

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>
L1	Layout Plan
L2	Grading Plan
SS1	Site Services Plan

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to GC:3.1, no soil inspection has been done. Contractor to supply soils investigation report if Site conditions warrant.

GENERAL REQUIREMENTS

E3. OFFICE FACILITIES

- E3.1 The Contractor shall not be required to supply office facilities for this project

E4. PROTECTION OF EXISTING TREES

- E4.1 The contractor shall take the following precautionary steps to prevent damage from construction activities.
- The Contractor shall not stockpile materials and soil or park vehicles and equipment within 3 metres of existing trees.
 - Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
 - Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
 - Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface

directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.

- (e) Work on-Site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

- E4.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his designate.
- E4.3 All trees will have a 3m radius protective zone calculated from the circumference at the base of the trunk which will remain free of digging , trenching, grade changes, stock piling of materials and soil compaction throughout the duration of the Contract. Protective fencing around these areas is required.
- E4.4 Where roots are in soil in area of exposure, all roots must be day lighted in the area of exposure through a hydro vac process. This process must be complete by an authorized hydro vac day lighting contractor (badger Day Lighting – 885-0592). Once the roots are day lighted in the area of exposure they must be properly trimmed with sharp tools to prevent crushing or being pulled up by construction equipment. No paint is required. All exposed roots must be mulched until the excavated area is filled with clean earth to avoid exposure to sunlight and desiccation.
- E4.5 Auguring under existing trees will be the only acceptable method of underground installations. Any other excavations must be approved by the Forestry Branch.
- E4.6 No separate measurement or payment will be made for the protection of trees.

E5. PROTECTION OF SURVEY INFRASTRUCTURE

- E5.1 Notwithstanding clause 4 "Protection of Survey Bars" of the Standard Provisions: Current legislation, The Surveys Act, places the onus on those undertaking construction to protect the Survey Infrastructure from damage as a result of their activity.
- E5.2 Further to GC:6.28 (g), the Contractor shall contact the City of Winnipeg, Geomatics Services Branch at 986-4826 (8:00 am to 4:00 pm Monday to Friday excluding holidays) to obtain underground clearance at least three (3) working days prior to the commencement of the On-Site Work . Geomatics Services will locate and mark all known outline survey monuments and geodetic control monuments and confirm the physical condition of those monuments upon completion of construction, at no cost to the Contractor.
- E5.3 Where a survey post, bar or control monument lies in the line of the proposed work and must be disturbed, the Contractor shall provide the Contract Administrator with 48 hours notice to permit referencing for future replacement, at no cost to the Contractor. Failure to provide the specified notice shall result in the Contractor paying for all costs associated with replacing or relocating the disturbed outline survey monuments and geodetic control monuments.
- E5.4 Survey monuments and geodetic control monuments at or adjacent to the Site, not in the line of the proposed construction that are damaged or disturbed by the Contractor shall be replaced or relocated by the City or its agent and all associated costs shall be paid for by the Contractor. An approximate estimate of the costs involved to restore a legal survey monument is \$1,000 per bar and \$3,000 per control monument. Contractors must ensure their landscaping and other subcontractors are aware of this clearance procedure and the potential restoration costs.
- E5.5 Where possible, amounts owed to the City in accordance with the above will be deducted from any payments to be made by the City to the Contractor.

E6. PEDESTRIAN SAFETY AND TRAFFIC MANAGEMENT

- E6.1 During the project, pedestrian access shall be maintained at all times. A Clear pathway unobstructed from any materials or equipment shall be required.
- E6.2 Ambulance/Emergency vehicle access must be maintained at all times.

