

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	PRINCIPAL SPARLING SCHOOL LANDSCAPE ENHANCEMENTS
L-2	ISAAC BROCK SCHOOL – SITE ENHANCEMENTS
L-3	CLIFTON SCHOOL – LAYOUT PLANS
L-4	CLIFTON SCHOOL – WATER SERVICE ENCLOSURE BOX
L-5	CLIFTON SCHOOL – PLANTING PLANS
L-6	TEC VOC SCHOOL – SITE PLAN
L-7	SARGENT PARK SCHOOL – LANDSCAPE ENHANCEMENTS
L-8	MULVEY SCHOOL – SITE ENHANCEMENTS

E2. DEMOLITION / ROUGH GRADING

- E2.1 In general terms the only demolition / rough grading that will be required is the excavation of individual tree pits, excavation for planting beds, and excavation for concrete paving.
- E2.2 The cost for all demolition / rough grading is to be included in the unit price form, of the most applicable Work area, or description. No separate payment will be made for this Work.

E3. BOCCIE COURT I-CON PAVER EDGING

- E3.1 Paver edge shall be Barkman Concrete I-Con paver, natural colour
- E3.2 Sand shall be torpedo sand.
- E3.3 Excavate trench for I-Con pavers by using a vertical shear type of shovel or device. Trench width shall not exceed 12mm on each side of pavers. Remove grass and soil plug, including any loose soil, so pavers can be installed flush with the existing grass.
- E3.4 After installing the pavers and brush in sand on both sides of pavers, and lightly compact pavers. Repair any sod damage with new sod and maintain for 30 days..
- E3.5 The cost for the supply and installation of Boccie court I-Con pavers will be paid for on a lump sum basis, and shall include all costs for the excavation, pavers, associated sodding repairs, and the thirty day sod maintenance period (if required).

E4. WATER SERVICE ENCLOSURE BOX

- E4.1 All metal shall be the size and dimension shown on the drawing, and be galvanized finished after welding.
- E4.2 Gravel for sump shall be 6mm diameter round pea gravel.
- E4.3 New plumbing shall be copper pipe with rustproof metal fittings.
- E4.4 Water hoses shall be Swan Commercial Grade Rubber/Vinyl reinforced water hose 22 metre length. Supply two (2) 22 metre lengths of hose..
- E4.5 Install water service enclosure box in location shown on the drawing adjacent to the existing building hose bib outlet. Locate box slightly away from the wall so the lid swings free of the building wall. Install box so top of lid is 25mm above surrounding grade.
- E4.6 Cost for water service enclosure box and hosing will be paid for on a lump sum basis, as shown on Form B: Prices.

E5. SARGENT PARK CONCRETE SIGN

- E5.1 This specification covers the supply and installation of one (1) double sided concrete sign.
- E5.2 Materials
 - (a) Sign shall be Sargent Park Sign, 2004 model, double sided, 2 colour, with graffiti coating finish.
 - (b) Granular base shall be 19mm diameter crushed limestone
- E5.3 The Contractor shall sawcut the existing concrete paving where the sign and planter wall will be installed, and legally remove of the concrete from the site.
- E5.4 Install granular base to the depth and extent shown on the drawings.
- E5.5 Sign is to be installed by Barkman Concrete on gravel base prepared by the contractor
- E5.6 Barkman sign and gravel base will be paid for on a lump sum basis, as shown on Form B: Prices.

E6. PRECAST CONCRETE RETAINING WALLS

- E6.1 This specification covers the supply and installation of precast concrete retaining walls located at Sargent Park School and as shown on drawing L-7.
- E6.2 The bidder is made aware that the number of planters may be reduced in quantity as a result of budgetary considerations.
- E6.3 Materials
 - (a) Precast concrete retaining wall shall be constructed with Barkman Concrete Roman Pisa 2 Roman Stones, Desert Buff in colour.
 - (b) Granular base shall be 19 mm diameter crushed limestone
 - (c) Filter fabric shall be Armtec 150 Nonwoven geotextile or approved equal.
 - (d) Adhesive shall be Snap Edge "Bond'Loc" or approved equal.
- E6.4 The Contractor shall install the concrete retaining walls to the shapes shown on Drawing L7, and construction detail 9-L7.

