

CW 3240 – RENEWAL OF EXISTING CURBS

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CW 3240 – RENEWAL OF EXISTING CURBS

1. DESCRIPTION

1.1 General

- .1 This specification covers the removal, installation and renewal of existing curbs, curb and gutter sections and splash strips.

1.2 Definitions

- .1 Concrete Curb Renewal – existing curbs, curb and gutter sections and splash strips removed and reinstalled for grade revisions or improving their condition in the same location.
- .2 Curb Reveal Height – That portion of the curb above the finished surface of the asphalt or concrete pavement.

.3 Curb Ramp – Combined curb taper and depressed curb.

1.3 Referenced Standard Construction Specifications

- .1 CW 1130 – Site Requirements.
- .2 CW 3110 – Sub-Grade, Sub-Base and Base Course Construction.
- .3 CW 3230 – Full-Depth Patching of Existing Slabs and Joints.
- .4 CW 3310 – Portland Cement Concrete Pavement Works.
- .5 CW 3410 – Asphaltic Concrete Pavement Works.
- .6 CW 3450 – Planing of Pavement.
- .7 Approved Products for Surface Works.

1.4 Referenced Standard Details

- .1 SD-200 – Curb and Gutter.
- .2 SD-201 – Mountable Curb.
- .3 SD-202A – 75mm Lip Curb.
- .4 SD-202B – 40mm Lip Curb.
- .5 SD-202C – Modified Lip Curb.
- .6 SD-203A – Barrier Curb (separate).
- .7 SD-203B – Modified Barrier Curb.
- .8 SD-204 – Barrier Curb (integral).
- .9 SD-205 – Barrier Curb (dowelled).
- .10 SD-206A – Barrier Curb Replacement.
- .11 SD-206B – Safety Curb.
- .12 SD-223A – Monolithic Concrete Splash Strip
- .13 SD-223B – Separate Concrete Splash Strip
- .14 SD-229A – Curb Ramp for 1500 Sidewalk at Intersections**
- .15 SD-229B – Curb Ramp for Full Width Sidewalk at Intersections.**
- .16 SD-229BA – Curb Ramp Layout for Medians, Lanes, and Commercial Approaches**
- .17 SD-229C – Curb Ramp for Concrete Pavement.**
- .18 SD-229D – Curb Ramp for Asphalt Pavement**
- .19 SD-229E – Curb Ramp and Depressed Curb with Detectable Warning Surface Tile.**

2. MATERIALS

2.1 Bonding Agents

- .1 Supply bonding agents for installing tie bars and curb reinforcing steel into existing concrete

pavements in accordance with ASTM C881. Bonding agents will be Type I, Grade 3 Epoxy Resins.

- .2 Bonding agents other than epoxy resins must be capable of developing a minimum pull out resistance of 50 kN, 48 hours after installation.
- .3 Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: <http://www.winnipeg.ca/matmgt/info.stm>

2.2 Concrete Materials

- .1 Supply concrete materials in accordance with Sections 5 and 6 of CW 3310.

2.3 Reinforcing Steel

- .1 Supply curb reinforcing steel in accordance with Clauses 5.4.4 and 5.4.5 of CW 3310.

2.4 Asphalt Material

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

3. CONSTRUCTION METHODS

3.1 Concrete Curb Removal

- .1 Remove concrete curbs, curb and gutter sections and splash strips at locations as shown on the Drawings or as directed by the Contract Administrator.
- .2 Saw-cut existing curbs, curb and gutter sections and splash strips full-depth at the designated removal limits.
- .3 Remove existing asphalt material immediately in front of the curb that is required for installation when the asphalt overlay is not identified to be removed.
- .4 Ensure the removal methods do not chip or damage pavement, curb and splash strips to remain.
- .5 Resaw-cut damaged or chipped curbs and splash strips beyond the removal limits.
- .6 Remove damaged curb reinforcing as directed by the Contract Administrator.
- .7 Dispose of removed curb, curb and gutter sections and splash strips in accordance with Section 3.4 of CW 1130.

3.2 Lip Curb Removal

- .1 Remove existing concrete lip curb by planing methods at the locations as shown on the Drawings or as directed by the Contract Administrator.
- .2 Removal by planing methods is only applicable for integral lip curbs.
- .3 Plane to within 5 millimetres of the top of the existing pavement or as directed by the Contract Administrator.
- .4 Ensure the existing pavement surface is not damaged by the planing operation.
- .5 Utilize planing equipment in accordance with CW 3450.

- .6 Saw-cut existing curbs within 150 millimetres of the designated limits and remove by hand methods to the satisfaction of the Contract Administrator.
- .7 Dispose of planing material in accordance with Section 3.4 of CW 1130.

