

PART 1 - GENERAL

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| <u>1.1 RELATED SECTIONS</u> | .1 | Section 31 22 13: General Earthwork and Rough Grading. |
| | .2 | Section 32 91 19.13: Topsoil Placement and Grading. |
| <u>1.2 MEASUREMENT AND PAYMENT</u> | .1 | Measure supplying and placing of trees per 60 mm Cal, Deciduous Tree. |
| | .2 | Measure supplying and placing of trees per 60 mm Cal, Coniferous Tree. |
| | .3 | Watering during the warranty period shall be paid for as a Lot Price. |
| <u>1.3 REFERENCES</u> | .1 | Agriculture and Agri-Food Canada (AAFC) .1 Plant Hardiness Zones in Canada-2010. |
| | .2 | Canadian Nursery Landscape Association (CNLA) .1 Canadian Standards for Nursery Stock-2006, www.canadanursery.com . |
| <u>1.4 PRODUCT DATA</u> | .1 | Submit product data in accordance with Section 01 33 00. |
| | .2 | Provide product data for: .1 Fertilizer. .2 Anti-desiccant. .3 Guying assembly including clamps, collar, guying wire, anchors and wire tightener. .4 Mulch. |
| <u>1.5 SAMPLES</u> | .1 | Submit samples in accordance with Section 01 33 00. |
| | .2 | Provide samples for: .1 Mulch. |
| <u>1.6 STORAGE AND PROTECTION</u> | .1 | Protect plant material from frost, excessive heat, wind and sun during delivery. |

1.6 STORAGE AND
PROTECTION
(Cont'd)

- .2 Immediately store and protect plant material which will not be installed within 1 hour after arrival at site in storage location approved by Departmental Representative.
- .3 Protect plant material from damage during transportation:
 - .1 When delivery distance is less than 30 km and vehicle travels at speeds under 80 km/h, tie tarpaulins around plants or over vehicle box.
 - .2 When delivery distance exceeds 30 km or vehicle travels at speeds over 80 km/h, use enclosed vehicle where practical.
 - .3 Protect foliage and root balls using anti-desiccants and tarpaulins, where use of enclosed vehicle is impractical due to size and weight of plant material.
- .4 Protect stored plant material from frost, wind and sun and as follows:
 - .1 For pots and containers, maintain level moisture in containers. Heel-in fibre pots.
 - .2 For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level in root zones.

1.7 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 20.
- .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 in accordance with Waste Management Plan.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Divert unused metal materials from landfill to metal recycling facility as approved by Departmental Representative.
- .6 Fold up metal banding, flatten and place in designated area for recycling.
- .7 Divert discarded plastic plant containers materials from landfill to plastic recycling facility approved by Departmental Representative.

1.7 WASTE
MANAGEMENT AND
DISPOSAL
(Cont'd)

- .8 Dispose of unused fertilizer at official hazardous material collection site approved by Departmental Representative.
- .9 Dispose of unused anti-desiccant at official hazardous material collections site approved by Departmental Representative.
- .10 Divert unused wood and mulch materials from landfill to recycling or composting facility approved by Departmental Representative.

1.8 SCHEDULING

- .1 Obtain approval from Departmental Representative of schedule 7 days in advance of shipment of plant material.
- .2 Schedule to include:
 - .1 Quantity and type of plant material.
 - .2 Shipping dates.
 - .3 Arrival dates on site.
 - .4 Planting Dates.

1.9 WARRANTY

- .1 For plant material as itemized on Plant List, the 12 months warranty period prescribed in GC3.13 of General Conditions is extended to 24 months.
- .2 End-of-warranty inspection will be conducted by Departmental Representative.
- .3 Departmental Representative reserves the right to extend Contractor's warranty responsibilities for an additional one year if, at end of initial warranty period, leaf development and growth is not sufficient to ensure future survival.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- .1 Type of root preparation, sizing, grading and quality: comply to Canadian Standards for Nursery Stock.
 - .1 Source of plant material: grown in Zone 5b in accordance with Plant Hardiness Zones in Canada.
 - .2 Plant material shall be planted in zone indicated as appropriate for its species.
 - .3 Plant material in location appropriate for its species.