E7. STAKES AND MARKS

- E7.1 Further to GC:6.28(h), the Contractor will mark, to the extent he determines to be necessary, the location, alignment and elevation of the work by means of stakes or marks, for review and approval by Contract Administrator. The Contractor shall make the completed works conform to the lines and marks thus approved and indicated.
- E7.2 The Contractor shall notify the Contract Administrator immediately of the disturbance of any such stakes or marks. The cost of correcting any errors arising out of neglect of the Contractor 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.
- E7.3 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 on account of any alleged inaccuracies. If any error is suspected in the Drawings, 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.
- E7.4 The Contractor shall determine and provide all dimensions and elevations measured from the stakes or marks

E8. WATER USED BY CONTRACTOR

- E8.1 Notwithstanding CW 1120.3.7
- E8.2 Water for use by the Contractor may be obtained from the City of Winnipeg waterworks system.
- E8.3 Should the Contractor wish to obtain water from a City hydrant, he shall make application either in person or by phoning the Permits Clerk at 986-3184 (8:30 am to 4:30 pm Monday to Friday excluding holidays). The Contractor shall advise the Permits Clerk of the hydrant he wishes to use. The Water Services Divisions of the Water and Waste Department will inspect the hydrant to ensure that the location is suitable and that the hydrant is in good working condition. If the requested hydrant is found to be unacceptable, arrangements will be made for the use of an alternate hydrant.
- E8.4 When the application has been approved, the Permits Clerk will contact the Contractor and issue the permit. The permit may not be issued the same day the application is made. The Contractor shall obtain the permit for hydrant use from the Customer Services Division of the Public Works Department, 107-1155 Pacific Avenue. Permit fees will be charged in accordance with the latest version of the Waterworks By-law. All water used shall be metered and protected against contamination by the use of approved backflow prevention devices. The City will rent the meter to the Contractor at the rate established by the Waterworks By-law. The Contractor shall provide a lockable box, piping, valves, and backflow prevention equipment in accordance with Waterwork's guidelines. The backflow preventer(s) must be tested by a plumber licensed to test backflow preventers. The Permits Clerk can provide a list of licensed plumbers and additional information on the requirements for obtaining a use of hydrant permit.
- E8.5 The Contractor shall pay for all water used in accordance with the Waterworks By-law. Sewer charges will not be assessed for water obtained from a hydrant.

E9. SURFACE RESTORATIONS

E9.1 Further to Clause 13 of the Standard Provisions, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance

E10. TEMPORARY RELOCATION OF AFFECTED STRUCTURES

E10.1 The Contractor shall temporarily relocate any portable structure such as benches, waste receptacles, picnic benches, etc., which will interfere with the construction of the Work and are not identified as items to be relocated. The Contractor Administrator will identify the temporary locations for the portable structures. Following the completion of the applicable Work the Contractor shall replace the structures to the locations designated by the Contract Administrator. These relocations shall be considered incidental to the associated works and no separate measurement for payment will be made.

E11. TRUCK WEIGHT LIMITS

E11.1 The City shall not pay for any portion of Material which results in the vehicle exceeding the maximum gross vehicle weight allowed under *The City of Winnipeg Traffic By-Law*, unless such vehicle is operating under special permit.

E12. PRE-CONSTRUCTION MEETING

E12.1 The Contractor shall not begin the Work under this Contract. until a pre-construction meeting has been held between representatives of the Contractor, the City of Winnipeg, and the Contract Administrator

E13. ACCESS

E13.1 All access is to be on the designated routes through the Site. These routes will be determined at the Pre-Construction Meeting.

E13.2 Access to the Site as required by the Contractor shall be provided and maintained by the Contractor at his own expense and approved by the Contract Administrator.

E13.3 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.

E13.4 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.

E14. SITE CONDITION

- E15.1 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.
- E15.2 Surface and sub-surface conditions shown on the Drawings and included herein are provided for general information and variations there from shall not affect the terms of the Contract.
- E14.1 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.

E15. EXISTING UNDERGROUND SERVICES

- E15.1 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.
- E15.2 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.
- E15.3 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 Contract Administrator 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.
- E15.4 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.
- E15.5 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.
- E15.6 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

E16. PRODUCT APPROVALS

- E16.1 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.
- E16.2 The Contractor shall only use material which has been approved by Specification CW3710-R1 or by the Contract Administrator. The list shall provide the product, the manufacturer and the supplier.
- E16.3 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.

E16.4 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.

E16.5 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.

