

1.0 GENERAL

1.1 Related Work

- .1 Coordinate the requirements of this section with all other sections
 - .1 Section 02210 Park Grading (If Required)
 - .2 Section 02212 Topsoil
 - .3 Section 02998 Landscape Maintenance

1.2 Quality Control

- .1 Approval from City of Prince Albert, Public Works required for proposed plant material specifications and sizes.
 - .1 Name of source and supplier of plant material, species and quantity must be submitted prior to delivery
 - .1 Imported plant material must accompany necessary permits and import licenses, conforming to federal and provincial regulations.
- .2 All plant material must be rated **Zone 3A** or hardier as per Canada Plant Hardiness Zone
 - .1 Map and comply with the current edition of the Canadian Nursery Landscape Association (C.N.L.A.) Canadian Standards for Nursery Stock requirements for:
 - .1 Botanical nomenclature
 - .2 Required labels clearly specifying:
 - Species
 - Mature height and spread
 - Calliper
 - Root ball size and condition
 - Container size and condition
 - .2 Tree and shrub requirements; strong fibrous root systems, structurally sound, free of disease, insects, insect eggs, sunscald, frost cracks, rodent damage, defects, injuries and damage.

- .3 Planting Season:
 - .1 Plant all deciduous plant material between April 15 and October 15.
 - .2 Dig all coniferous plant material during Spring dormancy only and plant prior to August 15.
- .4 Mulch:
 - .1 Submit for all mulch material delivered to the site:
 - .1 A one (1) litre sample of mulch.

1.3 Substitutions

- .1 Species and / or size substitutions to plant material as per planting plan prohibited unless written approval is obtained from the Consultant before tender close. Plant substitutions must be of similar species and of equal size as those originally specified.

1.4 Inspection

- .1 Notify the **City of Prince Albert, Public Works**, for inspection and approval of nursery plant material at source before delivery of any plant material to site.
- .2 Notify the **City of Prince Albert, Public Works**, for inspection of layout before to planting of:
 - .1 Trees and planting beds.
- .3 Notify the **City of Prince Albert, Public Works**, for inspection of plant material and planting installation before to planting of:
 - .1 Trees and shrubs.
- .4 Inspection of plant material includes:
 - Species
 - Size
 - Health
 - General form and leaf development
 - Location
 - Proper installation
 - Ensure invasive plant species have not been imported to the site.

Inspection before installation does not prevent rejection after planting.

1.5 Delivery and Storage

- .1 Coordinate shipping of plants and site preparation to ensure minimum time lapse between transport and planting.
- .2 During shipment, protect plant material from frost, excessive heat, sun and wind with tarpaulin covering all the plants, to prevent loss of moisture.
 - .1 Protect plants from damage during shipping.
 - .2 Damaged root balls, trunks, branches and leaders are unacceptable. Damaged plant material will be rejected.
 - .3 Pack plants in damp peat moss, place in bales or boxes, and keep damp during transportation and storage until planted.
- .3 If plant material cannot be planted within 4 hours of arrival on site, provide protection necessary to keep plants at optimum health:
 - .1 Keep roots moist and protected from sun, wind and mechanical damage.
 - .2 Protect root balls against sudden temperature changes and exposure to heavy rainfall.
 - .3 Dropping of root balls at any time during handling is not acceptable.
 - .4 If plants cannot be planted on same day of arrival to site, heel in plant material in shaded areas and water well. Provide extra protection from construction, sun and wind. Ensure close monitoring of plants watering needs.

1.6 Measurement and Payment

- .1 The Lump Sum and Unit prices submitted are for supply of all labour and equipment and materials as specified or required to complete the Work as intended.
- .2 The prices submitted to be full compensation for supplying (if applicable), hauling, installing, cleaning and placing in service the Work as specified and detailed, together with all incidental Work.
- .3 Measurement for Payments to be calculated on the basis of a percentage of completion of the Lump Sum and Unit prices for the applicable item of Work or at Unit rates of Force Account Rates as entered on the Tender Form.

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- .4 Plant materials (each) for specified species of tree or shrub and includes all associated costs for excavation, planting soil, tree staking, wood mulch and maintenance.
- .5 Plant material that has been rejected after installation and prior to Construction Completion Certificate (CCC) will not be paid for.
 - 1. Prior payment for this material will be reversed.
- .6 Undersized plant material to have their payment reduced as follows:
 - .1 Caliper specified trees - Unit rate is reduced by 2% for every one mm caliper size under specified size.
 - .2 Height trees - Unit rate is reduced by 2.5% for every 5cm increment below specified size.
- .7 Wood mulch for individual trees is incidental to cost of individual trees and will not be measured for payment.

