
TO: GENERAL COMMITTEE

SUBJECT: GOVERNING BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL

WARD: ALL

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EXT. 6169

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EXT. 6145 *C. Marchant 16-12-01*

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RECOMMENDED MOTION

1. That the draft by-law attached as Appendix "B" to staff report ENV001-17 governing Backflow Prevention and Cross Connection Control be adopted.
2. That By-Law 2010-102 governing Backflow Prevention and Cross Connection Control be repealed.

PURPOSE & BACKGROUND

Report Overview

3. On June 16th, 2008, through Council Motion 08-G-309 By-Law 2008-137, a By-Law to establish the authority for regulating cross connections for the purpose of the prevention of drinking water contamination was adopted.
4. As referenced in Staff Report OPR004-08 dated June 9th, 2008; industrial, commercial, institution and specific multi-family residential buildings (ICI) in the City of Barrie (City) were to be phased in over a period of not more than 10 years. Since implementation, 67% of ICI buildings are now compliant and 97% of ICI buildings have been provided notice of the By-Law requirements.
5. On June 7th, 2010, through Council Motion 10-G-223, By-Law 2008-137 was repealed and By-Law 2010-102, containing clarification on definitions and expanding of authorities of drinking water operators was adopted.
6. In 2014, the Ministry of Environment and Climate Change (MOECC) released a "Guide for Drinking Water System Owners Seeking to Undertake a Backflow Prevention Program" to assist municipalities and communities in mitigating cross connections and safeguard drinking water consumers in a more standardized and consistent manner.

7. Through the continual implementation of the Cross Connection Control/Backflow Prevention Program, improvements regarding application have been identified. Addition and clarity of definitions and expanding application would better assist in improving the implementation and intent of the By-Law.

ANALYSIS

8. In order to address challenges during implementation and further mitigate risk to the City's drinking water system, the proposed draft By-Law is intended to:
 - a) Provide clarification and consistencies with the City's Water/Wastewater Billing By-Law 2011-104. The original definitions did not consider the property owner's overall responsibility of the water supply in a multi-tenant application. This proposed change was brought forth as the result of an outside legal challenge and the MOECC "Guide for Drinking Water System Owners Seeking to Undertake a Backflow Prevention Program" document;
 - b) Reduce the potential instance of backflow contamination from all sources. Unprotected cross connections have been identified being more prevalent in residential buildings containing four (4) or more independent dwelling units. The proposed change to the application of the By-Law provides clarity and consistency to proactively address hazards in low-rise residential buildings. These proposed changes to the application of the By-Law will not require residential occupancies containing less than four (4) self-contained units to incur any costs unless an immediate public health concern is identified;
 - c) Provide clarity as to which properties require a cross connection survey and a testable premise isolation backflow preventer;
 - d) Accommodate more flexibility in the location of premise isolation. In certain situations, this will reduce installation costs while still maintaining the required level of protection;
 - e) Present additional provisions and clarity on when a backflow prevention device is permitted to be removed;
 - f) Delineate the requirements and responsibilities of the persons authorized to complete functions pertaining to this By-Law. The Qualified Person Policy attached as Appendix "C" and the proposed change was brought forth as a result of negative experiences;
 - g) Support current City Standards in maintaining water quality for the end user; and
 - h) Address a number of housekeeping amendments.
9. A summary of proposed changes to the Backflow Prevention and Cross Connection Control By-Law, with explanations describing the rationale for each change, is included as Appendix "A". The recommended Backflow Prevention and Cross Connection Control By-Law incorporating the proposed changes, is included as Appendix "B".

ENVIRONMENTAL MATTERS

10. There are no environmental matters related to the recommendation other than continued protection to Barrie's municipal drinking water system.

ALTERNATIVES

11. The following alternatives are available for consideration by General Committee:

Alternative #1 General Committee could maintain the existing by-law 2010-102 as is currently worded.

This alternative is not recommended as it allows for unclear interpretation and limited application that does not fully protect the City's drinking water system.

Alternative #2 General Committee could alter the proposed recommendation by accepting the change in application and not the definitions, and wording clarifications.

This alternative is not recommended as it presents misinterpretation, legal challenges, procedural inconsistencies, and unnecessary increased use of resources.

Alternative #3 General Committee could alter the proposed recommendation by accepting the change in definitions, and wording clarification and not the application.

This alternative is not recommended as it warrants vulnerability in protection from drinking water contamination and does not represent the intent of the By-Law.

FINANCIAL

12. There are no financial implications for the Corporation resulting from the proposed recommendation.

LINKAGE TO 2014-2018 STRATEGIC PLAN

13. The recommendations included in this Staff Report are not specifically related to the goals identified in the 2014-2018 Strategic Plan.

