
Part 1 General

1.1 RELATED REQUIREMENTS

- .1 The list of work sections in this division is indicative and non-exhaustive. It does not exclude the works described in the other specification sections, shown in the drawings or necessary for the execution of the works in keeping with overall intent of the plans.
- .2 Section 31 05 16 - Aggregate Materials.
- .3 Section 32 11 16.01 - Granular Base.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C117-04, Standard Test Method for Materials Finer than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136-05, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D260-86 (2001), Standard Specification for Boiled Linseed Oil.
 - .4 ASTM D698-00ae1, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³) (600 kN-m/m³).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-3.3-99 (March 2004), Kerosene, Amend. No. 1, National Standard of Canada.
- .3 Canadian Standards Association, (CSA International)
 - .1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .4 Government of Quebec, Bureau de Normalisation du Québec (BNQ)
 - .1 Standard NQ2520-110, Granite Curb and Bullnose.
- .5 Ville de Québec
 - .1 Devis des clauses techniques générales, Volume 1 – Conduites d'eau potable, égout et voirie, édition la plus récente.

1.3 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Inform Departmental Representative of proposed source of materials and provide access for sampling at least four weeks prior to commencing work.

- .3 If materials have been tested by accredited testing laboratory approved by Departmental Representative within previous two months and have passed tests equal to requirements of this specification, submit test certificates from testing laboratory showing suitability of materials for this project.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal :
- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Granite curb for sidewalk, « Ville de Québec » type : “Caledonia” type granite, in accordance with NQ 2520-110. Type of street curb with a top, bottom and ends that have been saw-cut, and front and back that have been guillotine-cut. The bottom part of the vertical side on each end must be chamfered.
- .2 For all other stone curb types, refer to outdoor landscaping documents.
- .3 Concrete mixes and materials for curb and sidewalk : In accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .4 Reinforcing steel : In accordance with Section 03 20 00 - Concrete Reinforcing.
- .5 Granular base : Material to Section 31 05 16 - Aggregate Materials and following requirements :
- .1 Type 2 fill.
- .2 Crushed stone or gravel.
- .3 Gradations: Within limits specified when tested to ASTM C136. Sieve sizes to CAN/CGSB-8.1.
- .6 Non-staining mineral-type form release agent : Chemically active release agents containing compounds that react with free lime to provide water-soluble soap.
- .7 Boiled linseed oil : In accordance with ASTM D260.
- .8 Kerosene : In accordance with CAN/CGSB-3.3.
- .9 Precast or cast in place concrete gutters :
- .1 Cast in place concrete gutters (as shown on the plans) :
- .1 Accepted hot-dip galvanized grid 38 mm x 3 mm :
- .1 Model 30-102 M from Fisher and Ludlow.

- .2 Materials or products alternative : approved in addendum as specified in the Instructions to bidders.
- .2 Precast concrete gutters :
 - .1 Accepted product :
 - .1 Model EN 1500 from Northstar Mea with slotted ductile iron grid F900 class.
 - .2 Materials or products alternative : approved in addendum as specified in the Instructions to bidders.
 - .2 Provide a shop drawing of the product for approval by the Engineer. The system must also include a sedimentation pit and a protection system to prevent floating objects from entering the network. The system must be installed according to the manufacturer's recommendation.

Part 3 Execution

3.1 GRADE PREPARATION

- .1 Prepare grade in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

3.2 CONCRETE SURFACE FOR SIDEWALK

- .1 Sidewalk type « Ville de Québec », with integrated granite curb : refer to « Devis des clauses techniques générales, volume 1 – Conduites d'eau potable, égout et voirie », latest edition.
- .2 Sidewalk type « Monolithique » :
 - .1 Surfaces finish :
 - .1 Concrete surface : the concrete is densified on surface with an equalizing vibrating board. The imperfections are corrected with a wood float and the roughened surface in there dragging and the surface roughened, by dragging a wet burlap. The wet burlap must be in contact with the surface on a 1200 mm minimum length.
 - .2 Edges : Along the formwork, edges are rounded into quadrants of 6 mm radius using a suitable instrument, without leaving any trace on the surface. Carborundum rub the sharp edges of exposed concrete, in a way to obtain rounded edges of 3 mm radius, unless otherwise indicated on the drawings.
 - .3 Joints : No joints is finished with a trowel on the surface.
 - .2 Construction joints :
 - .1 The location of construction joints, defining each concrete pour, must match the stated plan and be approved by the Departmental representative. The latter, if he thinks fit, can require the joints to be closer or arranged differently.

- .2 No construction joints (kerf), already stated on the plans, can be moved or removed, without prior authorization from the Departmental representative.
- .3 Immediately before resuming pouring against a construction joint or above, clean and scarify the hardened concrete surface, in order to remove any free fragments or traces of laitance, moisten the surface and let it dry in order to obtain a concrete saturated with dry surface.
- .3 Control joints in concrete surfaces :
 - .1 Perform transversal control joints at a regular distance or as indicated on the architectural plan. These joints consist of kerfs of a third of the thickness of the concrete, to be 35 mm deep by 6 mm wide. These will be performed with a kerf as soon as the concrete resistance can allow it or with a specially made saw before the concrete has begun to harden.
 - .2 Kerfs must be made between 8 to 24 hours after the pouring of the concrete.
 - .3 Control joints are filled with an appropriate self-levelling seal, color at the Departmental representative's choice, 28 days after the kerfs were performed.
- .4 Dilatation and expansion joints :
 - .1 Perform transversal dilatation joints on a regular distance of 6 000 center to center or as indicated on the architectural plan.
 - .2 Places where expansion joints are required :
 - .1 At points of temporary stoppages of work, between two (2) pours and at any interval not exceeding 6 000 mm apart or as directed by the outdoor landscaping plans.
 - .2 Place smooth studs 15M of 300 mm at every 2000 mm c/c, greased to avoid adhesion and sliding in sleeves.
 - .3 Place a flexible plank such as Rodofoam of 12 mm thick ending 15 mm away from any apparent surface and covering the rest of the concrete. Fill the rest of the joint up to the concrete surface with a self-levelling seal product, color at the Departmental representative's choice.
- .5 Isolation joints :
 - .1 At meeting points and along any rigid object or protected from freezing, such as : Au point de rencontre et le long de tout objet rigide ou protégé du gel, tels que : poles, walls, etc. or as directed by the Departmental Representative.
 - .2 Places where control joints are required :
 - .1 Place a flexible plank such as Rodofoam of 12 mm thick ending 15 mm away from any apparent surface and covering the rest of the concrete.
 - .2 Fill the rest of the joint up to the concrete surface with a self-levelling seal product, color at the Departmental representative's choice.

3.3 CONCRETE GUTTER

- .1 Pour concrete in accordance with Section 03 30 00 – Cast in place concrete of these specifications.
- .2 Install the concrete gutter as indicated on the plans. However if the Contractor opts for a precast concrete gutter, then the latter must be installed following the manufacturer/supplier's recommendations and instructions. The Contractor must use a sealant and Northstar leveling devices.

3.4 SITE TOLERANCES

- .1 Finish surfaces to within 3 mm over a distance of 3 m, as measured with 3 m straightedge placed on surface.

3.5 BACKFILL

- .1 Backfill to designated elevations with material as directed by Departmental Representative.
 - .1 Compact and shape as directed by Departmental Representative.

3.6 CLEAN UP

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION