

# **PART E**

# **SPECIFICATIONS**

## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

- E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at <http://www.winnipeg.ca/matmgt>.
- E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing</u>
L-1	Existing Site Plan and Area of New Paving
L-2	New Site Plan / Grading Plan

#### E2. DEPARTMENT OF FISHERIES AND OCEANS JURISDICTION

- E2.1 The Contractor is made aware that they will be working adjacent to the Red River, and a ditch that enters into the Red River, and as such, their construction may be monitored by the Federal Department of Fisheries and Oceans.
- E2.2 The Contractor must not deposit or allow any site materials to erode and wash into the River, including any existing or newly installed ground materials.
- E2.3 The Contractor shall erect a suitable silt fence/curtain, in the location shown on drawing 1L-2, to prevent any materials from entering the river.
- E2.4 The Contractor must ensure that any newly exposed graded work is protected over Winter and in the Spring, should the sod not be able to be installed this season. Protective measures may entail installation of straw mats pegged to the grade, or other approved alternatives.
- E2.5 The Contractor shall accelerate all work closest to the river in the work schedule, so as to complete the work most affected by the Spring flood waters.
- E2.6 Should the Contractor not provide adequate protection to prevent contaminants from entering the river, and should the Department of Fisheries and Oceans levy fines on this project, the Contractor will be responsible for paying for any fines assess against the City of Winnipeg or Ken Rech Landscape Architects Inc.
- E2.7 Measurement and Payment. The cost for installation of the silt fence shall be included in Unit Price Item No: 4 "Supply and install temporary silt curtain/fence."

#### E3. LAYOUT OF WORK

- E3.1 The Contractor shall set control lines and bench marks by means of stakes, buoys or marks and the Contractor shall make the completed works conform to the lines and marks thus indicated. The Contract Administrator will locate the most northerly parking areas off the new access road. The Contractor shall furnish all other lines and levels required. The Contractor shall be

responsible for the careful preservation of all stakes and marks. Care must be taken that the Contract Administrator be notified immediately of the disturbance of any such stakes or marks; the cost of correcting any errors arising out of neglect of the Contractor or his agent or his employees, to so notify the Contract Administrator shall be borne entirely by the Contractor, as well as the cost of replacing any disturbed stakes or marks.

- E3.2 All layout work shall be inspected and approved by the Contract Administrator prior to construction.
- E3.3 Before commencing work the Contractor shall satisfy himself as to the meaning and correctness of all stakes and marks and no claims shall be entertained by the City of Winnipeg on account of any alleged inaccuracies. If any error is suspected in the plans, specifications or the directions of the Contract Administrator, work shall be discontinued until the errors are rectified, but no claims shall be made on account of any delay occasioned thereby.
- E3.4 All proposed tree planting locations shall be staked with minimum 610mm height vertical markers, and be approved by the Contract Administrator prior to excavating the tree pit.
- E3.5 The Contractor shall locate and protect all underground utilities prior to commencing construction.

#### **E4. EXISTING SURVEY INFORMATION**

- E4.1 The site plan is based on drawing data supplied by the City of Winnipeg and supplemental field data supplied by Ken Rech Landscape Architects.
- E4.2 Survey grade elevations were taken on November 6, 2002 by Michalenko Surveys, and Ken Rech Landscape Architects Inc.

#### **E5. SITE ACCESS**

- E5.1 Access to the work areas shall be via the Department of Highways parking lot service road which connects to Main Street.

#### **E6. DEMOLITION AND SALVAGE**

- E6.1 In general terms the following outlines the demolition and salvage work:
  - a. Removal and salvaging of 95 existing precast concrete parking curbs and associated anchoring pins, for reinstallation.
  - b. Removal of one Poplar tree located on the north side of the existing parking lot, west of the new access road. Remove the stump to 300 mm below grade.
  - c. Removal of existing sod and granular paving to allow construction of the new parking areas and access roads.
- E6.2 The cost for all demolition, and salvage and reinstallation work is to be included in the unit price form, of the most applicable work area, or description. Removal of one Poplar tree to be included in Unit Price Item No: 3 "Rough grade and haul excavated material off site" on Form B: Prices.

