

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 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>
L1	Phase 2 Layout Plan
L2	Phase 2 Details

E2. ACCESS

- E2.1 Further to GC5.02 of the General Conditions, the Contractor shall provide adequate safety protection for pedestrians and vehicular traffic exposed to the work environment under this Contract.
- E2.2 All access is to be on the designated routes through the Site. These routes are shown on the drawings and will be confirmed at the Pre-Construction Meeting.
- E2.3 Access to the Site as required by the Contractor shall be provided, maintained and restored (to as good as or better than existing condition) by the Contractor at his own expense and approved by the Contract Administrator.
- E2.4 The Contractor's operations shall be limited to the minimum area necessary for undertaking the Work and he shall be responsible for all damage resulting from his work on private property. The Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress is maintained to private properties while he is working near them. Any damage caused by the negligence of the Contractor or his Sub-Contractors to the adjacent works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.
- E2.5 All necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing trees, shrubs, sod, pavements, streets, roads, boulevards, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred in the performance of the Work (either directly or indirectly), the Contractor shall either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the City and the owners, and the cost of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City from all claims made directly or indirectly against it in respect to any such damage.

E3. SAFETY PRECAUTIONS

- E3.1 Further to Section GC 5.02 of the General Conditions, the Contractor shall provide adequate safety protection for pedestrians and vehicular traffic exposed to the Work environment under this Contract.
- E3.2 The Contractor must maintain safe pedestrian access to the Site at all times during construction.
- E3.3 The Contractor must restrict vehicular access to the access lanes indicated on the plans and as directed on Site by the Contract Administrator.

E4. SITE CONDITIONS

- E4.1 The Contractor and all sub-contractors shall examine the Site and make themselves familiar with the existing conditions (both above and below grade) and nature of Work to be done.
- E4.2 Surface and sub-surface conditions shown on the Drawings and included herein are provided for general information and variations therefrom shall not affect the terms of the Contract.
- E4.3 The Contractor shall set all necessary control lines, benchmarks, survey, elevation stakes and layout in accordance with the individual Site conditions and in consultation with the Contract Administrator.

E5. EXISTING UNDERGROUND STRUCTURES

- E5.1 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.
- E5.2 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.
- E5.3 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the Owner shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.
- E5.4 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the unit prices bid for supply and installation of the items included under this Contract.
- E5.5 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.
- E5.6 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E6. PRODUCT APPROVALS

- E6.1 The Contractor shall, following award, prepare a complete list of all material to be used on the project and submit the list to the Contract Administrator 72 hours prior to start of construction.
- E6.2 The Contractor shall only use material which has been approved by Specification CW3710-R1 or by the Contract Administrator. The list shall give the product, the manufacturer and the supplier.

- E6.3 Other than required to be done by the Contractor under the Work of this contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing plant material, pavements, streets, roads, boulevard, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall upon instructions from the Contractor Administrator and to the satisfaction of the City and the owners thereof, either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the City and the owners thereof and the costs of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and safe harmless the City from all claims made directly or indirectly against it in respect to any such damage.
- E6.4 All workmanship and materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator. The Contract Administrator reserves the right to reject any materials or Works which are not in accordance with the requirements of the Specifications.
- E6.5 The Contractor shall wholly be responsible for the supply, safe storage, and handling of all materials set forth in this specification, and the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given.

E7. DAMAGE TO STREETS AND STRUCTURES

- E7.1 The Contractor's attention is drawn to the following existing Site features to be retained and protected to the City of Winnipeg Standards:

- | | | |
|------------------|-------------------|--|
| a) trees, shrubs | e) light standard | i) hydro towers and poles |
| b) curbs | f) fire hydrants | j) catch basins |
| c) sidewalk | g) street signs | k) curb inlets |
| d) sod | h) signal poles | m) underground services including
land drainage sewer |

E8. PERMITS, NOTICES, LICENCES, CERTIFICATIONS, LAWS AND RULES

- E8.1 The Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.
- E8.2 The Contractor shall comply with all laws, ordinances, rules, and regulations that would relate to the Works.

E9. REMOVALS

- E9.1 The work of this section comprises the furnishing of all labour, equipment and materials required to complete the removal of existing site features including, but not necessarily confined to, the following:
- (a) Removal and Stockpile of existing brick and snap edge;
 - (b) Removal and reinstallation of existing chain link fence.
- E9.2 Existing brick and snap edge in areas where the new pathway intersects the existing are to be removed and stockpiled for reinstallation. Clean bricks as required. Existing base course is to remain in place.

