

100 Old Chelsea Road, Chelsea, Quebec J9B 1C1

MUNICIPALITY OF CHELSEA

By-law Number 949-15 on the Implementation of Municipal Works

"In the case of a discrepancy between the French and English texts of any provisions of this By-law, the French text shall prevail"

Update No.

ADMINISTRATIVE COMPILATION

This current edition of the By-law Number 949-15 on the Implementation of Municipal Works of the Municipality of Chelsea contains all of the regulatory texts that have been adopted since its effective date of May 20, 2016. The following table illustrates the amendments made as of this date: **September 14, 2017.**

Update No.	Notice of Motion	By-law No.	Description	Effective Date
1	September 6, 2016	966-16	Allowing the progressive reduction of bonds for contract performance	October 3, 2016
2	March 6, 2017	1013-17	Provisions concerning materials, slopes and performance bonds	April 12, 2017
3	August 8, 2017	1031-17	Provisions regarding the right-of-way of rural thoroughfares, urban public utilities and acceptance of work schedules	September 14, 2017

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Chapter

DECLARATORY PROVISIONS

1.1 BY-LAW TITLE

This By-law Number 949-15 of the Municipality of Chelsea is titled "By-law on the implementation of municipal works".

1.2 BY-LAW OBJECT

This By-law aims at defining measures regarding the implementation of municipal works, namely the procedure that must be followed, required standards, as well as the different methods of payment for such work.

1.3 APPLICATION

This By-law applies to the construction of municipal works on the whole territory of the Municipality of Chelsea.

1.4 REPLACED BY-LAWS

The following By-laws and their amendments are hereby rescinded and replaced with the following By-law:

• By-law Number 894-14 enacting a policy and standards governing roads within the boundaries of the Municipality of Chelsea.

1.5 COUNCIL DISCRETION

No provision of this By-law shall be interpreted as reducing or restricting the Municipal Council's discretion to adopt By-laws aiming at ordering the performance of municipal work and at ensuring the funding of such work.

1.6 APPENDED DOCUMENTS

The following documents are an integral part of this By-law to any purpose whatsoever:

APPENDIX A: Plan of the urban area (urbanization perimeter)

APPENDIX B: Municipal road construction standards

APPENDIX C: Private road construction standards

APPENDIX D: Authorized materials for the construction of municipal works

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1.7 VALIDITY

The Council is adopting this By-law as a whole and one part at a time, one chapter at a time, one article at a time, one paragraph at a time, one subparagraph at a time and one provision at a time to ensure that if a part, an article, a paragraph, a subparagraph or a provision thereof is or should be declared void, other provisions of this By-law will continue to apply.

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Chapter

INTERPRETATION RULES

2.1 TEXT INTERPRETATION

Titles used in this By-law are an integral part thereof to any purpose whatsoever. In case of contradiction between the text and its titles, the text shall prevail.

- **a.** Verbs used in the present tense also include the future;
- **b.** The singular includes the plural, and vice-versa, unless the phraseology implies that this is impossible;
- c. The use of the verb "MUST" or "SHALL" indicates an absolute obligation; the word "CAN" indicates an option;
- d. The word "ANYONE WHATSOEVER" refers to any moral or physical person;
- e. The word "MUNICIPALITY" refers to the Municipality of Chelsea;
- f. The word "COUNCIL" refers to the Municipal Council;
- **g.** A uniform numbering system was used throughout the By-law. The first number refers to the chapter of the By-law, the second number, to the section of this chapter, the third number, to the subsection, the fourth number, to the article of the subsection. For example, these subdivisions are numbered as follows:

1.	CHAPTER
1.5	SECTION
1.5.1	Subsection
1.5.1.1	Article

Any measure mentioned in this By-law is expressed in the International System of Units (SI) (metrical system).

2.2 TABLE INTERPRETATION

Tables, diagrams, specifications grids, graphs, symbols and any other forms of expression other than the text as such and to which it is referred to in this By-law are an integral part thereof to any purpose whatsoever.

In case of contradiction between the text and tables, diagrams, graphs, symbols and other forms of expression, the text will prevail. In case of contradiction between a table and a graph, graph data will prevail.

In the event that the restrictions or prohibitions defined in this By-law or in any of its provisions prove to be inconsistent **3**

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with or contradict any other provision of this By-law, the most stringent provision shall apply.

2.3 TERMINOLOGY

Unless the context reveals a different meaning, expressions and words listed below shall mean and designate the following:

SUBDIVISION PROJECT BRIEF - Series of plans and documents presenting all items required for the study and approval of a subdivision project by the Municipality in accordance with urban planning By-laws.

DRIVING SURFACE - Rolling surface of vehicles on a road, not including shoulders.

ROAD - Public or private traffic path developed in a right-of-way to allow moving vehicles.

MAIN ROAD - Road used mainly for intense and high speed circulation. This type of road is used mainly for transit traffic between major centers. Their predominant function consists in ensuring a rapid and continuous flow of circulation between two sectors on the municipal territory.

MAIN COLLECTOR ROAD - Road serving collector roads in a district. These roads are used to serve shorefront lands and to allow circulating between local roads and main roads.

DISTRICT OR LOCAL COLLECTOR ROAD - Road that mainly aims at serving shorefront roads where the layout, stops, low speed and local circulation are such that transit vehicle have no interest in using them.

MUNICIPAL ROAD - Public road that belongs to the municipality.

PRIVATE ROAD - Circulation road on a private property that is located within the right-of-way of a distinct lot and registered to that purpose in order to allow vehicles to circulate. Any new private road must be built in accordance with applicable standards governing the construction of private roads. Such road must serve at least two (2) distinct lots and a maximum a three (3) distinct lots. This definition does not include cart ways, the delineation of a right-of-way or the delineation of an easement of way.

ROAD RIGHT-OF-WAY - Land area allowing the passage of a road or of any other circulation road. This term also refers to the limits or to the perimeter of this land area.

IMPORT FILL - Designates materials used to build a road that come from outside of the road right-of-way. Two types of borrow material are used as filling material:

Class A - sand: import fill of a better quality than class B. This material is generally used as a granular cushion or capping layer.

Class B - May contain fine particles in high volumes in addition to being sensitive to freezing. Used as filling material for the infrastructure. Refer to standards of the Department of Transportation regarding acceptable grain size limits.

CART WAY - Designates an access to a sidewalk or to a road in order to allow the circulation of vehicles between the public road and the private property.

CONSULTANT - Member of the Ordre des ingénieurs du Québec or of the Ordre des Technologues Professionnels that is duly recognized in the field of municipal work construction.

LOWER SUBBASE - Designates the gravel or crushed stone layer placed on the subbase layer.

UPPER SUBBASE - Designates the gravel or crushed stone layer placed on the lower subbase. This layer supports traffic or the pavement.

DIVISIONAL ISLAND - Designates a space created in the center of the rolling surface, at an intersection in order to physically separate opposed circulation lanes and to create left turning lanes.

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DIVERTING ISLAND - Designates a space created in the rolling surface, at an intersection in order to guide converging or diverging circulation flows.

INFRASTRUCTURE - Designates all earthworks that support the driving surface and its shoulders and that is limited by the infrastructure line. The infrastructure line is the limit located immediately below the structure, i.e. below the capping layer.

MUNICIPALITY - Designates the Municipality of Chelsea.

PARK AND PLAYGROUND - Designates a land area used for recreation, relaxing or sport. The park sometimes contains community equipment.

PROJECT SERVICE PLANS - Designates a plan or a series of plans showing the service concept of a whole project in terms of aqueduct, sanitary sewer, storm sewer, surface drainage, paving, sidewalks, typical road, pedestrian path, road lighting, signaling (traffic lights, etc.) and public utilities while taking into account the integration of the project into the municipal planning context and in accordance with municipality service development plans, if applicable.

APPLICANT - Designates any individual, partnership, group of people, moral person or association asking the Municipality to perform municipal work or work performed by one of them in order to serve one of several lots on which any such person proposes to erect one or more buildings and who, to that same purpose, offers to build them itself and to transfer them free of charge to the municipality once they are completed. This term also designates the contractor when that same person signs an agreement in accordance with the By-law regarding agreements in force on municipal work and presents a request in accordance with this By-law.

AQUEDUCT NETWORK - Designates the whole system of water pipes and equipment that is used mainly to provide drinking water to buildings and to fight fire and, without limiting the generality of the above, the aqueduct network includes valves, valve boxes or chambers, air and water vent valves, fire hydrants and pressure reduction stations, boosters, the line reservoir and network connectors.

STORM SEWER SYSTEM - Designates the piping network including network connectors that contain and carry rainwater, runoff, and snow melt. This network includes sewer manholes, catch basins and culverts whenever necessary.

SANITARY SEWER SYSTEM - Designates the piping system that contains and carries waste water and that includes manholes, pumping stations and network connectors.

STREET - Designates a local traffic lane (local service lane) allowing vehicles to access riparian land areas that are equipped or not with curbs and sidewalks. A street can be public or private.

SERVICED AREA - Designates an area serviced by a collective aqueduct and sewer network.

PARTLY SERVICED AREA - Designates an area serviced by a collective sewer network.

UNSERVICED AREA - Designates an area that is not serviced by a collective aqueduct and sewer network.

RURAL SECTOR - Designates any part of the municipality territory that is located outside of the urban planning perimeter of the Centre-Village sector.

URBAN SECTOR - Designates any part of the municipality territory that is located within the urban planning perimeter of the Centre-Village sector as indicated on the plan shown in appendix A.

CAPPING LAYER - Designates a class A borrow material that is used below the lower foundation and that usually serves as a cushion between the natural soil and the foundation.

ROAD STRUCTURE - Designates the series of material layers located above the infrastructure to support vehicles.

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MONITORING - Designates a complete monitoring process that is performed by office engineers with a work site residence.

PERMIT HOLDER - Designates the person holding a construction or a parceling permit or an authorization or occupation certificate issued by the municipality and having entered with the municipality into an agreement in accordance with the applicable By-law on municipal work agreements. This term also designates the applicant when the same person fills a request in accordance with this By-law and signs an agreement in accordance with the By-law on municipal work agreements.

MUNICIPAL WORK - Designates any work performed on municipal infrastructures and equipment that will become public and that belongs to one of the following two categories:

- All road construction and development works starting with the initial felling of trees and until paving, including the installation of lights and signals, as well as all steps in between, namely drainage work, ditches, culvert construction and development, bridge construction, all work on the storm drainage system and other drainage equipment in order to allow water to reach a lake or a creek;
- All construction works, aqueduct and sewer piping, including all work needed to ensure the good operation of networks, such as pumping stations, pressure reduction stations, etc. as well as the installation of fire hydrants;
- All development works regarding parks, playgrounds and green spaces.

PHASE "A" MUNICIPAL WORKS - Designate, for the serviced sector, sanitary and storm sewer networks, stabilization work needed to control erosion and, if necessary, rainwater retention and management work, road foundations, road drainage as well as any drainage required beyond the road, the pavement base layer and signage in addition to aqueduct, sanitary and storm sewer connections up to the limit of the road right-of-way and the aqueduct service post, the development of parks, the burying of public utility networks, as well as the relocation of existing public utility networks.

For the partly serviced sector, phase A municipal works include sanitary (if applicable) and storm sewer networks, stabilization work needed to control erosion and, if necessary, rainwater retention and management works, road foundations, road drainage as well as any drainage required beyond the road, the pavement base layer and signage in addition to aqueduct, sanitary and storm sewer connections up to the limit of the road right-of-way, the development of parks, the burying of public utility networks, as well as the relocation of existing public utility networks.