## **E7. EARTHWORK AND GRADING**

- E7.1 This specification shall amend and supplement City Specification CW 3170-R3 and cover the operations relating to the earthwork and grading of the site as shown on the Construction Drawings.
- E7.2 The Contractor shall construct the park within the limits indicated and as shown on the Construction Drawings.
- E7.3 The Contractor is made aware that all excavated material is to be removed legally disposed of off site. In lieu of hauling all excavated material off site the Contractor may construct a berm in the location shown on drawing 1 L2, however the cost for building this berm, including installation of topsoil and sod will be at the Contractor's expense. If the Contractor builds a berm, all granular material shall be located on the bottom of the berm and be covered with at least 200 mm of clay. The height of the berm will be controlled by the amount of fill however the side slopes shall not exceed 4:1 horizontal/vertical slope.
- E7.4 The Contractor shall excavate or fill to the design grades shown less the appropriate allowance for surface treatment, topsoil and sod. Where design grades are not shown, the new surface materials shall be installed to meet flush with surrounding grades, and sloped so as not to impede the existing drainage pattern.
- E7.5 Construction to the new design grades shall be accomplished by the excavation of material from high areas, and using the suitable excavated material along with imported clean earth fill for filling in the low areas as indicated by the elevations shown on Construction Drawings. Backfill shall be placed in a dry, thawed condition and shall be maintained free of moisture or frost.
- E7.6 The design gradient for all other areas shall be considered to be straight grade between the design elevation shown. Changes in grade at swales shall be gently contoured as directed by the Contract Administrator to provide future ease of grass mowing operations.
- E7.7 In fill areas where the difference between the existing ground elevation and the design elevation is less than 300 mm, the Contractor shall scarify the existing ground to a minimum depth of 100 mm prior to placement of any fill.
- E7.8 The Contractor shall construct all sub-grades in accordance with Specification CW 3110-R6. This shall include the use of suitable compaction equipment as approved by the Contract Administrator to achieve a minimum compaction of 95% Standard proctor Density. Lifts shall not exceed a compacted thickness of 150 mm.
- E7.9 Following earthmoving, rough grading and compaction, the work areas shall be fine graded to provide a maximum deviation of 50 mm in 10 metres from the design grade with no low areas that hold water. The finished surface of all disturbed areas shall be dragged and smoothed in such a manner that there are no loose soil particles greater than 50 mm in maximum dimensions.
- E7.10 Measurement and Payment. The cost for rough grading shall be included in Unit Price Item No: 3 "Rough grade and haul excavated material off site" on Form B: Prices.

## **E8. SITE RESTORATION**

- E8.1 Total Performance of the Work shall not be attained until the Contractor has cleaned up the Site and has removed all plant, tools, equipment, waste, debris and surplus foundation earth to the satisfaction of the Contract Administrator. Unless otherwise specified, the Contractor shall restore all areas of the site beyond the established limit of Work, which have been disturbed by the Contractor's operations to as good as or better than the original condition to the satisfaction of the Contract Administrator. The Contractor shall pay all costs associated with this Work.