E9.3 Existing Chain Link Fence to be removed in areas adjacent to new swing set for construction access. Contractor to remove posts as required and roll back chain link fence. Upon completion of construction fence to be restored to original location.

E9.4 All costs of removals listed above are incidental to the unit prices bid for each item.

Method of Measurement

E9.5 Removal and stockpile of existing brick and snap edge will be measured on a lineal metre basis. The number of each metres to be paid for will be the total number removed and stockpiled in accordance with this Specification and accepted by the Contract Administrator, as measured by the Contract Administrator.

E9.6 Removal and reinstallation of existing chain link fence will be measured on a lump sum basis and paid for in accordance with this Specification and accepted by the Contract Administrator.

Basis of Payment

E9.7 The Removal and stockpile of brick and snap edge will be paid for at the Contract Unit Price per lineal metre for "Remove and stockpile existing brick and snap edge for reuse" measured as specified herein, which price shall be payment in full for supplying all items and performing all operations herein described and all other items incidental to the work included in this Specification:

E9.8 Removal of and reinstallation of chain link fence will be paid for at the Contract Lump Sum Price for "Remove and reinstall chain link fence"; which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the work included in this Specification.

E10. EXCAVATION ROUGH GRADING AND COMPACTION

Description

E10.1 This specification is supplemental to CW 3110 and CW 3170.

E10.2 The work of this section comprises the furnishing of all labour, equipment and materials required to complete the excavation and related work including, but not necessarily confined to, the following:

- (a) Excavation, rough grading and compaction of the existing Site for the construction of pathway, playground, and slopes to the design requirements noted on the Drawings, approved on Site by the Contract Administrator, less the appropriate surface finish allowance.

Construction Methods

E10.3 The Contractor shall limit regrading work to within the limits indicated and to the design gradients noted on the Drawings, less the appropriate surface treatment depths specified and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.

E10.4 The Contractor shall construct all sub-grades in accordance with Specification CW 3110. Excavation will be performed as per Item 9.1 of CW 3110. Excavated material shall be disposed of as per Item 9.3 of CW 3110. The Contractor is advised that there may be a surplus of fill on the Site after the design sub-grade level has been achieved. All surplus material will be disposed of in accordance with Item 9.3 of CW 3110.

E10.5 Compaction shall include the use of sheep's foot or other suitable compaction equipment as approved by the Contract Administrator to achieve a minimum compaction of 98% Standard

Proctor Density below pathway and plaza, and 95% Standard Proctor Density in all other areas disturbed under this Contract.

- E10.6 The Contractor shall construct the sub-grade surface to the following depths below the grades shown on the Drawings for each area:
- (a) Limestone Pathway 150mm
 - (b) Playground 200mm
 - (c) Sod 100mm
- E10.7 Excavation will be required in various locations as directed by the Contract Administrator for the completion of drainage swales, pathway culvert crossings, power pedestals, and to finish Site grading. This material is to be disposed of as per Item 9.3 of CW 3110 as directed by the Contract Administrator

Method of Measurement

- E10.8 Excavation, Grading and Compaction will be measured on an area basis. The area to be paid for shall be the total number of square metres that are excavated in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator. No payment will be made for material removed outside of the limits of excavation as established by the Contract Administrator.
- E10.9 The volume of the various types of excavation shall be as measured in its original position, and as determined by the method of Average End Areas.
- E10.9.1 No measurement will be made for the excavation or compaction of the sub-grade in accordance with this specification for the Limestone Pathway, and Playground.
- E10.9.2 No measurement will be made for disposing of surplus fill as this shall be incidental to this Specification.

Basis of Payment

- E10.9.3 Excavation and Rough Grading will be paid for at the Contract Unit Price per cubic metre for "Excavation and Rough Grading", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.
- E10.9.4 No payment will be made for the excavation or compaction of the sub-grade in accordance with this specification for the Limestone Pathway, and Playground.
- E10.9.5 No payment will be made for disposing of surplus fill as all costs for this work shall be incidental to the bid price for Excavation.

E11. CAST-IN-PLACE CONCRETE

Description

- E11.1 Further to CW 3310 the work of this section comprises the furnishing of all labour, equipment and materials required to complete the supply and installation of cast-in-place concrete slabs, specifically but not limited to power pedestals, as shown on the drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Excavation.
 - (b) Granular Fill work as required.
 - (c) Supply, erection and removal of all formwork as required.
 - (d) Design of concrete mixes.

