

**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>
Cover Sheet	--	89-2004 Drawing 00-R0.pdf	A1
Shaftesbury Blvd to Sta 0+225	P-3248-01	89-2004 Drawing 01-R0.pdf	A1
Sta 0+225 to Sta 0+400	P-3248-02	89-2004 Drawing 02-R0.pdf	A1
Sta 0+400 to Sta 0+550	P-3248-03	89-2004 Drawing 03-R0.pdf	A1
Sta 0+550 to Sta 0+700	P-3248-04	89-2004 Drawing 04-R0.pdf	A1
Sta 0+700 to Sta 0+850	P-3248-05	89-2004 Drawing 05-R0.pdf	A1
Sta 0+850 to Sta 1+000	P-3248-06	89-2004 Drawing 06-R0.pdf	A1
Sta 1+000 to Sta 1+150	P-3248-07	89-2004 Drawing 07-R0.pdf	A1
Sta 1+150 to Sta 1+300	P-3248-08	89-2004 Drawing 08-R0.pdf	A1
Sta 1+300 to Sta 1+475	P-3248-09	89-2004 Drawing 09-R0.pdf	A1
Sta 1+475 to Sta 1+650	P-3248-10	89-2004 Drawing 10-R0.pdf	A1
Sta 1+650 to Sta 1+775	P-3248-11	89-2004 Drawing 11-R0.pdf	A1
Sta 1+775 to Kenaston Blvd	P-3248-12	89-2004 Drawing 12-R0.pdf	A1
Sections and Details	P-3248-13	89-2004 Drawing 13-R0.pdf	A1

#### 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 15 square metres, a height of 2.4 m 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 a 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 two wall outlets.
  - The building shall be furnished with one desk, one drafting table, one meeting table, one stool, one legal size filing cabinet, and a minimum of 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 Total Performance.

### **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:

- E5.1.1 Maintain a minimum of one through lane of traffic eastbound and one lane of traffic westbound at all times.
- E5.1.2 Where there is an existing left turn lane, an additional lane to accommodate the left turn storage lane shall be maintained at all times.
- E5.2 When no work is being performed on a portion of Grant Avenue within the project limits, and providing it is safe for vehicles, lane closures at those locations will not be permitted, unless written consent is given by the Contract Administrator.
- E5.3 Intersecting street and private approach access shall be maintained at all times.
- E5.4 Notwithstanding E5.3, the transit bus loop at Station 1+375 and its associated median opening can be closed for the duration of the project.
- E5.5 Should the Contractor be unable to maintain pedestrian or vehicular 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.
- E5.6 Pedestrian access must be maintained on one side of Grant Avenue at all times.
- E5.7 Ambulance/emergency vehicle access must be maintained at all times.
- E5.8 The contractor is responsible for supplying and installing all signage in accordance with the Manual of Temporary Traffic Control in Work Areas on City Streets, 2003 Edition.
- E5.9 Further to the Manual of Temporary Traffic Control in Work Areas on City Streets, 2003 Edition, all retroreflective sheeting on temporary traffic signs, traffic barricades and traffic control devices must be Type III (High Intensity) retroreflective sheeting (ASTM D4956) and barricades must show vertical stripping.
- E5.10 Following is a sequence of the lane closures for each stage of the work:
  - E5.10.1 Stage 1 – Median Lanes Rehabilitation
    - (a) Closure and rehabilitation of eastbound and westbound median lanes within project limits. Traffic travels in the gutter lane.

- (b) Median openings and intersections open to traffic unless joint/slab repairs require temporary closure. Temporary closures to be staggered such that consecutive intersections are not closed at the same time.

E5.10.2 Stage 2 – Gutter Lane Rehabilitation

- (a) Closure and rehabilitation of eastbound and westbound gutter lanes within project limits. Traffic travels in the median lanes.
- (b) Cross streets and private approaches open to traffic unless joint/slab repairs require temporary closure. Temporary closures to be staggered such that consecutive intersections are not closed at the same time.

E5.10.3 Stage 3 – Roadway Asphalt Works

- (a) Closure and asphalt overlay of entire project one lane at a time. One lane may be closed at any one time.
- (b) Cross streets, private approaches, and median openings may be temporarily closed during the asphalt placement and compaction works.

**E6. PEDESTRIAN SAFETY**

- E6.1 During the project, a temporary snow fence shall be installed if necessary in locations such as open excavation areas that are adjacent to pedestrian facilities. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

**E7. WATER USED BY CONTRACTOR**

- E7.1 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.

**E8. SURFACE RESTORATIONS**

- E8.1 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.

**E9. DISPOSAL OF WASTE MATERIAL**

- E9.1 Further to Specification CW 1130, CW 3110, CW 3230, CW 3235, CW 3240, and CW 3410, any concrete or asphalt that is removed for repair works shall not be placed on the roadways, boulevard, or other worksite location for storage. The Contractor shall dispose of all rubble within 24 hours of removal.

