

**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:

<b>Drawing Title</b>	<b>Drawing No.</b>	<b>File Name</b>	<b>Size</b>
2004 Residential Street Renewals	Cover Page	150-2004 Drawing 00-R0.pdf	A1
Riverton Avenue – Watt Street to Elmwood Road	063-036-01	150-2004 Drawing 01-R0.pdf	A1
Riverton Avenue – Watt Street to Elmwood Road	063-036-02	150-2004 Drawing 02-R0.pdf	A1
Dollard Boulevard – Tache Avenue to Langevin Avenue	01	150-2004 Drawing 03-R0.pdf	Letter
Greene Avenue – Watt Street to Golspie Street	02	150-2004 Drawing 04-R0.pdf	Letter
Hart Avenue – Glenwood Crescent to Beatrice Street	03	150-2004 Drawing 05-R0.pdf	Letter
Elizabeth Road – Rue Archibald to Drake Boulevard	04	150-2004 Drawing 06-R0.pdf	Letter

#### E2. OFFICE FACILITIES

- E2.1 The Contractor shall supply office facilities meeting the following requirements:
- The field office shall be for the exclusive use of the Contract Administrator.
  - The building shall be conveniently located near the site of the Work.
  - The building shall have a minimum floor area of 25 square metres, with two windows for cross ventilation and a door entrance with a suitable lock.
  - The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
  - The building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets.
  - The building shall be furnished with one desk, one drafting table, one stool and eight (8) chairs.

- (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
- (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when he deems it necessary.

- E2.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.
- E2.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.
- E2.4 On a one time basis, where directed by the Contract Administrator, the Contractor shall relocate the office facilities to a location more convenient for the remaining Work.

### **E3. PROTECTION OF EXISTING TREES**

- E3.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:
  - a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
  - b) 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.
  - c) 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.
  - d) 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.
- E3.2 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.
- E3.3 No separate measurement or payment will be made for the protection of trees.
- E3.4 Elm trees cannot be trimmed between April 1 and July 31, inclusive.

### **E4. TRAFFIC CONTROL**

- E4.1 Further to clauses 3.6 and 3.7 of CW 1130-R1:

- (a) Where directed, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. No measurement for payment will be made for this work.
- (b) In accordance with the Manual of Temporary Traffic Control, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Section of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Section of the City of Winnipeg in connection with the works undertaken by the Contractor.

## **E5. TRAFFIC MANAGEMENT**

E5.1 Further to clause 3.7 of CW 1130-R1:

E5.1.1 The Contractor shall schedule construction activities to meet the following:

- (a) Riverton Avenue from Watt Street to Elmwood Road - will be closed to all traffic. The Contractor shall sign the street "Road Closed", in accordance with the Manual of Temporary Traffic Control.
- (b) Greene Avenue from Watt Street to Golspie Street - will be closed to through traffic. Local access and/or bus traffic shall be maintained. The Contractor shall sign the street "Road Closed Local Access Only" in accordance with the Manual of Temporary Traffic Control.
- (c) Hart Avenue from Glenwood Crescent to Beatrice Street - will be closed to through traffic. Local access and/or bus traffic shall be maintained. The Contractor shall sign the street "Road Closed Local Access Only" in accordance with the Manual of Temporary Traffic Control.
- (d) Elizabeth Road from Rue Archibald to Drake Boulevard - at least one lane for local access traffic shall be maintained along this street during construction. At least one intersection on adjacent bays shall be open at a time.
- (e) Dollard Boulevard from Tache Avenue to Langevin Avenue - local access and/or bus traffic shall be maintained when possible as determined by the Contract Administrator. The road shall be closed to traffic only with the approval of the Contract Administrator.

E5.1.2 Should the Contractor be unable to maintain an existing access to a residence or business, he shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.

E5.1.3 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

## **E6. WATER USED BY CONTRACTOR**

E6.1 Further to clause 3.7 of CW 1120-R1, the Contractor shall pay for all costs associated with obtaining water in accordance with the Waterworks By-law. Sewer charges will not be assessed for water obtained from a hydrant.

## **E7. SURFACE RESTORATIONS**

E7.1 Further to clause 3.3 of CW 1130-R1, 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.

## **E8. INFRASTRUCTURE SIGNS**

E8.1 The Contractor shall obtain infrastructure signs from the traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for the performing all operations herein described and all other items incidental to the work described

## **E9. CRACK AND SEATING OF EXISTING CONCRETE PAVEMENT**

### DESCRIPTION

E9.1 General

E9.1.1 This specification covers the crack and seating of existing concrete pavements.