E17. DAMAGE TO STREETS AND STRUCTURES

The Contractor is to be advised of the following existing Site features to be retained and protected to the City of Winnipeg Standards:

- | | | |
|---------------------|-----------------------------|-----------------|
| b) curbs | f) fire hydrants | j) benches |
| c) sidewalk/pathway | g) backstop | k) catch basins |
| d) sod | h) all underground services | l) curb inlets |

E18. PERMITS, NOTICES, LICENCES, CERTIFICATIONS, LAWS, AND RULES

E18.1 With the exception of the City of Winnipeg Site Development Permit, 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.

E18.2 The Site Development Permit (including lot grading and damage deposits) will be obtained and paid for by the City of Winnipeg Planning, Property, and Development Department prior to commencement of construction. A copy of this permit will be provided to the contractor upon award of Contract.

E18.3 The Contractor shall comply with all laws, ordinances, rules, and regulations that would relate to the Works.

E19. EXCAVATION, REMOVALS, SUBGRADE COMPACTION, AND ROUGH GRADING

E19.1 This specification is supplemental to CW 3110 and CW 3170. 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:

E19.1.1 Excavation, removals, disposal, subgrade compaction, and rough grading of the existing Site for the construction of athletic fields, berms and swales to the design requirements noted on the Drawings, approved on Site by the Contract Administrator, less the appropriate surface finish allowance.

E19.1.2 Stockpile suitable material on Site for reuse (clean topsoil and clean earth fill). Remove and dispose of unsuitable material.

E19.1.3 Earthwork and Grading of the existing Site (cut and fill including compaction of subgrade and fill material) to ensure positive drainage in swales and on athletic fields and adjacent sodded areas, pathways, and sidewalks.

E19.1.4 Supply and Install clean earth fill (suitable for sod growth, meeting the requirements of CW 3170) in areas as required to ensure positive drainage.

E19.1.5 Remove and Dispose of Existing Soccer Goals (incidental to unit prices bid)

E19.2 Construction Methods

- E19.2.1 The Contractor shall construct the Site within the limits indicated to the design elevations and 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.
- E19.2.2 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. Unsuitable excavated material shall be disposed of as per Item 9.3 of CW 3110. All surplus material will be disposed of in accordance with Item 9.3 of CW 3110.
- E19.2.3 The Contractor shall restrict his activities strictly to within the limits of the Work, unless receiving prior written approval from the Contract Administrator. The Contractor shall take all precautions to prevent damage to traffic structures, pole lines, existing trees, Site services and adjacent property and he shall be liable for any damage occurring in the performance of this Work.
- E19.2.4 The Contractor and all sub-contractors shall examine the Site and make themselves familiar with the existing conditions and the nature of the Work to be done.
- E19.2.5 Prevent damage to surface or underground utility lines which are to remain. Make good any damage.
- E19.2.6 The Contractor shall excavate to the design grades shown less the appropriate allowance for surface treatment and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.
- E19.2.7 Excavated or graded materials to be approved before use as fill for grading Work. Protect such approved material from contamination. Stockpile in approved locations on Site.
- E19.2.8 All foundations shall be removed to full depth to the satisfaction of the Contract Administrator. Fill all holes resulting from removals with compacted clay fill in sodded areas.
- E19.2.9 The Contractor is advised that the existing clay infield may be used as the base for the new clay infield and should not be excavated and removed.
- E19.2.10 The Contractor shall ensure that upon completion of the removal operations the Site is left in a neat condition free from debris, etc. for approval by the Contract Administrator prior to placing base courses and clean fill.
- E19.2.11 Except for drainage swales, berms and embankments indicated, the design gradient for all other areas shall be considered to be straight grade between the design elevations shown. Changes in grade at swales, berms, and embankments shall be gently contoured as directed by the Contract Administrator to provide future ease of grass mowing operation.
- E19.2.12 Construction to the new design grades shall be accomplished by the placement of clean fill (both Site excavated and imported as required) in areas as indicated on the Drawings.
- E19.2.13 The Contractor is advised that there may be useable clay fill on Site. All suitable material will be reviewed and approved by the Contract Administrator and then re-used on Site. The re-use of this material on Site may reduce the quantity of imported clean earth fill required. The Contractor shall re-use existing Site material prior to delivering new material to Site.
- E19.2.14 In fill areas, where the difference between the existing grade elevation and the design elevation is less than 300mm the Contractor shall scarify the existing ground to a minimum depth of 150mm prior to placement of any fill.
- E19.2.15 No direct payment will be made for placing and grading of existing fill as all costs for this Work shall be included in the lump sum bid for excavation, removals and rough grading within the limit of the Work.

