

**SCHEDULE C**

**REGULATIONS, STANDARDS AND SPECIFICATIONS FOR  
THE DESIGN AND CONSTRUCTION OF CURBS AND  
GUTTERS, SIDEWALKS AND BOULEVARDS**

This is Schedule C of the City of  
Vernon Subdivision and  
Development  
Servicing Bylaw No. 3843, 1992

*"Margaret Bailey"*

City Clerk

## SCHEDULE C – BYLAW NO. 3843

### REGULATIONS, STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF CURBS AND GUTTERS, SIDEWALKS AND BOULEVARDS

Standards and Specifications of this Schedule to Apply to All Works

- 1.01 Where the provisions of Schedule A of this Bylaw require the provision of curbs and gutters, sidewalks and boulevards, the Applicant shall construct such services in a manner consistent with the regulations, standards and specifications set out in this Schedule.

Approval of Engineering Drawings Required prior to Construction

- 1.02 Engineering drawings showing detailed design of the necessary works shall be submitted to the City Engineer for approval. No construction of the works shall commence until the design drawings have been approved by the City Engineer.

Curb, Gutter and Sidewalk Requirements (Bylaw #4666, June 18<sup>th</sup>, 2001)

- 1.03 Curbs, gutters and sidewalks shall be concrete and the type of curb and width of sidewalk shall be provided according to the table below:

HIGHWAY CLASSIFICATION	CURB TYPE REQUIRED (SEE SCHEDULE 0 DRAWING #200-1)	MINIMUM SIDEWALK WIDTHS
<u>Residential Zones</u>		
Arterial	Type 1	1.85 m
Major Collector	Type 1	1.85 m
Minor Collector	Type 2	1.35 m
Local	Type 2	1.35 m
<u>Commercial Zone</u>		
Arterial	Type 1	1.85 m
Major Collector	Type 1	1.85 m
Minor Collector	Type 1	1.85 m
<u>Industrial</u>		
Arterial	Type 1	1.85 m
Major Collector	Type 1	1.85 m
Minor Collector	Type 1	1.85 m
Local	Type 1	1.85 m

### Local of Sidewalks

- 1.04 Where sidewalk is required on one side of a highway only, the sidewalk shall be located on the same side as the street lights. Sidewalk location relative to the curb shall be as shown in the Standard Drawings.

## **2.00 DESIGN CRITERIA - CURBS, GUTTERS AND SIDEWALKS**

### Design Gradient

- 2.01 The design gradient shall be as specified for roads in Schedule B of this Bylaw, except that the minimum gradient around curb returns and around cul-de-sacs shall be 0.8%.

### Curb Return

- 2.02 The minimum curb return radius shall be as set out in Section 3.06 of Schedule B of this Bylaw. Elevations shall be shown on the engineering drawings for the beginning and end of the curb return, as well as at any changes in grades in between. Engineering drawings shall provide all geometric details, both vertically and horizontally, of curb returns.

### Grading of Boulevards

- 2.03 Upon completion of road, curb and gutter and sidewalk constructions, boulevards shall be shaped and graded as shown on the Standard Drawings. Native material and 100 mm of top soil shall be placed flush with the top of curb or back of walk and shaped to conform with general lot grading. Unless otherwise approved, boulevards shall be graded to drain to the curb at a minimum slope of 3% and a maximum slope of 7.5%.

### Sidewalk Cross Section

- 2.04 Concrete sidewalks shall have a thickness not less than 100 mm and shall be constructed consistent with Standard Drawings No. 200-1 to 200-5.

### Driveway Access

- 2.05 Maximum driveway access grade shall be 8% maximum for City boulevards in accordance with Standard Drawings No. 100-9.

### Curb and Gutter Cross Section

- 2.06 Curbs and gutters shall be constructed consistent with Standard Drawings No. 200-1.

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Commercial Crossovers

- 2.07 Commercial crossovers shall be provided at all access locations for usages other than residential. Commercial crossovers shall be constructed consistent with Standard Drawings No. 200-5.

Wheelchair Ramps

- 2.08 Wheelchair ramps shall be provided at all intersections on streets provided with sidewalks. Wheelchair ramps shall be constructed consistent with Standard Drawings No. 200-4.

Pedestrian Railway Crossings (Bylaw No. 4874)

- 2.09 Where sidewalks are required to cross railway tracks the sidewalk and curb and gutter will be constructed to the edge of the rubber or concrete crossing as shown in Standard Drawing 200-6.

When development occurs adjacent to railway rights of way at a road crossing the developer may be required to construct the pedestrian railway crossing. If, in the opinion of the Municipal Engineer, the development will result in a significant increase in pedestrian traffic, a pedestrian movement study for the respective crossing will be provided by the developer for review by the Municipal Engineer.

When development occurs adjacent to railway rights of way at a road crossing and the development property requires access across the railway rights of way, the developer will be required to construct the pedestrian railway crossing.

**3.00 MATERIALS**

Base Material

- 3.01 Base material shall be granular 25 mm crushed gravel base course conforming to gradation limits as referenced in Schedule B, Article 4.04.

