PART 1 - GENERAL

1.1 Section Includes

.1 Materials and installation for preserving existing trees during the entire construction period for this project.

1.2 Related Sections

.1 Section 01 35 43 – Environmental Protection

.2 Section 32 91 19.13 - Topsoil and Grading

.3 Section 32 93 10 – Tree and Shrubs and Ground Cover Planting

1.3 References

Latest references for:

.1 Department of Justice Canada
- .1 Fertilizers Act (R.S., c. F-10).
- .2 Fertilizers Regulations (C.R.C., c. 666).

.2 International Society of Arboriculture
- .1 ISA Certification and Credentials
- .2 Tree Valuation Guidelines for Evaluation of Trees

1.4 Codes and Standards

.1 The Contractor shall be familiar with any relevant municipal by-laws regarding work around existing vegetation.

1.5 Qualifications

.1 Any staff working directly with existing trees to have a horticultural background.

1.6 Quality Assurance

.1 Field Samples: where pruning is required, do sample pruning in manner to enable Contract Administrator to identify:
- .1 Knowledge of target areas including branch bark ridge and branch collars.
- .2 Technique for selection process and pruning used to establish desired form and shape for each species.

.2 Acceptance of Work will be determined by Contract Administrator from field sample.

.3 Any damage to trees due to negligence shall be based on the

International Society of Arboriculture Tree Valuation Guidelines for Evaluation of Trees, as evaluated by a Municipal Tree Inspector.

.4 The contractor shall obtain approval from a Municipal Tree Inspector before removing any tree on Municipal property. If a tree is damaged or removed, the contractor will be required to:
   .1 Pay the cost of repairs and labour for the removal of the tree
   .2 Pay the value of the tree removed. Value of the tree to be determined by the Municipal Inspector, and calculated using the Trunk Formula Method.
   .3 Pay the cost of a replacement tree and its installation.

1.7 Submittals

.1 Submit monthly written reports on maintenance during warranty period, to Consultant identifying:
   .1 Maintenance work carried out.
   .2 Development and condition of plant material.
   .3 Preventative or corrective measures required which are outside Contractor's responsibility.

1.8 Waste Management and Disposal

.1 Separate waste materials for reuse and recycling according to project Waste Management Plan.

.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling.

.4 Divert unused metal and wiring materials from landfill to metal recycling facility as approved by the Consultant and/or Municipal Project Manager.

.5 Divert unused wood materials from landfill by alternative disposal, composting or mulching approved by the Consultant and/or Municipal Project Manager.

.6 Divert unused stone and aggregate materials from landfill to local quarry or facility approved by the Consultant and/or Municipal Project Manager.

.7 Dispose of unused fertilizer material at official hazardous material collections site approved by the Consultant and/or Municipal Project Manager.

.8 Do not dispose of unused fertilizer material into sewer system, into streams, lakes, onto ground or in any other location where they will pose health or environmental hazard.

.9 Fold up metal banding, flatten and place in designated area for recycling.

1.9 Scheduling

.1 Contact the Consultant and Municipal Project Manager prior to any work to be done on site.

.2 Contractor to provide schedule of all preservation and monitoring operations for the Municipal Project Manager's review. Make adjustments to schedule as directed and as required.

PART 2 - PRODUCTS

2.1 Materials

.1 Water: potable and free of minerals which may be detrimental to plant growth.

.2 Fill:
- .1 Type (A): clean, natural river sand and gravel material, free from silt, clay, loam, friable or soluble materials and organic matter.
- .2 Type (B): excavated pervious soil, free from roots, rocks larger than 75 mm, building debris, and toxic ingredients (salt, oil, etc). Excavated material shall be approved by Consultant before use as fill.

.3 Organic material: - humus peat, peat moss (derived from partially decomposed species of Sphagnum Mosses), leaf mold, mushroom compost, manure, composted sawdust, or other material approved by Consultant. Soluble salt content shall not exceed 1.0ms/cm (millisiemens / cubic centimetre) and material shall be such as to promote healthy plant development. Provide analysis and obtain Consultant's approval of sample prior to delivery to site.

.4 Fertilizer:
- .1 To Canada Fertilizer Act and Fertilizers Regulations.
- .2 Complete, commercial, slow release with 35 % of nitrogen content in water-insoluble form.

.5 Anti-desiccant: commercial, wax-like emulsion.

.6 Filter Cloth:
- .1 Type 1: non-woven geotextile, refer to Section 31 32 21 Geotextiles.
- .2 Type 2: biodegradable burlap.

.7 Protection fence:

.1 Orange plastic snow fence attached to steel posts at 3 metres o.c. max.
.2 Posts:
  .1 steel T-bars at 1.5 metres o.c. max. *OR*
  .2 wood posts with wood top rails at 2.5 metres o.c. max.
.3 Hoarding fence can act as tree protection fence where fence layouts coincide.