For the unserviced sector, phase A municipal works include the road foundations, road drainage, culverts as well as any drainage required beyond the road, the pavement base and wear layer, signage and lighting whenever required, the development of parks, as well as the relocation of existing public utility networks.

PHASE "B" MUNICIPAL WORKS - Designate, for the serviced and partly serviced sectors, the pavement wear layer, sidewalks, curbs, speed reduction measures, landscaping of retention basins, pedestrian crossings, recreational paths, fences, earth platforms, divisional islands, deviation islands, lighting with underground or above ground power supply, marks on the driving surface and traffic lights.

For the unserviced sector, phase "B" municipal works include the pavement wear layer and marking

OFF-SITE WORKS - Designate developments and improvements needed at road intersection leading to the project location, as well as the installation of traffic lights in accordance with requirements and with the schedule of the

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ministère des Transports du Québec (MTQ) or of the municipality. The municipality reserves the right to demand financial guarantees to that purpose.

PUBLIC UTILITIES - Designate companies that provide a public service such as gas, electricity, phone, cable, etc.

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Chapter

3

OFFICER IN CHARGE

3.1 OFFICER IN CHARGE

The director of Public Works and Infrastructures, as well as any other officer in charge designated to that purpose are responsible for the application of this By-law, but more specifically for the issuance of permits.

3.2 DUTIES AND POWERS OF THE OFFICER IN CHARGE

The officer in charge, his representative or his duly authorized assistants control and monitor the following tasks through the powers vested in them:

- **a.** The officer in charge issues all work permits required in accordance with this By-law. The OIC refuses any permit for work that does not comply with this By-law;
- **b.** The officer in charge inspects or visits any construction project when the application of this By-law so requires. Owners of visited locations must admit the officer in charge or his representatives and/or answer their questions regarding the application of this By-law;
- **c.** The officer in charge notifies the permit holder of any construction planned or under progress that contravenes this By-law;
- **d.** The officer in charge must take all necessary measures to ensure the security of risk areas on the construction site;
- **e.** The officer in charge must keep records on received permit requests and issued permits up to date, including inspections and tests that are performed, reports prepared and received; in addition, he must keep a copy of all papers and documents related with his duties.

3.3 INSPECTION

When performing his duties, the officer in charge is entitled to visit and examine any construction to confirm visually that provisions of this By-law are complied with.

3.4 LIMIT OF THE ROLE OF THE OFFICER IN CHARGE

The officer in charge must answer any relevant question regarding these requirements. However, except for general design information, the officer in charge shall not take part in the elaboration of plans or act as an engineering consultant.

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3.5 SPECIFIC POWERS OF THE OFFICER IN CHARGE

When performing his duties, the officer in charge can, more specifically but not in a restrictive way, regarding the application of the By-law on the performance of municipal work:

- **a.** Issue a written notice to the permit holder to force him to rectify any situation considered as a violation of this By-law;
- **b.** Order the suspension of work that violates this By-law or that is dangerous;
- **c.** Order the testing of a material, a device, a construction method, a functional and structural construction item or a condition of foundations at the owner's or at the applicant's cost;
- **d.** Demand the permit holder or the applicant to provide at his own cost a sufficient proof that a right-of-way, a slope, a material, a construction device or a structure comply with this By-law;
- **e.** Revoke or refuse to issue a permit when tests mentioned in paragraph c) turn out unsatisfactory or when the proof mentioned in paragraph d) is not sufficient;
- **f.** Revoke a permit in case of violation of one of the provisions of this By-law or of one of the conditions listed in the permit;
- **g.** Undertake legal proceedings against anyone violating any provision of this By-law and issue any tickets to that purpose.

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Chapter

MUNICIPAL WORK APPROVAL PROCEDURES

4.1 MUNICIPAL WORK REQUEST PROVISIONS

4.1.1 Purpose of the request

The request aims at getting the Municipality's authorization to perform municipal work.

Said request is presented to the Public Works and Infrastructure Department to be studied in accordance with provisions of this By-law and in order to enter into an agreement regarding the performance of municipal work in accordance with provisions of the By-law on agreements in force regarding municipal work.

The request must be approved by the Public Works and Infrastructure Department in accordance with municipal standards.

4.1.2 Contents of the request

The duly dated request must contain the following information:

a. General information

- 1) Applicant's name, address and phone number;
- 2) Copy of the subdivision project brief as approved by the Council;
- 3) Method of payment and warranties provided for in the municipal work agreement;
- 4) Name of the consulting firm proposed by the applicant to prepare plans and specifications and to ensure the monitoring of work;
- 5) Work estimate prepared by the consultant;
- 6) Name of laboratory proposed for the qualitative control of materials.

b. Master service plan of the project

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The project service plan is needed for project start-up. This plan aims at ensuring the integration into the existing municipal work network. This plan must meet the following requirements:

- 1) Cover the whole project scope;
- 2) Upon request from the Public Works and Infrastructure Department, it must also take into account service constraints downstream or upstream of the project, as well as on neighboring plots;

The project service plan must contain the following information:

- 1) Topography, actual service, general information on surrounding properties;
- 2) Road grid indicating right-of-ways, parks, pedestrian crossings, subdivisions, as well as any aqueduct or sewer conduit;
- 3) Any booster or pumping station as well as their projected capacity;
- 4) Any easement needed for the passage and maintenance of municipal works, except for driving surfaces, as well as for surface water flow;
- 5) The direction of flow of gravity pipes and of the main drainage system.
- 6) Control points and critical points of each piping network;
- 7) Location required volumes and planned areas for retention basins in accordance with the MDDELCC Rainwater Management Guide;
- 8) Any stream, brook, existing ditch on project site;
- 9) Any ditch, trench work or derivation mound needed for the major drainage network;
- **10)** Any work that is oversized or that will benefit third party riparian owners, to be built by the permit holder;
- **11)** The specific determination of land areas concerned by oversize works or by work to the benefit of others;
- **12)** Public utilities;
- **13)** Any other information or document considered necessary by the officer in charge in order to give a clear picture of the proposed projects.

c. Other documents

- 1) Plans for approval to be signed and sealed by an engineer, including civil engineering plans, the drainage plan and the sign plan;
- 2) Specs signed by an engineer;
- **3)** Estimate signed by an engineer;
- 4) Certified letter.

Plans in two paper copies (one for each step of the process) must be signed and sealed by an engineer who is a member of the Ordre des Ingénieurs du Québec. The Public Works and Infrastructure Department of the Municipality will

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determine the plan scale based on the density of information and on the project scope with regards to a topographic plan. Digital files of these plans shall be provided to the Municipality in .pdf and .dwg formats.

4.1.3 Applicant's obligations

The applicant must respect and comply with requirements of this section, as well as with provisions, terms and conditions provided for in the By-law in force on municipal work agreements.

The applicant must, among others:

- **a.** Have a subdivision project brief approved by the Council;
- **b.** Have a subdivision permit issued by the Urban Planning and Sustainable Development Department;
- **c.** Ensure that lots being part of the projected development are registered;
- **d.** Provide the Municipality with the name of the consulting firm that will monitor work with residence on the working site, including public utilities burying works;
- **e.** Provide the Municipality with all documents needed in order to sign the municipal work agreement protocol;
- **f.** Provide the Municipality with all documents needed in order to approve the municipal work request and permits.

4.1.4 Plan modifications

The officer in charge must propose needed modifications to the applicant, whenever necessary, to ensure that the project master service plan, as well as construction plans and specifications, comply with municipal By-laws. The issuance of construction permits will be delayed until required modifications have been performed.

4.1.5 Issuance of construction permits for municipal work

Any permit application must be presented in writing to the officer in charge on forms provided to that purpose by the Municipality and in accordance with provisions of By-law no. 639-05 regarding permits and certificates.

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Chapter 5

PERMIT HOLDER'S RESPONSIBILITIES AND OBLIGATIONS

The granting of a permit, the approval of plans and specifications and inspections performed by the officer in charge do not relieve the permit holder of his responsibility to perform work or to have work performed in accordance with this By-law and with other applicable By-laws and laws.

5.1 GENERAL PROVISIONS

The Permit holder is considered as being responsible and in charge of work planning. He is fully responsible for performing or for having performed all municipal work in accordance with municipal By-laws. Any work may not begin before the issuance of a building permit.

Any permit holder must:

- **a.** Obtain all permits or authorizations required by concerned authorities before planned construction work may begin;
- **b.** Before the beginning of municipal construction work, the Permit holder must present the Municipality for acceptance plans and specifications, excavation site plans, as well as cost estimates together with a consultant's certification of conformity of specifications with municipal and provincial standards. The approval of plans and devices by the MDDELOC is required once the Municipality has approved them. Permits issued by the Municipality as mentioned in the above paragraphs must be interpreted in no time as acknowledging the conformity of plans and specifications with standards defined in the By-law, with civil engineering standards recognized in the field, as well as the accuracy compared to existing infrastructures, said conformity and said accuracy remaining the responsibility of the Consulting Firm hired by the applicant to prepare and to elaborate them;;
- **c.** Provide the Municipality with the name of the construction contractor who must build construction works;
- **d.** Submit, subject to the written acceptance by the Municipality, any applicant's substitution when granting the plans and specifications contract, the construction contract or the work monitoring contract;
- **e.** Perform work in full compliance with approved plans and specifications without making any modification, unless previously approved in writing by the officer in charge;
- f. Give the Municipality, its officer in charge, its employees or its agents access at all times to works being

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prepared or performed in order to ensure that said works are installed in accordance with plans and specifications and that they are in good operating conditions. In addition, the Municipality must take part, together with the Permit holder, in the work inspection process before their provisional acceptance;

- **g.** Ensure that plans and specifications corresponding to the permit are available at all times on working premises during working hours to the purpose of their inspection by the officer in charge and that the permit or a certified copy of the permit is posted clearly on the work site throughout the whole duration of said work;
- **h.** Perform of have performed at its costs any required tests and inspections proving that work was performed in accordance with By-laws. The Permit holder must send without delay to the officer in charge a copy of all test and inspection reports.
- i. Pay for the repair of all damages caused to the public domain or to works located in the public domain that may result from work that must be performed with a permit according to this By-law;
- **j**. Deviate in no time from requirements of these By-laws or from permit conditions or omit required work without having obtained a prior written authorization from the officer in charge;
- **k.** Present a written notice to the officer in charge within thirty (30) days following the conclusion of work described on the permit, if applicable;
- I. Ensure that no other excavation work or else is performed on the public property, that no building is erected and that no material is stored before the concerned management has given its written consent;
- **m.** Perform work listed in the agreement entered into with the Municipality in accordance with the By-law in force regarding municipal work agreements within the time allowed and, in default thereof, pay the compensation that is provided for;
- **n**. Pay all costs related with municipal work in accordance with the By-law in force regarding municipal work agreements;
- **o.** Make no modification to existing aqueduct, as well as sanitary and storm sewer works unless having obtained previously a written authorization from the Municipality;
- **p.** Pay all costs related with necessary developments and improvements at the intersection of the project access road, as well as with the installation of traffic lights in compliance with requirements and deadlines of the ministère des Transports du Québec (MTQ) or of the Municipality.

5.2 CONTRACTS, WARRANTIES AND INSURANCE POLICIES

5.2.1 Selected contractor's liability insurance policy

The Permit holder must present the Municipality with a copy of contracts, warranties and insurance policies that he is given, if applicable, by the contractor selected to perform work or by any other person that performs part of this work on behalf of the contractor.