1.7 Warranty

- .1 The Contractor hereby warrants plant material will remain healthy for one full year following date of Construction Completion.
- .2 The Consultant 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 questionable or the plant shows signs of stress.
- .3 The Contractor warrants invasive or unwanted plant species will not be imported into the site with the plant material.

1.8 Replacements

- .1 During Construction period, the project site is **not to contain** dead or diseased plant material at any time. Remove and replace plant material as required.

2.0 PRODUCTS

2.1 Plant Materials

- .1 Plant material, sizes, conditions and quantities must conform to drawings and plant lists. Sizes noted on drawings are plant lists are minimum.
- .2 Plants not listed on the below approved plant list shall not be planted without written approval from the City of Prince Albert, Park Branch.

City of Prince Albert Preferred Tree Species		Zone	Height	Spread	Columnar	Upright Spreading	Flowering	Fruiting	Winter Interest	Drought Tolerant	Water Tolerant	Salt Tolerant
Botanic Name	Common Name											

All-Purpose Trees for All Applications

<i>Acer ginnala</i>	Tree-form Amur Maple	2	6m (18')	5m (15')		X						
<i>Acer tataricum subsp. Ginnala</i>												
<i>Acer saccharinum 'Silver Cloud'</i>	Silver Maple	3	18m (60')	9m (30')		X				X	X	X
<i>Acer tataricum 'GarAnn'</i>	Hot Wings Tatarian Maple	2	7m (20')	6m (18')		X				X		X
<i>Fraxinus mandshurica 'Mancana'</i>	Mancana Manchurian Ash	2	12m (40')	7m (20')		X				X	X	X
<i>Fraxinus x 'Northern Gem'</i>	Northern Gem Hybrid Ash	2	15m (50')	12m (40')		X				X		
<i>Fraxinus pennsylvanica 'Patmore'</i>	Patmore Green Ash	2	18m (60')	11m (35')		X				X		X
<i>Fraxinus pennsylvanica 'Rugby'</i>	Prairie Spire Green Ash	2	18m (60')	9m (30')		X				X		X
<i>Quercus macrocarpa</i>	Bur Oak	2	24m (80')	18m (60')		X				X		X
<i>Tilia americana</i>	American Linden	2	18m (60')	12m (40')		X	X					
<i>Tilia cordata 'Greenspire'</i>	Greenspire Littleleaf Linden	3	12m (40')	10m (30')		X						
<i>Tilia cordata 'Ronald'</i>	Norlin Littleleaf Linden	3	15m (50')	9m (30')		X						
<i>Tilia mongolica 'Harvest Gold'</i>	Harvest Gold Mongolian Linden	2	12m (40')	8m (25')		X						
<i>Tilia x flavescens 'Dropmore'</i>	Dropmore Hybrid Linden	2	15m (50')	9m (30')		X						
<i>Ulmus americana*</i>	American Elm	2	20m (60')	12m (40')		X						

Ornamental Trees Located Away from Pavement | Street Trees between Property Boundary and Combined Curb-Sidewalk

<i>Betula platyphylla 'Fargo'</i>	Dakota Pinnacle Asian White Birch	2	12m (40')	9m (30')	X				X			
<i>Celtis occidentalis</i>	Hackberry	2	15m (50')	12m (40')		X	X	X		X	X	
<i>Crataegus x mordenensis 'Snowbird'</i>	Snowbird Hawthorn	3	5m (15')	5m (15')		X	X	X				
<i>Elaeagnus angustifolia</i>	Russian Olive	2	6m (18')	6m (18')		X	X	X		X		X
<i>Malus x adstringens 'Jefgreen'</i>	Emerald Spire Crabapple	3	5m (15')	2m (6')	X	X						
<i>Malus x adstringens 'Jefspire'</i>	Purple Spire Crabapple	3	5m (15')	2m (6')	X	X						
<i>Malus x adstringens 'Thunderchild'</i>	Thunderchild Crabapple	2	6m (18')	5m (15')		X	X	X				
<i>Malus 'Royalty'</i>	Royalty Crabapple	2	5m (15')	5m (15')		X	X	X				
<i>Prunus maackii</i>	Amur Cherry	2	10m (30')	8m (25')		X	X	X	X			
<i>Syringia reticulata</i>	Japanese Tree Lilac	3	6m (20')	5m (15')		X	X		X			X