APPENDIX "A"
Summary of Proposed Changes to the Backflow Prevention and Cross Connection Control By-Law

Section Number	Current Backflow Prevention and Cross Connection Control By-Law 2010-102	Proposed Revisions, Deletions and Additions	Rationale
1. ENTIRE ORDINANCE		General housekeeping changes to: Definitions Sections and Section titles	<p>Refined definitions based on the following principles:</p> <ul style="list-style-type: none"> • Limit as much as possible • Avoid defining commonly held meaning • Define common word only when used differently • If only used once, define in Section only <p>Revised titles on Section 6.0, 8.0, 14.0, and 15.0.</p> <p>Minor edits throughout to:</p> <ul style="list-style-type: none"> • Maintain consistency with definitions • Reference applicable standards • Improve readability
2. 2.0 DEFINITIONS	<p>"Owner" means the registered owner of the lands and premises or the person or his authorized agent in lawful control of the premises, building or occupancy and who permits the operation or maintenance of any business;</p>	<p>Revise definition of "Owner"</p> <p>"owner" shall include any person or any firm or corporation that is the registered owner of the property under consideration or any agent thereof, a person entitled to a limited estate in land, a trustee in whom land is vested, a committee of the estate of a mentally incompetent person, an executor, an administrator or a guardian;</p>	<p>Proposed revised definition to provide clarification and consistency with the City's Water/Wastewater Billing By-Law 2011-104. The original definitions did not consider the property owner's overall responsibility of the water supply in a multi-tenant application.</p>

Section Number	Current Backflow Prevention and Cross Connection Control By-Law 2010-102	Proposed Revisions, Deletions and Additions	Rationale
<p>3. 3.0 APPLICATION OF BY-LAW</p>	<p>3.1 This By-law applies to all existing and future industrial, commercial, institutional and multi-residential buildings and structures, except buildings of residential occupancies as described in Division A, Article 1.1.2.4 of Ontario Regulation 350/06 (The Ontario Building Code) or any successor thereof. In addition to and notwithstanding Section 3.1 of this By-law, this By-law applies where a condition exists in any building or structure that may be hazardous or detrimental to the municipal drinking water system. In addition to and not withstanding Section 3.1 of this By-Law, this By-law applies to plumbing in residential occupancies having connections to the municipal drinking water system and any auxiliary water supply, lawn sprinkler or irrigation system, or fire protection system (except for a residential full flow through fire sprinkler system).</p>	<p>Revise Section in its entirety to read:</p> <p>3.1 This By-law applies to all properties connected to the <i>municipal drinking water system</i>.</p>	<p>This Section identifies who is applicable to the By-Law requirements and can be interpreted as to permit cross connections in select residential properties.</p> <p>Proposed change provides clarity in the intent of the By-Law, which is to protect the municipal drinking water system from all sources of contamination.</p> <p>Residential occupancies containing less than four (4) self-contained units will not be impacted by this change unless an immediate public health concern regarding a backflow incident is identified.</p>
<p>4. 5.0 BACKFLOW PREVENTION AND PROTECTION FROM CONTAMINATION</p>		<p>Add text to Section as follows:</p> <p>5.4 In accordance with the provisions of this By-law, every owner of industrial, commercial, institutional, agricultural, multi-residential property shall ensure a testable Backflow Preventer is installed in respect of premise isolation.</p>	<p>Proposed addition as a result of the proposed change to Section 3.0 to provide clarity as to when a testable Backflow Preventer is required.</p> <p>This change was made to ensure the Backflow Prevention By-Law aligns with the CSA B64.10-11 Standard "Selection and Installation of Backflow Preventers" as industrial, commercial, institutional, agricultural, multi-residential properties primarily fall in the Moderate or Severe hazard category.</p>

Section Number	Current Backflow Prevention and Cross Connection Control By-Law 2010-102	Proposed Revisions, Deletions and Additions	Rationale
5. 6.0 REQUIRED SURVEYS	6.1 Every owner of a building or structure as set out in Section 3 of this By-law shall cause to be carried out a cross connection survey of the plumbing system associated with each of his or her buildings and structures and shall ensure that such survey is undertaken by approved personnel pursuant to the Authorized Functions List (see Schedule "A") at the Owners expense.	Revise Section as follows: 6.1 Every owner of industrial, commercial, institutional, agricultural, multi-residential property shall cause to be carried out a cross connection survey of the plumbing system associated with his or her property and shall ensure that such survey is undertaken by qualified person pursuant to the Authorized Functions List (see Schedule "A") at the owners expense.	Proposed addition as a result of the proposed change to Section 3.0 to provide clarity as to when a cross connection survey is required. This change was made to ensure that Section 6.0 is consistent with Section 5.0.
6. 7.0 APPLICATION OF STANDARDS AND SELECTION OF METHODS	7.2 Every owner shall ensure that every backflow prevention device required for premise isolation on his or her property is a testable device and is the proper device to be used pursuant to Section 5.2 of this By-law.	Delete Section	Proposed deletion as a result of the proposed addition of Section 5.4.

Section Number	Current Backflow Prevention and Cross Connection Control By-Law 2010-102	Proposed Revisions, Deletions and Additions	Rationale
7. 8.0 INSTALLATION OF BACKFLOW PREVENTION DEVICES	<p>c) where such device is installed in respect of premise isolation, such device is located within a maximum of 3.0 meters downstream of the water meter, except where circumstances require the device to be installed upstream of the water meter and such location is to the satisfaction of the City;</p> <p>d) where such device is installed in respect of premise isolation, all piping between the water meter and such device is clearly and permanently labelled "no connections permitted";</p> <p>f) where such device is installed in a public pool as defined in the Ontario Building Code (Ontario Regulation 403/197) as amended; all exposed water piping within the water treatment service room shall be colour coded by means of:</p> <ul style="list-style-type: none"> a. painting the entire outer surface of the piping, or b. coloured bands at least 25mm (1 inch) in width that are spaced along the piping at intervals of not more than 1200mm (4 feet 1 inch); c. colour coding referred to in (a) and (b) shall be yellow for chlorine and green for potable water. 	<p>Revise Section as follows:</p> <p>c) where such device is installed in respect of <i>premise isolation</i>, such device is located within a maximum of 3.0 meters downstream of the <i>water meter</i>, except where circumstances require the device to be installed in an alternative location and such location is to the satisfaction of the <i>City</i>;</p> <p>Revise Section as follows:</p> <p>d) where such device is installed in respect of <i>premise isolation</i>, all piping between the <i>water meter</i> and such device shall have no connections and is clearly and permanently labelled "no connections permitted" unless otherwise directed by the <i>City</i>; and</p> <p>Delete Section</p>	<p>Proposed revision to accommodate flexibility in the location of premise isolation. In certain situations, this will reduce installation costs while maintaining the required level of protection.</p> <p>Proposed revision to explicitly address unpermitted connections. The recommendation clarifies the intent of the Section.</p> <p>Proposed deletion as this is a requirement of the Health Protection and Promotion Act R.R.O 1990, REGULATION 565: Public Pools and is enforced by the Ministry of Health and Long-Term Care.</p>