The Permit holder must present the Municipality with a copy of the civil liability insurance policy with a minimum value of two million dollars (\$2,000,000) per event as provided for by the contractor selected to perform work. This insurance policy must be maintained in force until the final reception of work.

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5.2.2 Performance bond

The Permit holder must, upon signing the agreement, provide the Municipality with a performance bond representing 50% of the total contract value, including the value of contractor's obligations with regards to pledges, materials and services equal to 50% of total contract cost, including all taxes.

In the specific case when the Permit holder, with the Municipality's agreement, wishes to begin the construction of buildings before the provisional acceptance of work, the Permit holder must, upon signing said agreement, provide the Municipality with a performance bond equal to 100% of total contract cost, including the value of contractor's obligations with regards to pledges, materials and services equal to 100% of total contract cost, including all taxes.

Said insurance policies must be provided by the Permit holder or by his contractor responsible for performing work and the Municipality must be named as co-beneficiary. No municipal permit, including a subdivision permit, can be issued before the letter of guarantee is submitted in favor of the Municipality.

This guarantee must be provided as a bond by an insurance company authorized to stand surely in accordance with Quebec laws and having a place of business in Quebec, through a financial services cooperative in accordance with the Act respecting financial services cooperatives (R.S.Q. c. C-67.3) or by a bank in accordance with the Bank Act (L.C. 1991 C-46), either through a certified check, money order, bank draft, bonds payable to bearer and issued or guaranteed by the government of Quebec or the government of Canada with a maturity of no more than five (5) years. This bond must cover to the benefit of the Municipality, among others, any debt that would be owing to:

- A subcontractor of the contractor;
- Any person, company or corporation having sold or rented to the contractor or to one of his subcontractors, services, materials or equipment intended exclusively for work provided for in the eventual agreement;
- Any supplier of materials specially prepared to perform work provided for in said agreement;
- The Commission de la santé et de la sécurité du travail with regards to contributions;
- Any professional having provided services within the framework of said agreement.

This guarantee remains in force until the MUNICIPAL WORKS OF PHASE "A" are completed and provisional acceptance is given. ⁽²⁾

Upon provisional acceptance of the MUNICIPAL WORKS PHASE "A", the Contractor must file a letter of guarantee covering 115% of the costs of the MUNICIPAL WORKS PHASE "B", as well as the other costs associated with carrying out this second phase of the work, including professional fees, decontamination fees for the unpaved foundation and professional monitoring and laboratory fees and all applicable taxes. ⁽²⁾

This guarantee remains in force until the final acceptance of the works is given and the said works are transferred to the Municipality. ⁽²⁾

If the Permit holder does not comply with his obligations and does not remediate such non-compliance within a thirty (30) day period after receiving a notice from the Municipality, he may, without any further notice, avail itself of any right and recourses resulting from such a guarantee immediately before it expires. The Municipality may also suspend work at

(2) Introduced by By-law Number 1013-17 (effective April 12, 2017)

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⁽²⁾ Amended by By-law Number 1013-17 (effective April 12, 2017)

Permit holder's expenses until all costs have been paid. In a case of force majeure or constraints imposed by Municipality provisions or by third party provisions, this period is extended by the duration of this force majeure or this constraint insofar as the Permit holder maintains the performance bond in force for the Municipality. Said extension is no longer effective if the Permit holder does not renew the guarantee at least thirty (30) days before its expiry.

When renewing any performance bond, the Municipality may, at its discretion and upon receiving related supporting documents, reduce the bond amount and allow the issuer of a performance bond to reduce the latter by amounts equal to payments made to contractors as mentioned on a receipt presented by contractors to the Municipality upon request from the Permit holder. In such case, the Municipality will issue to the bond issuer a discharge to an amount equal to the receipt within ten (10) days following the reception by the Municipality of the official request from the Permit holder.

Notwithstanding the foregoing, the Municipality may, in the performance of municipal works for which a performance guarantee of 100% of the cost of the works has been required, reduce the obligation assumed by the issuer of a performance guarantee amounts equal to payments made to contractors work as certified by the presentation of a receipt of such contractors to the Municipality, all at the request of the Permit holder, a maximum interval of thirty (30) days. If necessary, the Municipality shall send a discharge of an amount equivalent to the receipt to the warranty issuer within thirty (30) days of receipt by the Municipality of the Permit holder's formal request. The application for reduction may be granted only for works whose total cost of the work exceeds 2,500,000 and the total amount of the reduction may not exceed 75% of the total cost of the work. (1)

If, during the contract award or work performance process, preliminary estimates are less than real costs, the Permit holder agrees to ask for an additional commitment letter if necessary to increase the amount of a performance bond in order to maintain the Municipality's protection.

If work is performed outside of the working site, the bond must amount to 100% of work costs. A bond letter must be maintained continuously in force until the perfect completion of all planned work.

5.2.3 Quality guarantee upon provisional acceptance

In order to obtain the provisional acceptance of work by the Municipality, the Permit Holder must deposit an unconditional and irrevocable bank letter of guarantee ensuring the quality of phase A work for a period of two (2) years. Said bond must be equal to 5% of work cost. This bank letter of guarantee may be replaced with a certified check, a money order, a bank draft or bonds payable to the bearer or issued or guaranteed by the government of Quebec or the government of Canada with a term not exceeding five (5) years.

5.2.4 Quality guarantee upon final acceptance

In order to obtain the final acceptance of work by the Municipality, the Permit Holder must deposit an unconditional and irrevocable bank letter of guarantee ensuring the quality of stage B work for a period of two (2) years. Said bond must be equal to 5% of work cost. This bank letter of guarantee may be replaced with a certified check, a money order, a bank draft or bonds payable to bearer or issued or guaranteed by the government of Quebec or the government of Canada with a term not exceeding five (5) years.

5.3 ROAD SIGNS AND SAFETY

The Permit holder is responsible for the implementation of any road signs and road safety items required according to applicable laws, By-laws and standards. Road signs and safety items for new works must be designed by an engineer and

(1) Introduced by By-law Number 966-16 (effective October 3, 2016)

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presented together with plans and specifications.

5.4 WORK MAINTENANCE

The Permit holder agrees to maintain at all times and no matter the season municipal works built until property rights are transferred to the Municipality. This includes summer maintenance (grading, dust control, ditch and culvert maintenance, etc.) and winter maintenance (snow and ice removal, etc.).

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Chapter

PROVISIONAL AND FINAL ACCEPTANCE OF MUNICIPAL WORK

6.1 PROVISIONAL ACCEPTANCE

Within thirty (30) days following the end of work, the Permit Holder's engineering consultant will call a job meeting to ensure that a stage A work inspection is performed in presence of the Permit Holder and of the Municipality in order to identify work structures that must be corrected or redone.

The Municipality will proceed with the provisional acceptance of build municipal works only during the period from April 1st to November 1st and once the following aspects have been complied with:

- a. Applicable laws, By-laws and standards.
- **b.** Entire agreement regarding municipal work.
- c. <u>Provision of as-built plans</u>.

Before the provisional acceptance of STAGE A MUNICIPAL CONTRUCTION WORK and when public utilities networks are buried, the Permit holder must get the approval of a summary plan indicating municipal work and public utilities networks with QPCS geodesic references (Quebec planar coordinate system) on a computer file.

Any acceptance given as mentioned in the preceding paragraph shall apply strictly to the form of the summary plan presented by the applicant while said approval shall in no time be interpreted as applying to the summary plan contents with regards to standards listed in the By-law, to generally recognized civil engineering standards in the field, as well as to their exactness compared to existing infrastructures. The company hired by the applicant to prepare the summary plan will be responsible for the above.

As soon as STAGE A MUNICIPAL CONTRUCTION WORK has been completed, the Permit holder shall present the Municipality with as-built and installed plans of said municipal work, as well as with project earthwork plans in the form of two paper copies, in the georeferenced AutoCAD format and in .pdf format at plan scale for each leaflet.

The permit holder must indicate on plans the geodesic location of all work performed and of built items such as public utilities networks, when buried, with QPCS references on a computer file, as well as a report from the

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engineering firm certifying that work was performed in accordance with plans and specifications.

- d. Copy of lab reports regarding quality control.
- e. <u>Reception of provisional acceptance letter from the engineer representative</u>.

When work is performed in accordance with plans and specifications, the consulting engineer hired by the Permit holder issues a certificate of conformity of work with plans and specifications together with a television inspection report of sanitary and storm sewers and an aqueduct network pressure report signed by a firm recognized in this field of activity and in accordance with provisions stipulated by the Municipality.

f. Correction of discrepancies detected by the engineer representative or by the Municipality.

After receiving from the Municipality a notice stating that municipal works do not comply with standards and must be modified, adjusted or repaired, the Permit holder must, within forty-eight (48) hours after receiving such a notice, perform or have performed required modifications, repairs or adjustments in accordance with Municipality requirements throughout the warranty period mentioned in this section.

In case of non-compliance with the above-mentioned deadline, the Municipality may have work performed as provided for in the performance bond letter.

- g. Reception of a copy of statutory declarations and discharges from the general contractor.
- **h.** Deposit of a letter of warranty equal to the full value of STEP B MUNICIPAL WORK, including other costs related with this second step, professional fees and all applicable taxes.

In addition, the Permit holder must provide the Municipality, upon the provisional acceptance of work, with an irrevocable bank letter of guarantee representing five per cent (5%) of the contract cost granted to the contractor responsible for performing work.

This irrevocable bank letter of guarantee can be replaced with a certified check issued to the Municipality. This letter guarantees that step A works will be maintained in good operating condition and will be confiscated to allow the performance of repairs or of corrections that become necessary.

This letter is kept by the Municipality for a period of two (2) years following provisional acceptance.

6.2 FINAL ACCEPTANCE

Within thirty (30) days following the end of work, the Permit holder's engineering consultant shall convene a field meeting to have a step B work inspection performed in the presence of the Permit holder and the Municipality to identify work that must be corrected or redone.

The Municipality shall proceed with the final acceptance of the municipal works during the period of the 1st of April to the 1st of November, minimum twelve (12) months following the provisional acceptance and when the following elements will be respected: ⁽³⁾

- **a.** Compliance with any applicable law, By-law or standard.
- **b.** Compliance with the whole agreement governing municipal work.

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⁽³⁾ Amended by By-law Number 1031-17 (effective September 14, 2017)

- **c.** Provision of as-built plans.
- **d.** Reception of the final acceptance letter written by the engineer representative and certification of work conformity with plans and specifications.
- e. Correction of discrepancies detected by the engineer representative or by the Municipality.

During the final acceptance of work, the Permit holder shall provide the Municipality an irrevocable bank letter of guarantee representing five per cent (5%) of the contract cost granted to the contractor responsible for performing work.

This irrevocable bank letter of guarantee can be replaced with a certified check issued to the Municipality. This letter guarantees that the work will be maintained in good operating condition and will be confiscated to allow the performance of repairs or of corrections that become necessary.

This letter is kept by the Municipality for a period of two (2) years following provisional acceptance.