.8 Wood chips: use of onsite or offsite chipped wood from trees that have been removed where feasible. Chips used in this manner are to be free from disease and eggs, larvae, or adult insect pests.

PART 3 - EXECUTION

3.1 Identification and Protection

.1 Contractor shall obtain approval from Forestry Services prior to working on any Municipal owned trees.

.2 Extent of tree preservation to be determined on site under direction of the Consultant. Refer to drawings.

.3 Protect plant and root systems from damage, compaction and contamination resulting from construction. Provide protection for trees shown as requiring protection on contract drawing with steel framework and orange snow fencing. Provide root protection where construction traffic will occur. Where operations threaten other nearby trees apply same measures.
  .1 Ensure protection fence is intact at all times (protection fence is to be installed prior to any excavation or general removals).
  .2 Project hoarding can be used as tree protection fencing as long as no trees to be preserved falls within the project hoarding.

.4 Ensure no root pruning is done inside drip line. If pruning inside drip line is required consult an aborist or Canadian Certified Horticultural Technician (CCHT) as approved by Consultant.

.5 No excavation, filling, storage of materials, disposal of chemicals, vehicle traffic, or other disturbance which could cause disturbance of soil root area and understory, including soil compaction shall take place within the protected area.

3.2 Excavation / Trenching

.1 After root protection zone has been completed and area approved by Consultant, construction excavation can proceed. Care must be taken so that excavation does not penetrate area past protection fence.

3.3 Backfilling

.1 Protect root protection zone during backfill operations (to protection fence). Temporarily remove protection fence during remainder of backfilling operations. Remove wood chips and filter fabric prior to backfilling in root protection zone.

.2 Reinstate tree protection fence in same location until all construction activities has been completed.

.3 Complete excavation and backfilling at trees within 2 weeks of starting work.

3.4 Maintenance and Monitoring of Existing Trees

.1 Maintenance of existing trees to occur only where they are affected by construction (within 4 metres of preservation limit or construction activities).

.2 Provide a watering schedule to the approval of the Consultant. A watering schedule is to be set up for the existing trees to ensure adequate moisture throughout the construction period. These should be watered a minimum of once per week if there is less than 1 day rain in that week (May to November). Frequency of watering to be set up at start up.

Water Application Rates for Trees

Tree Caliper	Litres per Watering
50 mm	150 L
60 mm	160 L
70 mm	170 L
Mature Trees	550 L

.3 Fertilize existing trees which are located within construction activities that are showing any signs of stress. Use current standard for seasonal fertilizing of coniferous trees with a balanced fertilizer. If roots have been disturbed fertilize using a rooting stimulant and 10-52-10.

.1 Apply (immediately after construction) via pressure probe to soil, depth 300mm, 1 per 3m2, within area bounded by 2m radius from trunk to 3m beyond tree dripline.

.4 Existing trees to be monitored on a biweekly basis during the clearing grubbing operations and while any construction is ongoing adjacent to the existing trees.

.1 Monitoring on a monthly basis for one year.

3.5 Anti-dessicant

.1 Apply anti-dessicant to foliage where applicable and as directed by Consultant.

3.6 Pruning: General

.1 General pruning to occur only where there is a safety concern within the property.

.2 Pruning and thinning in accordance with latest arboricultural standards and as directed by Consultant. Where discrepancies occur between standard and specifications, specifications govern.

.3 No use of heavy machinery or any removal methods that would negatively impact upon the soil within the critical root zone and understory (within the tree protection zone and beyond to a distance equal to half a quarter of the diameter of the total crown width where no construction activity is occurring.

.4 Tool maintenance:
- .1 Ensure that tools are clean and sharp throughout pruning operation. Do not use tools which crush or tear bark.
- .2 Disinfect tools before each tree is pruned.
- .3 On diseased plant material disinfect tools before each cut.

.5 Notify the Consultant immediately of any conditions detrimental to health of plant material or operations.

.6 Prune during plant dormant period or after leaves have matured. Avoid pruning during leaf formation, at time of leaf fall, or when seasonal temperature drops below minus 10°C.

.7 Retain natural form and shape typical of plant species.

.8 Do not:
- .1 Flush cut branches.
- .2 Crush or tear bark.
- .3 Cut behind branch bark ridge.
- .4 Damage branch collars.
- .5 Damage branches to remain.

3.7 Care of Wounds

.1 Bark trace around wound to an oblong configuration ensuring minimal increase in wound size. Retain peninsulas of existing live bark.

3.8 Clean-Up

.1 Collect and dispose of pruned material and remove from site.

.2 For the disposal of infested or diseased material, refer to:
- .1 The Municipality of Russell local regulations and requirements, and
- .2 Canadian Food Inspection Agency document D-12-03: Domestic

Requirements for Potentially Injurious Organisms (other than plants) to Prevent the Spread of Plant Pests Within Canada

.3 The Canadian Food Inspection Agency for a list of authorized disposal facilities under the Containment Standards for Facilities Handling Plant Pests, with the relevant addenda.

END OF SECTION