 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°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, when the ground is frozen or waterlogged, or when covered with snow, ice or standing water.

1.7. MOCK-UP

1. Prepare a mock-up of sodding.
2. This mock-up will be the on-site reference for installation and workmanship. Only sodding installation matching the approved final mock-up will be acceptable.
3. The mock-up location shall be approved by Departmental Representative. It shall be approximately 50 square metres and will include at least one abutment with an adjoining hard surface.
4. Allow 48 hours for inspection of mock-up before proceeding with work.
5. When accepted, the mock-up will demonstrate minimum standard of quality required for this work.
6. Approved mock-up may remain as part of finished work.

1.8. 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. TURF

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 foreign 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.

2.2. WATER

1. Potable water supplied by the Contractor at the designated location.

2.3. 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.

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 19 – Topsoil Placement & 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 irregularly-shaped pieces using sharp tools.
4. Perform a light rolling (320 to 540kg/m³), 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.
2. Apply fertilizer uniformly, at a rate of 0.5 kg of nitrogen per 100 square meters, and water the grass properly.

3.4. MAINTENANCE DURING ESTABLISHMENT PERIOD

1. Perform the following maintenance work from the sodding date until the date of provisional acceptance of the work

1. Water sodded areas with sufficient quantity and frequency to maintain 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%, using acceptable methods of integrated pest management. A herbicide shall not be used.

3.5. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Progress cleaning: leave work area clean at end of each day.
3. Final cleaning: upon completion of works, remove surplus materials, rubbish, tools and equipment and proceed with cleaning.

3.6. ACCEPTANCE OF WORKS

1. Sodded areas will be given preliminary acceptance by the Departmental Representative if the following conditions are met:
 1. The turf has established properly and be free of dead grass and bare areas;
 2. Soil remains invisible from a height of 1500 mm, after mowing the lawn to a height of 60 mm;
 3. Lawns have been mowed at least two (2) times prior to the acceptance 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, no sooner than June 1st, if the above conditions are met.

3.7. MAINTENANCE DURING GUARANTY PERIOD

1. Perform the following work from the date of preliminary acceptance of the work until the end of the guaranty period.
 1. Water sodded areas on a weekly basis to maintain 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 to a height of 60 mm when it reaches a height of 90mm, 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, and 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. A herbicide shall not be used.

END OF SECTION

PART 1 - GENERAL

1.1. RELATED SECTIONS

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 74 11 – Cleaning.
3. Section 31 36 22 – Stabilisation Mats.
4. Section 32 91 19 – Topsoil Placement and Finish Grading.

1.2. REFERENCES

1. Canadian Nursery Landscape Association (CNLA)
 - .1 Canadian Standards for Nursery Stock (latest edition).

1.3. SUBMITTAL PROCEDURES

1. Submit documents according to the requirements of Section 01 33 00 – Submittal Procedures.
2. At least four (4) weeks before the start of the works, submit to the Departmental Representative the following items:
 1. Provide data sheets for the following products:
 1. Fertilizer;
 2. Anti-desiccants;
 3. Mulch.
 2. Submit a sample for the following products:
 1. Mulch (1kg).

1.4. PLANTS QUALITY CONTROL AT THE SOURCE

1. Get the plants approved at the nursery before their delivery on the job site.
2. Advise the Departmental Representative of the plants' origin at least seven (7) days before delivery on the job site. No planting work shall be started without prior approval of the plants.
3. Accepted nursery plants can still be rejected on the job site before or after planting operations.
4. Imported plants must be accompanied by the required license in accordance with federal and provincial laws.

1.5. WORK SCHEDULE

1. Provide a timetable for the planting works. No extension of the construction period will be accepted due to insufficient manpower.
2. Obtain work schedule approval by the Departmental Representative seven (7) days before delivery of the plants.
3. The work schedule must contain the following information:
 1. The type and number of plants;
 2. The delivery dates;
 3. The arrival dates onto the job site;
 4. The planting dates.
4. Only perform planting works when conditions are conducive to health and good plant growth.
5. Plants grown in pots can be planted throughout the growing season.
6. Establish work calendar so that the work is immediately succeeded by the installation of stabilisation mats.

1.6. GUARANTY

1. The Contractor hereby guarantees that the plants listed on the plant list remain free of defects, and this until the end of the guaranty period.
2. The Contractor shall be responsible for the full maintenance of planted plants up to the end of the guaranty period. He will perform all work necessary for complete establishment of plants.
3. The Departmental Representative will then inspect the plant at the end of the guaranty period.
4. The Departmental Representative reserves the right to extend the liability of the Contractor for another year if, at the end of the initial guaranty period, foliage and development does not seem sufficient to ensure the future survival of the plants. The guaranty covers the entire plantation.
5. All replaced plants will also be protected by a guaranty period of one (1) year from the date of replacement.