6.3 ASSIGNMENT AND EASEMENTS

6.3.1 Assignment of municipal work and easements

Once the final acceptance has been obtained for municipal work, the cadastral map has been officially deposited with the ministère de l'Énergie et des Ressources naturelles in Quebec and property taxes collected for properties surrounding built municipal works allow the entire recovery of maintenance costs, the Permit holder accepts and agrees to transfer to the Municipality at his cost, for the amount of one dollar (\$1.00), the right-of-way for streets, roads, parks, pedestrian trails within thirty (30) days, with a legal guarantee and free from any municipal or school taxes or from municipal rates. Transfer costs of the property (notarial costs, land surveyor, engineer, etc.) shall be paid by the Permit holder.

6.3.2 Assignment of aqueduct, sewer and electricity network easements

As soon as the Municipality has confirmed final work acceptance, the Permit holder shall grant an easement of way and maintenance for aqueduct, sewer and electricity (public lighting) networks.

6.3.3 Assignment of warranty obligations of any contractor

The Permit holder assigns to the Municipality the benefit of warranty obligations granted by any contractor in accordance with specifications and provides a copy of such contracts and corresponding warranties to the Municipality.

6.4 ISSUANCE OF PERMITS⁽²⁾

Construction permits for buildings or structures or site preparation permits may be issued following the provisional acceptance of work and once the Permit holder has agreed in writing to perform corrective work requested upon provisional acceptance if such corrective work is necessary.

In the specific case when the Permit holder wishes to begin construction work of buildings before provisional acceptance and with the Municipality's agreement, the Permit holder must, upon signing the agreement, provide the Municipality with a performance bond representing 100% of contract total cost and guarantee contractor's obligations regarding pledges, materials and services representing 100% of contract total cost, including all taxes. Said insurance policies must be provided by the Permit holder or his contractor responsible for performing work with the Municipality being designated as co-

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⁽²⁾ Amended by By-law Number 1013-17 (effective April 12, 2017)

beneficiary. No municipal permit, including subdivision permits, can be issued before the letter of guarantee is deposited with the Municipality.

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Chapter

STANDARDS GOVERNING MUNICIPAL WORKS

7.1 GENERAL

This chapter aims at establishing minimum design, planning and construction standards governing municipal work on the territory of the Municipality.

Specifications and standards listed in this chapter in no way relieve the designer from his responsibility to perform required calculations to ensure the adequate performance of works to be built. In case of discrepancy between standards and specifications of this By-law and any applicable law or instruction, the most severe or the safest standard shall apply. In case of a conflict between a promoter and the Municipality man regarding the interpretation of this By-law, the promoter shall provide the Municipality with the advice of an engineer hired at his cost. Said advice shall be based on construction and design standards as described in this By-law.

Municipal and private roads located within the Municipality and standards governing their construction are listed in the *Book of municipal and private road construction standards for the Municipality of Chelsea* as specified in appendices B and C of this By-law.

Any new road construction project within the urban sector must include the installation of aqueduct, sanitary and storm sewer networks, except for unserviced sectors located within the urban planning perimeter. Any new road construction project in the unserviced urban sector must include the installation of storm sewers.

Generally speaking, the implementation of municipal work must take place in compliance with federal, provincial and municipal laws and By-laws, namely standards of the Quebec Ministry of Transport (QMT), of the Quebec Ministry of Sustainable Development, Environment and the Fight against Climate Change (QMSDEFCC), standards of the Bureau de normalisation du Québec (BNQ) and state-of-the-art procedures. More specifically, municipal work must be performed, without limitation, in accordance with the following standards:

- **a.** This By-law;
- **b.** By-law Number 930-15 Private connections to the aqueduct and sewer of the Municipality of Chelsea;
- **c.** Road work, volumes I to VIII of the Quebec Ministry of Transport;
- **d.** Quebec Highway Safety Code, R.S.Q. c. C-24.2;
- Standard specifications BNQ 1809-300/2004 (R2007) : Construction work General technical clauses
 Drinking water and sewer lines;

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- **f.** Instruction man regarding water catchment and distribution (Instruction no. 1) of the Quebec Ministry of Sustainable Development, Environment and the Fight against Climate Change (QMSDEFCC);
- **g.** Instruction regarding water networks (Instruction no. 004) of the Quebec Ministry of Sustainable Development, Environment and the Fight against Climate Change (QMSDEFCC);
- **h.** Cahier des charges et devis généraux Infrastructures routières Construction et réparation (produced and published by the Quebec Ministry of Transportation);
- i. Standard specifications BNQ 1809-500/2006 : Construction work Concrete sidewalks and curbs;
- **j.** Technical clauses on televised inspections:
 - 1) CERIU / NASSCO agreement;
 - **2)** PACP and MACP certification programs.

Any reference to By-laws, standards, directions or laws within this By-law necessarily refers to the latest version.

7.2 AQUEDUCT NETWORK AND SANITARY AND STORM NETWORKS

7.2.1 Aqueduct network

The aqueduct system must be in compliance with BNQ standard specifications 1809-300 and with Instruction no. 1 of the QMSDEFCC. Said system must be made of materials approved by the Public Works and Infrastructure Department of the Municipality as indicated in appendix D.

The minimum conduit diameter must be two hundred millimeters (200 mm) and the minimum branch diameter must be twenty millimeters (20 mm).

Fire hydrants must comply with BNQ standard specifications and spaced in accordance with recommendations of the Insurers' Advisory Organization Inc.

7.2.2 Sanitary sewer network

The sanitary sewer system must be in compliance with BNQ standard specifications 1809-300 and with Instruction no. 4 of the QMSDEFCC. Said system must be made of materials approved by the Public Works and Infrastructure Department of the Municipality as indicated in appendix D.

In spite of the above paragraph, the minimum conduit diameter must be two hundred millimeters (200 mm) and the minimum branch diameter must be one hundred and twenty five millimeters (125 mm).

The minimum distance allowed between two sanitary sewer manholes is one hundred meters (120 m), not including collectors.

7.2.3 Storm water sewer network

The storm water sewer system must be in compliance with BNQ standard specifications and with the storm water management guide of the QMSDEFCC. Said system must be made of materials approved by the Public Works and Infrastructure Department of the Municipality as indicated in appendix D.

In spite of the above paragraph, the minimum conduit diameter must be three hundred millimeters (300 mm) and the minimum branch diameter must be one hundred millimeters (100 mm).

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The minimum distance allowed between two sanitary sewer manholes is one hundred meters (120 m), not including collectors.

7.3 TRAFFIC LANES

7.3.1 Road classification

The classification of new roads on the territory of the Municipality is as defined in the Municipality subdivision bylaw based on the right-of-way width.

7.3.2 Road profile

Specifications of municipal and private road located within the Municipality are defined in appendices B and C of this By-law.

7.3.3 Road foundations

The minimum road foundation must be in accordance with municipal standards defined in appendices B and C of this By-law.

7.3.4 Foundation drain

Any new road foundation in the urban sector must be equipped, when technically required, with a drainage system for the infrastructure located on both sides of the road and connected to the catch basin.

7.3.5 Temporary dead end

The dead end shall have an 18-meter diameter and be built on a 250-mm thick foundation built with MG-20 crushed stone.

The Permit holder must move temporary dead ends at his cost when phases or sub-phases of his project are being completed until the road network that he builds allows school transportation without said dead ends.

The Permit holder allows the Municipality to remove snow on said temporary dead end even if it is located outside of the project phase or sub-phase under progress.

7.4 PAVING, SIDEWALKS AND CURBS

7.4.1 Paving

Road paving must be in accordance with MTQ construction standards and construction standards as defined in the Book of municipal road constructions standards described in Appendix B.

7.4.2 Sidewalks and curbs

Sidewalk and curb construction must be in accordance with all road specifications indicated in MTQ construction standards.

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7.5 ROAD LIGHTING

7.5.1 Urban sector

New roads must be lighted using high pressure sodium lights, LED or other types as approved by the Municipality, in accordance with MTQ construction standards and Hydro-Québec standards. Said lights must be installed on reinforced concrete or steel posts.

Any lighting added to an existing road must consist in high-pressure sodium lights installed on reinforced concrete, steel or wood posts depending on the type of posts that already exists on the road subject to Municipality approval and in accordance with construction standards of the Ministry of Transportation.

7.5.2 Rural sector

New roads can be lighted with high pressure sodium or DEL lights installed on wooden posts and in accordance with MTQ construction standards and Hydro-Québec standards.

7.6 COMPLEMENTARY INFRASTRUCTURES

7.6.1 Pedestrian lanes

Pedestrian lanes must be consistent with MTQ construction standards.

7.6.2 Bicycle paths

Bicycle paths must be consistent with MTQ construction standards.

7.7 DRAINAGE

7.7.1 Ditches

Road ditches must be consistent with construction standards as defined in the Book of municipal and private road constructions standards described in appendices B and C.

7.7.2 Retention pond landscape architecture

In addition, any retention pond must be the object of a landscape architecture. This architecture consists in seeding topsoil and in planting two trees per one thousand square meters of pond area.

Only the following species of trees listed below and the minimum size indicated for each species are allowed:

- Tree species with a minimum size;
- Norway spruce 200 cm high;
- Austrian pine 200 cm high;
- Eastern white pine 200 cm high;
- Norway maple having a trunk with a 60 mm diameter;

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- Marshall's seedless ash having a trunk with a 60 mm diameter;
- Red oak having a trunk with a 60 mm diameter;
- European mountain ash having a trunk with a 60 mm diameter.

A landscape plan must be prepared by the Permit holder and submitted to the Municipality for approval.

7.8 PUBLIC UTILITIES ⁽³⁾

For new development projects in the urban sector, all public utility wires and, in a non-limiting manner, telephone, television, street lighting, electricity and cable must be buried.

In the rural area, aerial wires may be installed along the road allowance or back lot. However, the conductor paths between the poles and the buildings must be buried.

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⁽³⁾ Amended by By-law Number 1031-17 (effective September 14, 2017)

Chapter

PENALTIES AND SANCTIONS

8.1 PENALTIES

If an offender refuses or omits to comply with one of the provisions of this By-law or with an order issued by the officer in charge, the competent authority may apply to the Superior Court in order to:

- **a.** Issue a cease work order regarding work that does not comply with this By-law;
- **b.** Order, at owner's cost, the performance of work required to ensure compliance with this By-law.

In addition to penalties provided for in this By-law, any offender is also subject all remedies or penalties under acts and rules applicable in the Municipality of Chelsea.

8.2 GENERAL SANCTIONS

Anyone who contravenes or does not comply with any provision of this By-law commits an offense and is liable, in addition to fees imposed for each violation, to a fixed fine of \$1,000 in the case of a physical person or to a fixed fine of \$2,000 in the case of a moral person.

For any subsequent offence within two years following a conviction for the same offense, the offender is also liable, in addition to fees imposed for each violation, to a fixed fine of \$2,000 in the case of a physical person or to a fixed fine of \$4,000 in the case of a moral person.

If an offense lasts more than one day, the number of offences becomes equal to the number of days or fractions of day and said offences may be described within the same count.

8.3 CIVIL JURISDICTION

Without prejudice to proceedings under the criminal justice system, Council may seek before civil courts any civil law remedies necessary to ensure compliance with provisions of this By-law.

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Chapter

FORCE AND EFFECT

This By-law will be coming into force once all formalities provided for in the Law have been complied with.