2.1 PLANT MATERIAL (Cont'd)

- .2 Plant material: free of disease, insects, defects or injuries and structurally sound with strong fibrous root system.
- .3 Trees: with straight trunks, well and characteristically branched for species except where specified otherwise.

2.2 WATER

- .1 Provide water from an off-site source, free of impurities that would inhibit plant growth.

2.3 STAKES

- .1 T-bar, steel, 40 x 40 x 5 x 2440 mm high.

2.4 WIRE TIGHTENER

- .1 Turnbuckle, galvanized steel, 9.5 mm diameter with 150 mm open length.

2.5 GUYING WIRE

- .1 1.5 mm diameter multi-wire steel cable.

2.6 CLAMPS

- .1 U-bolt: galvanized, 13 mm dia, c/w curved retaining bar and hex nuts.

2.7 ANCHORS

- .1 Wood: 38 x 38 x 460 mm.

2.8 GUYING COLLAR

- .1 Tube: 13 mm diameter, reinforced rubber hose.

2.9 TRUNK PROTECTION

- .1 Wire mesh: Galvanized, electrically welded 1.4 mm wire with 25 x 25 mm mesh, 1500 mm high with fasteners. Protect against damage from damages from deer.
- .2 Big O Pipe: perforated pipe 400 mm high. Protect against rodent damage.

2.10 MULCH

- .1 Shredded cedar bark mulch: varying in size from 25 to 50 mm in length, from coniferous trees.
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| <u>2.11 FERTILIZER</u> | .1 | Organic Synthetic commercial type as recommended by soil test report. |
| <u>2.12 ANTI-DESICCANT</u> | .1 | Wax-like emulsion. |
| <u>2.13 SOURCE QUALITY CONTROL</u> | .1 | The Departmental Representative will select all of the plant material, in the tree nursery, with the Contractor to ensure that the plant material complies with the specifications in the plant lists shown on the contract drawings. |
| | .2 | Imported plant material shall be accompanied with necessary permits and import licenses. Conform to federal and provincial regulations. |
| <u>2.14 TOPSOIL FOR TREES</u> | .1 | Topsoil from stockpiles generated during the topsoil stripping operation. |
| | .2 | Import 20-25% compost (CCME compliant). |
| | .3 | Ex. topsoil and imported compost to be premixed on site and stockpiled prior to hauling to tree pit locations. |

PART 3 - EXECUTION

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| <u>3.1 PRE-PLANTING PREPARATION</u> | .1 | Ensure plant material acceptable to Departmental Representative. |
| | .2 | Remove damaged roots and branches from plant material. |
| | .3 | Apply anti-desiccant to conifers and deciduous trees in leaf in accordance with manufacturer's written instructions. |
| <u>3.2 EXCAVATION AND PREPARATION OF PLANTING BEDS</u> | .1 | Establishment of sub-grade for planting beds is specified in Section 31 22 13. |
| | .2 | Preparation of planting beds is specified in Section 32 91 19.13. |
| | .3 | For individual planting holes: |
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3.2 EXCAVATION AND
PREPARATION OF
PLANTING BEDS
(Cont'd)

- .3 (Cont'd)
- .1 Stake out location and obtain approval from Departmental Representative prior to excavating.
 - .2 Excavate to depth and width as indicated.
 - .3 Remove subsoil, rocks, roots, debris and toxic material from excavated material that will be used as planting soil for trees and individual shrubs. Dispose of excess material.
 - .4 Scarify sides of planting hole.
 - .5 Remove water which enters excavations prior to planting. Notify Departmental Representative if water source is ground water.

3.3 PLANTING

- .1 For jute burlapped root balls, cut away top one third of wrapping and wire basket without damaging root ball. Do not pull burlap or rope from under root ball.
- .2 For container stock or root balls in non-degradable wrapping, remove entire container or wrapping without damaging root ball.
- .3 Plant vertically in locations as indicated. Orient plant material to give best appearance in relation to structure, roads and walks.
- .4 For trees and shrubs:
 - .1 Backfill topsoil in 150 mm lifts. Tamp each lift to eliminate air pockets. When two thirds of depth of planting pit has been backfilled, fill remaining space with water. After water has penetrated into soil, backfill to finish grade.
 - .2 Form watering saucer as indicated.
- .5 Water plant material thoroughly.
- .6 After soil settlement has occurred, fill with soil to finish grade.
- .7 Dispose of burlap, wire and container material off site.
- .8 Install a continuous layer of landscape fabric (weed barrier) over the triple mix layer in shrub beds prior to installing shrubs.