Section Number	Current Backflow Prevention and Cross Connection Control By-Law 2010-102	Proposed Revisions, Deletions and Additions	Rationale
8.	<p>11.0 REMOVAL OF BACKFLOW PREVENTION DEVICES PROHIBITED</p> <p>11.1 No owner of a building or structure in which a backflow prevention device is installed shall cause or permit the removal of such device or part thereof unless such removal is to replace the device with another device that meets or exceeds the provisions of this Bylaw.</p>	<p>Revise section in its entirety to read:</p> <p>11.1 No person shall remove a Backflow Preventer required under this Bylaw, or any part thereof, after it has been installed, and no owner of a property where such a Backflow Preventer is installed shall cause or permit the removal of such a device, unless such removal is:</p> <ul style="list-style-type: none"> a) to facilitate the repair of the device, with the device replaced immediately after the repair is carried out; b) to replace the device with another one that meets or exceeds the provisions of this By-law; c) a result of the cross connection to which the Backflow Preventer was isolating has been permanently removed; or d) to facilitate the disconnection of the private service from the municipal drinking water system in accordance with the written approval from the City, or any combination of the foregoing <p>11.2 Whenever a Backflow Preventer required under this By-law has been permanently removed or the type of device has been changed, the owner of the property must notify the City in writing immediately of such change.</p>	<p>This Section contained no provisions to permit permanent removal of a Backflow Preventer. The proposed revision is intended to provide a clear understanding on when the removal or replacement of a Backflow Preventer is permitted.</p>

Section Number	Current Backflow Prevention and Cross Connection Control By-Law 2010-102	Proposed Revisions, Deletions and Additions	Rationale
9. 14.0 PERMITTED PERSON AND AUTHORIZED FUNCTIONS		<p>Add text to Section as follows:</p> <p>14.3 No <i>Qualified Person</i> listed on the <i>Authorized Functions List</i> (see Schedule "A") shall carry out any of the corresponding authorized functions unless the <i>Qualified Person</i> has registered with the <i>City</i>, provided all requested documentation to the <i>City</i>, paid the applicable fee and received a <i>City</i> registration number, all in accordance with the Table set out in Schedule B.</p> <p>14.4 No <i>Qualified Person</i> shall submit any documentation to the <i>City</i> as part of the registration process that contains inaccurate or false information.</p> <p>14.5 The registration with the <i>City</i> referred to in subsection 14.3 is an annual requirement.</p> <p>14.6 The <i>City</i> may suspend or revoke a <i>Qualified Person's</i> designation within the <i>City's</i> Backflow Prevention Program, as described in the "Backflow Qualified Person Policy"; as amended from time to time.</p>	<p>Proposed addition delineates the requirements and responsibilities of the persons authorized to complete functions pertaining to this By-Law.</p>

Section Number	Current Backflow Prevention and Cross Connection Control By-Law 2010-102	Proposed Revisions, Deletions and Additions	Rationale
10 15.0 HYDRANTS	<p>15.2 With the exception of water used for fire fighting and municipally approved maintenance or operations, any other use of a City owned, or private fire hydrant for water supply is prohibited without first acquiring a Hydrant Use Permit.</p> <p>15.3 Hydrant Use Permit holders shall abide by the requirements as set out in the City Hydrant Use Permit Program.</p> <p>15.4 Any hydrant situated within the road allowance is the property of the City and shall be maintained by the City. Permits will be required for any non-fire use.</p>	<p>Add text to Section as follows:</p> <p>15.2 No connection for water supply, other than a fire protection system, shall be made to a fire protection piping system.</p> <p>Delete Section</p>	<p>Proposed addition is intended to protect the functionality of the fire protection system. This recommendation stems from best engineering practices.</p> <p>Proposed deletion as hydrant use is outlined in the "City of Barrie Water Transmission and Distribution Policies and Design Guidelines"</p>
11 SCHEDULE "A" – AUTHORIZED FUNCTIONS LIST		Revision of table	Simplification of the Authorized Function List for improved readability. The recommendation does not alter the pre-existing authorities.

