

Part 1 - General

1.01 Description

- .1 This Section specifies requirements for planting of trees, shrubs and ground covers.

1.02 Related Specification

- .1 Canadian Standards for Nursery Stock, latest edition, published by the Canadian Nursery Landscape Association.

1.03 Qualifications of Contractor

- .1 All work required under this Section shall be performed by a qualified landscape/horticultural contractor using workers experienced in this work. Trees and shrubs shall be planted by a contractor who is a member of Landscape Ontario Horticultural Trades Association.

1.04 Source Quality Control

- .1 Plant Material:
 - .1 Make arrangements for prior inspection and approval of plant stock by the Contract Administrator at the source of supply, at a time mutually agreed upon.
 - .2 Trees shall be “Field” grown in accordance to with Canadian Standards for Nursery Stock as published by the Canadian Nursery Landscape Association (Latest Metric Edition). All plant material shall be grown in climate conditions similar to those of the installation site.
 - .3 All trees shall be of first quality and field grown. The type of root preparation, sizing, grading and quality shall comply with the Canadian Standards for Nursery Stock, Latest Edition
 - .4 All trees with multiple leaders, crooked stems, bark abrasions, frost cracks, sun scald, physical damage or other conditions that would prevent vigorous growth will be rejected.

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- .5 All trees will be sound, healthy, vigorous, well-branched and densely foliated when in leaf; free of disease and insects, eggs, or larvae; and shall have healthy, well-developed root systems. Tree trunks shall be straight and characteristically well-branched for the species.
 - .6 Prior approval shall not invalidate rejection of stock on site, should it prove defective or damaged.

1.05 Material Delivery, Storage, and Handling

- .1 Label manufactured, processed, or otherwise prepared materials which are packaged, to indicate manufacturer, contents, weight, and a detailed description of the material. If delivered in bulk, submit affidavits as specified for labels, certifying that the materials meet specified requirements.
- .2 Store and protect fertilizer, limestone, bonemeal, mulching material, and similar products to prevent damage from moisture.
- .3 Co-ordinate shipping of plants and the planting operations, to ensure minimum time lapse between digging and planting.
- .4 Protect plant material from abrasion, exposure, and extreme temperature change during transit.
- .5 Shrubs and trees which cannot be planted immediately after delivery shall be heeled in, in a shaded area.

1.06 Interim Maintenance

- .1 The Contractor shall be responsible for interim maintenance of plant material immediately following installation of work and shall continue until preliminary acceptance has been granted, and such maintenance shall be considered part of the installation work.
- .2 The Contractor must immediately replace all dead or dying plants during the warranty period as required by Contract Administrator. Replacement of plants only at the end of the warranty period will not be acceptable.
- .3 This interim maintenance in regard to new planting shall consist of:

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- .1 Pruning, watering, fertilizing, cultivating, weeding, mulching, tightening and repairing of guys, resetting plants to proper grades or upright position, restoration of planting saucer, furnishing and application of such sprays as are necessary to keep plants free of insects and diseases, and such turf maintenance as required at the direction of the Contract Administrator;
 - .2 Keeping soil within confines of planting saucer around trees, and keeping planting beds shallowly cultivated and free of weeds,
 - .3 Keeping tree guards and guy wires in proper repair;
 - .4 Adding commercial fertilizer 10-10-10 at the rate of 10 kg/100 m² according to the manufacturer's instructions at the end of the interim maintenance period.

1.07 Acceptance

- .1 “Preliminary Acceptance” shall be given to all plant material showing well developed foliage, healthy growth and bud formation at the time of completion inspection. This acceptance shall include mulch, tree supports, wooden stakes and the planting mixture.
- .2 “Final Acceptance” shall be given to all plant material meeting conditions specified for Preliminary Acceptance, at one year after Preliminary Acceptance has been granted.