1.7. REPLACEMENT PLANTS

1. During the guaranty period, eliminate from the job site any dead plants or plant that does not show satisfactory signs of good growth needed for its future survival.
2. Replace these plants immediately, or at the next planting season according to the indications of the Departmental Representative.
3. The guaranty period for replacement seedling must be equal to the guaranty period given to for the original plants.
4. Replace all plants, for as long as they have not been accepted.

PART 2 - PRODUCTS

2.1. PLANTS

1. Cultivated plants, premium class
2. Type of root preparation, size, category and quality: conforming with the Canadian Standards for Nursery Stock.
3. Plants: sturdy, free of diseases, insects, defects or bruises, with a sound structure and a fibrous root system.
4. Dimensions:
 1. Diameter: Trunk diameter measured at 30cm from the ground.
 2. Height: Measure the plants when their branches are in normal positions. Dimensions given for height and development branches are obtained from the core dimension of plant and not the distance between the ends of branches.
5. Shrubs: Shrubs grown in pots for at least one growing season, with full branching and a shape characteristic of the species.

2.2. PLANTING SOIL

1. Planting soil for trees, shrubs and flower beds: mixture of 9 parts topsoil to 1 part peat moss. Perform a sieve analysis and chemical analysis of this soil. Add bone powder at 3 kg/m³ of planting soil.

2.3. TOPSOIL

1. According to the requirements of Section 32 91 19 – Topsoil Placement and Finish Grading.

2.4. 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.

2.5. HORTICULTURAL PERLITE AND VERMICULITE

1. Perlite: volcanic, granular stone, sterile, white and clean.
2. Vermiculite: expanded mica, sterile.

2.6. FERTILISERS

1. Bone powder: finely ground and containing at least 20% phosphoric acid.
2. Natural fertilizer 10-30-10.
3. Soluble transplanting fertiliser, 15-30-15.

2.7. WATER

1. Water free of impurities that could affect plant growth.

2.8. MULCH

1. Mulch composed of wood chips: Wood chips whose size varies from 50mm to 75mm and its thickness from 5mm to 20mm, free of bark, twigs and leaves.

2.9. ANTI-DESSICANTS

1. Wax Emulsion.

2.10. STABILISATION MAT

1. According to the requirements of Section 31 36 22 – Stabilisation Mats.

PART 3 - EXECUTION

3.1. GENERAL

1. Notify the Departmental Representative before commencing planting works.
2. Indicate, using stakes, the location of trees and planting beds, as indicated on the plans. Have the Departmental Representative approve the location of the plantings before undertaking any excavation work.
3. Ensure proper alignment of the plantings within the landscape.
4. Ensure that the plants are accepted by the Departmental Representative.
5. Trim damaged roots and branches with a clean, sharp and disinfected pruning shear.
6. Apply an anti-desiccant on conifers and the foliage of deciduous trees in accordance with the manufacturer's instructions.
7. Keep work area clean and the planting beds and pit well dried. Immediately remove soil and debris accumulated on paved surfaces.

3.2. TRANSPORTATION, STORAGE AND PROTECTION

1. During delivery, protect plants against frost, excessive heat, wind and sun.
2. Protect plants against any damage during their transportation.
 1. When the distance is less than 30km AND the truck runs at less than 80 km/h, place tarps around the plants or above the truck bed.
 2. When the distance is greater than 30km OR the truck runs at over 80 km/h, use a closed truck.
 3. Where it is not possible because of the size and weight of plants, to use a closed truck, protect the foliage and clumps using anti-desiccants and tarps.

3. Protect and immediately store plants that will not be installed within one (1) hour after their arrival at the job site, placing them at the location approved for that purpose by the Departmental Representative.
4. Protect stored plants against frost, wind and sun, by taking the following measures.
 1. In the case of plants with bare roots, hold moisture around the roots by placing the plants in gauge or by burying their roots in sand or soil and watering the entire root zone depth.
 2. In the case of plants in containers, maintain adequate moisture in the containers.
 3. In the case of plant that are balled and burlapped and wrapped in a wire basket, place them in a manner so as to protect branches against damage, and maintain adequate moisture in the root zone.

3.3. PERCOLATION TEST

1. Advise the Departmental Representative at the start of percolation test.
2. Before commencing planting work, do a percolation test using the following method:
 1. Dig three holes 750mm deep in the locations designated by the Departmental Representative.
 2. Fill the holes with water, right up to the edge.
 3. Measure the level of water in each hole after 3 hours, 6 hours and 24 hours.
3. If the water did not drain after 6 hours by half or completely drained after 24 hours (without rain), determined with the Departmental Representative what measures are to be taken to counter the problem.
4. Apply these measures and make a new percolation test. Validate the results with the Departmental Representative and implement the approved measures for all planting works.