- E6.5 Construct wall on compacted granular base or sand as noted on the drawing. Compact granular base to 95% Proctor Density. Ensure wall is constructed min. 50mm below grade.
- E6.6 Install geotextile filter cloth where topsoil shrub beds will backfill the planter walls.
- E6.7 Glue all layers of the wall together with a double bead, minimum 6mm dia. bead, of adhesive. Glue top cap to wall with double bead, minimum 12mm dia. bead, of adhesive, including adhesive beads on sides of all caps.
- E6.8 Fastening of all retaining wall blocks and caps is to be warranted for a full five (5) years, against separation. Five year warranty does not have to be covered beyond 2 year performance bond term. Repair and replace any blocks which become loose or missing during warranty period.
- E6.9 The cost for the supply and installation of the Roman Stone Planter Walls, including all shrub bed topsoil, shall be included in the lump sum cost for each planter.

E7. PLANT MATERIAL

- E7.1 Description: This specification shall cover the supply and installation of nursery grown trees, shrubs and perennials.
- E7.2 Materials
- E7.2.1 General
- (a) Trees shall be the size and variety noted on the plant list located at the end 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.

E7.2.2 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.

E7.2.3 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.

E7.2.4 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.

E7.2.5 Tree Rings

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

E7.2.6 Anti-Desiccant

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

E7.2.7 Wound Dressing

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

E7.2.8 Wood Chip Mulch

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

E7.3 Construction Methods

E7.3.1 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 (E7.2.3). Hand dig pits where required to protect underground utilities.
- (b) Shrub beds shall be excavated to a 400 mm (16") depth, with vertical sides and backfilled with a 300 mm depth of topsoil backfill mix. After installing the shrubs a 100 mm (4") depth of wood chip mulch shall be installed over the top of the planting beds.

E7.3.2 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.

E7.3.3 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.

E7.3.4 Staking

- (a) All trees shall be staked using metal two (2) T-BAR stakes per tree. 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.

E7.4 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 E8 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.

E7.5 Method of Measurement

- (a) Trees 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.
- (b) Shrubs will be paid for as part of the lump sum cost basis for each planting area, or planter, and shall also include the wood chip mulch covering. All shrubs shall be maintained for a full 30 days after total performance.

E7.6 Basis of Payment

- (a) The supply and installation of trees 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 forms, shall be held back to pay for the two year maintenance period. See E8.18 and D20.1 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.

PLANT LIST

Quantity	Common Name/botanical name	Size / Remarks
52	American Basswood / <i>Tilia americana</i>	Min. 100 mm caliper, 3660mm ht. Single straight trunk. Specimen quality. Well branched head above 1830mm ht. Minimum 975 mm dia. rootball. Two stakes per tree. Note: American Elm is an acceptable substitution, however quantities must be sufficient enough to plant all quantities at each school.
45	Littleleaf Lilac / <i>Syringa Palibiana</i>	Min. 10 major basal stems, each stem to be 500 mm ht. Container.
66	Alpine Currant / <i>Ribes alpinum</i>	As above
16	Dwarf Cranberry / <i>Viburnum triloum</i> "Bailey Compact"	Min. 6 major basal stems, each stem to be 500 mm ht. Container.
12	Siberian Dogwood/ <i>Cornus alba Sibirica</i>	Min. 4 major basal stems, each stem to be 750 mm ht. Container.
3	Diablo Ninebark / <i>Physocarpus opulifolius</i> "Dwarf"	As above
26	Dwarf Burningbush / <i>Euonymus alatus</i> "Compactus"	Min. 4 major basal stems, each stem to be 500 mm ht. Container.
26	Goldfame Spirea / <i>Spiraea x bumalda</i> 'Goldflame"	Min. 6 major basal stems, each stem to be 300 mm ht. Container.
15	Annabelle Hydrangea / <i>Hydrangea arborescens</i> "Annabelle"	Min. 4 major basal stems, each stem to be 400 mm ht. Container.
26	Gold-Drop Potentilla / <i>Potentilla fruticosa</i> "Gold Drop"	Min. 6 major basal stems, each stem to be 300 mm ht. Container.
15	Hughes Juniper / <i>Juniperus horizontalis</i> "Hughes"	Min. 500 mm diameter. Container.
28	Siberian Iris "Chilled Wine"	Min. 2 year old plants. 150 mm dia. pots.
104	Stella D"Oro daylily	Min. 2 year old plants. 150 mm dia. pots.

