

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:

Drawing Title	Drawing No.	File Name	Size
Lamont Boulevard Rehabilitation	R1	92-2004 Drawing 00-R0.pdf	11 X17
Stiles Street Rehabilitation	R2	92-2004 Drawing 01-R0.pdf	11 X17
Oxford Street Rehabilitation	R3	92-2004 Drawing 02-R0.pdf	11 X17
Lamont Boulevard Sewer Rehabilitation	S1	92-2004 Drawing 03-R0.pdf	11 X17
Stiles Street Sewer Rehabilitation	S2	92-2004 Drawing 04-R0.pdf	11 X17
Oxford Street Reconstruction – Corydon Ave. to Grosvenor Ave.	Cover Sheet	92-2004 Drawing 05-R0.pdf	Full
Oxford Street Reconstruction – Corydon Ave. to Grosvenor Ave.	1 of 6	92-2004 Drawing 06-R0.pdf	Full
Oxford Street Reconstruction – Corydon Ave. to Grosvenor Ave.	2 of 6	92-2004 Drawing 07-R0.pdf	Full
Oxford Street Reconstruction – Corydon Ave. to Grosvenor Ave.	3 of 6	92-2004 Drawing 08-R0.pdf	Full
Oxford Street Reconstruction – Academy Rd. to Wellington Cr.	4 of 6	92-2004 Drawing 09-R0.pdf	Full
Oxford Street Sewer Renewal – 1 st MH south of Grosvenor to Grosvenor Ave.	5 of 6	92-2004 Drawing 10-R0.pdf	Full
Oxford Street Sewer Renewal – Academy Rd. to Wellington Cr.	6 of 6	92-2004 Drawing 11-R0.pdf	Full

E2. OFFICE FACILITIES

E2.1 The Contractor shall supply office facilities meeting the following requirements:

- (a) The field office shall be for the exclusive use of the Contract Administrator.
- (b) The building shall be conveniently located near the site of the Work.
- (c) The building shall have a minimum floor area of 15 square metres, height of 2.4 m with two windows for cross ventilation and a door entrance with a suitable lock.

- (d) 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.
 - (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of two wall outlets.
 - (f) The building shall be furnished with one desk, one drafting table, one meeting table, one stool, one four drawer legal size filing cabinet, and a minimum of six 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.
- 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:

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

- (a) Lamont Boulevard from Corydon Avenue to Cuthbertson Avenue will be closed to through traffic. Local access shall be maintained. The Contractor shall sign the street "Road Closed, Local Access Only" in accordance with the Manual of Temporary Traffic Control. Private approach access shall be maintained at all times.
- (b) Stiles Street from Portage Avenue to Wolseley Avenue will be closed to through traffic. Local access shall be maintained. The Contractor shall sign the street "Road Closed, Local Access Only" in accordance with the Manual of Temporary Traffic Control. Private approach access shall be maintained at all times.
- (c) Oxford Street from Grant Avenue to Mathers Avenue will be closed to through traffic. Local access shall be maintained. The Contractor shall sign the street "Road Closed, Local Access Only" in accordance with the Manual of Temporary Traffic Control. Private approach access shall be maintained at all times.
- (d) Oxford Street from Corydon Avenue to Grosvenor Avenue will be closed to all traffic. The Contractor shall sign the street "Road Closed" in accordance with the Manual of Temporary Traffic Control.
- (e) Oxford Street from Academy Road to Wellington Crescent will be closed to all traffic. The Contractor shall sign the street "Road Closed" in accordance with the Manual of Temporary Traffic Control.

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 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 location 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

(a) CW 3130 – Supply and Installation of Geotextile Fabrics.

(b) 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
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. 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 millimetres 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.

E12. SUPPLY AND INSTALLATION OF PAVEMENT REPAIR FABRIC

DESCRIPTION

E12.1 General

- E12.1.1 This specification covers the supply and installation of pavement repair fabric.

E12.1.2 Referenced Standard Construction

- (a) CW 3130 – Supply and Installation of Geotextile Fabrics.

MATERIALS

E12.2 Storage and Handling

- E12.2.1 Store and handle material in accordance with Section 2 of CW 3130.

E12.3 Pavement Repair Fabric

- E12.3.1 Pavement repair fabric will be Glass Grid Road Reinforcement Mesh - Style 8501 or approved equal.

CONSTRUCTION METHODS

E12.4 General

- E12.4.1 Install pavement repair fabric at random locations as directed by the Contract Administrator.
- E12.4.2 The extent of the placement limits and quantities required will be determined by the Contract Administrator and provided 48 hours prior to the placement of asphalt.
- E12.4.3 Proceed with installation upon completion and acceptance of the asphalt levelling course.
- E12.4.4 Install fabric in accordance with the manufacturer's specifications and recommendations.
- E12.4.5 Only construction equipment required to place the final asphalt surface course will be allowed to travel on the exposed fabric.
- E12.4.6 Replace damaged or improperly placed fabric.
- E12.4.7 Ensure temperature of the asphalt material does not exceed the melting point of the fabric.

MEASUREMENT AND PAYMENT

E12.5 Pavement Repair Fabric

- E12.5.1 The supply and installation of the pavement repair fabric will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Pavement Repair Fabric".

The area to be paid for will be the total number of square metres of pavement repair fabric supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E13. INSTALLATION AND ADJUSTMENT OF CURB INLETS

E13.1 This Specification shall amend CW 3210-R5.

E13.2 Add the following to the first paragraph of section 3 "Description":

"and the installation of curb inlet boxes."

E13.3 Replace the reference to "shall conform with Specification CW 2410" in clauses 5.3, 5.5, and 5.7.1 of CW 3210-R5 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/matmgmt/info.stm>.***"

E13.4 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 of CW 3210-R5. In Clause 5.6 delete "***and SD-111***".