E9.2 Definitions

E9.2.1 Proof Rolling – applying of a dynamic load to a concrete pavement with the intent of cracking and embedding the cracked concrete into the existing sub-base.

E9.3 Referenced Standard Construction Specifications

(a) CW 3110 – Sub-Grade, Sub-Base and Base Course Construction.

(b) CW 3310 – Portland Cement Concrete Pavement Works

### CONSTRUCTION METHODS

E9.4 Saw-Cutting for Curb and Gutter Removal

E9.4.1 Saw-cut the existing concrete pavement full-depth longitudinally at the locations as shown on the Drawings to allow for installation of the curb and gutter section.

E9.4.2 Remove existing concrete pavement in accordance with Section 3.1 of CW 3110.

E9.4.3 Install curb and gutter in accordance with CW 3310.

E9.5 Crack and Seating

E9.5.1 The equipment for the crack and seating will be a roller having a single axle, unless approved otherwise by the Contract Administrator.

E9.5.2 The single axle roller will have a maximum of four (4) pneumatic tire wheels and the wheels will be evenly spaced in one line across the width of the roller so that each wheel will carry an approximate equal load when operated over an uneven surface. The centre-to-centre spacing between adjacent wheels will not exceed 800 millimetres. The roller equipment will have a suitable body for ballast loading with a minimum capacity of 40 tonnes and the ability to add additional ballast to a maximum capacity of 60 tonnes.

E9.5.3 Complete initial proof rolling of the concrete pavement with the equipment specified in accordance with clauses E9.5.1 & E9.5.2 of this specification.

- E9.5.4 Complete passes as necessary to ensure that the equipment has contacted the entire pavement surface.
- E9.5.5 Undertake second proof rolling as directed by the Contract Administrator.
- E9.5.6 Loading requirements for each proof rolling will be identified by the Contract Administrator.
- E9.5.7 Alter methods to avoid areas of instability. One rolling cycle will consist of two complete proof rolling applications to the pavement surface.
- E9.5.8 Complete partial depth saw-cuts at 2/3 the depth of the existing concrete pavement at locations as directed by the Contract Administrator.
- E9.5.9 Complete additional rolling cycles and partial depth saw-cuts until the existing concrete pavement has been cracked to a minimum of 300 millimetres to a maximum of 600 millimetres pieces and the pavement has been seated 10 millimetres to 20 millimetres into the sub-base, as directed by the Contract Administrator.

#### MEASUREMENT AND PAYMENT

- E9.6 Crack and Seating
  - E9.6.1 Crack and seating of existing concrete pavement will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Crack and Seating Pavement". The area to be paid for will be the total number of square metres of existing concrete pavement cracked and seated in accordance with this specification, accepted and measured by the Contract Administrator.
  - E9.6.2 Additional rolling cycles will be measured and paid in accordance with this specification.
  - E9.6.3 Saw-cutting of the existing concrete pavement for curb and gutter installation will be included in the payment for "Crack and Seating Pavement".
  - E9.6.4 Partial Depth Saw-Cutting
    - E9.6.5 Partial depth saw-cutting will be measured on a length basis and paid for at the Contract Unit Price per metre for "Partial Depth Saw-Cutting". The length to be paid for will be the total number of metres of existing concrete pavement saw-cut in accordance with this specification, accepted and measured by the Contract Administrator.

#### **E10. SUPPLY AND INSTALLATION OF MOISTURE BARRIER/STRESS ABSORPTION GEOTEXTILE FABRIC**

##### DESCRIPTION

- E10.1 General
  - E10.1.1 This specification covers the supply and installation of Moisture Barrier/Stress Absorption Geotextile.
  - E10.1.2 Referenced Standard Construction Specifications
    - .1 CW 3130 – Supply and Installation of Geotextile Fabrics.
    - .2 CW 3410 – Asphaltic Concrete Pavement Works.

##### MATERIALS

- E10.2 Mill Certificate and Bill of Lading
  - E10.2.1 Provide mill certificate and bill of lading in accordance with Section 2 of CW 3130.

E10.3 Storage and Handling

E10.3.1 Store and handle material in accordance with Section 2 of CW 3130.

E10.4 Moisture Barrier/Stress Absorption Geotextile Fabric

E10.4.1 Geotextile fabric will be non-woven.

E10.4.2 All physical property requirements are minimum average roll values determined in accordance with ASTM 4759. The moisture barrier/stress absorption geotextile fabric will meet or exceed the standards as follows:

PROPERTY	STANDARD	TEST METHOD
GrabTensile Strength	0.40 kN	ASTM D4632
Grab Elongation	50%	ASTM D4632
Mullen Burst	1240 Kpa	ASTM D3786

E10.4.3 Acceptable products will be Amoco-petromat 4599, ARMTEC PF1, NILEX-9W99 or an approved equal.