APPENDIX "B"
BY-LAW NUMBER 2016-

**A By-law of The Corporation of the City of Barrie to regulate
Drinking Water Protection: Backflow Prevention and Cross
Connection Control and to repeal By-law 2010-102.**

WHEREAS Section 9 of the Municipal Act, R.S.O. 2001, S.O. 2001, as amended ("*the Municipal Act, 2001*"), provides that a municipality has the capacity, rights, powers and privileges of a natural person for the purpose of exercising its authority under the Act;

AND WHEREAS Section 10 of *the Municipal Act, 2001*, provides that Sections 8 and 11 shall be interpreted broadly so as to confer broad authority on municipalities to (a) enable municipalities to govern their affairs as they consider appropriate and, (b) enhance their ability to respond to municipal issues;

AND WHEREAS Section 11 (4) of *the Municipal Act, 2001*, S.O. 2001, provides that a single-tier municipality may pass By-laws respecting matters within the spheres of jurisdiction set out therein including, inter alia, public utilities;

AND WHEREAS Section 80 (1) of *the Municipal Act, 2001*, S.O. 2001, provides that a municipality may enter onto land to which it supplies a public utility to inspect, repair, alter or disconnect the service pipe or wire, machinery, equipment and other works used to supply the public utility;

AND WHEREAS Section 11 and Section 19 of the *Safe Drinking Water Act*, requires every owner and operator of a municipal drinking water system to ensure that all water provided by the system meets the requirements of drinking water quality standards and that the drinking water system is operated in accordance with the *Safe Drinking Water Act*;

AND WHEREAS by motion 08-G-309 and 10-G-223 it is deemed expedient that the Council of The Corporation of the City of Barrie enact a By-law to establish authority for regulating cross connections for the prevention of drinking water contamination.

NOW THEREFORE the Council of The Corporation of the City of Barrie enacts as follows:

SHORT TITLE

This By-law shall be known as and may be cited as the "Backflow Prevention By-law".

1.0 DEFINITIONS

1.1 For the purposes of this By-law, the following terms shall have the corresponding meanings:

- a) "*agricultural*" shall mean the use of land or water, *building* or *structures* for the purpose of the growing of field crops, flower gardening, berry crops, tree crops, nurseries, aviaries, apiaries or farms for the grazing, breeding, raising, boarding or training of livestock or fish, or any other similar uses carried on in the field of general agriculture and including the sale of such produce, crops, fish or livestock on the same lot;
- b) "*Authorized Functions List*" means the list of functions and the *persons* with the required qualifications to carry out such functions as set out as Schedule "A" of this By-law;
- c) "*auxiliary water supply*" means, when applied to *property*, any water supply on or available to the *property* other than the primary *potable water supply* for the *property*;
- d) "*backflow*" means the flowing back or reversal of the normal direction of the flow;

- e) "backflow preventer" means a device or method that prevents *backflow* in a water distribution system;
- f) "building" shall have the same meaning as set out in the *Building Code Act*, S.O. 1992, cha. 23, as amended;
- g) "Building Code" means the regulations made under Section 34 of the *Building Code Act* being O.Reg 332/12 as amended, or any successor thereof;
- h) "*Building Code Act*" means the *Building Code Act*, 1992, S.O. 1992, c.23, as amended, or any successor thereof;
- i) "City" means The Corporation of the City of Barrie and includes its employees, servants and agents;
- j) "commercial" means lands, *buildings* or *structures* that is deemed by the City to be used for the sale or provisions of goods and services to the general public which does not include *Industrial* and not excluding additional *residential* usage;
- k) "cross connection" means any actual or potential connection between a *potable water* system and any source of pollutant or contamination;
- l) "cross connection control specialist" means an individual who is recognized as such, shall have completed and passed an *Ontario Water Works Association* endorsed *Cross Connection Control Specialist* Course or equivalent at an accredited school or college and shall have a current certificate issued by the accrediting association;

Note; (The terms "cross-connection control specialist" and *tester* are often used interchangeably)
- m) "cross connection survey" means a report which shall include existing *backflow preventers*, *cross connections* discovered, corrective measures and recommendations on the prescribed City of Barrie Cross Connection Survey Form; as amended from time to time;
- n) "CSA" means the Canadian Standards Association;
- o) "CSA Standard" means the document(s) entitled CAN/CSA B64.10/B64.10.1 Manual Selection and installation of *backflow preventers*/Maintenance and field testing of *backflow preventers*; as amended from time to time;
- p) "fire service" means a pipe and its appurtenances that are connected to a source of water and that are located on a *property*:
 - i. between the source of water and the base of the riser of a water-based fire protection system;
 - ii. between the source of water and inlets to foam making systems;
 - iii. between the source of water and the base elbow of *private fire hydrants* or monitor nozzles;
 - iv. as fire pump suction and discharge piping not within a *building*; or
 - v. beginning at the inlet side of the check valve on a gravity or pressure tank.