- (e) Supply, placing and curing for concrete edger as shown on drawings.
- (f) Supply, placing and curing for concrete bases for site furniture and playground equipment.
- (g) Clean-up.

E11.2 The following items of work are specified under other sections of the specifications and are not included in this section:

- (a) Supply of miscellaneous metal anchors, bolts, inserts, etc.

Materials

E11.3 All playground equipment posts, bases and anchors are to be set in concrete footings or piles to ensure stability and prevent frost heaving. The current Standard Construction Specifications of the City of Winnipeg, CW 2160-R4 - Concrete to be Used in Underground Works, is to be utilized in the installation of the concrete works for all below ground components.

E11.3.1 The specific concrete requirements shall be:

- (a) Sulfate resistant, Type 50 Cement
- (b) 28 day compressive strength of 30 Mpa
- (c) maximum aggregate size of 40mm, nominal
- (d) slump 90 20mm
- (e) maximum water/cement ratio 0.45

E11.4 Concrete mix for concrete edger to meet City of Winnipeg Specifications CW 3310.

E11.5 Fine aggregate shall consist of natural sand or manufactured sand and shall conform to all requirements of CAN3.A23.1.

E11.6 Coarse aggregate shall consist of hard, strong, uncoated durable particles of crushed stone, gravel or approved combination thereof and shall be free from an excess of thin, elongated or soft pieces, frozen lumps, vegetable matter or other deleterious matter, and shall conform with all the requirements of CAN3-A23.1. Maximum size of coarse aggregate shall be 20 mm.

E11.7 Water for concrete shall be clean and free from injurious amounts of oil, acid, alkali, salts, silt, organic matter or other deleterious matter. The quality of the water shall be equal to or better than that of potable water.

E11.8 A non-detergent type of air-entraining admixture, supplied in liquid form, shall be metered into the mix. The total air in the placed concrete shall be 5% - 8%.

E11.9 The City may engage a fully qualified Inspecting Engineer and Testing Laboratory to:

- (a) Take test cylinders during concrete placing and carry out compression tests to determine whether concrete produced complies with these Specifications.
- (b) Take compaction tests of compacted granular sub-base and sub-grade material.
- (c) Submit reports to the Contract Administrator of all materials, concrete, and caisson tests and inspections.

E11.10 Three concrete test cylinders to be taken for pile cast. One cylinder from each group shall be tested at 7 days, one at 14 days and the remainder at 28 days. Sampling and testing procedures shall be according to CAN3-A23.1 latest edition.

Clean Up and Damage

- E11.11 Immediately on completion of bases and edger Contractor shall remove from Site all equipment, timbers, shores, excavated material, unused concrete, rubbish, etc., caused by his operations, and leave the Site clean.
- E11.12 This Contractor shall be responsible for making good all areas damaged by his operations in connection with this Contract regardless of the limits of the Contract as shown on the Drawings.

Method of Measurement

- E11.13 Supply and Installation of Cast in Place Concrete Edger shall be measured on a linear metre basis. The number of metres to be paid for shall be the total number of metres supplied in accordance with the Specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E11.14 Concrete bases for play equipment and Site furniture are incidental to the unit prices bid on those items and no separate measurement or payment will be made.

Basis of Payment

- E11.15 Supply and Installation of Cast in Place Concrete Edger shall be paid for on a per metre basis. Measured, as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

E12. INTERLOCKING PAVING STONE

Description

- E12.1 Further to CW 3335 this Specification shall cover the supply and installation of new and stockpiled paving stones, sand setting bed and snap edge.
- E12.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary or incidental to the satisfactory performance and completion of all work as hereinafter specified.

Materials

- E12.3 Paving Stone shall be Wirecut Endicott Brick Pavers, 2 1/4" x 4" x 8" from Alsip's Industrial Products colour to match existing red.
- E12.4 Sand:
- (a) Clean brick sand as joint filler.
 - (b) Clean brick sand as setting bed.
 - (c) Snap Edge

Construction Methods

- E12.5 Paving Stones along limestone pathway to be installed as per detail and as follows.
- (a) Install Snap Edge as per detail.
 - (b) Install sand bed to provide 13mm compacted depth as specified on Drawings. Sand and compaction are incidental to the price for supply and installation of paving stone.