## **E9. GRANULAR PAVING**

- E9.1 This Specification shall amend and supplement City Specification CW 3110-R6. The Work to be done by the Contractor under this Specification shall cover all phases of supply and placement of crushed limestone surfacing materials necessary to install the gravel paved parking areas, and new access road.
- E9.2 There are four major areas of granular paving required as identified and shown on drawing in detail 2-L1. Area "A" granular paving consists of installation of additional gravel paving placed on top of the existing gravel surface, once the parking curbs are removed, to create better slope and drainage. Area "B" granular paving includes all new material once the existing parking lot area has been regraded lower, to lessen the slope. Area "C" granular paving involves the construction of a new access road to the parking area. Area "D" granular paving, involves the construction of new parking stalls in an existing sodded and treed area.
- E9.3 All new granular paving shall be crushed limestone, installed to the depths noted on drawing details 4, 5, 6 –L1. Granular topping shall be 19mm diameter crushed limestone down, compacted to 100% Standard Proctor Density. Sub-base shall be 50 mm diameter crushed limestone down, compacted to 95% Standard Proctor Density
- E9.4 Install material to the depth and design elevations indicated on the Construction Drawings. Install only on clean unfrozen surface, properly shaped and compacted. Place the material using methods which do not lead to segregation or degradation of aggregate.
- E9.5 The finished surface is to be within plus or minus 10 mm of established grade and cross section, but not uniformly high or low. Any surface irregularities shall be corrected by loosening and adding or removing material until surface is within specified tolerance.
- E9.6 The cost for the supply and installation of Crushed Limestone paving shall be included in the related area as indicated in the Unit Prices for Items No: 5, 6, 7, and 8 on Form B: Prices.

## **E10. CORRUGATED STEEL PIPE CULVERTS**

- E10.1 Corrugated steel pipe culverts shall be installed in accordance with CW 3610-R3 Specification for Installation of Culverts.
- E10.2 Culverts shall be corrugated steel pipe, diameter and length shown on drawing detail 2 L2.
- E10.3 Install culvert in location shown on drawings, and with a slope in the direction of drainage. Invert of culvert to be 100 mm below existing grade elevations.
- E10.4 Backfill with sand at the underside of the culvert, and compacted limestone for the remainder of backfill.
- E10.5 The Contractor is made aware the outlet end of the culvert pointing to the existing boat ramp area, may be located where buried stone gabions are located. Should this be the case the Contractor shall removed the gabion baskets to the amount necessary to allow the installation of the culvert. Contractor shall ensure no sharp wires are left protruding on remaining gabion baskets as a result of the culvert installation.
- E10.6 Cost for culverts will be paid for on a per unit basis, as shown in the Unit Price Forms Item 9 and 10 on Form B: Prices.

## **E11. EXISTING STONE GABION BASKET REPAIRS**

- E11.1 The Contractor shall repair three (3) existing stone gabion baskets as located on detail 1-L2.

- E11.2 The Contractor shall repair damaged mesh by installing a section of 12 gauge, galvanized chain link fence mesh over any openings. The new mesh shall extend a minimum 100 mm past all openings and be secured to the existing wire gabion baskets with chain link hog rings tied at 100 mm along the edges.
- E11.3 After repairing the baskets fill the basket with round granite stones, same size as the existing stone.
- E11.4 Cost for repairs to the gabion basket will be paid for on a lump sum basis, as shown in the Unit Price Item 18 "Repair 3 existing stone gabion baskets" on Form B: Prices.