1.08 Maintenance After Preliminary Acceptance

- .1 Tree and Shrub Maintenance:
 - .1 The Contractor shall provide maintenance following Preliminary Acceptance and continue throughout the period of warranty until Final Acceptance as specified in 1.07.2 above. Maintenance requirements shall include all procedures consistent with proper horticultural practices to ensure normal, vigorous and healthy growth of all material planted under this contract. This includes adequate watering, pruning, cultivation and weed control as required, disease and insect pest control, re-staking and attention to supports.
 - .2 The Contractor shall restore the site to original conditions from damage arising out of the maintenance operations.

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- .3 This work shall be performed to the satisfaction of the Contract Administrator and compensation shall be deemed to be included in the prices bid for various tender items.
 - .2 Weed and Grass Control:
 - .1 All wood chip mulched areas shall be kept free of grass for the duration of the warranty period.

1.09 Warranty

- .1 The Contractor shall be required to warranty all work and materials specified for 2 years from the date of written Preliminary Acceptance of the work by the Contract Administrator or as specified otherwise.
- .2 The Contract Administrator shall conduct an inspection of plant materials at the end of the warranty period.
- .3 Plants shall be in a healthy growing condition at the end of the warranty period. Plants with dead or dying branches, which in the opinion of the Contract Administrator are sufficient to detract from the character and form of the plant, will not be accepted. A plant shall be assumed to be acceptable when it is structurally sound, when it is well furnished with living foliage, when it has normal colour, when it shows adequate annual growth and formation of buds and when it is free from blight of any description
- .4 Replacements required at the end of the warranty period shall be plants of the same species and size as shown in the plant list and on the Contract Drawings, furnished and planted as specified in the Contract Documents. The cost of replacement shall be the responsibility of the Contractor.
- .5 Tree supports shall be removed at the end of the warranty period provided that the plant material is showing well developed foliage, healthy growth, good bud formation and well anchored in the planting soil. Tree wrap shall be removed in the first spring after planting.
- .6 The Contract Administrator reserves the right to extend Contractor's warranty responsibilities for an additional one year period if, at the end of the initial warranty period, leaf development and growth is not sufficient to ensure future survival. Further, the Contractor shall be required to maintain and warranty any trees or shrubs replaced at the end of the initial warranty period, for a period of one year.

1.10 Job Conditions

- .1 Work of this Section shall be performed during suitable weather conditions and growth season for each specified material.

Part 2 - Materials

2.01 General

- .1 Materials shall be typical of their respective kinds within the standards specified. Materials shall be of uniform quality, and be subject to inspection, quality interpretation, and acceptance by the Contract Administrator and the Region's Landscape Architect.

2.02 Topsoil

- .1 Topsoil shall be fertile, friable natural loam containing not less than 4% of organic matter for clay loams and not less than 2% for sandy loams with an acidity value ranging from pH 6.5 to 7.5 and capable of sustaining vigorous plant growth.
- .2 Topsoil shall be free of roots, vegetation or other debris that prevents proper placement, and free of stones and clods over 20 mm in any dimension. Imported topsoil shall be screened prior to delivery to the job site.
- .3 Imported topsoil shall be screened.

2.03 Fertilizer

- .1 Complete commercial slow release fertilizer with a maximum 35% water soluble nitrogen with the following percentages by weight of nitrogen, phosphorus, and potassium, in that order: 10-10-10, or as determined by soil tests.

2.04 Mulch

- .1 Shall be a shredded pine bark mulch varying in size between 25mm and 125mm in length or clean hardwood chips ranging in size from 20-50mm and installed to a depth of 100mm. Mulch shall be free of contaminants and shall be wetted within 24 hours of installation.

2.05 Ties

- .1 Biodegradable ties shall be used to secure trees to stakes. No wire or garden hose will be permitted.

2.06 Wooden Stakes

- .1 For tree supports, use new wooden stakes 50 mm x 50 mm x 2400 mm long. Steel t-bars will not be permitted.
- .2 Staking and guying will be completed immediately after planting. Stakes are to be driven beside and 300mm below the base of the root ball. Stakes are to be driven into ground at 90 degrees, and outside of Tree pit.
- .3 Stakes are to be removed after the warranty period has ended.