Concrete

- 3.02 Concrete shall conform to CSA CAN3-A23.1 Latest Edition; the mix design shall include the following:

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- a) Minimum compressive strength 30 MPa at 28 days;
- b) Maximum aggregate size 19 mm for hand-formed; 10 mm for extruded;
- c) Slump - 80 mm for hand-formed; 25 mm for extruded;
- d) Air entrainment 6% - 8%.

Testing

- 3.03 The Applicant shall retain an independent materials testing firm to carry out comprehensive testing of concrete which shall be taken to include determination of unit weight of the plastic concrete, performing slump and air content tests and casting of test cylinders. One test consisting of three standard cylinders may be made for each 175 m of curb and gutter or sidewalk installed. In no case, however, will there be less than one test for concrete placed in one day. One cylinder shall be tested at seven days, and two at twenty-eight days. All test results shall be submitted to the City Engineer for review and approval.

Curing Compound

- 3.04 Curing compound shall be spray-applied of liquid type conforming to ASTM C309 containing a fugitive dye applied at a rate recommended by the manufacturer.

Boulevards Top Soil

- 3.05 Top soil used for boulevard improvement shall be loam, free from any rock, clay lumps, roots or any other deleterious material.

Driveway Approaches

- 3.06 Base for driveway approaches shall consist of a minimum of 100 mm of 25 mm minus gravel placed on compacted subgrade. Approaches behind curb or sidewalk shall be paved using 50 mm hot mix asphalt.

**4.00 WORKMANSHIP**

Base Preparation

- 4.01 All topsoil, organic soils, peat, frozen materials, roots, branches or other deleterious material shall be removed to a minimum depth of 300 mm below the bottom of the sidewalk and replaced with either earth fill acceptable to the City Engineer or granular aggregate. All fill material shall be compacted to 100% Standard Proctor Density.

A minimum of 100 mm of granular aggregate shall be placed and compacted to 100% Standard Proctor Density and moistened immediately prior to placing concrete.

Commercial Crossovers

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- 4.02 Commercial and industrial crossovers shall be built on a base with the same construction as the roadway they border. Commercial crossovers shall have a minimum concrete thickness of 150 mm and be reinforced with 10M bars on 300 mm centres both ways. Commercial crossovers shall have the concrete curb and gutter reinforced by two 10M bars running the full length between the extremities of the flare of the crossovers. Expansion joints shall be made at the side crossover. All bars shall be supported off the granular base. Score lines shall be made parallel to gutter line at 150 mm interval over the crossover. Crossovers shall be constructed consistent with Standard Drawings No. 200-5.

Placing and Finishing Concrete

- 4.03 The City Engineer shall be notified twenty-four hours in advance of any concrete pour for curb and gutter or sidewalks. Concrete shall be prepared, delivered, and placed in conformance with CSA CAN3-A23.1-M90 "Concrete Materials and Methods of Concrete Construction". The surface of the curb, gutter and sidewalk shall be finished prior to final set by brushing to provide a uniform non-skid finish. Both edges of the sidewalk and contraction joints shall be trowelled smooth to a width of 50 mm and rounded to a radius of 12 mm.

During hot, cold, or drying weather conditions, special attention shall be given to preparation, delivery, placement, and curing of concrete to ensure that the requirements of CSA CAN 3-23.1-M90 are met.

Curb and gutter shall be monolithic unless otherwise approved by the City Engineer.

Curb and gutter contraction joints shall be made at a maximum of 3 m intervals.

13 mm thick contraction joints shall installed through the full depth and the entire width at the beginning and end of every curb return on both sides of crossovers and against walls and structures. A 6 mm rounded edge shall run along each side of the joint.

Contraction joints shall be made by cutting a groove through the surface of the concrete to a minimum depth of 25 mm. Horizontal and vertical alignments shall not vary from established line and grade by more than 5 mm over a 3 m section. Where these tolerances are not met, the faulty section shall be removed and replaced.

Expansion joints shall be 13 mm width and located at all tangent points and at the end of each days pour.

Curing Concrete

- 4.04 Between April 1 and October 1, concrete shall be sprayed with two coats of an approved membrane curing compound as soon as the concrete has obtained its initial set. Prior to April 1, or after October 1, alternate methods of curing concrete must be used and the method approved by the City Engineer.

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Boulevards Driveway Approaches

- 4.05 Construction of driveway approaches shall be according to specifications set out in Schedule B of the Bylaw. Care shall be taken to avoid damage to existing utilities such as curb and gutter and water curb stops.

Boulevard Improvement

- 4.06 Prior to placing of top soil, boulevard areas shall be pre-graded to suit the specified grades. The top soil shall be carefully placed to the specified depth and the surface shall be raked if necessary to remove any rocks and roots.

**5.00 STANDARD DRAWINGS**

- 5.01 The following City of Vernon Standard Drawings shall form part of this schedule.

<u>Drawing No.</u>	<u>Drawing Description</u>
200-1	Standard Curb and Gutter
200-2	Standard Separate Sidewalk
200-3	Monolithic Curb, Gutter and Sidewalk
200-4	Typical Wheelchair Ramp
200-5	Typical Crossover
200-6	Pedestrian Railway Crossing ( <i>Bylaw 4874</i> )
100-14	Gradation Limits 25 mm Minus Crushed Gravel
100-12	Gradation Limits 150 mm Minus Gravel
100-13	Gradation Limits 75 mm Minus Gravel

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