- q) "*industrial*" means lands, *buildings* or *structures* that is deemed by the *City* to be used for assembling, fabricating, manufacturing, production, processing, repairing, supplying, storing or selling of *Industrial* goods and materials to the general public which does not include *Commercial* and not excluding additional *residential* usage;
- r) "*institutional*" means a building or part of a building used for non-commercial, non-profit purposes by an organized body, religious group or society such as a public hospital, library, convent or similar use;
- s) "*minor hazard (MH)*" means any type of *cross-connection* or potential *cross connection* that involves a substance that constitutes only a nuisance and that results in a reduction in only the aesthetic qualities of the water as defined by the *CSA Standard*, as amended;
- t) "*moderate hazard (MoH)*" means any *minor hazard (MH)* connection that has a low probability of becoming a *severe hazard*. This category includes, but not limited to, connections involving water where the aesthetic qualities of the water have been reduced and, under certain conditions, can create a danger to public health as defined by the *CSA Standard*, as amended;
- u) "*multi-residential*" means lands, *buildings* or *structures* that are used for residential purposes and have four or more self-contained units;
- v) "*municipal drinking water system*" means the *City's* system of works, excluding plumbing, that is established for the purpose of providing users of the system with drinking water, and that includes:
 - i. Anything used for the collection, production, treatment, storage, supply or distribution of water;
 - ii. Anything related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the treatment system; and
 - iii. A well or intake that serves as the source or entry point of raw water supply for the system.
- w) "owner" shall include any person or any firm or corporation that is the registered owner of the property under consideration or any agent thereof, a person entitled to a limited estate in land, a trustee in whom land is vested, a committee of the estate of a mentally incompetent person, an executor, an administrator or a guardian;
- x) "*person*" includes any individual, Corporation, partnership, company, association or party and the heirs, executors, administrators, or other legal representative of such *person*, to whom the context can apply according to law; shall include any group of *persons* comprising a society or other organization and shall include the plural wherein the context requires. Wherever the word "he" or "him" is used, it shall mean and include the feminine or neuter gender wherever the context so requires;
- y) "*plumbing system*" means a system for water and wastewater not on the *City* right of ways and easements, separate from the *municipal drinking water system* as defined in the *Building Code*; as amended;
- z) "*potable water*" means water that is fit for human consumption;

- aa) "*premise isolation*" means isolation provided at the entrance to a *building, structure, or property* from the *municipal drinking water system*;
- bb) "*private service*" means the portion of the *water service pipe* located on *private property*;
- cc) "*property*" means any land within the *City of Barrie* and includes all *buildings and structures*;
- dd) "*qualified person*" means a *person* whom meets the following requirements:
 - i. The *person* is registered with the *City's Backflow Prevention Program's "Prequalification Program"*; and
 - ii. The *person* holds a valid and current Certificate of Achievement in Cross Connection Control endorsed by the Ontario Water Works Association (OWWA) or equivalent as approved by the *City's Water Operation Branch*; and
 - iii. The *person* possesses a current calibration certificate as required under the "*Prequalification Program*" for the testing equipment to be employed; and
 - iv. The *person* is authorized to perform the specified task as indicated in the "*Authorized Functions List*" as set out in Schedule "A" of this By-law, as amended from time to time;
- ee) "*severe hazard (HH)*" means any type of *cross-connection* or potential *cross connection* that has additives or substances that, under any concentration, can create a danger to health as defined by the *CSA Standard*; as amended;
- ff) "*source isolation*" means isolation of the water located within or having flowed through a source or potential source of contamination within a *building or structure* including a device, machine, water system or the like, from any *potable water system*;
- gg) "*structure*" means anything constructed or built permanently or temporarily which is provided with a source of *potable water*;
- hh) "*Test Report*" means an inspection and testing report of a *backflow preventer* containing the make, model, serial number, size, type, installation date, location and installation address and the test results. The report must also contain information related to the *qualified person*. This report shall be completed on the prescribed *City of Barrie "Backflow Prevention Device Test Report Form, F16-16"*, as amended from time to time;
- ii) "*Test Tag*" means a tag containing the make, model, serial number, size type, location, installation date and address as well as history of a *backflow preventer*. This tag shall be completed and updated annually by a *qualified person* on the prescribed *City of Barrie "Backflow Test Inspection Tag, F16-17"* and/or "*Backflow Prevention Single Test Tag, F16-29"*; as amended from time to time;
- jj) "*water service pipe*" means a pipe on the property that conveys *potable water* from the *municipal drinking water system* to the inside of the *building or structure*; and
- kk) "*zone isolation*" means the isolation of the water located within an area of a *building or structure* from any *potable water system* located within such *building or structure*.

2.0 INTERPRETATION

2.1 In this By-law:

- a) words importing the singular number or the masculine gender only, include more *persons*, parties or things of the same kind than one and females as well as males and the converse;
- b) a word interpreted in the singular number has a corresponding meaning when used in the plural; and
- c) "subsection" when used without reference to another section, refers to a subsection contained in the same section in which the phrase is used.

2.2 It is declared that if any section, subsection or part or parts thereof be declared by any court of law to be bad, illegal or ultra vires, such section, subsection or part or parts shall be deemed to be severable and all parts hereof are declared to be separate and independent and enacted as such.

3.0 APPLICATION OF BY-LAW

3.1 This By-law applies to all *properties* connected to the *municipal drinking water system*.

4.0 GENERAL PROVISIONS

4.1 In addition to any other provisions of this By-law, the *City* may at any time order an *owner* to conduct tests, provide reports and undertake any other measures required for the prevention of *backflow* or protection from a *cross connection*.

4.2 Where a time frame is prescribed in this By-law, the *City* may extend the time for compliance at its discretion.

4.3 All *cross connection surveys* and *test reports* are to be submitted to the *City*.

4.4 Schedule "A" shall form part of this By-law.

5.0 BACKFLOW PREVENTION AND PROTECTION FROM CONTAMINATION

5.1 No *owner*, shall connect, cause to be connected, or allow to remain connected to a plumbing system which is connected to the *municipal drinking water system* or any other *potable water* system any piping, fixture, fitting, container, appliance, vehicle, machine or the like, in a manner which may under any circumstances, allow any liquid including but not limited to water, untreated or otherwise, waste water, or any source of pollution or any other liquid, chemical, gas or other substance to enter the *municipal drinking water system* or any other *potable water* system.