2.07 Planting Mixture

- .1 The planting medium shall be an approved screened Triple Mix. This medium will be mixed with existing native material so as not to exceed 50% new soil within the tree pit. The retained native material shall be free of stones, refuse or other material. Clod size is not to exceed 2 cm.
- .2 The planting medium shall be shredded and screened sandy loam whose organic content is not less than 10% and the clod size is not to exceed 2cm. This soil shall be free of stones, subsoil, refuse, or other extraneous material and be capable of sustaining healthy plant growth. This medium will be mixed with existing native material so as not to exceed 25% sandy loam.

2.08 Plant Material

- .1 Quality and Source:
 - .1 Comply with Canadian Nursery Stock Standards, latest edition, published by the Canadian Nursery Landscape Association, referring to size and development of plant material and rootball. Measure plants when branches are in their natural position. Height and spread dimensions refer to main body of plant and from branch tip to branch tip. Measure caliper 150 mm above ground level. Use trees and shrubs of No. 1 grade.
 - .2 Label each plant to type, grade, and size.

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- .3 Use trees and shrubs that are structurally sound, with strong fibrous root system free of disease, insects, defects, or injuries. Use trees with straight trunks except where specified otherwise, well and characteristically branched for species. Plants must have been transplanted or root pruned regularly, but not later than one growing season prior to arrival on site.
 - .2 Container Stock:
 - .1 Container grown stock is acceptable if containers were large enough for root development. Trees and shrubs must have grown in container for minimum of one growing season, but not longer than two. Root system must be able to hold soil when removed from container. Plants that have been rootbound are not acceptable. Container stock must have been fertilized with slow releasing fertilizer.
 - .3 Balled and Burlapped:
 - .1 Coniferous and deciduous trees must be dug with large firm ball. Base size of rootball for trees on caliper taken at 150 mm above ground level. A tree with a base size of 75 mm requires rootball of 1 m diameter. Increase diameter of rootball by 250 mm with each increase of 25 mm. Rootballs of proper size must include 75% of fibrous and feeder root system. Secure rootballs with 5 oz Hessian burlap, heavy twine, and rope. Frozen rootballs will be permitted, provided they are sufficiently protected to prevent breakage. Protect rootballs against sudden changes in temperature and exposure to heavy rainfall.
 - .4 Bare Root:
 - .1 Nursery grown, in dormant stage, not balled and burlapped or container grown. Root system must be large enough to support vigorous growth. The cutting of major roots and small poorly developed root systems are not acceptable.

Part 3 - Execution

3.01 Examination

- .1 Examine the site before commencement of work, and inform the Contract Administrator if site conditions will not permit completion of work as specified in this Section
- .2 Ensure that subgrade preparation and drainage are satisfactory for continuing maintenance and growth of materials specified in this Section.

3.02 Workmanship

- .1 Co-ordinate operations. Keep site clean and planting holes drained. Immediately remove soil or debris spilled onto pavement.

3.03 Preparation

- .1 Subgrade for Planting Beds and Tree Pits:
 - .1 Scarify to a depth of 150 mm below rootball. Loosen subgrade 500 mm around each rootball planting pit.
- .2 Location of Trees:
 - .1 Stake out all tree locations and planting beds, and obtain the Contract Administrator's approval before excavating. Cooperate with the Contract Administrator where minor adjustments to such locations are necessary. The proposed location of trees and plants on drawings is approximate only and may require adjustment due to site conditions.
 - .2 The Contractor shall be responsible for locating all underground utilities and services prior to digging.

3.04 Planting Time

- .1 Provide the Contract Administrator with planting schedule. Extending planting operations over a long period, using a limited crew, will not be acceptable.

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- .2 Balled and burlapped material shall not be stored on the site in excess of forty-eight hours (48 hrs.) without permission from the Contract Administrator. If storage is necessary, the plant material shall be protected with soil or a similar material to prevent drying out and shall be kept moist until it is planted.
 - .3 Ensure that watering facilities are available.
 - .4 Plant only under conditions that are conducive to the health and best physical condition of plant material.