E13.5 Replace the second paragraph of CW 3210-R5 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."

E13.6 Add the following to CW 3210-R5 section 9 "Construction Methods":

"9.13 Installation of Curb Inlets with Inlet Boxes

Installation of curb inlets with inlet boxes to grade shall include the supply of all materials, and the installation of the complete curb inlet structure in accordance with the Drawings, Standard Details SD-221 or SD-222, and this Specification, to the satisfaction of the Contract Administrator, excepting the installation of the curb inlet box connection pipe.

The installation shall be considered to include the excavation for the inlet box, the construction of the inlet box complete with the curb inlet frame, the inlet box cover, and the backfilling around the inlet box. The excavation shall not extend more than 300 mm beyond the limits of the inlet box. Backfilling and compaction shall be done in accordance with Specification CW 2030.

Curb Inlet Box Connection Pipe

Installation of connection pipe and connection to a catchbasin shall be done in accordance with clause 3.11 of Specification CW 2130-R6."

E13.7 Add the following to CW 3210-R5 section 12 "Method of Measurement":

"12.15 Curb Inlets with Inlet Boxes

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

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. "

E13.8 Replace item ii) in clause 13.8 of CW 3210-R5 with the following:

"ii) Adjustment of Curb Inlet and Inlet Box"

E13.9 Add the following to CW 3210-R5 section 13 "Basis of Payment":

"13.15 Curb Inlets with Inlet Boxes

Curb inlets with inlet boxes will be paid for at the Contract Unit Price for "Curb Inlets with Inlet Boxes", 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.

13.16 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 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.

E14. INSULATION OF WATER SERVICES

DESCRIPTION

E14.1 General

E14.1.1 This specification shall cover the insulation of the portion of all existing water service lines to homes or businesses that cross under the roadways to be reconstructed. The portion of water service lines that cross under the roadway are to be insulated with rigid Styrofoam insulation prior to the placement of the new sub-grade.

E14.1.2 Referenced Standard Construction

- (a) CW 2030 – Excavation, Bedding and Backfill
- (b) CW 2110 – Watermains
- (c) CW 3110 – Sub-grade, Sub-base and Base Course Construction

MATERIALS

E14.2 Storage and Handling

E14.2.1 The insulation shall be 50 mm thick Styrofoam HI-40 Brand extruded polystyrene sheets or approved equal.

Sand backfill as per Item 5.4 of CW 2030.

Sub-base material as per Item 5.4 of CW 3110.

CONSTRUCTION METHODS

E14.3 General

E14.3.1 The Contractor shall locate each water service prior to the installation of sub-base material, the Contractor will locate and mark the centreline of the water service on the sub-grade.

E14.3.2 The insulation will be placed on a 50 mm thick sand levelling course throughout its width, one sheet in thickness, centred on the marks made by the Contractor, for the full length of the section to be insulated. The insulation shall extend a distance of 0.6 m perpendicular to the centreline of the water service on each side of the water service (for a total width of insulation of 1.2 m and a total thickness of 50 mm)

E14.3.3 The Contractor will ensure that the insulation remains centred over the existing water service at all times. The insulation will be kept closely butted together and free of chips, gouges or holes.

E14.3.4 Sand backfill, 100 mm in depth, will be carefully placed over the insulation struck off level, and sub-base material placed on top of the sand. Mechanized equipment will not be

allowed to travel over the insulation until the depth of sub-base material is 300 mm, or greater.

MEASUREMENT AND PAYMENT

E14.4 Pavement Repair Fabric

E14.4.1 The supply and installation of Insulation of Water Services will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Insulation of Water Services". The area to be paid for shall be the total number of square metres installed in accordance with this Specification and accepted by the contract Administrator, as computed from measurements made by the Contract Administrator.

E14.4.2 Supply and installation of sand levelling course and sub-base course will be considered incidental to the installation of the insulation.

E15. SUPPLY AND PLACING LIMESTONE BASE COURSE MATERIAL

E15.1 Further to Specification CW 3110, it is required that the Contractor supply and place limestone base course material according to the following:

- (i) The Contractor shall supply and place **Limestone** Base Course material throughout the length of Oxford Street from Corydon Avenue to Grosvenor Avenue and Oxford Street from Academy Road to Wellington Crescent. The anticipated depth of Base Course material on Oxford Street from Academy to Wellington and on Oxford Street from Corydon to 0+280 is 75 mm, whereas the anticipated depth on Oxford Street from 0+280 to Grosvenor will be between 210 mm to 150 mm.
- (ii) On Oxford Street between 0+280 and Grosvenor Ave. the Limestone Base Course shall be placed by end dumping, spread onto the Cellular Concrete and levelled using a track type dozer to a uniform thickness of not less than 150 mm. The Contractor shall ensure that a Limestone Base Course strip a minimum of 150 mm depth is maintained while end dumping.
- (iii) The Base course material shall be placed and spread utilizing track type dozer equipment to a maximum size of a D4 on the Cellular concrete.
- (iv) Initial compaction shall be achieved by walking the track dozer back and forth over the base course material.
- (v) The Contractor shall not use vibratory compaction equipment when compacting the base course material on Oxford Street from 0+280 to Grosvenor Avenue. The maximum size compaction equipment to be used shall be up to the group weight of 6.0 tonnes with a self-propelled pneumatic steel combination. Subsequently, the Contractor shall only be required to obtain a compaction of 98% on the base course material within these limits, as opposed to the standard 100%.
- (vi) The water truck shall not have a tire pressure of more than 50 psi per tire while applying water to the granular base in the section where the Cellular Concrete has been placed. (Oxford Street from 0+280 to Grosvenor Ave.)