- (c) Do not compact setting bed prior to installation of paving stones.
- (d) Spread only sufficient area which can be covered with paving stones same day.
- (e) Lay paving stones on sand bed hand tight.
- (f) Where paving pattern is interrupted by vertical structural elements pavers must be sawcut and fit true and hand tight.
- (g) Vertical Structural Elements are to be installed prior to installation of paving stones.
- (h) Commence installation of stones against snap edge to obtain straightest possible course for installation.
- (i) Paving stones shall be cut with a saw only, to obtain true even undamaged edges. Chipped paving stones are unacceptable.
- (j) Crews shall work on installed paving stone, not on sand layer.
- (k) Install limestone pathway as per section E13.
- (l) Spread and fine grade brick sand over paving surface and sweep into joints, in several directions. Sand is incidental to the price for supply and installation of paving stone.
- (m) Compact paving stones with vibratory plate compactor having mass of at least 113kg. Compaction is incidental to the price for supply and installation of paving stone.
- (n) Sweep remaining sand over all paving areas and remove excess from Site.
- (o) Replace at no extra cost all whole or cut stones marked as unacceptable.
- (p) Remove cracked, chipped, broken or otherwise damaged paving materials from Site immediately.
- (q) Upon completion, clean in accordance with manufacturer's recommendations.

Method of Measurement

- E12.6 Supply and installation of interlocking paving stone will be measured on a linear metre basis. The length to be paid for shall be the total number of metres supplied and installed in accordance with the Drawings and Specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E12.7 No separate measurement for snap edge and sand setting bed will be made.

Basis of Payment

- E12.8 The supply and installation of Paving Stones will be paid for at the Contract Unit Price per linear metre for Supply and Install Brick Edger and Snap Edge measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.
- E12.9 The supply and installation of Snap Edge and sand setting bed will be incidental to the unit price of "Supply and Install Brick Edger and Snap Edge".

E13. CRUSHED LIMESTONE PAVING

Related Work

- E13.1 Refer to the following sections:
- (a) Excavation and Grading - E10
 - (b) Topsoil & Finish Grading – E14
 - (c) Interlocking Paving Stone - E12

Source Sampling

E13.2 If materials have been tested by an independent testing laboratory within previous 2 months and have successfully passed tests equal to requirements of this specification, submit test certificates from testing laboratory showing suitability of materials for this project.

Materials

E13.3 Crushed granular material to the following requirements:

- (a) All materials supplied under this Specification shall be of a type approved by the Contract Administrator and shall be subject to inspection and testing by the Contract Administrator.
- (b) Crushed limestone or gravel consisting of hard, durable, angular particles, free from clay lumps, cementation, organic material, frozen material and other deleterious materials.
- (c) Gradations to be within limits specified below when tested to ASTM C136-83 and have a smooth curve without sharp breaks when plotted on semi-log grading chart.

ASTM Sieve Designation	% Passing
19mm (3/4")	100
12.5mm (1/2")	50 - 75
9.5mm	30 - 50
6.0mm	10 - 20
0.425	0 - 5
0.0180	nil
0.075	nil

- (d) Crushed Limestone Fines - 1/4" (6mm) down.

Subgrade Inspection

E13.4 Verify grades of compacted subgrade (to 95% SPD) and adjacent sodded areas for conformity with elevations and sections before placing granular material.

E13.5 Proof roll graded subgrade to check for unstable areas, obtain approval of subgrade by Contract Administrator before placing granular base.

E13.6 Remove and dispose of unsuitable sub base material as directed by Consultant.

Areas Requiring Added Compaction and Granular Base

E13.7 Place crushed granular material to a minimum compacted thickness of 100mm. Compact to 98% standard proctor density.

E13.8 Install snap edge, sand setting bed and brick as per E12.

E13.9 Place 6mm crushed limestone to a minimum compacted thickness of 50mm as finishing course. Smooth, rake and compact with lightweight roller.

E13.10 Apply soil stabilizer with watering can as per manufacturers recommendations. Cover area with UV resistant black plastic for 24 hours to cure.

E13.11 Finished surface to be within 25mm of specified grade, but not uniformly high or low.

Field Quality Control

E13.12 Inspection and testing of crushed stone paving will be carried out by designated testing laboratory, at the Contractors expense as directed by the Contract Administrator.