3.4 TRUNK
PROTECTION

- .1 Install trunk protection on deciduous trees as indicated.

3.4 TRUNK
PROTECTION
(Cont'd)

- .2 Install trunk protection prior to installation of tree supports when used.

3.5 TREE SUPPORTS

- .1 Install tree supports as indicated.
- .2 Use two T-Bars or 3 guy wires and anchors for deciduous trees greater than 3 m and evergreens greater than 2 m.
 - .1 Use Type 2 guying wire with clamps for trees less than 75 mm in diameter.
 - .2 Use Type 1 anchors for trees less than 75 mm in diameter.
 - .3 Install guying collars above branch to prevent slipping at approximately 2/3 height for evergreens and 1/2 height for deciduous trees. Collar mounting height not to exceed 2.5 m above grade.
 - .4 Guying collars to be of sufficient length to encircle tree plus 50 mm space for trunk clearance. Thread guy wire through collar encircling tree trunk and secure to lead wire by clamp or multi-wraps; cut wire ends close to wrap. Spread lead wires equally proportioned about trunk at 120 degrees.
 - .5 Install anchors at equal intervals about tree and away from trunk so that guy wire will form 45 degree angle with ground. Install anchor at angle to achieve maximum resistance for guy wire.
 - .6 Attach guy wire to anchors. Tension wire and secure by multi-wraps installing clamps.
 - .7 Install wire tightener ensuring that guys are secure and leave room for slight movement of tree.
 - .8 Saw tops off wooden anchors which extend in excess of 100 mm above grade or as directed by Departmental Representative.
 - .9 Install flagging tape to guys as indicated.
- .3 After tree supports have been installed, remove broken branches with clean, sharp tools.

3.6 MULCHING

- .1 Ensure soil settlement has been corrected prior to mulching.
- .2 Provide mulch 75 mm deep in each tree pit as shown on the planting details.

3.7 MAINTENANCE
DURING
ESTABLISHMENT
PERIOD

- .1 Perform following maintenance operations from time of planting to acceptance by Departmental Representative.
- .2 Water to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion.
 - .1 For evergreen plant material, water thoroughly in late fall prior to freeze-up to saturate soil around root system.
 - .2 Remove weeds monthly.
 - .3 Replace or respread damaged, missing or disturbed mulch.
 - .4 For non-mulched areas, cultivate as required to keep top layer of soil friable.
 - .5 If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Departmental Representative prior to application.
 - .6 Remove dead or broken branches from plant material.
 - .7 Keep trunk protection and guy wires in proper repair and adjustment.
 - .8 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.

3.8 MAINTENANCE
DURING WARRANTY
PERIOD

- .1 From time of acceptance by Departmental Representative to end of warranty period, perform following maintenance operations.
 - .1 Water to maintain soil moisture for optimum growth conditions and health of plant material without causing erosion. Supply water trucks to thoroughly water all plant material five times each year - a total of 10 waterings.
 - .2 Reform damaged watering saucers.
 - .3 Remove weeds monthly.
 - .4 Replace or respread damaged, missing or disturbed mulch.
 - .5 For non-mulched areas, cultivate monthly to keep top layer of soil friable.
 - .6 If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Departmental Representative prior to application.
 - .7 Apply fertilizer in early spring as indicated by soil test.

3.8 MAINTENANCE
DURING WARRANTY
PERIOD
(Cont'd)

- .1 (Cont'd)
- .8 Remove dead, broken or hazardous branches from plant material.
- .9 Keep trunk protection and tree supports in proper repair and adjustment.
- .10 Remove trunk protection, tree supports and level watering saucers at end of warranty period.
- .11 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
- .12 Submit monthly written reports to Departmental Representative 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.