## **E12. PRECAST CONCRETE PARKING CURBS**

- E12.1 This specification covers the supply and installation of new precast concrete parking curbs and the salvage and reinstallation of existing precast concrete parking curbs...
- E12.2 Materials
- (a) New precast concrete parking curbs shall be Barkman Concrete Item No: 43-30007, 2400 mm long, 200 mm wide, 139 mm height, c/w 2 15 mm dia. x 300 mm long pins per curb.
  - (b) R-bar dowels shall be 15 mm dia. x 400 mm long reinforcing steel bars.
- E12.3 Contractor shall salvage approx. 95 existing pre-cast concrete curbs complete with steel pegs for reinstallation. The quantity allows for approx. 5 of these units to be discarded do to poor condition. Reinstall the curbs along the north edge of the existing parking lot, and the new access roadway and north parking lot area. Install on top of compacted gravel as per details, 3, 4, 5 –L1. Peg curbs to grade with salvaged steel stakes, or supplement with new 400 mm R-Bar stakes.
- E12.4 The Contractor shall install the precast concrete curbs in the locations shown on Detail 1-L2, and construction details shown in detail 3, 4, 5 – L1.
- E12.5 New precast concrete curbs are to be installed along south edge of existing parking lot and in the middle turn a round area. Install with 300 mm long pins which come with curbs.
- E12.6 For curbing to mark parking stalls, equally space out the curbs from one end of the stall to another. For curbing along road edge space the curbs 150 mm apart.
- E12.7 The cost for the salvage and installation of the existing precast concrete curbs shall be included in the unit cost of Item "1" of the Unit Price Form B "Salvage and reinstall existing precast concrete curbs". The cost for the supply and installation of the new precast concrete curbs shall be included in the unit cost of Item "2" of the Unit Price Form B "Supply and install new precast concrete curbs"

## **E13. INSTALLATION OF SITE FURNISHINGS**

- E13.1 This specification will cover the supply and installation of one new bench.
- E13.2 Materials
- (a) Benches shall be Cascades Re-Plast 6' (1830mm) Deluxe Contour Bench, model 234 grey inground mount, black frame. For information contact Playgrounds-R-U's tel: 632-7000.
  - (b) Concrete shall be in accordance with C.W. 2160-R5 Concrete for Underground Structures and Works.

- E13.3 Install new bench in concrete filled holes, minimum 400mm diameter by 600mm depth. Top of concrete shall be flush with surrounding grade. Slope top of concrete to drain away from post.
- E13.4 The cost for supply and installation of new bench is to be included in the Unit Price Item No: 16 "Recycled bench" on Form B: Prices.

#### **E14. MOLOK WASTE RECEPTACLE**

- E14.1 This specification will cover the supply and installation of one Molok waste receptacle.
- E14.2 Materials
- (a) Waste Receptacle shall be Molok Model 3.0 m<sup>3</sup>, 1300 mm diameter, 350 mm diameter lid opening. For information contact Molock North America Ltd, tel: 204-888-2648.
  - (b) Concrete shall be in accordance with C.W. 2160-R5 Concrete for Underground Structures and Works.
- E14.3 The location of the waste receptacle will be confirmed on site with by the Contract Administrator.
- E14.4 Contractor shall allow for minor pruning of two existing trees to ensure no branches are located over the container, which could prevent the emptying of the container.
- E14.5 Install waste receptacle as shown in detail 3-L2. Ensure bottom of container is encased in concrete ring, minimum 300mm diameter by 300mm depth, embedded minimum 75 mm into container anchoring ring.
- E14.6 Backfill outside of hole with compacted clay fill, and repair all sod damage. Cost to repair sod damage is to be included as part of waste container cost.
- E14.7 The cost for supply and installation of the waste receptacle is to be included in the Unit Price Item No: 17 "Molock Waste Receptacle" on Form B: Prices.

#### **E15. TOPSOIL AND FINISH GRADING**

- E15.1 This specification shall amend CW 3540-R2 Specification for Topsoil and Finish Grading for Establishment of Turf Areas.
- E15.2 The Contractor shall not install any topsoil in areas where the sod won't be able to be installed immediately after, so as not to have topsoil in place that could be washed away if the river level rises.
- E15.3 The Contractor is made aware the sodding restoration by the Molok Waste Receptacle is to be included in the cost of the waste receptacle.
- E15.4 Should the Contractor wish to build a berm on site instead of hauling the excavated fill away, the Contractor will be responsible for topsoil and sodding the affected area at their own cost.
- E15.5 The cost for supply and installation of topsoil is to be included in the unit price of the sod.

#### **E16. SODDING**

- E16.1 This specification shall amend CW 3510-R7.
- E16.2 The Contractor coordinate their work to ensure the sod closes to the river is installed as soon as possible into the contract, so as to protect the soil from eroding into the river. The sodding of

areas near the river is considered of the highest priority over all other work except the grading and installation of granular paving.