GIVEN IN CHELSEA, QUEBEC on the 2nd day of the month of May 2016

Secretary-treasurer	Mayor	
Notice of motion:	November 2, 2015	
Date of adoption of this By-law:	May 2, 2016	
Resolution number:	187-16	
Date of coming into force:	May 20, 2016	

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APPENDICES

APPENDIX A: Map of the urban perimeter

APPENDIX B: Guidelines for the construction of a municipal road

APPENDIX C: Guidelines for the construction of a private road

APPENDIX D: Authorized materials for the construction of municipal works

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APPENDIX A

URBAN PERIMETER

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EFFECTIVE DATE: May 20, 2016 Administrative compilation number 3 effective September 14, 2017

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APPENDIX B

GUIDELINES FOR THE CONSTRUCTION OF A MUNICIPAL ROAD

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BY-LAW NUMBER 949-15
ON THE IMPLEMENTATION
OF MUNICIPAL WORKS
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1. OBJECT

This guide aims at presenting a summary of main minimum standards currently used by the Municipality in the field of road construction within the framework of its actual policy on roads. These standards result from the adaptation of main standards of the Ministry of Transportation, of the Canadian Good Roads Association and of some regional municipalities.

2. GEOMETRY

2.1 Rights-of-way, driving surfaces and shoulders

Municipal roads will meet the following requirements:

Dimensions (m)			Reference figure			
Classification	Driving surface	Shoulder	Sidewalk	Right-of- way		
		Rural sect	or		•	
Arterial or main collector road	3.5	1.0		20 (3)	Figure 1	
District or local collector road	3.0	0.5		20 (3)	Figure 2	
	Urban sector					
District or local collector road with no parking	3.0	0.5*1	1.5*2	12	Figure 3	
District or local collector road with parking	3.0	0.5*1	1.5*2	14	Figure 4	

*1 A 0.5-meter shoulder is required on each side if there is no parking.

*2 The addition of a sidewalk on the minimum side is required in municipal roads located in the urban sector. The Municipality reserves the right to select the location.

Each driving surface will measure 3.0 meters in the case of district and local collector roads and 3.5 meters in the case of arterial and main collector roads in the rural sector. In the urban sector, the driving surface will measure 3.0 meters and the shoulder, 0.5 meter. The sidewalk will be 1.5 meters wide.

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⁽³⁾ Amended by By-law Number 1031-17 (effective September 14, 2017)

The Municipality reserves the right to ask for bicycle lanes or paths, sidewalks, landscaping and paved shoulders and other developments in the design of any new construction, improvement or renovation project of road infrastructures on its territory. Said developments must comply with MTQ standards.

2.2 Slopes

Roads must have a minimum slope of 1% with the exception of roads served by ditches and a maximum slope of 10%.⁽²⁾ In special cases, however, slopes of up to 12% may be authorized by the Municipality provided that there is only one straight section or a very high radius curve that does not exceed 5% within a distance of 30 meters from an intersection.

2.3 Lengthwise profile curvature

Figure 7 shows curve lengths for crest curves (convex) and sag curves (concave). These curves aim at introducing a gradual change from one slope to the next while ensuring an adequate visibility.

2.4 Dead end

The systematic use of dead ends is forbidden. Any new development shall have at least two exists on existing roads and the street pattern shall be elaborated in a way that ensures the public safety, continuity and connectivity of the road network. However, a dead end can be used to make the most of a given site the topography or the location of which does not allow using a continuous road.

If possible, the dead end must have a right-of-way with a thirty-six meter (36 m) diameter and a driving surface with a radius of at least thirteen meters and fifty centimeters (13.50 m) in the rural sector (refer to Figure 8) and fourteen meters and fifty centimeters (14.50 m) in the rural sector (refer to Figure 9). The Municipality may authorize a T-shaped dead end when the topography or the location makes it impossible to use a circular dead end.

3. SPEED

The displayed speed will be 40 km/h in the case of local roads and district collector roads. The design will be based on this speed. The speed on collector and arterial roads will be determined by the engineer using state-of-the-art procedures.

4. DRIVING SURFACES

The design of the driving surface structure is performed by the engineer once notified of results of soil tests performed on location. The driving surface structure must at least comply with the following specifications. A freeze protection as recommended by the MTQ is required on new road infrastructures.

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⁽²⁾ Amended by By-law Number 1013-17 (effective April 12, 2017)

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ON THE IMPLEMENTATION
OF MUNICIPAL WORKS
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4.1 Layer thicknesses

Figure 5 shows the thickness of the different layers that make up the driving surface. These layers will have the following thicknesses:

- Bituminous concrete (paving): 75 mm in two layers (3") or 65 mm in a single layer
- Upper foundation: 100 mm (4")
- Lower foundation: 250 mm (9")
- Capping layer: 450 mm (18")

Thicknesses can be adapted in accordance with recommendations of a qualified engineer after completing a geotechnical study. The objective consists in ensuring the construction of a structure capable of resisting to local freezing and unfreezing conditions and to expected vehicle loads on this type of road (including public and school vehicles).

4.2 Materials

The different layers of driving surfaces will be built with the following materials:

- Bituminous concrete: type ESG-14 (base layer or unique layer) and/or type ESG-10 (upper layer). All municipal roads must be covered with asphalt.
- Upper foundation: Grade MG-20 gravel or crushed stone
- Lower foundation: Grade MG-56 gravel or crushed stone.⁽²⁾
- Capping layer: Class A filling material.

Materials must comply with MTQ standards.

4.3 Surface finishing

In order to ensure a careful road finish, the person in charge shall:

- Remove from the gravel or crushed stone surface any unfit material such as clay, top soil, excessive width material, etc.
- Level high and low points in order to eliminate any irregularity.
- Add or remove granular material, if necessary, in order to produce levels indicated on plans.
- Finish the surface to provide lateral drainage, i.e. the road should have transverse slopes of 2% as shown in Figure 51.(2)

(2) Amended by By-law Number 1013-17 (effective April 12, 2017)

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• Compact materials as described in article 4.5.

4.4 Compaction

Granular material (capping layer, lower foundation, upper foundation) will be applied in successive layers in the order mentioned above and compacted with mechanical equipment in order to get a standard Proctor density of 98% in accordance with standard BNQ-2501-255. Each layer must be compacted separately and the required density must be achieved before the application of the next layer may begin.

4.5 Transitions

In locations where road goes from a cut to a fill area, or vice versa, ensure a transition in accordance with MTQ standards. These transitions aim at eliminating abrupt changes in the driving surface behaviour over different types of soil. Such transitions are also required for undeground structures, such as culverts, public utility pads, etc.

5. DRAINAGE

5.1 Ditches

In the rural sector, a ditch with a minimum depth of 500 mm must be prepared on each side of the driving surface. The ditch bottom must have a minimum width of 500 mm on local roads and district collectors and of one meter on collector and artery roads. A minimum slope of 0.5% will be needed in order to allow surface water to flow freely.

The ditch bottom must be adequately protected against erosion in accordance with MTQ standards and as indicated in *Figure 10*.

The Municipality reserves the right to authorize the installation of conduits in ditches located in the rural sector.

5.2 Cross culverts

Culverts allowing to cross roads will be made of grooved polyethylen with a smooth wall inside or of concrete of the type recommended by the manufacturer with a minimum diameter of 450 mm (18 inches). In the case of culverts measuring more than 1,200 mm (48 inches), the use of a galvanized corrugated sheet metal conduit is accepted. Culvert ends must be adequately protected against erosion and scouring.

These culverts shall be installed on a granular base (sand cushion) with a minimum thickness of 150 mm. The backfilling up to the street foundation level will be made of non-frost susceptible granular material. A transition as shown in Figure 6 shall be prepared when installing the culvert. Figure 11 shows us how to make these culverts.

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5.3 Culverts for private driveways

Culverts used for private driveways will be made of galvanized corrugated sheet metal or grooved polyethylen with a smooth wall inside. The diameter will be at least 450 mm (18 inches). Culvert ends shall be adequately protected against erosion and scouring. Culvert ends must be located at the depth recommended by the MTQ in order to protect them against freeze. Figure 12 shows us how to make these driveways.

The culvert must be at least six meters (or 20 feet) and no more than 12 meters (40 feet) long. The distance between two private driveway culverts cannot be less than six meters (or 20 feet) and the radius of curvature must not be less than 2 meters. The culvert slope must be identical to the natural slope of the water course (minimum 0.5%) with no deflection in the horizontal and in the vertical alignment.

6. CAR RAMPS

Car ramps or residential, commercial and industrial accesses must comply with corresponding MTQ standards in terms of geometry, visibility, slope, etc.

The minimum length of a residential ramp is four (4) meters in urban areas and six (6) meters with a two-meter radius in rural areas.

No ramp is authorized if the stopping sight distance is less than 45 meters, except if a design report justifies a lesser distance.



Figure 1. Cross profile – arterial road and main collector (rural). (3)

(3) Amended by By-law Number 1031-17 (effective September 14, 2017)

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Figure 2. Cross profile – local district collector road (rural). (3)



Figure 3. Cross profile - local district road with no parking (urban).

(3) Amended by By-law Number 1031-17 (effective September 14, 2017)

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Figure 4. Cross profile - local district collector road with parking (urban).

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EFFECTIVE DATE: May 20, 2016 Administrative compilation number 3 effective September 14, 2017

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(1) Sur les profils, on emploiera toujours la dénomination de la ligne la plus haute si les lignes sous-jacentes coïncident avec elle.

Figure 5. Driving surface structure.

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Figure 6. Profile of a driveway in a rural area.

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Courbure de profil en long minimale pour la distance de visibilité à l'arrêt (S < L)

Note :

pour des raisons d'esthétique, la longueur minimale en mètres ne doit pas être inférieure à la vitesse de base (km/h).

54

74

107

156



90

100

110

120

170

200

240

290

COURBES RENTRANTES (CONCAVES)

Vitesse de base (km/h)	K (m)	S (m)
40	7	45
50	12	65
60	17	85
70	24	110
80	32	140
90	40	170
100	49	200
110	60	240
120	74	290

Note :

 pour des raisons d'esthétique, la longueur minimale en mètres ne doit pas être inférieure à la vitesse de base (km/h).

Figure 7. Lengthwise profile curvature for a minimum distance of visibility.

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CIRCULAIRE





EN T (pour véhicules de types CAR et SU)



AVEC EMBRANCHEMENT (pour véhicules de types CAR et SU)

Notes :

- porter une attention particulière au déneigement (manœuvres des camions);
- les cotes sont en mètres.

Figure 8. Dead ends in the rural sector

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Véhicule de type	R	L	E	S
CAR	9	5,5	6	6
SU	14,5	9	6,5	6
WB-15	15,5	10	6,5	6
WB-17	16,5	11,5	6,5	6

Note :

- les cotes sont en mètres.

Figure 9. Dead ends in the urban sector.

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Revêtement en pierres					
Туре	Calibre D (mm) (m	D ₅₀ (mm)	Épaisseur (mm)	Vitesse maximale (m/s)	
1	200-0	100	300	2,0 ②	
2	200-100	150	300	2,3	
3	300-200	250	500	2,9	
4	400-300	350	700	3,2	
5	500-300	400	800	3,4	

① La largeur de protection varie selon la pente et la hauteur d'eau dans le fossé.

② Lorsque la vitesse est inférieure à 2,0 m/s, l'engazonnement peut être utilisé comme revêtement.

Note :

- les cotes sont en millimètres.

MATÉRIAU - NOF	RME APPLICABLE
Géotextile	Tome VII, norme 13101
Revêtement en pierres	Tome VII, norme 14501

Figure 10. Protection against erosion.