E8. TREE MAINTENANCE SCHEDULE

E8.1 Description: This specification shall cover the landscape maintenance requirements for all trees and associated tree pits.

E8.2 Related Work: Plant material and tree pits are specified elsewhere in this Specification and form an integral part to all Work described herein.

E8.3 Maintenance Period: Undertake maintenance from the date of installation for a period of two years past the date of Total Performance.

E8.4 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

E8.5 Protection

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

E8.6 Materials

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

E8.7 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.

E8.8 Fertilizing

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

E8.9 Watering

- (a) The Contractor shall acquire and pay for all water from off site sources.
- (b) 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.
- (c) 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.
- (d) 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.
- (e) Apply 4 litres of water per shrub per application.
- (f) The Contractor shall maintain all sodded areas for 30 days from the Contract completion.

E8.10 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.

E8.11 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.

E8.12 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.

E8.13 Mulching

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

E8.14 Tree Supports and Tie Adjustments

- (a) Maintain tree supports and ties in proper repair.
- (b) Remove supports and ties as directed by Contract Administrator.
- (c) Straighten any tree which is leaning.

E8.15 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.

E8.16 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.

E8.17 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.

E8.18 Cost of Two Year Maintenance Period

- (a) The cost for the Two Year Tree Maintenance Period will be twenty-five (25) % of the total cost of all the trees and shrubs, as shown in Form B: Prices, items 1a, 2a, 3b, and 6a. 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.

E8.19 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.

E9. SITE FURNITURE

E9.1 General Description

- (a) This specification shall cover the supply and installation of site furniture at all the school sites.
- (b) The bidder is made aware that the quantity of each item awarded may be less than the quantity shown on Form B: Prices, in order to meet budgetary concerns.
- (c) All site furniture is to be installed in the location shown on the drawings, or as field located by the school principal. Any damage to the existing facilities, as a result of installing the furniture is to be corrected to pre construction conditions.