- E16.3 The Contractor is made aware the sodding restoration by the Molok Waste Receptacle is to be included in the cost of the waste receptacle.
- E16.4 Should the Contractor wish to build a berm on site instead of hauling the excavated fill away, the Contractor will be responsible for topsoil and sodding the affected area at their own cost.
- E16.5 The cost for supply and installation of sod shall also include the cost of the topsoil and will be paid for on a per square metre basis, and as indicated in Unit Price Item 15 "Sod and topsoil base" on Form B: Prices.

## **E17. PLANT MATERIAL**

E17.1 Description: This specification shall cover the supply and installation of nursery grown trees, shrubs and shrub bed installation.

E17.2 Materials

E17.2.1 General

- (a) Trees shall be the size and variety noted on the Plant List at the back of this section. Plant material which does not have the specified root ball diameter will be rejected.
- (b) All nursery stock supplied shall be Canadian prairie nursery grown, of the species and sizes indicated on the drawings. Quality shall be in accordance with the latest "Guide Specification for Nursery Stock of the Canadian Nursery Trades Association".
- (c) Any nursery stock dug from native stands, wood lots, orchards or neglected nurseries and which have not received proper cultural maintenance as advocated by the Canadian Nursery Trades Association, shall be designated as "collected plants". The use of "collected plants" will not be permitted unless approved by the Contract Administrator.
- (d) The Contract Administrator reserves the right to inspect the plant material at their original source, and to instruct the supplier on root and branch pruning requirements.
- (e) Nomenclature of specified nursery stock shall conform to the International Code of Nomenclature for Cultivated Plants and shall be in accordance with the approved scientific names given in the latest edition of standardized Plant Names. The names of varieties not names therein are generally in conformity with the names accepted in the nursery trades.
- (f) Plants larger than specified may be used if approved by the Contract Administrator. The use of such plants shall not increase the Contract price.
- (g) All nursery stock shall be measured when the branches are in their normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip.
- (h) Where trees are measured by calliper (cal.), reference is made to the diameter of the trunk measured 300 mm above ground as the tree stands in the nursery.
- (i) All nursery stock shall be well branched, true to type, structurally sound, possess a well developed, undamaged root system and shall be free of disease, insect infestations, rodent damage, sunscald, frost cracks and other abrasion or scare to the bark. All parts of the nursery stock shall be moist and show live, green cambium when cut.
- (j) All trees shall have one only, sturdy, reasonably straight and vertical trunk and a well balanced crown with fully developed leader. All evergreens shall be symmetrically

grown and branched from ground level up, and must be balled and burlapped unless noted otherwise on the plant list. At least one plant of each variety supplied shall bear a tag showing both the botanical and common name of the plant.

#### E17.2.2 Protection of Stock

- (a) All nursery stock shall be well protected from damage and drying out from the time of digging until the time of planting on site. All roots shall be cleanly cut; split roots are not acceptable.
- (b) Nursery stock shall be transplanted with care to prevent damage. Branches shall be carefully tied in such a manner so as not to break or damage trunks. Points of contact with equipment shall be padded. All nursery stock, which cannot be planted immediately upon arrival at the site, shall be well protected to prevent drying out and shall be kept moist until commencement of planting.

#### E17.2.3 Topsoil Backfill Mix

- (a) Backfill mix shall be screened garden soil mixture of two parts black loam topsoil, one part milled peat moss and one part sharp sand.

#### E17.2.4 Stakes

- (a) T-rail iron stakes 40 x 40 x 5 x 2440 mm long, primed with 1 brush coat of black zinc rich plant paint to CGSB 1-GP-181B. Paint section of stake above ground with 1 coat of green enamel paint.