Method of Measurement

E13.13 Supply and installation of Limestone Pathway will be measured on a surface area basis. The surface area to be paid for shall be the total number of square metres supplied and installed in accordance with the Drawings and Specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

Basis of Payment

E13.14 The supply and installation of Limestone Pathway will be paid for at the Contract Unit Price per square metre for Supply and Install Limestone Pathway measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

E14. TOPSOIL AND FINISH GRADING

Description

E14.1 Further to CW 3540 this Specification shall cover the supply and placing of imported topsoil for areas to be sodded.

Materials

E14.2 All materials are to be in accordance with CW 3540.

Construction Methods

E14.3 All work to be in accordance with CW 3540.

Method of Measurement

E14.4 There shall be no separate measurement for the work associated with this Specification.

Basis of Payment

E14.5 Payment for work specified under this Specification is to be included in the unit price bid for 'Supply and Install Sod'.

E15. SODDING

Description

E15.1 Further to CW 3510 this Specification shall cover the supply and placing of cultivated turfgrass sod in park areas and the sod establishment Period to Substantial Performance.

Materials

E15.2 All materials are to be in accordance with CW 3510.

Construction Methods

E15.3 Site grading will be done and paid for in accordance with E10.

E15.4 All work to be in accordance with CW 3510.

Acceptance

- E15.5 Where termination of the sod establishment period to Substantial Performance has not been achieved in accordance with the maintenance items of CW 3510 prior to the end of a growing season, the Contractor shall complete all operations related to the clean up of the work area in the following spring. This shall include the cleaning and removal of all dead vegetation, leaves, debris, snowmold and any sand or gravel resulting from winter sanding/deicing operations from turf areas to encourage healthy and uniform grass growth.
- E15.6 All costs for spring clean up operations shall be borne by the Contractor if in the previous year, the termination of the sod establishment period, in accordance with the maintenance items of CW 3510 was not achieved in that same year or where the damage was due to defective sod or maintenance not conforming to this Specification.
- E15.7 During both the installation and maintenance of sod, all sidewalks, streets, approaches, driveways and properties near the sodding operation shall be kept clean at all times by the Contractor.
- E15.8 Upon completion of the project, the Contractor shall immediately remove all excess material and debris from the work Site.

Method of Measurement

- E15.9 Sodding will be measured on an area basis. The area to be paid for shall be the total number of square metres sodded and maintained in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

Basis of Payment

- E15.10 Sodding will be paid for at the Contract Unit Price per square metre for 'Supply and Install Sod and Topsoil', measured as specified herein, which price shall be payment in full for completing all operations herein described and all other items incidental to the work included in this Specification.

E16. PLAY EQUIPMENT

General Description

- E16.1 This specification shall cover the supply and installation of Play Equipment as shown on the layout drawings and as specified herein.
- E16.2 The Contractor shall furnish all labour, materials, equipment and services necessary to complete the work according to the drawings and specifications.

Materials

- E16.3 All fasteners shall be socketed and tamper proof in design, and either carbon steel plated with zinc/nickel and iridescent chromate finish or stainless steel.
- E16.4 The following play components are to be included:
- (a) One (1) 8' ht. Two bay swing with enclosed baby seats. Top rail and legs to be 60mm O.D. galvanized steel with powder coated painted yoke fittings. Seats to be slash proof enclosed infant seats. Swing hangers are to have greaseless bearings and chains to be 6mm plated chain.
 - (b) One (1) RhinoDino spring rider by Landscape Structures, item #100123A or equivalent.

- (c) One (1) T-rex spring rider by Landscape Structures, item #100124A or equivalent.
- (d) One (1) ridding digger
- (e) One (1) modular 4' square sandbox as per drawings (including playbox sand, filter cloth and granular base)

Canadian Standards Association Guidelines

- E16.5 All playground equipment supplied and the method of installation shall be in accordance with the 1998 edition of the "National Standard of Canada, CAN/CSA-Z614-98".
- E16.6 The Contractor shall submit, with his Bid, a written statement confirming compliance with this guideline and shall be prepared, if requested, to provide data supporting compliance within ten (10) working days of such a request, at no cost to the City.

Installation

- E16.7 Notwithstanding clauses E16.5 and E16.6 above, playstructures shall be installed as per the Canadian Standards Association Guidelines. All posts and other vertical items shall be true to vertical. All decks shall be level.

Maintenance Kits

- E16.8 All play equipment shall include the supply of maintenance kits. Maintenance kits shall include maintenance manuals, complete manufacturer's parts lists, touch-up paint, PVC repair paint, 10% extra of each bolt, washer and any other hardware utilized on the play equipment, and all special tools necessary for assembly and maintenance.