E9.2 Materials and Method

- (a) Picnic Tables

- (i) Barkman Concrete round picnic table, model 45-45000-10 with one piece seat. Maximum quantity required seventeen (17). To be installed at Principal Sparling, Isaac Brock, Tec-Voc and Sargent Park Schools..
- (b) Benches shall be:
 - (i) Principal Sparling School bench shall be Fusion Coatings, Model F1051, 1800 long, inground mount. Seat/back to be "Blue" colour and frame to be "Black" colour. Benches are to be installed according to manufacturer's specifications. For information contact Playgrounds-R-U's at tel. 632-7000.
 - (ii) Mulvey School bench shall be Fusion Coatings, Model F1061, 1800 long, inground mount. Seat/back to be "Black" colour and frame to be "Black" colour. Quantity one (1). Benches are to be installed according to manufacturer's specifications. For information contact Playgrounds-R-U's at tel. 632-7000.
 - (iii) Clifton School bench shall be Cascades Contoured Series, 1800 long. Four (4) inground mount and two (2) surface mount. Seat/back to be "Green" colour and frame to be "Black" colour. Benches are to be installed according to manufacturer's specifications. For information contact Playgrounds-R-U's at tel. 632-7000.
- (c) Waste Receptacles shall be:
 - (i) Barkman Concrete Square Waste Receptacle, Model 45-2600, pebblestone finish. Maximum quantity required nine (9). To be installed at Tec-Voc and Mulvey School.
 - (ii) Principal Sparling School waste receptacles to be Fusion Coatings Model F1021 32 gallon with inground mount, blue colour. Quantity required two (2). For information contact Playgrounds-R-U's at tel. 632-7000.
- (d) All benches and waste receptacle supports are to be installed in concrete footings to manufacturer's requirements. Top of concrete footing to be 200mm below finish grade of new concrete paving. Install benches and tables before concrete paving. Provide 12 mm thick fibreboard sleeve around top 200mm of post frame where it meets concrete paving.
- (e) Concrete flower planters shall be:
 - (i) Barkman Concrete Large Pavilion Planter, Model 41-02372, natural sandblast finish. Maximum quantity required twenty-two (22). To be installed at Tec-Voc and Isaac Brock School.
 - (ii) Barkman Concrete Pebblestone Square Planter, 300 mm ht. - Model 41-91201, 450 mm ht. - Model 41-91801, 600 mm ht. - Model 41-92401. Maximum quantity required, three (3) of each type. To be installed at Mulvey School
 - (iii) All flower planters shall have a gravel drainage layer installed within them covered with a full layer of filter cloth, and then filled with mixed topsoil. Cost for these items to be included in the cost of the planters.
- (f) Concrete Cigarette Snuffers
 - (i) Barkman Concrete, pebblestone 450 mm square, model 45-44075. Maximum quantity required two (2). To be installed at Tec-Voc School.

E9.3 Basis of Payment

- (a) Payment for Work specified under this section shall be paid for at the unit price for the "Items of Work" listed below, which price shall include all costs of material supply, and proper material installation.
- (b) Items of Work:
 - (i) Picnic tables
 - (ii) Benches of each type

- (iii) Waste receptacles of each type
- (iv) Concrete snuffers

E10. PATTERNED/STAMPED CONCRETE PAVING

- E10.1 Concrete paving shall be supplied and installed in accordance with City of Winnipeg's Standard Construction Specification CW 3310-R7.
- E10.2 Concrete paving shall be poured in place and constructed in accordance with the dimensions, design grades and lines as shown on the details on the construction drawings.
- E10.3 All cement shall be Type 10, Normal Portland Cement
- E10.4 The concrete mix shall have the required strength and workability
 - (a) Minimum Specified Compressive Strength @ 28 days = 32 MPA
 - (b) Minimum Cementitious Content = 340 kg/m³
 - (c) Minimum Water/ Cementitious Ratio = 0.45
 - (d) Slump = 70 + or - 20 mm
 - (e) Aggregate Size = 20 mm Nominal
 - (f) Air Content = 5.0% to 8.0%
- E10.5 Concrete colour shall be an earthtone colour. Colour to be chosen at a later date. Colour shall be integral throughout paving.
- E10.6 Granular base shall be 19 mm diameter crushed limestone down and be compacted to 100% Standard Proctor Density.
- E10.7 Pattern shall be Seamless Slate.
- E10.8 Sealer type shall be responsibility of Contractor. Provide two (2) coats of sealer, first coat after power washing, second coat 28 days after pouring of concrete.
- E10.9 Install 125mm thick concrete paving on 100mm depth of 19mm diameter compacted crushed limestone down.
- E10.10 Reinforce concrete with 10m r-bars at 600mm on centre both ways, minimum 50mm cover.
- E10.11 Sawcut control joints in paving at maximum 2400mm on centre.
- E10.12 Pattern/stamped concrete paving will be paid for on a Lump Sum Basis and will include all costs for granular sub-base, concrete, sealers, and control joints.