#### E17.2.5 Tree Rings

- (a) Fabricated from 3 mm galvanized wire encased in two ply reinforced 12 mm dia. rubber garden hose of equivalent.

#### E17.2.6 Anti-Desiccant

- (a) Wax-like emulsion to provide film over plant surfaces reducing evaporation, but permeable enough to permit transpiration.

#### E17.2.7 Wound Dressing

- (a) Horticulturally accepted non-toxic, non-hardening emulsion.

#### E17.2.8 Wood Chip Mulch

- (a) Shall be standard tree limbs and leaves chippings, containing a maximum of 5% conifer branches.

### E17.3 Construction Methods

#### E17.3.1 General

- (a) Planting pits shall be excavated in a square shape with vertical sides to a depth and width amounting to twice the diameter of the root system. The minimum depth shall be 610 mm (24") and the minimum diameter shall be 1530 mm (5'). The excavated tree pits shall be refilled with backfill mix (E17.2.3). Hand dig pits where required to protect underground utilities.

#### E17.3.2 Installation

- (a) Upon excavation of the tree pits, and protection of any underground utility lines, the holes shall be backfilled with a topsoil mixture to a depth to permit adequate installation and stabilization of the plant material.
- (b) Each balled specimen shall be handled with great care, to ensure that the root balls will not be broken. Burlap shall be folded back only at the top and sides. Broken roots of deciduous stock shall be pruned back prior to planting.

- (c) After inserting the tree and filling the planting hole with topsoil, water shall be poured in until the pit is thoroughly soaked. Filling of the hole shall then be completed and the fill-in soil shall be packed firmly around the roots, leaving a concave surface for convenient watering 75 mm below rounding and grade elevation. After filling, the planting shall be watered at frequent intervals.
- (d) Planting shall be done during periods suitable to weather conditions and locally accepted practice. All nursery stock shall be set plumb in the centre of pits and at levels as shown on the planting details after settlement has taken place.
- (e) Nursery stock shall be faced to give the best appearance or relationship to adjacent structures and to the approval of the Contract Administrator.
- (f) Wood chip mulch shall be installed over the tree rootball as shown on the drawings.

#### E17.3.3

##### Pruning

- (a) All deciduous trees shall be pruned immediately after planting. The amount of pruning shall be limited to the minimum necessary to remove dead or injured branches and to compensate for the loss of roots as a result of transplanting operations. Pruning shall be done in such a manner as to preserve the natural character of the plants. Leaders shall not be removed. Only clean, sharp tools shall be used. All cuts shall be clean and flush, leaving no stubs. Cuts, bruises or scars on the bark shall be traced back to living tissue and removed. The affected areas shall be shaped so as not to retain water and all cuts of more than 25 mm in diameter shall be painted with approved tree paint.

#### E17.3.4

##### Staking

- (a) All trees shall be staked using metal T-BAR stakes. The number of stakes required per tree is shown in the Plant List. The tree trunk shall be completely encircled and protected with two rubber tree rings and secured to each tree stake. Top of each tree stake shall be at the same elevation above finished grade, approximately 1200 – 1500 mm height.

**E17.4 Maintenance and Guarantee of Nursery Stock**

- (a) The Contractor shall provide all watering, weeding, tightening and repairing tree stakes and rings, removal of dead material and all repairing tree stakes and rings, removal of dead material and all other maintenance operations required for two years after the date of the Certificate of Total Performance. See E18 for additional information.
- (b) The Contractor shall agree and guarantee to replace and replant any nursery stock found dead and/or in poor condition two years from the date of the Certificate of Total Performance, at his cost. "Poor condition" shall be interpreted as meaning nursery stock on which branches are dying, or have not shown satisfactory growth of leaves.
- (c) Exempted is nursery stock damaged by accidental causes or vandalism, which stock shall be replaced at the cost of the Owner.
- (d) All required replacements shall be by plants of at least the same size and species as specified, and shall be supplied and planted in accordance with the original drawings and Specifications, and the replaced material shall carry an additional two-year guarantee and maintenance period.