E19.2.16 Areas of Fill

- (i) Fill low areas in sodded areas with excavated clay material (from Site excavations or imported as required) free from roots, muskeg, organic or cohesive matter, building debris, waste materials, rubble, rubbish, frozen portions, soluble materials and rocks larger than 25mm (1") in diameter and capable of sustaining plant and seed growth. Compact to a minimum of 95% S. P. D. in 150mm (6") lifts. Cost of Site excavated materials incidental to unit price bid for excavation removals and rough grading.
- (ii) Construct sloped areas using excavated clay material (from Site excavations or imported as required) free from roots, muskeg, organic or cohesive matter, building debris, waste materials, rubble, rubbish, frozen portions, soluble materials and rocks larger than 25mm (1") in diameter and capable of sustaining plant and seed growth. Compact to a minimum of 95% S. P. D. in 150mm (6") lifts.
- (iii) Prior to placing fill over existing ground, scarify surface to depth of 150mm. Maintain fill and existing surface at approximately the same moisture content to facilitate bonding.

E19.2.17 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 95% Standard Proctor Density in all other areas disturbed under this Contract.

E19.2.18 The Contractor shall construct the sub-grade surface to suitable depths below the required grades shown on the Drawings for each area.

E19.2.19 The Contractor is advised that there may be areas of unsuitable subgrade. Upon discovery, the Contractor will advise the Contract Administrator, who will review and approve areas of unsuitable material to be removed. Upon approval, areas will be removed and replaced with compacted material to suit final surface condition. No payment will be made for removal of unsuitable material or placement and compaction of new material. All work incidental to the unit prices bid on this project.

E19.2.20 The Contractor is advised that all rough grading, compaction and disposal of surplus material is incidental to the unit prices bid on this contract.

E19.2.21 Following earth moving, rough grading and compaction the Work areas shall be fine graded to provide a maximum deviation of 50mm in 10 metres from the design grade with no low areas to 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 50mm in maximum dimensions.

E19.2.22 Remove and dispose of existing soccer goals. Fill holes from posts with clean earth fill and compact to minimum 95% SPD.

E19.2.23 Strip and remove existing sod. Stockpile existing usable topsoil for on Site use. Remove and dispose of unsuitable materials.

E19.3 Method of Measurement

E19.3.1 Excavate, Remove, and Rough Grade will be measured on an area basis. The area to be paid for shall be the total number of square metres excavated and Rough Graded in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E19.3.2 Supply, Rough Grade, and Compact, Clean Earth Fill will be measured on a cubic metre basis. The volume to be paid for shall be the total number of cubic metres supplied and installed in accordance with this Specification and accepted to the Contract Administrator, as computed from measurements made by the Contract Administrator

E19.3.3 No measurement will be made for stockpiling suitable topsoil and clean earth fill as these items are incidental to this specification.