Manufacturer's Shop Drawings and Specifications

- E16.9 The Bidder shall submit, with three Working Days of a request of the Contract Administrator, THREE (3) COPIES of the manufacturers' shop drawings and specifications for all the play equipment for review, evaluation and approval purposes. One (1) approved copy will be returned to the successful bidder. Shop drawings shall be drawn to scale and include all components, proposed layout and dimensions.
- E16.10 Review of the shop drawings in no way relieves the Contractor of the final responsibility for correctness of the dimensions, sizes, fabrication details, errors made therein, or for any changes made by the Contract Administrator's drawings or specifications not covered by the Contractor's written notification to the Contract Administrator. No reprint of the Contract Administrator's drawings shall be used as the shop drawings.

Method of Measurement

- E16.11 Playground Equipment and concrete foundations will be measured on a per unit basis. The quantity to be paid for will be the total number of items supplied and installed in accordance with this Specification, the drawings and as accepted by the Contract Administrator.

Basis of Payment

- E16.12 Playground Equipment will be paid for at the Contract Unit Price per item for "Supply and Install Playground Equipment", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this specification.

E17. PLAYGROUND STONE

Description

- E17.1 The Work comprises the furnishings of all labour, equipment services and materials required to complete the installation of Playground Stone within the play structure/swing areas as indicated on the drawings. This work will not include the pre-installation Site preparation work or perimeter timber edging. However, co-ordination with staff and/or contractors carrying out these works shall be necessary.

General

- E17.2 Contractor shall visit the Site and verify all data and dimensions and report any errors, omissions or discrepancies to the Contract Administrator prior to any installation.

Material

- E17.3 Playground stone shall be 6mm, composition shall be Typical Birds Hill glacial till material, approximately 70% limestone and 30% granite. Stone shall be washed and screened.

Sieve Analysis:

Sieve Size	Cumulative % Passing
10 mm	100
5 mm	80-90
2.5 mm	5-25
1.25 mm	2-15
.08 mm	0-1

Construction Methods

- E17.4 Playground Stone shall be installed within all the play areas, as defined by the concrete edging, to a minimum installed depth of 250mm. Playground Stone to be installed as per manufacturers specifications and as directed by Contract Administrator on Site.
- E17.5 The installation of the Playground Stone shall be done immediately after the play structure has been installed.
- E17.6 Installation shall be done by equipment sized to suit the work being done and the Stone shall be spread by hand in the immediate vicinity of the play structures so as not to damage the same. The play structures shall be swept clean as required after installation of the Stone

Method of Measurement

- E17.7 Playground Stone will be measured on a volume basis. The quantity to be paid for will be the actual number of cubic meters supplied and installed in accordance with this Specification and accepted by the Contract Administrator, as computed from the measurements made by the Contract Administrator.

Basis of Payment

- E17.8 Playground Stone shall be paid for at the Contract Unit Price per cubic meter for 'Supply and Install Playground Stone' measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this specification.

E18. SITE FURNITURE AND SIGNAGE

Description

E18.1 The following list generally describes the scope of this section:

- (a) Supply and installation of:
 - (i) Picnic Table c/w anchor
 - (ii) Bench
 - (iii) Bicycle Rack
 - (iv) Community Information Board
 - (v) Park Rules Sign

General

E18.2 Store units in a protected location, immediately upon arrival on the Site.

E18.3 Remove from Site any units which have been damaged during transportation and replace.

Products

E18.4 Picnic table to be cedar table by product #52501103 available from:

City of Winnipeg
Public Works, Central Repair / Manufacturing
Ph. 986-5504
Contact Bill Dowbyhuz

E18.4.1 Anchors for picnic table to be 2 Duckbill Anchors.

E18.5 Benches to be 6' tache bench product #52501068 available from:

City of Winnipeg
Public Works, Central Repair / Manufacturing
Ph. 986-5504
Contact Bill Dowbyhuz

E18.6 Bicycle Rack to be 5' long bike rack product #52501242 available from:

City of Winnipeg
Public Works, Central Repair / Manufacturing
Ph. 986-5504
Contact Bill Dowbyhuz

E18.7 Community information board metal structure available from:

Hi Tec Industries Inc.
Box 1127, 1000 6th Avenue N.E.
Portage La Prairie, MB R1N 3C5
Contact: Percy Phillips
T (204) 239-4270
F (204) 239-4271
E percy@hitecindustries.ca

E18.7.1 Wood signboard and frame are to be constructed by general contractor as per drawing details. Wood signboard and frame are incidental to the price of the information board.