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D	d (mm)		
(mm)	Dépôts meubles	Roc	
300 à 600	150	300	
700 à 1000	200	300	
1200 à 2000	300	400	
> 2000	400	500	

Remblai minimal au-dessus du tuyau en fonction de son diamètre

Type de circulation	D (mm)	y (mm)
Circulation de matériel	≤ 900	300 (Acier) 450 (Aluminium)
de compactage	> 900	$\frac{D}{4} + 300$
Circulation do	≤ 1200	600
véhicule	> 1200	<u>D</u> + 300

D : diamètre nominal

d : épaisseur du coussin de support

y : épaisseur du recouvrement de protection CG 14 au-dessus du tuyau

(1) Coussin de support en MG 20 densifié au minimum à 95% de la masse volumique sèche maximale par couches de 150 mm.

Partie du coussin de support non densifiée sur une couche de 150 mm d'épaisseur.
 Remblai latéral en CG 14 densifié au minimum à 90% de la masse volumique sèche maximale par couches de 150 mm.

 A Recouvrement de protection en CG 14 densifié au minimum à 90% de la masse volumique sèche maximale par couches de 300 mm.

(5) Remblayage avec les matériaux de l'excavation ou un sol compactable. Le matériau de remblayage doit être densifié au minimum à 90% de la masse volumique sèche maximale par couches de 300 mm.

Notes :

 les joints doivent être étanches ou recouverts d'un géotextile de type III, d'une largeur de 1 m et d'une longueur égale à 1,3 fois le périmètre extérieur de l'ouvrage;

 si le sol de fondation sur lequel repose l'assise est composé de sable lâche, d'argile molle, de sol organique ou de silt facilement remaniable, la conception structurale du tuyau est à vérifier;

- le matériel de compactage ne doit pas circuler dans la zone de 300 mm d'épaisseur immédiatement au-dessus du tuyau;
- comme matériel de compactage, seuls les dameuses, les plaques vibrantes et les rouleaux à tambours vibrants, dont la force totale appliquée ne doit pas dépasser 50 kN pour le premier mètre au-dessus du tuyau, sont permis;

 les pentes de transition de la ligne d'infrastructure doivent être faites selon les exigences du Tome II - Construction routière, chapitre 1 «Terrassement»;

l'excavation doit répondre aux exigences de la CSST en matière de stabilité des pentes;

- les cotes sont en millimètres.

1		MATÉRIAUX - NOR	MES APPLICABLES	10.000
	Granulats (CG 14)	NQ 2560-114	Tuyau en tôle ondulée	Tome VII, norme 7101
1	Geotextile	Iome VII, norme 13101		

Figure 11. Culverts on the driving surface.

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- (1) Sol naturel remanié sur une couche de 150 mm d'épaisseur lorsque le terrain naturel est exempt de blocs, de cailloux et de roc. Dans le cas contraire, le tuyau est placé sur un coussin de support de largeur « D_a + 600 » et d'épaisseur « d ».
- (2) Remblai latéral et recouvrement de protection avec les matériaux de l'excavation ou un sol compactable. Le matériau doit être densifié au minimum à 85% de la masse volumique sèche maximale par couches de 300 mm et être exempt de pierres plus grandes que 112 mm.
- (3) Remblayage avec les matériaux de l'excavation ou un sol compactable. Le matériau doit être densifié au minimum à 85% de la masse volumique sèche maximale par couches de 300 mm.

Notes :

- les joints doivent être étanches ou recouverts d'un géotextile de type III, d'une largeur de 1 m et d'une longueur égale à 1,3 fois le périmètre extérieur de l'ouvrage;
- comme matériel de compactage, seuls les dameuses, les plaques vibrantes et les rouleaux à tambours vibrants, dont la force totale appliquée ne doit pas dépasser 50 kN pour le premier mètre au-dessus du tuyau, sont permis;
- l'excavation doit répondre aux exigences de la CSST en matière de stabilité des pentes;
 les cotes sont en millimètres.

MATÉRIAUX NORMES APPLICABLES					
Granulats • MG 20 • CG 14	NQ 2560-114	Géotextile Tuyau en béton armé et non armé	Tome VII, norme 13101 BNQ 2622-126		

Figure 12. Culvert for car ramps.

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APPENDIX C

GUIDELINES FOR THE CONSTRUCTION OF A PRIVATE ROAD

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"In the case of a discrepancy between the French and English texts of any provisions of this By-law, the French text shall prevail"

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"In the case of a discrepancy between the French and English texts of any provisions of this By-law, the French text shall prevail"

1. OBJECTIVE

The Book of Standards aims at defining minimum standards to be complied with when designing and constructing private roads.

2. GEOMETRY

2.1 Right-of-way

The right-of-way of a private road must be at least fifteen (15) meters wide in the rural sector and ten (10) meters in the urban sector.

2.2 Driving surface width

The driving surface must be at least six (6) meters wide as measured on the finished surface.

2.3 Dead end

The systematic use of dead ends is prohibited. Any new development shall have at least two exits on existing roads and the layout shall be elaborated in order to ensure the continuity of the road network and public safety. However, the dead end can be used on a piece of land with a topography or in a location that makes it impossible to use a continuous street.

Whenever applicable, the dead end must have a right-of-way with a diameter of thirty-six meters (36 m) where the driving surface shall not have a radius of less than thirteen and a half meters (13.50 m) in the rural sector (refer to Figure 8) and fourteen and a half meters (14.50 m) in the urban sector (refer to Figure 9). The Municipality may accept a T-shaped dead end if the topography or the location makes it impossible to use a circular dead end.

2.4 Slopes

Roads will have a minimum slope of 1% and a maximum slope of 10%. In special cases, however, slopes of up to 15% may be authorized by the Municipality but strictly if the following conditions prevail: only one straight segment or with a very high radius curve. Slopes may not exceed 5% within a 30-meter radius from an intersection. The Municipality reserves the right to ask that slopes starting at 10% be paved on rural roads.

2.5 Transverse slopes

Transverse slopes on urban roads may vary between 2% and 4% while they must vary between 4% and 6% on rural roads.

3. SPEED

The displayed and design speed must be 40 km/h.

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4. DRIVING SURFACE

In the rural sector, a minimum thickness of 300 mm of gravel should be deposited above the driving surface infrastructure. The material should be of the MG-20 or the MG-56 type as defined in standards of the Ministry of Transportation of Quebec. The Municipality reserves the right to ask that slopes starting at 10% be paved on rural roads.

In the urban sector, the driving surface will be in accordance with standards governing municipal roads as indicated in appendix B.

5. DRAINAGE

5.1 Ditches

A ditch with a minimum depth of 500 mm must be built on each side of the driving surface. The ditch bottom must be at least 500 mm wide. A minimum slope of 0.5% must be planned in order to allow surface water to flow freely. The ditch bottom must be adequately protected against erosion in accordance with MTQ standards and as indicated in Appendix B.

5.2 Culverts

Private driveway culverts located below the driving surface and/or at the intersection of a municipal road must have a diameter of at least 450 mm (18 inches), in accordance with instructions of the Municipality of Chelsea, except if a design report justifies a lesser diameter. Culverts must be located at the depth recommended by the MTQ to protect them against freeze.

The length of a culvert must be at least six meters (6 m or 20 feet) without exceeding 12 meters (40 feet). The distance between two private driveway culverts must not be less than six meters (6 m or 20 feet) and the radius of curvature must not be less than 2 meters. The culvert slope must be identical to the natural slope of the water course (at least 0.5%) with no deflection in the horizontal and vertical alignments.

6. CAR RAMPS

Car ramps or residential, commercial or industrial accesses must comply with MTQ standards governing accesses, such as the geometry, visibility, slopes, etc.

The minimum distance of a residential driveway is four meters (4 m) in an urban area and six meters (6 m) with a radius of curvature of two meters (2 m) in a rural area.



Figure 13. Cross profile of a private road in a rural area.



Figure 14. Cross profile of a private road in an urban area.



Type de véhicule	R	L
CAR	9	5,5
SU	13,5	8
WB-15	14,5	9
WB-17	15,5	10,5

CIRCULAIRE



EN T (pour véhicules de types CAR et SU)



DÉCENTRÉ



AVEC EMBRANCHEMENT (pour véhicules de types CAR et SU)

Notes :

- porter une attention particulière au déneigement (manœuvres des camions);
- les cotes sont en mètres.

Figure 15. Dead end in the rural sector.

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Véhicule de type	R	L	E	S
CAR	9	5,5	6	6
SU	14,5	9	6,5	6
WB-15	15,5	10	6,5	6
WB-17	16,5	11,5	6,5	6

Note :

- les cotes sont en mètres.

Figure 16.Dead end in the urban sector.

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APPENDIX D

AUTHORIZED MATERIALS FOR THE CONSTRUCTION OF MUNICIPAL WORKS

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1. OBJECT

This Book of specifications aims at defining materials accepted by the Municipality of Chelsea for works performed on its territory. This book applies to work performed by the Municipality, its subcontractors, developers and other third parties.

2. FIELD OF APPLICATION

2.1 Plant protection

Item	Description
Rubber stripe	100-mm wide rubber stripe (the use of recycled tires is desirable).
Protecting fence	High-density polyethylene with a tensile strength of at least 35 kN with a bright color (red, orange) and a minimum height of 120 m.
Wood piece	38 x 89 x 2,000 mm (min.)
T-shaped iron	Galvanized steel post with a T profile measuring 35 x 35 x 2,500 mm

2.2 Excavation, drainage, groundwork and forming

2.2.1 Surface drainage

Item	Description
Line	PVC DR-35 or PEHD 320 kPa.
Grid	P-33-4 from Laperle.
Dry well	P-1 from Lécuyer with a T-2 head from Lécuyer.

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2.2.2 Retention pond

Item	Description
Geotextile membrane for access road	Type II membrane in accordance with requirements of standard 13101, volume VII of provincial standards on "Road Works" by the Ministry of Transportation of Quebec "Geotextile".

2.3 Drinking water and sewer lines

Item	Description
Structure adjustment ring	Life Saver type PEHD ring by Ipex for a 100 mm thickness and less (19 mm) in accordance with standard ASTM D1248.
	Concrete for a 75 mm thickness and more, minimum width of 150 mm for a manhole and 100 mm for a dry well.
Service enclosure	Cast iron enclosure with type 304 stainless steel rod and pin, base and button covered with Epoxy.
	Type 316 stainless steel pin.
Curb box	Cast iron, VB2200M on model deeper than the Bibby Ste-Croix model, 130 mm diameter with guide plate, floating extension made of 310 mm cast iron and cover.
	Inscription on the <i>cover</i> . Each part must be clearly identified as to the manufacturer and origin.
Bolt and nut	Type 304L stainless steel
Drinking water connection on new	Type K red copper, with no joint, in accordance with standard ANSI/AWWA C800, 19 mm diameter minimum;
	Q-Line (Kitec) with no joint, in accordance with standard AWWA C-903; 19 mm diameter minimum;
	90-degree connection to the main line with clockwise orientation between 1 o'clock