- E19.3.4 No measurement will be made for removing soccer goal posts and filling holes/low areas left by excavation and removals operations as this item shall be incidental to this specification.
- E19.3.5 No measurement will be made for the excavation or compaction of the subgrade as this shall be incidental to this specification.
- E19.3.6 No measurement will be made for disposing of surplus fill and unsuitable material as this shall be incidental to this specification.
- E19.4 **Basis of Payment**
- E19.4.1 Excavation, Removal, and Rough Grading will be paid for at the Contract Unit Price per square metre for 'Excavate, Remove, and Rough Grade (including disposal of unsuitable material and placement and compaction of suitable Site excavated earth fill)', 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.
- E19.4.2 Clean Earth Fill will be paid for at the Contract Unit Price per cubic metre for 'Supply, Rough Grade and Compact Clean Earth Fill', 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
- E19.4.3 No payment will be made for stockpiling suitable topsoil, clean earth fill as these items are incidental to this specification.
- E19.4.4 No payment will be made for removing soccer goal posts and filling holes/low areas left by excavation and removals operations as this item shall be incidental to this specification.
- E19.4.5 No payment will be made for the excavation or compaction of the subgrade as this shall be incidental to this specification.
- E19.4.6 No payment will be made for disposing of surplus fill and unsuitable material as this shall be incidental to this specification.

E20. CONSTRUCTION OF LAND DRAINAGE SEWERS

E20.1 Description

- E20.1.1 The Work of this section comprises the furnishing of all labour equipment and materials incidental and required to complete the construction of the Land drainage Sewers as shown on the drawings and hereinafter specified.

E20.2 Construction of Land Drainage Sewers

- E20.2.1 Further to Specification CW 2030-R4, CW 2130-R5, CW 2131-R3, CW 2160-R4, and CW2410-R1 the Contractor shall supply and install land drainage sewers, catch basins and the connections to the existing Catch Basin / Manhole on Site and the City of Winnipeg Manhole (in the adjacent sodded boulevard) and lower an existing Catch Basin / Manhole as shown on the drawings and in accordance with the Specifications.
- E20.2.2 Land drainage sewers shall be installed by coring when they are located below and within 3.0m of existing trees and as shown on the drawings.
- E20.2.3 Catch basins shall be in accordance with SD-225 with modification as required for flow through catch basins.
- E20.2.4 All access shaft backfill in granular areas and within 1.5m of existing or proposed pavement shall be Class 2 Backfill compacted to 100% standard proctor density in

maximum 150mm thick lifts. The Top section shall be constructed as shown on the Drawings and/or as directed by the Contract Administrator.

E20.3 Method of Measurement

- E20.3.1 Supply and Install 250mm dia. LDS pipe will be measured on a lineal metre basis. The lineal metres to be paid for shall be the total number of lineal metres that are installed in accordance with this Specification and accepted to the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E20.3.2 Supply and Install Catch Basin will be measured on a per unit basis. The number of units to be paid for shall be the total number of units completed in accordance with this Specification and accepted to the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E20.3.3 Connection to existing City of Winnipeg Manhole will be measured on a per unit basis. The number of units to be paid for shall be the total number of units completed in accordance with this Specification and accepted to the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E20.3.4 Adjust existing Manhole / Catch Basin (including connection to new LDS pipe) will be measured on a percent basis. The number of units to be paid for shall be the total number of units completed in accordance with this Specification and accepted to the Contract Administrator, as computed from measurements made by the Contract Administrator.

E20.4 Basis of Payment

- E20.4.1 Supply and Install 250mm dia. LDS pipe will be paid for at the Contract Unit Price per lineal metre for "Supply and Install 250mm/ LDS pipe", 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.
- E20.4.2 Supply and Install Catch Basin will be paid for on a per item basis, for "Supply and Install Catch Basin complete with frame, cover and connections to LDS pipe", 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.
- E20.4.3 Connection to Existing Manhole in City Boulevard will be paid for on a per item 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.
- E20.4.4 Adjust Existing Manhole / Catch Basin (including connection to new LDS pipe) will be paid for on a per item 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

E21. MATCHING EXISTING GRADES

- E21.1 Wherever the proposed paving, or sod meets existing building edge, doorway, or property line, the Contractor shall construct the proposed element to an acceptable grade, as directed by the Contract Administrator, to ensure that proper drainage and accessibility are maintained.

E22. CONSTRUCTION FACILITIES AND STAGING

- E22.1 The Contractor shall be responsible for providing his own storage and handling of all his construction operations. The use of public right-of-ways will not be allowed.

E23. SPORTS EQUIPMENT

E23.1 Description

E23.1.1 The work of this section comprises the furnishing of all labour, equipment and materials required to complete the supply and installation of sports and play equipment as follows:

(a) One set of Moveable Soccer Goals

E23.1.2 This work will not include the pre-installation Site preparation work or perimeter edging. However, co-ordination with staff and/or contractors carrying out these works shall be necessary.

E23.2 General

E23.2.1 The Contractor shall furnish all labour, materials, equipment and services necessary to complete the work according to the drawings and specifications.

E23.3 Materials

E23.3.1 Sports Components

(a) Soccer Field to have Moveable ScoreMaster soccer goal (1 set) Model SM-DM-2400-PC

E23.4 Source for Sports Equipment:

Crozier Agencies

#8-1865 Sargent Ave..

Winnipeg, MB R3H 0E4

Phone: (204) 774-6084

Fax: (204) 774-6099

E24. TOPSOIL AND FINISH GRADING

E24.1 Description

E24.1.1 The City of Winnipeg Specification CW 3540 shall apply to and be a part of this Specification

E24.1.2 This Specification shall cover the supply and placing of topsoil for areas to be sodded

E24.1.3 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator and/or the City's designated turf inspector. There shall be no charge to the City for any materials taken by the Contract Administrator or the City's designated turf inspector for inspection and testing purposes.

E24.2 Materials

E24.2.1 Topsoil will be subject to tests for nitrate, phosphate, potassium, sulphate, pH, E.C. (salinity) and volume of organic matter by a testing laboratory designated by the Contract Administrator.

E24.2.2 The Contract Administrator and/or the City's designated sod inspector will collect as many samples as are deemed necessary to ensure that a good representation of the entire topsoil shipment is provided for the soil analysis report.

E24.2.3 All soil required shall consist of a screened clay-textured or loam-textured dark topsoil, a fertile, friable material neither of heavy clay nor of very light sandy nature containing by

volume, a minimum of 4% for clay loams and 2% for sandy loams to a maximum 25% organic matter (peat, rotted manure or composted material) and capable of sustaining vigorous plant growth. Topsoil shall be free of subsoil contamination, roots, stones over 30mm in diameter or subsoil clay lumps over 30mm in diameter and other extraneous matter. Topsoil shall not contain quack grass rhizomes, Canada thistle roots or other noxious weeds. Salinity rating shall be less than 2.5mmhos/cm. The pH range shall be between 6.0 and 8.0.

- E24.2.4 Topsoil must be imported topsoil or Site excavated, screened, and stockpiled topsoil meeting the Specifications outlined in E24.2.3.
- E24.2.5 Topsoil shall not be blown dirt taken from wind erosion sites.
- E24.2.6 Topsoil shall not be taken from fields abandoned to corn production where such soil may contain soil incorporated herbicides with lasting residual effects such as eradicane and atrazine.
- E24.2.7 The Contractor shall inform the Contract Administrator of proposed source of topsoil to be supplied. The Contract Administrator reserves the right to reject topsoil not conforming with the requirements of this Specification.
- E24.2.8 Chemical fertilizer with an N-P-K analysis of 1-2-1 ratio at a rate to provide 48kg actual Nitrogen, 96kg actual Phosphate and 48kg actual Potassium per hectare.
- E24.2.9 Where work is to be done adjacent to roadways, the Contractor shall maintain traffic and ensure that protection is afforded to the road use and that the Contractor's operations in no way interfere with the safe operation of traffic.
- E24.2.10 The Contractor shall supply, erect and maintain all applicable traffic control devices in accordance with the provisions of the latest edition of the "Manual of Temporary Traffic Control in Work Areas on City Streets" issued by the Public Works Department of the City of Winnipeg.
- E24.3 Installation
 - E24.3.1 Subsoil shall be graded in accordance with Specification CW 3110 to eliminate uneven areas and low spots, ensuring positive drainage. Any soil contaminated by toxic materials shall be removed and disposed off Site.
 - E24.3.2 All surface debris, roots, vegetation, branches and stones in excess of 50mm shall be removed.
 - E24.3.3 Grades on the area to receive topsoil which have been previously established in conformance with the Construction Drawings and/or other applicable specifications shall be maintained in a true and even grade.
 - E24.3.4 Topsoil shall not be placed until the subgrade has been inspected and approved by the Contract Administrator. The Contractor shall provide the Contract Administrator with a minimum of two (2) working days notice for subgrade inspection.
 - E24.3.5 The Contractor shall not place topsoil on areas that are to be sodded unless the Contract Administrator provides the Contractor with written approval or direction to proceed.
 - E24.3.6 Topsoil shall be spread with adequate moisture in uniform layers over the approved, unfrozen subgrade, where seeding or sodding is indicated.
 - E24.3.7 Topsoil shall be free of roots, grass, weeds, construction materials, debris, foreign non-organic objects and stones over 30mm in diameter.
 - E24.3.8 The topsoil mix shall be applied to a minimum of 75mm compacted depth for areas requiring sod.