**E17.5 Method of Measurement**

- (a) Plant Material will be measured on a unit basis. The number to be paid for shall be the total number of each type and size of tree supplied and installed in accordance with the Specification and accepted by the Contract Administration.

**E17.6 Basis of Payment**

- (a) The supply and installation of Plant Material will be paid for at the Contract unit price for each tree, measured as specified herein, which price shall be payment in full including all costs for the tree, tree pit and topsoil backfill, tree stakes, tree rings, pruning, two year maintenance, and all other items incidental to the work included in this Specification.
- (b) Twenty five (25) % of the value of all plant material, as itemized on the unit price Form B, shall be held back to pay for the two year maintenance period. See E18 for payment during two year maintenance period.
- (c) Seventy five (75) % of the value of all plant material, as itemized on the unit price forms, will be paid for when the plant material complies with the supply and installation sections of the specification requirements.

QUANTITY	COMMON NAME / BOTANICAL NAME	SIZE/REMARKS
<b>Trees</b>		<b>ALL TREES TO BE SPECIMEN QUALITY</b>
19	Colorado Spruce/ Picea pungens	10 @ 1830 mm ( 6' ) ht. and 9 @ 2440 mm (8') ht. 50% blue, 50% green., mix colours randomly. Min. rootball size 1830 mm ht. – 800 mm dia., 2440 mm – 1000 mm dia. Double stake. Specimen Quality.
3	American Basswood/ Tilia americana	Min. 50 mm (2)" cal. 3050 mm (10') ht. All single stem (or Contractor may supply all clump forms). Well branched head above 1220 mm (4') ht. Min. 800 mm dia. rootball. Two stakes. Specimen Quality.
4	Butternut/ Juglans cinerea	As above

## **E18. TREE MAINTENANCE SCHEDULE**

E18.1 Description: This specification shall cover the landscape maintenance requirements for all trees and associated tree pits, shrubs and associated shrub beds.

E18.2 Related Work: Plant material and tree pits are specified elsewhere in this Specification and form an integral part to all Work described herein.

E18.3 Maintenance Period: Undertake maintenance from the date of installation for a period of two years past the date of Total Performance.

E18.4 Description of Work

(a) Maintain trees shown on the drawings, to the satisfaction of the Contract Administrator

(b) Work includes:

- Fertilizing
- Watering
- Weed Control of tree pits, wood chip mulch areas
- Pest and disease control
- Pruning
- Mulching
- Tree support and tie adjustment
- Winter protection

E18.5 Protection

(a) Prevent damage to fencing, other trees, landscaping, bench marks, building, pavement, surface and underground utility facilities.

E18.6 Materials

(a) Materials are to conform to the requirements of related specifications.

E18.7 Maintenance Requirements

(a) Condition of Equipment

Prior to the commencement of tree and shrub planting, the Contractor will be required to arrange to have the equipment to be supplied under this Contract inspected by the Contract Administrator to verify that the equipment is in good operating condition and meets the requirements of the Specifications.

(b) Replacement Equipment

The supply of replacement equipment of equal or larger size, if regular units are under repair, will be the responsibility of the Contractor.

(c) General Workmanship

Program timing of operations to growth, weather conditions and use of site.

Do each operation continuously and complete within reasonable time period.

Store equipment and materials off-site.

Collect and dispose of debris or excess material on daily basis.

E18.8 Fertilizing

(a) Apply fertilizer no later than May 30th of each maintenance year.