Upright Conifer Trees for Winter Interest Located where Space Allows

<i>Picea glauca</i>	White Spruce	2	13m (43')	6m (18')		X			X			
<i>Picea pungens</i>	Colorado Spruce Blue Spruce	2	19m (62')	8m (25')		X			X			X
<i>Pinus contorta var. latifolia</i>	Lodgepole Pine	1	25m (80')	8m (25')		X			X			
<i>Pinus sylvestris</i>	Scotch Pine	2	18m (60')	8m (25')		X			X	X		

Park and Nature Trees Located Away from Infrastructure

<i>Acer negundo</i>	Boxelder Maple	2	15m (50')	10m (30')		X				X	X	
<i>Larix laricina</i>	Tamarack		12m (40')	6m (18')	X							X
<i>Larix siberica</i>	Siberian Larch	2	25m (80')	5m (15')		X						
<i>Prunus virginiana 'Schubert'</i>	Schubert Chokecherry	2	8m (25')	6m (18')		X	X	X				
<i>Salix alba 'Siberica'</i>	White Willow	2	25m (80')	10m (30')		X						X
<i>Salix pentandra</i>	Laurel Leaf Willow	2	18m (60')	9m (30')		X						X
<i>Sorbus aucuparia 'Rossica'</i>	Russian Mountain Ash	2	8m (25')	6m (18')		X		X				
<i>Sorbus decora</i>	Showy Mountain Ash	2	8m (25')	6m (18')		X		X				

Please note that the Preferred Species are tried-and-true suggestions. Other species and substitutions may be permitted on City property with permission from the City of Prince Albert Parks Division

*Elms are permitted in limited numbers in high visibility locations where they can be easily monitored for DED

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- .1 Approval of plant material substitutions is required from **City of Prince Albert, Park Branch, Project Manager**.
 - .2 Requested plant material substitutions must be of similar species and of same size as originally specified.
 - .3 If plant material is not commercially available at the minimum size specified, smaller sizes of the same species may be approved by Project Manager.
- .3 Plant material must have well developed branches and foliage, stable and strong fibrous root systems, structurally sound, free of disease, insects, insect eggs, sunscald, frost cracks, rodent damage, defects, injuries and damage.
- .1 Trees with sparse foliage or over-elongated branches are unacceptable.
 - .2 Plant material with dieback or tip kill that adversely affecting the structure of a tree is unacceptable (e.g., damaged leader or severe tip kill to lateral branches).
 - .3 Plant material with stumps or weeds included in the root ball is unacceptable.
 - .4 If larger plants than specified are used, increase the root ball in proportion to the size of the plant to conform to C.N.L.A. specifications.
 - .5 Trees with excessive pruning, shearing or pruning that adversely affecting trees mature form is unacceptable.
- .4 Plants dug from native stands, woodlots, Christmas tree lots, orchards or neglected nurseries, and have not received proper maintenance as per C.N.L.A., are designated as “collected” plants.
- .1 “Collected” plants are unacceptable unless inspected and approved.

2.2 Wood Mulch

- .1 Approved clean untreated shredded wood chips produced from pulp mills in Northern Saskatchewan or other approved product.
- .2 Ensure wood mulch is well shredded. Large wood chunks are not acceptable.

2.3 Other Materials

- .1 Water:
 - .1 Potable and free of minerals detrimental to plant growth.

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- .2 Non potable water:
 - .1 Location and source of water is required.
 - .2 Water test is required and test results submitted to City of Prince Albert, Public Works for approval prior to use.
 - .3 Park Trees: Metal T-Bar stake, supplied by Contractor.
 - .4 1524-1828mm long, heavyweight.
- .2 Accessories: Use 14 gauge galvanized wire inserted into 2 ply reinforced 12mm diameter rubber hose.

3.0 EXECUTION

3.1 Layout

- .1 Establish and maintain line and grade controls using appropriate survey personnel and equipment.
 - .1 Contractor is responsible for layout accuracy.
 - .2 Stake locations of trees and obtain approval before planting.
 - .3 Spray-paint edge of planting bed and obtain approval before installation of sand and start of planting operations.

3.2 Utilities and Setbacks

- .1 All underground utilities and irrigation mainline must be located and clearly flagged or marked within 5 metres of proposed planting sites.
 - .1 Identify all discrepancies in existing conditions, including the locations of underground utilities affecting proposed plant material locations.
- .2 Trees require a set back of minimum distance, measured from centre of tree trunk, from utilities and other objects:
 - .1 0.6m: 120 - 240 voltage lines (e.g., streetlight power lines), traffic control lines
 - .2 1.0m: sidewalks, pathways
 - .3 1.5m: local road curb face, driveways and private walks
 - .4 2.0m: buried high voltage power lines, overhead power lines (small species of trees only allowed), SaskTel/AT&T/telephone lines, Sask Energy/gas distribution lines, Shaw/telecable lines, utility pedestals, curb