- E24.3.9 Topsoil shall be manually spread around trees, shrubs, and other obstacles.
- E24.3.10 The Contractor shall provide the Contract Administrator with a report for each work site indicating the fertilizer formulation used, the rate of application and the date of application.
- E24.3.11 Fertilizer shall be thoroughly mixed into the upper 75mm of topsoil prior to the commencement of sodding or seeding operations.
- E24.3.12 The area shall be fine graded and the topsoil loosened. Eliminate rough spots and low areas to ensure positive drainage. Prepare a loose friable bed by means of cultivation and subsequent raking.
- E24.3.13 Topsoil shall be rolled with 50kg roller, minimum 900mm wide, to consolidate it in areas to be sodded, leaving the surface smooth, uniform, firm against deep foot printing and to the satisfaction of the Contract Administrator.
- E24.4 Clean Up
- E24.4.1 All sidewalk, streets, approaches, driveways and properties near the Work Site shall be kept clean at all times by the Contractor.
- E24.4.2 Upon completion of the project, the Contractor shall immediately remove all excess material and debris from the Work Site.
- E24.5 Method of Measurement and Basis of Payment
- E24.5.1 There shall be no separate measurement for the work associated with this Specification.
- E24.5.2 Payment for work specified under this Specification is to be included with the price for Sodding.

E25. SODDING

- E25.1 All work to be to CW 3510 –R7.
- E25.2 Method of Measurement
- E25.2.1 Sodding (including supply, install, and fine grade 75mm topsoil) 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.
- E25.3 Basis of Payment
- E25.3.1 Sodding will be paid for at the Contract Unit Price per square metre for 'Supply and Install Sod (including 75mm 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.

E26. CLAY INFIELD

- E26.1 Description
- E26.1.1 The Work in this section comprises the furnishing of all labour and equipment required to complete the installation of the Clay Infield and related work.
- E26.1.2 Red Baseball Diamond Mix shall be supplied and delivered to the Site by the City of Winnipeg under separate Contract. Contractor to contact Curt Borley (986-3991) to coordinate.
- E26.2 Installation

- E26.2.1 Remove excess soil and other impurities from surface of existing red baseball diamond mix subgrade.
- E26.2.2 Verify grades of existing subgrade and adjacent field features for conformity with elevations and sections before placing granular material.
- E26.2.3 Proof roll existing subgrade to check for unstable areas, obtain approval of subgrade by Contract Administrator prior to placing granular base.
- E26.2.4 Place Red Baseball Diamond Mix to a minimum compacted thickness of 100mm. Compact to 95% standard proctor density.
- E26.2.5 Finished surface to be within 5mm of specified grade, but not uniformly high or low.
- E26.3 Method of Measurement
 - E26.3.1 Install Red Baseball Diamond Mix will be measured on an area basis. The area to be paid for shall be the total number of square metres that are installed in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E26.4 Basis of Payment
 - E26.4.1 Red Baseball Diamond Mix will be paid for at the Contract Unit Price per square metre for 'Install Red Baseball Diamond Mix', 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