#### E18.9 Watering

- (a) Apply water as required to supplement rainfall and to maintain optimum growing conditions. In general, water once a week to achieve rates as indicated below. Allow soil to dry adequately between watering to prevent over-saturation without creating water stress.
- (b) Subject to the requirements above, the Contractor must water at least once a week inclusive between May 1st and October 30th. A complete record is to be kept of each series of waterings for all planted and transplanted trees, noting: 1) location, and 2) date of watering. This record is to be given to the Contract Administrator when requested.
- (c) Apply 40 litres of water per 25mm caliper, per application using deep root feeder or low pressure open flow nozzle and hose. The water stream must not gouge out a hole in the soil and mulch.
- (d) Apply 4 litres of water per shrub per application.
- (e) The Contractor shall maintain all sodded areas for 30 days from the Contract completion.

#### E18.10 Weed Control

- (a) Maintain surface of tree pit, shrub bed and mulched areas, free of weeds. Do not allow weeds to establish for a period longer than one (1) week.
- (b) Do not use dicamba and picloram solutions near trees.

#### E18.11 Pests and Diseases

- (a) Obtain written approval of Contract Administrator prior to using any pesticide.
- (b) Control pests and disease through pruning or application of pesticides. Use species specific pesticides where possible. Use only pesticides of low mammalian toxicity. Strictly follow manufacturer's written instructions.

#### E18.12 Pruning

- (a) The Contractor shall provide a person with a valid Manitoba tree Pruner's License for each Work crew or Work site.
- (b) Prune trees as required to remove dead, broken or damaged limbs. Prune back to healthy growth while maintaining balanced crown shape.
- (c) Employ clean sharp tools. Make cuts coincident with the branch collar near the main stem or branch. Cuts must be smooth and sloping to prevent accumulation of water on cut. Do not leave little stumps ("horns") on trunks or main branches.
- (d) Prune trees according to accepted horticultural practices as outlined in the Pruning Manual, Publication No. 1505 by Agriculture Canada.

#### E18.13 Mulching

- (a) Add mulch as required to maintain 100 mm thickness.

#### E18.14 Tree Supports and Tie Adjustments

- (a) Maintain tree supports and ties in proper repair.
- (b) Remove supports and ties at end of two year maintenance period or earlier if directed by City.
- (c) Straighten any tree which is leaning.

#### E18.15 Winter Protection

- (a) Ensure adequate moisture in tree zones prior to freeze-up.

- (b) Apply anti-desiccant to evergreen trees susceptible to winter desiccation as directed by Contract Administrator.

#### E18.16 Maintenance Schedule

- (a) The Contractor shall provide a complete written maintenance schedule to the Contract Administrator prior to the commencement of the two year maintenance period, and must provide weekly reports of all maintenance to the City of Winnipeg, Forestry Department, within one week of the maintenance being provided.

#### E18.17 Maintenance Period

- (a) The two year maintenance period shall be based on a six month growing season per year. The two year maintenance program will consist of a total of 12 months of maintenance. In general the maintenance shall commence on May 1st and terminate on October 30th of each year. In the event of any early spring, whereby the weather conditions are conducive to plant growth, the Contractor shall start the maintenance period at such time as they deem necessary. However, the City of Winnipeg, Forestry Branch, must be notified prior to commencing the maintenance period. Where the maintenance contract is started prior to May 1st, the actual number of days that the plant material is maintained prior to May 1st will be deducted from the October 30th completion period.

#### E18.18 Payment of Two Year Maintenance Period

- (a) The cost for the Two Year Plant Maintenance Period will be twenty-five (25) % of the total cost of all the trees, as shown in Form B: Prices, items eleven (11) to fourteen (14) inclusive. The remaining seventy five (75) % value will be paid on a per unit basis, for each plant properly installed, and which plant complies with the specification requirements.
- (b) Where the plant material has been replaced and is covered under the extended warranty period, a proportional amount of holdback will be further maintained, until the plant has survived for a full two years and is accepted.

#### E18.19 Payment of Two Year Maintenance Period

- (a) The basis of payment cost, will be based on a pro rated basis, based on each full month of maintenance, and the respective proportion of the total twelve (12) months. Progress payments will be made once a year at the end of each growing season.