3.3 Concrete Curb Installation

- .1 Install curbs at locations as shown on the Drawings or as directed by the Contract Administrator.
- .2 Excavate only material immediately behind curbs that is required for installation to a maximum distance of 150 millimetres.
- .3 Install new reinforcing steel and tie-bars as shown on the Standard Details. Provide a minimum of 40 millimetres cover between reinforcing steel and the finished concrete surface.
- .4 Clean concrete pavement surfaces immediately prior to the curb installation to the satisfaction of the Contract Administrator.
- .5 Apply bonding grout in accordance with CW 3310.
- .6 Install curb and gutters in accordance with SD-200.
- .7 Install mountable curbs in accordance with SD-201.
- .8 Install lip curbs in accordance with SD-202A, SD-202B and SD-202C.
- .9 Install barrier curbs in accordance with SD-203A, SD-203B, SD-204, SD-205 and SD-206A.
- .10 Install safety curb in accordance with SD-206B.
- .11 Install curb ramps in accordance with SD-229A, SD-229B, SD-229BA, SD-229C, SD-229D and SD-229E.
- .12 Install splash strips in accordance with SD-223A and SD-223B. When the total curb height exceeds 250 millimetres, the Contractor has the option to shape the base course in accordance with SD-223A.
- .13 Place concrete in accordance with Specification CW 3310.
- .14 Lower curb height at localized areas as directed by Contract Administrator to provide boulevard drainage.
- .15 For complete renewal, install curbs, curb and gutter sections and splash strips utilizing slip-form paving equipment unless otherwise directed by the Contract Administrator.
- .16 Place and compact asphalt material immediately in front of the curb to the satisfaction of the Contract Administrator when the asphalt overlay is not identified to be removed.
- .17 Place and compact suitable backfill material behind the curbs to the satisfaction of the Contract Administrator.

3.4 Concrete Curb Renewal

- .1 Remove and install concrete curb at locations as shown on the Drawings or as directed by the Contract Administrator.

- .2 Remove curbs in accordance with Sections 3.1 and 3.2 of this specification.
- .3 Install curbs in accordance with Section 3.3 of this specification.
- .4 Excavate, compact sub-grade, place a leveling course to a maximum thickness of 50 millimetres and suitable backfill materials in accordance with CW 3110 to a maximum distance of 150 millimetres beyond the back of the curb, curb and gutter or splash strip being renewed.
- .5 When the total monolithic splash strip curb height exceeds 250 millimetres, the Contractor has the option to shape the base course in accordance with SD-223A.
- .6 Complete boulevard grading in accordance with CW 3110 as directed by the Contract Administrator to a maximum distance of 600 millimetres beyond the curb, curb and gutter or splash strip being renewed.

4. MEASUREMENT AND PAYMENT

4.1 Concrete Curb Removal

- .1 Concrete curb removal will be measured on a length basis and paid for at the Contract Unit Price per metre for the "Items of Work" listed here below. The length to be paid for will be the total number of metres of concrete curb removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

- Concrete Curb Removal
 - i.) Barrier*
 - ii.) Modified Barrier*
 - iii.) Curb and Gutter
 - iv.) Lip Curb
 - v.) Curb Ramp
 - vi.) Safety Curb
 - vii.) Splash Strips**

* Integral or Separate to be specified.

** Monolithic or Separate.

- .2 Removal of existing asphalt material immediately in front of the curb that is required for installation will be included in the payment for the "Items of Work" listed for Concrete Curb Removal when the asphalt overlay is not identified to be removed.

4.2 Concrete Curb Installation

- .1 Concrete curb installation will be measured on a length basis and paid for at the Contract Unit Price per metre for the "Items of Work" listed here below. The length to be paid for will be the total number of metres of concrete curb or splash strip installed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

- Concrete Curb Installation
 - i.) Barrier*
 - ii.) Modified Barrier*
 - iii.) Curb and Gutter*
 - iv.) Mountable Curb*
 - v.) Lip Curb*
 - vi.) Modified Lip Curb*

- vii.) Curb Ramp*
- viii.) Safety Curb*
- ix.) Splash Strips**

* reveal height, type and reference to Standard Detail to be specified.

** reveal height, monolithic or separate, type, width and reference to Standard Detail to be specified.

- .2 The placement and compaction of asphalt material immediately in front of the curb will be included in the payment for the "Items of Work" listed for Concrete Curb Installation when the asphalt overlay is not identified to be removed.
- .3 No payment will be made for leveling course.
- .4 Base course will be paid in accordance with CW 3110.
- .5 Supply and placement of bonding grout for concrete curbs will not be measured for payment.

4.3 **Concrete Curb Renewal**

- .1 Concrete curb renewal will be measured on a length basis and paid for at the Contract Unit Price per metre for the "Items of Work" listed here below. The length to be paid for will be the total number of metres of concrete curb or splash strip removed and installed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Concrete Curb Renewal

- i.) Barrier* (**)
- ii.) Modified Barrier*
- iii.) Curb and Gutter* (**)
- iv.) Mountable Curb*
- v.) Lip Curb*
- vi.) Modified Lip Curb*
- vii.) Curb Ramp*
- viii.) Safety Curb*
- ix.) Splash Strips (**) (***)

* reveal height, type and referenced Standard Detail to be specified.

(**) renewed length to be specified.

- a.) Less than 3 m
- b.) 3 m to 30 m
- c.) Greater than 30 m

(***) reveal height, monolithic or separate, type, width and reference to Standard Detail to be specified.

- .2 All costs for removal, excavation, sub-grade compaction, leveling course and backfill materials, curb installation and boulevard grading to the limits as identified in Section 3.4 of this specification will be included in the payment for the "Items of Work" listed for Concrete Curb Renewal.
- .3 Base course will be paid in accordance with CW 3110.
- .4 For installation lengths greater than 30 metres, the length will include breaks for approaches, isolations or fixed obstacles such as light standards or poles.
- .5 Curb ramp tie bars are to be paid in accordance with CW 3230.

- .6 Supply and placement of bonding grout for concrete curbs will not be measured for payment.