3.05 Installation

- .1 Plants and Trees:
 - .1 Plant during suitable weather conditions, according to locally accepted practice and with the Contract Administrator's approval. Set plumb in the centre of the pit and at the same relation to grade as originally shown, after settlement has taken place.
 - .2 Plant trees and shrubs vertically and faced to give best appearance in relation to structures, roads, and walks.
 - .3 Excavate planting holes in planting areas. Ensure that hole is wider and deeper than pot or rootball, allowing at least 150 mm of planting mixture under each plant. Remove all ropes, wires, etc. and cutaway and remove top one third of burlap and wire basket without damaging rootball. Set bare root plants so that their roots lie in their natural position. Constantly tamp planting mixture around rootball 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 leaving a shallow saucer directly over the rootball, and slightly smaller in diameter than the excavation. Apply fertilizer at a rate of 10 kg/100 m². Water trees and planting beds thoroughly immediately after planting.

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- .4 Trees will be set at the same relationship to finished grade as they were to the ground from which they were dug. In heavy clay soils, the tree will be set with the root callus positioned 75mm to 100mm above the finished grade. They will be set plumb and braced in position until soil has been placed around the root ball. The trunk of the tree is not to be used as a lever in positioning or moving the tree in the planting hole.
 - .5 All burlap, twine or ropes over the top of the root ball, or wrapped around the tree stem are to be removed.
 - .6 All planting sites will be left in a clean, tidy and safe condition with all surplus materials, soil, debris etc. removed. Caution will be taken not to damage turf, sidewalks, curbs, roads, etc. Any damage will be the responsibility of the Company to repair. No planting sites will be left incomplete at the end of a workday.
- .2 Tree Support:
- .1 After planting and wrapping, stake all trees in planting beds with sodded areas with biodegradable ties and two wooden stakes. Fasten ties with arbour ties or equivalent. Tie trees without subjecting tree to undue strain
- .3 Pruning:
- .1 Prune only as necessary to remove dead and broken branches and to compensate for the loss of roots as a result of digging operations in the nursery. Preserve the natural form and character of plants and do not remove small twigs along tree trunks.
 - .2 Pruning shall be performed in accordance with good arboricultural practices. Use only sharp, clean tools and make cuts flush without leaving stubs. Trace back to living tissue all cuts, bruises, and scars on the bark.

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- .4 Mulching:
- .1 Obtain the Contract Administrator's approval of planting before mulching material is applied. Loosen soil in planting beds and pits and remove all debris and weeds. Spread mulch to minimum acceptable thickness of 100 mm. Mulch material susceptible to blowing must be moistened and mixed with small amount of topsoil before applying. When mulch is applied in the fall, place immediately after planting. When mulch is applied in spring, wait until soil has warmed up.

3.06 Adjustments and Replacements

- .1 At the time of arrival on site, preliminary acceptance at project completion, and again at termination of the warranty period, materials and work of this Section will be inspected by the Contract Administrator, and adjustments and replacements shall be made under work of this Section in accordance with the following.
- .2 Plant materials rejected upon arrival at the site shall be removed from the site within twenty-four hours (24 hrs.) of notification of same.
- .3 Commencement of the warranty period is predicated on acceptance of work of this Section with only minor deficiencies.
- .4 Adjustment and replacement work shall be performed as specified in this Section with materials of same size, variety, and quality of material replaced, unless authorized by the Contract Administrator.
- .5 Replacement work shall be done under a warranty of the same length and conditions as described in this specification. Warranty period for replacement work shall date from the time of the Contract Administrator's approval of replacement work.
- .6 Replace plant stock that is dead or not in a flourishing and satisfactory growing state, or does not meet specification requirements. Remove dead stock immediately. Replace stock at proper time during the next planting season.
- .7 After settlement has occurred at planting pits, fill in to specified grade with planting soil and re-mulch the tree.

END OF SECTION