5.2 In accordance with the provisions of this By-law, every *owner* of property to which this By-law applies shall ensure that a *Backflow Preventer* is installed in respect of *source isolation* and/or *zone isolation* in every *building* or *structure* where a *municipal drinking water system* or other *potable water* exists.

5.3 No *owner* shall connect, cause to be connected, or allow to remain connected; any *auxiliary water* supply to the *municipal drinking water system* except as otherwise defined in the *Building Code*.

5.4 In accordance with the provisions of this By-law, every owner of *industrial, commercial, institutional, agricultural, multi-residential property* shall ensure a testable *Backflow Preventer* is installed in respect of *premise isolation*.

6.0 REQUIRED CROSS CONNECTION SURVEYS

6.1 Every owner of *industrial, commercial, institutional, agricultural, multi-residential property* shall cause to be carried out a *cross connection survey* of the *plumbing system* associated with his or her *property* and shall ensure that such survey is undertaken by *qualified person* pursuant to the *Authorized Functions List* (see Schedule "A") at the owners expense.

6.2 The *cross connection survey* shall be in the prescribed *City of Barrie cross connection survey* form (F16-15); as amended from time to time, and shall be completed as a report, which shall include existing *Backflow Preventers, cross connections* discovered, corrective measures, recommendations and a schedule of work to be completed.

6.3 A *cross connection survey* shall be completed at a frequency of:

- a) every 5 years; and
- b) upon change of ownership or change of use or as otherwise required by the *City*.

6.4 Upon identification of *Severe Hazard*, the *qualified person* as prescribed in the *Authorized Function List* and/or *owner*, within 24 hours shall notify the *City* in writing.

7.0 APPLICATION OF STANDARDS AND SELECTION OF METHODS

7.1 Except as otherwise set out in this By-law, the installation, maintenance, and field testing of *Backflow Preventers* shall be in accordance with the *CSA Standard*.

7.2 The *Backflow Preventer* whether it be for *premise isolation, source isolation* or *zone isolation* shall be determined by a professional engineer or journeyman plumber using the *CSA Standard*, as amended or any successor thereof.

7.3 Despite Section 5.2 of this By-law, where a *source isolation backflow preventer* has been previously installed by the manufacturer of equipment, the *cross connection* is required to be reviewed by *qualified person* as prescribed in the *Authorized Functions List* to determine if the *Backflow Preventer* meets the selection specifications. These *cross connections* are to be clearly indicated on the *cross connection survey*.

8.0 INSTALLATION OF BACKFLOW PREVENTERS

8.1 Every *person* installing a *Backflow Preventer* shall ensure that:

- a) such device is installed in accordance with acceptable engineering practices and the requirements of the *Building Code*, this By-law, and the *CSA Standard*;
- b) such device is located in such a manner so that in the event of *backflow* the device prevents contamination of the *municipal drinking water system* and any other *potable water system*;

- c) where such device is installed in respect of *premise isolation*, such device is located within a maximum of 3.0 meters downstream of the *water meter*, except where circumstances require the device to be installed in an alternative location and such location is to the satisfaction of the *City*;
 - d) where such device is installed in respect of *premise isolation*, all piping between the *water meter* and such device shall have no connections and is clearly and permanently labelled "no connections permitted" unless otherwise directed by the *City*; and
 - e) where such device is installed in respect of *source or zone isolation*, all piping between the point of potential contamination and the point at which the device is located is clearly and permanently labelled "non-potable water" and no new connection shall be permitted unless authorized by the *City*.
- 8.2 Every *owner* of *property* upon which a *Backflow Preventer* is installed shall ensure that such device is maintained in proper working order at all times.
- 8.3 Where in the opinion of the *City*, a risk of possible contamination of the *municipal drinking water system* exists, an *owner* on notice from the *City*, shall install *premise isolation* in addition to any other source of protection devices on the *premise*.
- 9.0 MAINTENANCE AND FIELD-TESTING OF CROSS CONNECTION CONTROL METHODS**
- 9.1 Every *person* who tests a *Backflow Preventer* shall carry out such testing in strict accordance with this By-law and the *CSA Standard*.
- 9.2 Every *person* who tests a *Backflow Preventer* shall:
- a) be a *qualified person*, in addition to meeting the requirements listed on the *Authorized Functions List* in Schedule "A" of this By-law;
 - b) within 14 days of carrying out such a test, provide a legible and complete *Test Report* to the *City*;
 - c) upon completing such test, complete and affix a standard *City of Barrie* cross connection control *Test Tag* to the *Backflow Preventer* or immediately adjacent to the device on the piping connected thereto; and
 - d) upon finding that such device is malfunctioning or otherwise not maintained in proper working order, immediately notify the *owner* of the *property* and the *City* in writing of such condition.
- 9.3 Every *owner* who has a *Backflow Preventer* located on his or her property shall ensure that:
- a) such device is tested by a *Cross Connection Control Specialist* when it is first installed and annually thereafter and/or upon request by the *City* and also when it is cleaned, repaired, overhauled, or relocated;
 - b) when such device is tested that a *Test Report* is provided to the *City* within 14 days; and
 - c) in the event that such device is malfunctioning or otherwise not in proper working order, the device is immediately repaired or replaced with an equivalent type of *Backflow Preventer*, and the *City* is notified.