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Item	Description
	and 3 o'clock. Tight connection with the PVC main line and a threaded T. Tight connection with the PEHD main line and a PEHD amalgamated T.
Sewer connection on new main line	 <u>Sanitary</u>: 125 mm diameter minimum, PVC DR-28; minimum slope of 2%; <u>Storm</u>: 100 mm diameter minimum, PVC DR-28; minimum slope of 1%. 90-degree connection to the main line with clockwise orientation between 1 o'clock and 3 o'clock. Tight connection with the PVC or PEHD main line and a threaded T. Tight connection with the reinforced concrete main line and universal connecting saddle or Kor-N-Tee connecting saddle. Long radius elbow fitting only.
Manhole frame and cover	Adjustable type with conical guide frame. Mueller AJ775SR with neoprene cushion and buffer pad AJ775; Laperle C50 MS with neoprene packing and buffer pad C-50 M; Adjustment height of 200 mm, outside diameter of skirt of 743 mm (29 ¼ inches). The pad comes with 4 trip proof legs. Each part must show clearly the manufacturer's name, the production or codification date allowing to trace back the sprue, the origin as well as the word 'Ductile' or 'DI' in the case of ductile iron.
Dry well frame and grid	Domiciliary project: frame P-16A by Laperle with grid having a fish design. Each part must be identified clearly as to the manufacturer's name, the production or codification date allowing to trace back the sprue, the origin as well as the word 'Ductile' or 'DI' in the case of ductile iron.
Valve chamber	Made of precast concrete with insulated pad and the words "Drinking water".
Drinking water line	Minimum inside diameter of 200 mm Solid wall PVC line, DR-18 minimum, in conformity with standard NQ-3624-250;

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Item	Description
Sanitary sewer line	Minimum inside diameter of 200 mm
	PVC line with soft inside and outside walls, type 1, DR-35 minimum, in conformity with standard NQ-3624-135;
	Reinforced concrete line with tight packings, class III minimum, in conformity with standard NQ-2622-126.
Storm sewer line	Minimum inside diameter of 300 mm
	PVC line with soft inside and outside walls, type 1, DR-35 minimum, in conformity with standard NQ-3624-135;
	Reinforced concrete line with tight packings, class III minimum, in conformity with standard NQ-2622-126.
	PVC line with soft inside wall and grooved outside wall, type 2, full grooves, maximum rigidity of 320 kPa, in conformity with standard NQ-3624-135; maximum diameter of 600 mm;
Polyethylene sleeve	Low density polyethylene sleeve, minimum thickness of 200 microns (.008 inch), in conformity with standard AWWA C-105/A21.5.
Ditch grid	P-33-4 by Laperle in a maintained ditch and backyard;
	P-16-D by Laperle in an unmaintained ditch.
Geotextile membrane for post hydrant trench	Type III membrane in accordance with requirements of standard 13101, volume VII of provincial standards on "Road Works" by the Ministry of Transportation of Quebec "Geotextile".
Geotextile membrane for structure wrapping	TEX-O-FLEX 40-12.
Insulating panel	HI 40; HI 60.

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Item	Description
Drinking water line parts and connectors	Same material as the main line and same nominal pressure. Drinking water parts and connectors must come from the same manufacturer as the main line.
	<u>PVC aqueduct connector</u> Connectors must be made of PVC of the same class and same color as pipes in accordance with standard NQ-3624-250 and be of the boxing type.
Valve guide plate	Cast iron, VB875 by Bibby Ste-Croix.
Potential check point	Fink type manufactured by Cott Manufacturing Co with a floating <i>cast iron</i> tube and plow-proof cover.
Post hydrant	Concord-Daigle D-67-M « Premier » type by Clow Canada, 125 mm; Century Canada Valve type by Mueller, 125 mm; Post hydrants must be equipped with a third outlet for pumper with a 100 mm STORZ adaptor sleeve made of bronze and side plug with 6.025 threads per inch
	and an inside diameter of 3 1/4 inches. The post hydrant must be paid in red and equipped with a drain hole.
Dry well	Domiciliary project: Square dry well measuring 610 x 610 mm, model B-1, type M- Con with cast iron bell, grid with fish design, P-Lok packing and sedimentation pit at least 300 mm deep. A concrete adjustment ring with a 150-mm thickness must be provided for on the dry well in anticipation of concrete curb construction work.
Air vent	Model APCO 200A (stainless steel) for a 25-mm diameter inlet;
	Model APCO 144 (stainless steel) for a 50-mm diameter inlet.
	A stop valve with retaining flange must be installed between the air vent and the main line in order to provide for the maintenance and replacement of the air vent. An inverted U-shaped elbow must be installed above the evacuation hole of the air vent to ensure protection.
Man hole	Chimney diameter of 900 mm, watertight sleeves, sewer canal on domestic and rain

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Item	Description
	networks, 1 200 mm diameter at the base with a clearance of 1 800 mm in conformity with standard NQ-2622-420
Stop valve (curb stop)	H15217 by Mueller (inverted key, inlet and outlet, compression, copper), casing A726;
	A-617 by Mueller (inverted key, inlet and outlet, copper, flared), casing A726;
	H15219 by Mueller (Mark II Oriseal, inlet and outlet, compression, copper), casing A726;
	K15219 by Mueller (Mark II Oriseal, inlet and outlet, compression Q-Line/Kitec), casing A726;
	Casing model A726 must come with a stainless steel rod and pin.
Take-off valve (main	H15008 by Mueller (Mueller thread inlet, compression type copper outlet);
stop)	A-220 by Mueller (Mueller thread inlet, flared type copper outlet);
	K150008 by Mueller (Mueller thread inlet, Q-Line outlet/Kitec compression).
Indicator tape	Plyage HZD type warning device with a 300 mm width as provided by Technoconsor or another distributor and installed 300 mm above the line that must be protected.
	Drinking water network: blue with stainless steel tracer wire connected with gates and with the post hydrant.
	Sewer network: green with no tracer wire.
Dielectric union	80 CWP by Central to insulate drinking water connectors from the main line.
Drinking water valve	Valve with mechanical seal or Tyton type, resilient seat made of urethane with an inside and outside epoxy coating in accordance with requirements of standard AWWA C-509. Nuts and bolts made of stainless steel 304.
	Model A2360 by Mueller Model R/W by Clow Canada.

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Item	Description
Retaining systems	Retaining systems for accessories must be installed in accordance with manufacturer's recommendations and meet the following requirements:
	PVC lines and accessories Collar type system with sharp teeth machined from stainless steel retaining rods and tightening bolts. Retaining systems must meet recommendations of the line manufacturer and the make must be Star Pipe, Uniflange, Sigma or Clow with the appropriate model.

2.4 Drinking water and sewer connections

Item	Description
Drinking water connection on an existing water main	 Type K red copper, soft, with no joint, in conformity with standard ANSI/AWWA C800, minimum diameter of 19 mm; Q-Line (Kitec) with no joint, in conformity with standard AWWA C-903, minimum diameter of 19 mm. 90^o connection with the main line, clockwise orientation between 1:00 PM and 3:00 PM. Refer to connecting specs below based on the type of line. Connecting anode, service enclosure and curb box in conformity with specifications listed in section 2.4 of the Book of materials. Refer to section 2.3 in this book regarding connection to a new main line.
Sewer connection on existing main line	Sanitary: Minimum diameter of 125 mm, PVC DR-28; minimum slope of 2%; Storm: Minimum diameter of 100 mm, PVC DR-28; minimum slope of 1%; 90 ^o connection with the main line, clockwise orientation between 1:00 PM and 3:00 PM. Refer to connecting specs below based on the type of line. Refer to section 2.3 in this book regarding connection to a new main line.
Connection on existing drinking water line	<u>Concrete line with steel cylinder (Hyperscon)</u> Connection using a connecting saddle with a maximum diameter of 50 mm in conformity with article 6.2.3.5 of specs NQ-1809-300/2004 (R-2007). Connecting

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Item	Description
	operations must be made by the line manufacturer or his authorized representative.
	<u>Full wall PVC line</u> Connection using a connecting saddle in conformity with article 6.2.4.5 of specs NQ-1809-300/2004 (R-2007).
	Other materials Connection made in accordance with line manufacturer's recommendations subject to municipality's approval. The Municipality reserves the right to demand that said connection be made by the line manufacturer or his authorized representative.
Connection on existing sewer line	<u>Reinforced concrete line</u> Tight connection using a universal connecting saddle or a Kor-N-Tee type connecting saddle.
	<u>Full wall and smooth outside wall PVC line</u> Tight connection using a PVC connecting saddle with a gasket and two stainless steel tightening collars in conformity with article 6.3.3.4 of specs NQ-1809- 300/2004 (R-2007).
	<u>PVC line with grooved outside wall (open profile)</u> Tight connection using an Inserta Tee connecting saddle or a universal connecting saddle in conformity with article 6.3.4.4 of specs NQ-1809-300/2004 (R-2007).
	Other materials Tight connection made in accordance with line manufacturer's recommendations subject to municipality's approval. The Municipality reserves the right to demand that said connection be made by the line manufacturer or his authorized representative.

2.5 Temporary drinking water supply

Item	Description
Main line	Food quality with a minimum diameter of 150 mm. Rigid thermoplastic line in accordance with requirements of standards NQ 3624-250 and NQ 3660-950.

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Item	Description
Distribution line	Food quality with a minimum diameter of 75 mm. Rigid thermoplastic line in accordance with requirements of standards NQ 3624-250 and NQ 3660-950. Rubber line with an inner coating in conformity with standard NQ 3660-950.
Connecting line	Food quality with a minimum diameter of 12,5 mm. Flexible thermoplastic line (PVC) reinforced with spiral and longitudinal polyester fibers in accordance with NQ 3660-950 and equipped with individual stop cocks for each connection.
Main and distribution line seals	Industrial quality quick coupling type or self-locking type seals.
Temporary post hydrant	Compressed cast iron post hydrant, red with a 150-mm diameter water intake, two side threaded outlets with a 65 mm diameter (6.025 threads per inch) and a front outlet with a 100 mm diameter equipped with a STORZ quick coupling in conformity with standard CAN/ULC-S520-M.
Fitting and accessory	Made of bronze, stainless steel or rigid thermoplastic in accordance with requirements of standards NQ 3624-027, NQ 3624-250, ANSI/NSF 14 and with standard NQ-3660-950.
	Double check valve at each supply or connection point to the existing network. Bleed fitting with a minimum diameter of 19 mm and single check valve on loop-free ends of the main line or distribution line network.

2.6 Installation of culverts within the municipal right-of-way

Item	Description
Culvert	Corrugated galvanized or aluminized sheet iron in accordance with standards NQ3311-100 and NQ 3311-180, with a minimum thickness of 2 mm.

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Item	Description
	PEHD line with a grooved outside wall (open profile) or smooth outside wall in conformity with standard NQ 3624-120, with a rigidity of at least 320 kPa. Reinforced concrete line in conformity with standard NQ 2622-126, class IV minimum.