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face of arterial or collector roadways, roadway signs except from the front of stop and yield signs

- .5 3.0m: fibre optic lines, water and sewer lines, electrical transformers, street lights, fire hydrants, structures (e.g., houses, garages), side and back of bus stop signs, front of bus stop signs where tree is more than 3.0m from curb face
- .6 7.0m: street corners, front of stop and yield signs
- .7 10.0m: Trans gas/gas transmission lines

3.3 Tree Spacing

- .1 Minimum distances between / from existing trees measured from centre of tree trunks:
 - .1 5.0m: small tree species less than 6.0m spread at maturity.
 - .2 6.0m: trees species 6.0 - 7.5m spread at maturity.
 - .3 7.0m: coniferous trees.
 - .4 9.0m: tree species with greater than 7.5m spread at maturity.

3.4 Excavation – Tree and Shrubs

- .1 Excavate planting hole for each type of plant:
 - .1 Large trees (over 3.0m height):
 - .1 Depth: Equal height of container or root ball of tree.
 - .2 Diameter: 600 mm greater than diameter of container or root ball of tree.
 - .2 Small trees (up to 3.0 m height):
 - .1 Depth: Equal height of container or root ball of tree.
 - .2 Diameter: 600 mm greater than container or root ball of tree.

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- .3 Shrubs:
 - .1 Excavate at least 300 mm wider than container of shrub.
 - .2 Scarify wall of planting holes before installing any planting stock material.
- .2 Remove excess soil and all water from planting hole before placing tree.

3.5 Tree and Shrub Planting

- .1 Install plant material in centre of planting hole, plumb, per drawings and planted at the same grade level as originally grown in nursery.
 - .1 Consider existing sub grade soil conditions and further settlement of newly planted material at this stage of planting.
 - .2 Water each plant immediately after planting.
- .2 Coniferous plant material must be Spring dug (See 1.2.4).
- .3 Balled and burlapped plant material:
 - .1 Place top of the root ball at the same level as in the nursery (allowable tolerance: +/- 50mm), allowing for future settlement.
 - .1 If tree location is in heavy clay soil, install top of the root ball 50mm above the nursery level (+/- 50mm).
 - .2 Install root ball on undisturbed/compacted sub grade. Place topsoil at edges of excavation to support root ball.
 - .1 Damaged to the root balls are unacceptable.
 - .3 Place planting soil around root system in layers of 150 mm, eliminating air voids.
 - .1 When planting soil is installed up to half the root ball height, ties are required remove the top 1/3 of the burlap and / or wire basket ensure 2 lacing loops are left intact and folded down.
 - .2 When 2/3 of planting soil has been placed, fill hole with water. Do not complete backfill until water has completely penetrated into soil. Cover root ball with soil
 - .4 Build soil ring around perimeter of the root ball to assist with maintenance watering.
 - .5 Apply 140 litres (30 gal) of water slowly per tree immediately after planting

- .4 Container stock plant material:
 - .1 Remove container without disturbing root ball.
 - .1 If roots have grown to the edge of the container, cut 3 (three) vertical slices around the root ball.
 - .2 Install small trees and shrubs per drawings.
 - .3 Position top of root ball flush with proposed finished grade.
 - .4 Place planting soil and compact firmly around plant.
 - .5 Apply 90 litres (20 gal) of water slowly per small tree immediately after planting
- .5 Remove remaining shipping materials, wire, burlap and protective coverings from plant material and beds.

3.6 Tree Support

- .1 Install tree support for trees in parks right after planting, see details. Ensure tree support does not disturb root ball.
- .2 Ensure tree support is placed as per setback identified above in 3.2.2

3.7 Pruning

- .1 Prune dead, injured, damaged branches or branches that rub against bark.
 - .1 Remove projecting stubs back to branch collar.
 - .2 Postpone pruning of trees until in full leaf to prevent heavy bleeding.

3.8 Wood Mulch

- .1 Wood mulch is required for all planting beds and individual trees and shrubs.
- .2 Minimum mulch depth including uniform compaction:
 - .1 Irrigated areas 50 mm.
- .3 Install mulch immediately following planting.
 - .1 Do not install mulch within 100 mm of tree trunks.
 - .2 Taper mulch layer at base of shrubs to provide a 100mm diameter saucer centred on shrub, with no mulch directly at the base of stem(s).
- .4 Compact mulch by spraying with water.

3.9 Clean-Up

- .1 Clean adjacent areas, walks and road surfaces at the end of each working day.
- .2 Remove all remaining shipping and construction debris from planting.

END OF SECTION