10.0 BACKFLOW TEST EQUIPMENT MAINTENANCE

- 10.1 Where required by *CSA Standard B64.10.1* as amended; all equipment used to test *Backflow Preventers* shall be verified and/or calibrated for accuracy annually.
- 10.2 Proof of such verification and/or calibration shall be presented to the *City* upon request.

11.0 REMOVAL OF BACKFLOW PREVENTION DEVICES PROHIBITED

- 11.1 No *person* shall remove a *Backflow Preventer* required under this Bylaw, or any part thereof, after it has been installed, and no *owner* of a *property* where such a *Backflow Preventer* is installed shall cause or permit the removal of such a device, unless such removal is:
- a) to facilitate the repair of the device, with the device replaced immediately after the repair is carried out;
 - b) to replace the device with another one that meets or exceeds the provisions of this By-law;
 - c) a result of the *cross connection* to which the *Backflow Preventer* was isolating has been permanently removed; or
 - d) to facilitate the disconnection of the *private service* from the *municipal drinking water system* in accordance with the written approval from the *City*, or any combination of the foregoing.
- 11.2 Whenever a *Backflow Preventer* required under this By-law has been permanently removed or the type of device has been changed, the *owner* of the property must notify the *City* in writing immediately of such change.

12.0 INSPECTION FOR CROSS CONNECTIONS –ACCESS

- 12.1 The *City* shall be permitted access, within 24 hours of providing notice, to any *property* that are connected to the *municipal drinking water system* for the purpose of performing inspections to verify compliance with this By-law.
- 12.2 Where in the opinion of the *City*, a risk of possible contamination of the *municipal drinking water system* exists; the *City* shall be permitted immediate access to any *property* that are connected to the *municipal drinking water system*. In such instances, the *City* may require a routine *cross connection* inspection of the *property* to be performed by a *qualified person* as described in the *Authorized Functions List* (see Schedule "A"). Should an unsafe and/or undocumented *cross connection* be found during said inspection, the cost of the inspection shall become the responsibility of the *owner*.

13.0 ORDER TO CORRECT CROSS CONNECTION

- 13.1 Should a condition be found to exist which is contrary to the provisions of any section of this By-law, or if the owner to whom the *City* has issued a notice fails to comply, the *City*, at its sole discretion may:
- a) Give notice to the *owner* to correct the fault at their expense within a specified time period and if the notice is not complied with, the *City* may then discontinue the supply of municipal water to the *plumbing system*; and/or

- b) Issue an unsafe order under 'unsafe requirements' in accordance with the *Building Code Act* if a condition exists that could be hazardous to the health or safety of *persons* in the normal use of the *building*, *persons* outside the *building* or *persons* whose access to the *building* has not been reasonably prevented; and/or
- c) Without notice to the *owner*, discontinue the supply of municipal water to the *plumbing system*, where the *City*, at its discretion, has determined that an immediate *severe hazard* exists that could result in contamination of the *municipal drinking water system* that may endanger public health or safety.

14.0 PERMITTED QUALIFIED PERSONS AND AUTHORIZED FUNCTIONS

- 14.1 Only those *Qualified Persons* with the required qualifications described on the *Authorized Functions List* (see Schedule "A") shall carry out the corresponding functions set out in such list.
- 14.2 The *City* administers a registration program for *Qualified Persons* listed in the *Authorized Functions List* (see Schedule "A").
- 14.3 No *Qualified Person* listed on the *Authorized Functions List* (see Schedule "A") shall carry out any of the corresponding authorized functions unless the *Qualified Person* has registered with the *City*, provided all requested documentation to the *City*, paid the applicable fee and received a *City* registration number, all in accordance with the Table set out in Schedule B.
- 14.4 No *Qualified Person* shall submit any documentation to the *City* as part of the registration process that contains inaccurate or false information.
- 14.5 The registration with the *City* referred to in subsection 14.3 is an annual requirement.
- 14.6 The *City* may suspend or revoke a *Qualified Person's* designation within the *City's* Backflow Prevention Program, as described in the "Backflow Qualified Person Policy"; as amended from time to time.

15.0 MAINTENANCE OF FIRE SERVICE MAINS & TEMPORARY CONNECTIONS

- 15.1 No *person* shall connect, cause to be connected, or allow to remain connected, any piping, fixture, fitting, container or appliance to a *City* owned, or *private fire hydrant* in a manner which, under any circumstances may allow water, wastewater or any liquid or substance of any kind to enter the *municipal drinking water system*.
- 15.2 No connection for water supply, other than a fire protection system, shall be made to a fire protection piping system.
- 15.3 All private fire hydrants are the responsibility of the *property owner* and must be installed and maintained according to:
 - a) *City* of Barrie Water Transmission and Distribution Policies and Design Guidelines; as amended from time to time;
 - b) The Ontario Fire Code as amended;
 - c) The *Building Code* as amended; and
 - d) NFPA 24 - Installation of Private Fire Service Mains and Their Appurtenances as amended.

16.0 IMPLEMENTATION AND COMPLIANCE

16.1 Installation of *Backflow Preventers* shall occur within the timeframes below, for the degree of hazard:

<u>Degree of Hazard</u>	<u>Compliance Date</u>
<i>Severe</i>	No later than 30 calendar days from the date of identification of the hazard as <i>severe</i>
<i>Moderate and Minor</i>	No later than 90 days from the date of notification of the hazard as <i>moderate</i> or <i>minor</i>

16.2 *Cross Connection Surveys* as required in Section 6 of this By-law shall be submitted to the *City* within 60 calendar days of request of survey.