2.7 Outside lighting network

Item	Description			
Cable with support neutral	NSF-2 type made with insulated aluminum strands for a voltage rating of 600 volts. The neutral is of the same gauge as other cables.			
Ground cable	Bare or insulated copper conductor in accordance with codes.			
Single-conductor cable	RWU-90-X-LINK type for a temperature of up to -40°C made of copper strands and insulated for a voltage rating of 1,000 volts.			
Multi-conductor cable	TECK-90-X-LINK type for a temperature of up to -40°C made of single- conductors grouped under the same sheath.			
Line	Rigid PVC in conformity with standard ACNOR C22.2 no. 211.2 "Rigid PVC (unplasticized) line".			
Protecting sheath	 PEHD: High-density polyethylene, 320 kPa, unperforated smooth inside, 150 mm diameter minimum, in conformity with standard BNQ 3624-100. TTOG: Round pipe made of galvanized corrugated sheet iron, 150 mm diameter minimum, 1.3 thick minimum in conformity with standard NQ-3311-100. 			
Overcurrent	For each connection with Hydro-Ouebec's underground and overhead network			
protection	supply point, FPE box and switch of 30 amperes, 110 volts or 115/100-15, fi inside the lamp post and grounding rod.			
Anchoring hardware	Galvanized steel anchoring bolt and washer in conformity with standard NQ-4943-			

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Item	Description					
	001.					
Indicator tape	Aluminum, 50 mm wide, 100 micron (0.004 inch) thick.					
Grounding rod	Copper of galvanized steel, 19-mm diameter, 3-m long.					
Manufacturer Lumca Lumec Cyclone	Cooper Galleria series Optilux OPL 85 Santa Fe series SF2					
Power (watts)	150					
Luminous flux distribution (IES)	III					
Luminous flux (lumens)	16000					
Tower body Height (m) Form Material Anchoring	9.9 Round Concrete Underground					
Anchor pile						
Dimension (round) (mm) Height (m)	N/A N/A					
Street type	Local/collector					
Color						

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Item	Description
Anchor pile	Brown, river gravel, sand
Lighting fixture	BG2TX

2.8 Chain link fence

Item	Description					
Tension bar	Galvanized steel, 5 x 20 mm					
Post base concrete	Concrete, 35 MPa, 5 to 8% of entrained air, 80 \pm 20 mm slump.					
Tension bar flange	Galvanized steel, 3 x 20 mm or aluminum, 5 x 20 mm					
Retaining wire	Aluminum, 3.8 mm gauge					
Lower tensioning wire	Aluminum, 5 mm gauge					
Grid	Conventional fence : Hot galvanized steel chain link fence, gauge 9, covered with vinyl for a total gauge of 6 in conformity with standard CAN/CGSB-138.1. 50-mm spacing in both senses. <u>Tennis court fence</u> : <i>Steel:</i> Hot galvanized steel chain link fence, gauge 9, covered with vinyl for a total gauge of 6 in conformity with standard CAN/CGSB-138.1. 40-mm spacing in both senses. Vinyl: Hot galvanized steel chain link fence, gauge 11, in conformity with standard CAN/CGSB-138.1, covered with vinyl (black) for a total gauge of 9. 40-mm spacing in both senses.					
Posts and stringers	 Nomenclature 40 galvanized steel pipe in conformity with standard CSA-G40.20/G40.21: end post, 89 mm diameter; intermediate post, 60 mm diameter; intermediate post for tennis court, 89 mm diameter; 					

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Item	Description				
	 barrier post, 89 mm diameter; corner post, 89 mm diameter; upper stringer, 43 mm diameter; lower stringer and spacer, 43 mm diameter. 				
Weld protection	In conformity with standard ASTM A 780.				
Hardware	Alloy made of molded aluminum, galvanized steel, malleable or ductile cast iron. Watertight post cap with eyelet.				

2.9 Planting

Item	Description				
Drying agent	Waxy emulsion leaving a film on the plant surface.				
Anchoring	T-shaped steel pin, 35 x 35 x 500 mm.				
Protecting ring	Reinforced rubber garden hose with a 12-mm diameter.				
Cable and accessories	Cables, shoring wires, eyebolts and tensioners must be galvanized. Tensioners come with 150-mm long eyebolts with a tapped opening of a 10-mm diameter used for tightening.				
Tree guard	Galvanized metal grid with 10 x 10 mm mesh.				
Guy rope	Gauge 16 galvanized steel wire.				
Fertilizer	In accordance with the Fertilizers Act of Canada: Type III: commercial and complete for transformation, ratio of 1:4:4; Type IV: commercial and complete containing no more than 35% of water soluble nitrogen, ratio of 2:1:1.				

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Item	Description			
Hydro seeding mulch	Mulch made of common oats, barley, wheat that contains no weeds or other substances that may be prejudicial to its growth. Wood fiber in the form of a fibrous pulp that is mixed or not with other organic products, such as peat moss and shredded paper.			
Protecting mulch	Wood chips entirely made of softwood species. Wood chips must measure at least 20 x 20 x 5 mm. Shredded wood product entirely made of softwood species that come from forest industry residues.			
Wooden posts	38 x 38 x 450 mm.			
Winter protection	Arbotex by Texel New burlap strip, clean and plain weighing at least 2.5 kg/m ² and 150-mm wide.			
Banner ribbon	Red fluorescent ribbon.			
Stake	T-shaped galvanized steel post measuring 35 x 35 x 2,500 mm.			

2.10 Street foundation

Item	Description
Foundation drain or perforated drain	Type 2, class R320 PEHD line (150-mm diameter for streets 11.5 m long and less than 200 mm diameter for other streets, including boulevard with separate lanes), wrapped with geotextile with a maximum opening of 150 microns in accordance with standards NQ-3624-110 and 115. The drain must be installed on filtrating sand and covered with at least 150 mm of this sand above the drain crown.
Foundation	Type MG 20 crushed aggregate in accordance with standard NQ 2560-114. Recycled crushed concrete (types MR-1 and MR-2) can be used in street foundation with a DJMA≤ 5000 provided that their granulometry and intrinsic characteristics meet the requirements of standards NQ 2560-600 and NQ 2560-114, range MG-20.
Geotextile membrane	At least a type II membrane in accordance with standard 13101 of the Ministry of 72

Item	Description					
for street foundation	Transportation of Quebec.					
Filtering sand	Aggregate in accordance with the filtering layer as mentioned in standard NQ-2650- 114 with a granularity that meets the following requirements:					
		Screen	, mm	Screen, nm		
		14	5	315	160	80
		Pass	ing		%	
		100	35-100	0-50	0-10	0-5.0
Capping layer	MG-112 in accordance with standard NQ-2560-114. Recycled crushed concrete (types MR-1 and MR-2) can be used without restriction in the capping layer provided that their granulometry and intrinsic characteristics meet the requirements of standards NQ 2560-600 and NQ 2560-114, range MG-112.					

2.11 Woodwork

Item	Description				
Wood category	Grade 1 in accordance with classification rules for lumber processed under pressure in accordance with standard CSA 080.1.2-2002.				
Wood nails	Stainless or galvanized steel depending on use with ring shank and flat head.				
Preservation agent	Made of quaternary alkaline copper in accordance with standard CSA-080.				
Hardware	Galvanized steel.				
Wood screws	Stainless steel.				
	Galvanized steel.				
	Ceramic coated steel.				

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2.12 Concrete precast parts

Item	Description
Cement concrete	Concrete precast parts (curbs, paving stones, filling blocks): standards 3402, NQ 2624-210 and NQ 2624-120.

2.13 Hot bituminization

Item	Description
Bitumen	PG 58-28, PG 58-34, PG 64-28, PG 64-34, PG 70-28, PG 70-34 in accordance with standard 4101 of the MTQ.
Wear surface	EG-10, ESG-10, EC-10, SMA-10 in accordance with standard 4202 of the MTQ.
Base layer	ESG-14, GB-20 in accordance with standard 4202 of the MTQ.
Correction layer	ESG-10, EC-10, ESG-5 in accordance with standard 4202 of the MTQ.
Unique layer	ESG-14 in accordance with standard 4202 of the MTQ.
Bicycle path, pedestrian crossing and <i>car ramp</i>	ESG-10, EC-10 in accordance with standard 4202 of the MTQ.

Any other mixture must be recommended by professionals and its use must be approved by the Municipality.

Any crushed asphalt that is used must meet the requirements of bitumen coatings described in table 4202-1 of standard 4202 of the Ministry of Transportation of Quebec. The use of crushed asphalt in new coated material must meet the following conditions:

- The maximum percentage of crushed asphalt must be less than or equal to 15%;
- Crushed asphalt can be used only with pure bitumen (such as PG 58-28);

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• The mixing formula must indicate the percentage of crushed asphalt and the average percentage of bitumen contained in the crushed asphalt.

The maximum packing density of bitumen coatings must be 93% of the modified Proctor density.

2.14 Crack treatment

Item	Description
Crack sealer	In conformity with standard NQ 4401 Crack and joint sealing products.

2.15 Concrete curbs, sidewalks and works

Item	Description
In-situ cement concrete with a normal mass density	35 MPa, 5 to 8% of entrained air, 80 \pm 30 mm slump (with formwork) or 30 \pm 10 mm (on the mechanical profiling machine), maximum water/cement ratio of 0.45 in accordance with standards NQ-1809-500, NQ-2621-900, NQ 2621-905 and 3101; CAN3-A23.1-04.
Grout mixture	In conformity with standard 3901 (MTQ).
Concrete waterproofing agent	In conformity with standard 3601 (MTQ).
Cement mortar in bags	In conformity with standard 3801 (MTQ).
Curing compounds	In conformity with standard 3501 (MTQ).
Unshrinkable backfill	In conformity with standard CAN3-A23.1-04.
Wire mesh for driveway sidewalk	152 x 152 x MW18.7 x MW18.7.

2.16 Seeding and sodding

Item	Description
Grass sod	In conformity with standards NQ 0605-100, NQ 0609-300 and with requirements of the <i>Canada Seeds Act</i> .
Fertilizing material	In accordance with the <i>Canada Fertilizers Act</i> : Type I: commercial and complete containing at least 65% of water-soluble nitrogen, ratio of 1:4:4; Type II: commercial and complete containing no more than 35% of water-soluble nitrogen, ratio of 2:1:1.
Hydro seeding mulch	Mulch made of common oats, barley, wheat that contains no weeds or other substances that may be prejudicial to its growth. Wood fiber in the form of a fibrous pulp that is mixed or not with other organic products, such as peat moss and shredded paper.
Wood stake	19 x 19 x 200 mm
Grass seeds	 Seed mixture with a germination rate of 85%, minimum purity level not exceeding 1% of weeds in conformity with standard NQ 0605-100 and with requirements of the <i>Canada Seeds Act</i>. <u>Standard lawn mixture</u> : 30% of hard fescue; 45% of chewings fescue; 25% of perennial raygrass. <u>Park mixture</u>: 15% of Kentucky ruddy bluegrass; 20% of creeping red fescue; 20% reed fescue; 30% of perennial raygrass.

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2.17 Marking work

Item	Description
Reflectorized disk	In conformity with requirements of standard 10202, volume VII of provincial standard titled "Road Works".
Glass beads	In conformity with requirements of standard 14601, volume VII of provincial standard titled "Road Works".
Water-based paint	In conformity with requirements of standard 10204, volume VII of provincial standard titled "Road Works".
Alkyd paint	In conformity with requirements of standard 10201, volume VII of provincial standard titled "Road Works".
Long term marking product	In conformity with requirements of standard 10203, volume VII of provincial standard titled "Road Works".
Medium term marking product	In conformity with requirements of standard 10202, volume VII of provincial standard titled "Road Works".

2.18 Road signs

Item	Description
Sleeves	U-shaped sleeves made of type 3 cold cast galvanized steel (3 inches wide). Sleeves are 4-feet long (approximately 1.2 meters).
Road signs	Made of aluminum structural or sheet parts with a minimum thickness of 0.081 inch (approximately 2 mm).
Retroreflective film	In conformity with specifications of book titled "Road signs".
Hardware	Galvanized steel.

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Item	Description
Supports	U-shaped posts made of type 2 cold cast galvanized steel (2.5 inches wide).

2.19 Natural stone work

Item	Description
Natural stone curb	Natural stone from a quarry, sound and not crumbly, with a uniform color, flat top and rectangular shape.
Flat stone covering	Natural stone from a quarry, sound and not crumbly, with a uniform color, flat top, sharp edges and a thickness that varies between 65 and 100 mm.