E18.8 Park Rules Sign and Post:

- E18.8.1 Sign to be manufactured from H32 3mm (.125") Aluminium. Metals shall be free from defaults impairing strength, durability or appearance.
- (a) Finish: The surfaces of the aluminium sign shall be free of visible oil, grease, dirt, mill scale, rust scale, oxides and other foreign matter leaving only shadows and/or streaks caused by rust stain and mill scale oxide.
 - (b) Surfaces contaminated with grease, oil or chemicals, or mill scale, must be cleaned prior to painting.
 - (c) Clean aluminium with zylol or an equivalent reducer/dry carefully while removing any residue or foreign material.
 - (d) Apply an acid wash to the items and dry carefully again. The acid wash should be applied within 2 hours of washing with reducers.
 - (e) Apply Sikken's (or approved equal) 2-part primer to the item after the acid wash has set. (Approximately 20 minutes). If the primer cannot be applied within 6 hours of the acid wash, the item must be acid washed again.
 - (f) Apply a top coat of paint as per manufacturer's specifications 30 minutes after applying primer and no later than 5 hours after applying the primer. If this cannot be done, the item must be scuff sanded and reprimed again.
 - (g) The topcoat for signs shall be one coat of powder coated white colour.
- E18.8.2 All signs shall be guaranteed for a period of one year.
- E18.8.3 Contract Administrator to supply digital sign design to manufacturer upon contract award.
- E18.8.4 Any damage to paint incurred prior to or during installation shall be repaired within three (3) days of installation. Sign components and construction shall be as shown on the Drawings and as approved by the Contract Administrator.
- E18.8.5 Post to be standard 50mm square aluminium post with pre-punched forms for bolts used for sign post installation.
- E18.8.6 All hardware to be galvanized.

Installation

- E18.9 Site Furniture shall be installed in locations indicated on the Construction Drawings and set into concrete bases as per details and/or to manufacturer's specifications. All City of Winnipeg furniture to be installed as per Parks and Open Spaces standard details.
- E18.10 All Site Furniture shall be set level.
- E18.11 Anchors to be installed as per manufacturer's specifications.
- E18.12 Protect and maintain Site furnishings, including accessories, until acceptance of project work.
- E18.13 Immediately remove from Site, damaged furnishing and accessories. Replace, repair, re-finish, or otherwise make good to approval of Contract Administrator.
- E18.14 Park Rules Signage to be installed in location indicated on plan. Install post by pounding into ground minimum 1.0m. Sign post final height to be 1.5m above finish grade of sod. Install sign to post after post is secure and plumb. Use only galvanized or stainless steel hardware and post.

Method of Measurement

- E18.15 Supply and Installation of Site Furniture will be measured on a unit basis for each item. The number of each item to be paid for will be the total number supplied and placed in accordance with this Specification and accepted by the Contract Administrator, as measured by the Contract Administrator.
- E18.16 Supply and Installation of Park Rules Signage will be measured on a unit basis for each item. The number of each item to be paid for will be the total number supplied and placed in accordance with this Specification and accepted by the Contract Administrator, as measured by the Contract Administrator.

Basis of Payment

- E18.17 The supply and installation of Site Furniture will be paid for at the Contract Unit Price per item for "Supply and Install Site Furniture" listed in the schedule of prices, measured as specified herein, which price shall be payment in full for supplying all items and performing all operations herein described and all other items incidental to the work included in this Specification.
- E18.18 The supply and installation of Park Rules Signage will be paid for at the Contract Unit Price per item for "Supply and Install Park Rules Signage" listed in the schedule of prices, measured as specified herein, which price shall be payment in full for supplying all items and performing all operations herein described and all other items incidental to the work included in this Specification.

E19. SITE CLEAN UP

- E19.1 The Contractor shall upon the completion of work each day, load and dispose of all excess asphalt cuttings, spoiled concrete, reinforcing steel, granular and other material associated with the works from the work Site.
- E19.2 The Contractor shall secure or remove all of his machinery and equipment at the end of each day from the immediate work Site.
- E19.3 The Contractor will not be permitted to store machinery, equipment, or materials on public roads overnight.
- E19.4 Any costs in connection with the above mentioned works are incidental.