3.4. EXCAVATION AND PREPARATION OF THE PLANTING ZONES

1. Prepare planting areas in accordance with Section 32 91 19 – Topsoil Placement and Finish Grading.

3.5. PLANTING HOLES

1. Only cut the minimum required of stabilisation mat needed to create the planting hole and plant the vegetation.
 1. Stabilisation mat will need to be placed snugly against trunk upon planting completion and held in place. Reusing small, torn pieces of stabilisation mats are not acceptable.
2. Excavate to the depth and width indicated on the plans.
3. Remove sub-soil, stones, roots, debris and toxic materials from the cut material. Remove excess material.
4. Scarify the walls of the planting holes.
5. Before planting trees and shrubs, remove water that has seeped into the holes. Advise the Departmental Representative if it is ground water.
6. Do not leave the planting holes unattended. Install a perimeter of temporary protection, as necessary.

3.6. PLANTING

1. For plants that are balled and burlapped, remove the upper third of the burlap, taking care not to damage the root ball. Do not remove the burlap or rope that is under the root ball.
2. For trees in wire baskets: Once the tree up in the pit, remove the wire basket and cut it so as to remove the entire perimeter of the basket. Fold down the burlap from the top third of the root ball.
3. For plants in containers or where the ball is wrapped with a non-degradable material, completely remove the container or envelope without damaging the root ball.
4. Plant plants vertically, where indicated, respecting their original cultivation height, orienting them so as to produce the best effect, given surrounding structures such as buildings, roads and sidewalks.
5. Shrubs
 1. Backfill, in 150mm layers, and compact each layer to remove air pockets. When the pit is filled to two thirds, fill the remaining space with water. Once the water has penetrated the soil, continue backfilling up to the finish grade.
 2. Form a saucer, as indicated on the plans.
6. Properly water the plants.
7. After compaction, backfill to finish grades.
8. Evacuate from the job site all burlap, metal wires and containers.

3.7. FERTILISING

1. After placing two-thirds of the potting soil, fill the pit with water. When the water has completely penetrated into the soil, fertilize the planting pit as follows:
 1. Deciduous shrubs over 120cm: 500ml of 10-30-10 fertilizer.
 2. Deciduous shrubs less than 120cm: 250ml of 10-30-10 fertilizer.

3.8. MULCH

1. Obtain approval for the planting works before mulching. Loosen the soil in the seedbed and in the planting holes and remove debris and weeds. Spread a layer of mulch to a thickness as shown on the plans. In the fall, mulching should be done immediately after planting. In the spring, it must wait until the soil warms up. Before spreading the mulch, add more soil if necessary, to compensate for soil compaction.

3.9. STABILISATION MAT

1. Install the stabilisation mat according to the requirements of Section 31 36 22 – Stabilisation Mats.

3.10. CLEANING

1. Perform cleaning works as prescribed in Section 01 74 11 – Cleaning.
2. Progress cleaning: leave work area clean at end of each day.
3. Final cleaning: upon completion of works, remove surplus materials, rubbish, tools and equipment and proceed with cleaning.

3.11. MAINTENANCE DURING GROW-IN PERIOD

1. Perform the following maintenance work from the time of planting until acceptance of work by the Departmental Representative.
 1. Water soil to maintain a proper moisture level to ensure the establishment, growth and health of plants, without causing erosion.
 1. Properly water evergreens, late in the fall, before frost, to saturate the soil around the roots.
 2. Remove weeds once a month.
 3. Replace the mulch that has been disturbed and add mulch as needed.
 4. In areas not covered with mulch, tillage the soil as necessary in order to keep the upper layer friable.
 5. If it is necessary to combat insects, fungi and diseases, use ecological control methods, respecting federal, provincial and municipal laws in the matter. Have the products approved by the Departmental Representative before applying.
 6. Cut dead or broken branches.
 7. Remove and replace dead or diseased plants, according to the prescribed manner used for the first plantings.

3.12. MAINTENANCE DURING GUARANTY PERIOD

1. Perform the following maintenance work from the time of planting until acceptance of work by the Departmental Representative until the end of the guaranty period.
 1. Water soil to maintain a proper moisture level to ensure the establishment, growth and health of plants, without causing erosion.
 2. Reconstruct any damaged saucer.
 3. Remove weeds once a month.
 4. Replace the mulch that has been disturbed and add mulch as needed.
 5. In areas not covered with mulch, tillage the soil as necessary in order to keep the upper layer friable.
 6. If it is necessary to combat insects, fungi and diseases, use ecological control methods, respecting federal, provincial and municipal laws in the matter. Have the products approved by the Departmental Representative before applying.
 7. Spread fertiliser early in the spring, based on the results of a soil test.
 8. Cut dead or broken branches, or branches that represent a danger.
 9. Remove and replace dead or diseased plants, according to the prescribed manner used for the first plantings.
 10. Submit to the Departmental Representative, each month, a written report containing the following information:
 1. The maintenance work performed;

2. The development and condition of plants;
3. Necessary corrective or preventive measures not covered by the Contractor.

END OF SECTION