## **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:

<b>PROPERTY</b>	<b>STANDARD</b>	<b>TEST METHOD</b>
Grab Tensile 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. INSTALLATION AND ADJUSTMENT OF CURB INLETS

- E11.1 This Specification shall amend CW 3210-R5.
- E11.2 Replace the reference to "*shall conform with Specification CW 2410*" in clauses 5.3, 5.5, and 5.7.1 with "*shall conform with those products listed as Approved Products for Underground Use in the City of Winnipeg found on the City of Winnipeg, Materials Management web site at: <http://www.city.winnipeg.mb.ca/matmgt/info.stm>*".
- E11.3 Replace "SD-107" with "AP-007", "SD 104" with "AP-004", "SD-106" with "AP-005", "SD-100" with "AP-001", and "SD-109" with "AP-011", as they appear in clauses 5.3, 5.5, 5.6 and 5.7.1. In Clause 5.6 delete "*and SD-111*".
- E11.4 Replace the second paragraph of clause 9.9.1 with the following:

*"For curb inlets with inlet box, the adjustment shall be considered to include the supply and placing of reinforcing steel and concrete as required to cast the existing frame into the existing inlet box, in accordance with the Drawings and the requirements of Specification CW 3310. Where required, new inlet box covers shall be supplied in accordance with AP-015 and paid for separately. For curb inlets with catchbasin, the adjustment of the existing catchbasin shall be done in accordance with Section 9.2 of this Specification."*
- E11.5 Add the following to section 12 "Method of Measurement":
  - 12.16 Curb Inlet Box Connection Pipe

Construction of connection pipe between the curb inlet box and the catchbasin will be measured on a linear measure basis. The length to be paid for shall be the total number of metres constructed in accordance with this Specification and accepted by the Contract Administrator, measured horizontally, at grade, above the centre line of the pipe, and measured from the centre of the inlet box to the centre of the catchbasin, as computed by measurements made by the Contract Administrator.

Fittings for curb inlet box connection pipe will be included in the pay item for "Curb Inlet Box Connection Pipe."

Tying into a catchbasins from the curb inlet box will be included in the pay item for "Curb Inlet Box Connection Pipe."

#### 12.17 Supply of Curb Inlet Frames

Supply of curb inlet frames will be measured on a unit basis. The number to be paid for shall be the total number of curb inlet frames supplied in accordance with this Specification and accepted by the Contract Administrator.

#### 12.18 Supply of Curb Inlet Box Covers

Supply of curb inlet box covers will be measured on a unit basis. The number to be paid for shall be the total number of curb inlet box covers supplied in accordance with this Specification and accepted by the Contract Administrator. "

E11.6 Replace item ii) in clause 13.8 with the following:

*"ii) Adjustment of Curb Inlet and Inlet Box"*

E11.7 Add the following to section 13 "Basis of Payment":

#### 13.16 Curb Inlet Box Connection Pipe

Construction of connections from inlet boxes will be paid for at the Contract Unit Price per metre for "Curb Inlet Box Connection Pipe", 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.

#### 13.17 Supply of Curb Inlet Frames

Supply of curb inlet frames will be paid for at the Contract Unit Price for "Supply of Curb Inlet Frames", 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.

#### 13.18 Supply of Curb Inlet Box Covers

Supply of inlet box covers will be paid for at the Contract Unit Price for "Supply of Curb Inlet Box Covers", 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. "



## **E12. PARTIAL-DEPTH PATCHING OF EXISTING JOINTS**

### **E12.1 Description**

#### **E12.1.1 General**

- (a) Partial Depth Joint Patching – The planing of concrete pavement along a joint to the specified depth and width and filling the planed area with asphalt.
- (b) This specification shall cover all operations relating to Partial-Depth Patching of Existing Joints.

#### **E12.1.2 Referenced Standard Construction Specifications**

- (a) CW 3230 – Full-Depth Patching of Existing Slabs and Joints
- (b) CW 3410 – Asphaltic Concrete Pavement Works
- (c) CW 3450 – Planing of Pavement

### **E12.2 Materials**

E12.2.1 Asphalt materials as per CW 3410, Clause 5 and 6.

E12.2.2 Equipment as per CW 3410, Clause 8 and CW 3450, Clause 3.

### **E12.3 Construction Methods**

E12.3.1 Concrete joints identified for partial-depth patching shall be planed from 400 mm to 600 mm wide on each side of the joint, or as specified by the Contract Administrator. The finished edges of the planed sections shall be constructed with a minimum 20 mm cut to eliminate feathering of the asphaltic concrete fill material. The depth of the planing along the centre line of the joint shall be a minimum of 50 mm and a maximum of 65 mm as directed by the Contract Administrator. Areas planed beyond the horizontal limits specified shall not be measured for payment. Where the joint is over planed to a depth greater than 65 mm, the joint, for the full width or length of the slab shall be renewed in accordance with CW 3230 as a full-depth joint repair but at the cost of the specified partial-depth joint patch.

E12.3.2 All cuttings shall be disposed of at a legal disposal site.

E12.3.3 Immediately prior to placing the asphalt, the planed joint must be dry and shall be blown clean of all loose material and debris. A uniform application of Tack coat shall be applied sufficiently to wet the concrete pavement surface on which the asphalt will be placed.

E12.3.4 The planed joint area shall be filled by hand with asphalt in accordance with Clause 9.4 of CW 3410.

E12.3.5 Immediately following the placement of the asphalt, it shall be compacted with a vibratory plate compactor or a walk behind vibratory roller compactor.

E12.3.6 No traffic or construction equipment shall be allowed over the joint until the asphalt has cooled to atmospheric temperature.

#### E12.4 Measurement And Payment

##### E12.4.1 Partial-Depth Patching of Existing Joints

- (a) Partial Depth Patching of Existing Joints will be measured on a linear measure basis and paid for at the Contract Unit Price per linear metre for the "Items of Work" listed below. The area to be paid for will be the total number of linear metres of joints that are planed and filled with asphalt in accordance with this specification, accepted and measured by the Contract Administrator.  
Items of Work:

##### Partial Depth Patching of Existing Joints

- (i) Transverse Joints