E10.5 Tack Coat

E10.5.1 Tack coat will be 150 – 200 asphalt cement supplied in accordance with Clause 5.4.2 of CW 3410.

CONSTRUCTION METHODS

E10.6 General

E10.6.1 Install moisture barrier/stress absorption geotextile fabric at the locations as shown on the Drawings or as directed by the Contract Administrator.

E10.6.2 Proceed with installation upon completion and acceptance of the asphalt levelling course.

E10.6.3 Ensure pavement surface is clean and free of all dirt, water, oil or foreign materials.

E10.6.4 Apply tack coat with a distribution truck in accordance with manufacturer's specifications and recommendations. Ensure uniform coverage of entire pavement surface.

E10.6.5 Install geotextile fabric in accordance with the manufacturer's specifications and recommendations.

E10.6.6 Only construction equipment required to place the final asphalt surface course will be allowed to travel on the exposed geotextile fabric.

E10.6.7 Replace damaged or improperly placed geotextile fabric.

E10.6.8 All fabric installed must be covered with asphalt the same day.

E10.6.9 Commence placement of asphalt material after the fabric has been placed over the full width of the pavement surface and accepted by the Contract Administrator.

E10.6.10 Ensure temperature of asphalt material does not exceed the melting point of the fabric.

## MEASUREMENT AND PAYMENT

### E10.7 Moisture Barrier/Stress Absorption Geotextile Fabric

- E10.7.1 Supply and installation of Moisture Barrier/Stress Absorption Geotextile Fabric will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Moisture Barrier/Stress Absorption Geotextile Fabric". The area to be paid for will be the total number of square metres of geotextile fabric supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.
- E10.7.2 The supply and application of the tack coat will be included in the payment for "Moisture Barrier/Stress Absorption Geotextile Fabric".

## E11. PATCHING OF EXISTING PAVEMENT

### DESCRIPTION

#### E11.1 General

- E11.1.1 This specification covers patching of existing concrete pavement in preparation for an asphalt overlay.
- E11.1.2 Referenced Standard Construction Specifications
- (a) CW 3110 – Sub-Grade, Sub-Base and Base Course Construction.
  - (b) CW 3130 – Supply and Installation of Geotextile Fabrics.
  - (c) CW 3410 – Asphaltic Concrete Pavement Works.

### MATERIALS

#### E11.2 Crushed Sub-Base Material

- E11.2.1 Crushed Sub-base material will have a maximum aggregate size of 50 millimetre and be supplied in accordance with Section 2.1 of CW 3110.

#### E11.3 Geotextile Fabric

- E11.3.1 Geotextile fabric will be supplied in accordance with Section 2 of CW 3130.

#### E11.4 Asphalt Material

- E11.4.1 Asphalt material will be Type 1A and will be supplied in accordance with Sections 5 and 6 of CW 3410.

### CONSTRUCTION METHODS

#### E11.5 General

- E11.5.1 Remove existing concrete pavement to a minimum width of 1.5 metres at locations as shown on the Drawings or as directed by the Contract Administrator in accordance with Section 3.1 of Specification CW 3110.
- E11.5.2 Excavate to a depth of 350 millimetres below the top of the existing pavement.
- E11.5.3 Compact existing sub-grade to a minimum of 95% Standard Proctor Density.
- E11.5.4 Place separation/reinforcement geotextile fabric in accordance with Specification CW 3130.



- E11.5.5 Place and compact crushed sub-base material in accordance with CW 3110 to a 300 millimetres compacted depth. Compact to a minimum of 100% Standard Proctor Density.
- E11.5.6 Place and compact asphalt material to a 50 millimetres compacted depth matching the top of the existing concrete pavement. Compact to an average of 95% percent of the 75 Blow Marshall Density of the paving mixture with no individual test being less than 90% percent.
- E11.5.7 Each layer must be levelled and accepted by the Contract Administrator before the succeeding layer may be placed.
- E11.5.8 Additional excavation and placement of sub-base material beyond the identified pavement structure will be completed in accordance with CW 3110 as directed by the Contract Administrator.

#### MEASUREMENT AND PAYMENT

- E11.6 Pavement Patching
  - E11.6.1 Pavement patching will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Pavement Patching". The area to be paid for will be the total number of square metres of pavement patched in accordance with this specification, accepted and measured by the Contract Administrator.