17.0 ENFORCEMENT

17.1 The By-law shall be enforced by a building inspector employed by the *City* of Barrie; or any *person* appointed by the Chief Building Official; any Water Operations Staff or any *person* appointed by the Manager of Water Operations; or any Municipal By-law Enforcement Officer of the *City* of Barrie.

18.0 FEES

18.1 All user fees that may apply to this By-law are non-refundable and are indicated in the *City* of Barrie's Fees By-law #2016-011; as amended.

19.0 PENALTY

19.1 Every *person* who contravenes any of the provisions of any section of this By-law and every Director or Officer of a Corporation who knowingly concurs in the contravention of a By-law by the Corporation is guilty of an offence under the provisions of *the Municipal Act 2001, s 425 (1)*.

19.2 For the purpose of continuous offences, every *person* who contravenes any provision of this By-law and every Director or Officer of a Corporation who knowingly concurs in the contravention of a By-law by the Corporation is guilty of an offence and liable on conviction to a penalty not exceeding \$10,000, exclusive of costs under the provisions of *the Municipal Act 2001, s. 429 (1) (3)* as amended. Despite paragraph 1, the total of all daily fines for the offence is not limited to \$100,000.

19.3 For the purpose of multiple offences, every *person* who contravenes any provision of the by-law and every Director or Officer of a Corporation who knowingly concurs in the contravention of a By-law by the Corporation is guilty of an offence and liable on conviction to a penalty not exceeding \$ 10,000, exclusive of costs under the provisions of *the Municipal Act 2001, s, 429 (1) (3)* as amended. Despite paragraph 1, the total of all daily fines for the offence is not limited to \$ 100,000.

20.0 ENACTMENT

20.1 That By-Law 2010-102 governing Backflow Prevention and Cross Connection Control be repealed.

20.2 **THAT** this By-law shall come into force and effect on the date of passage.

READ a first and second time this 21st day of June, 2010.

READ a third time and finally passed this 21st day of June, 2010.

THE CORPORATION OF THE CITY OF BARRIE

MAYOR – J. LEHMAN

CITY CLERK – DAWN A. MCALPINE

SCHEDULE "A"
By-law 2016-XXX

AUTHORIZED FUNCTIONS LIST

ITEM	FUNCTION	Professional Engineer with CCCS Certificate	¹ Certified Engineering Technologist with CCCS Certificate	² Journeyman Plumber with CCCS Certificate	³ Apprentice Plumber with CCCS Certificate	⁴ Journeyman Sprinkler and Fire Protection Installer with CCCS Certificate	⁵ Apprentice Journeyman Sprinkler and Fire Protection Installer with CCCS Certificate	⁶ Certified Water Operator with CCCS Certificate	Irrigation System Installer with CCCS Certificate
1.	Carry out a Cross Connection Survey required under this By-law	YES	YES	YES	NO	YES Regarding a Fire Protection Process System Only	NO	NO	NO
2.	Test/Repair a Backflow Preventer required under this By-Law	YES	YES	YES	YES	YES Within a Fire Protection Process System Only	YES Within a Fire Protection Process System Only	YES Within a Municipal Drinking Water System Only	YES Within a Lawn Irrigation System Only


Footnotes:

- ¹ Required to be under the direction of a Professional Engineer
- ² Required to be employed by a Plumbing Contractor
- ³ Required to be employed by a Plumbing Contractor and under the direct supervision of a Journeyman Plumber (in-house)
- ⁴ Required to be employed by a Sprinkler and Fire Protection Contractor
- ⁵ Required to be employed by a Sprinkler and Fire Protection Contractor and under the direct supervision of a Journeyman Sprinkler and Fire Protection Installer (in-house)
- ⁶ Required to be employed by City of Barrie Water Operations Branch

For the purposes of Schedule A; "CCCS Certificate" mean a *Cross Connection Control Specialist Certificate*

APPENDIX "C"

QUALIFIED PERSON POLICY

	<h2>QUALIFIED PERSON POLICY</h2>
<p>Created: 2015/10/27 Approved: 2015/11/06 Revised: n/a</p>	<p>Subject: Backflow Prevention Program Qualified Person Responsibilities</p>

1. POLICY STATEMENT

The Corporation of the City of Barrie (City) is committed to protecting public health by implementing a Backflow Prevention Program (Program). The Program is mandated to ensure that the municipal water supply is not compromised due to back-flow incidents resulting from *cross connections*. The Program addresses the backflow threat as a result of *cross connections* by establishing operating policies that encompass backflow prevention device selection, installation, testing, maintenance practices and procedures. The Program administers a pre-qualification program that maintains a current list of active *certified cross connection control specialists* to ensure that backflow prevention devices are tested and maintained by *Qualified Persons*. *Qualified Persons* must ensure that they abide by this policy and City's Backflow Prevention and Cross Connection Control By-Law 2010-102 (By-Law 2010-102).

2. OBJECTIVE

The Qualified Person Policy has been created in order to:

- i. State the roles and responsibilities of *Qualified Persons*;
- ii. Identify the appropriate certification, training and competencies required to pre-qualify under the City's Backflow Prevention Program;
- iii. Standardize documentation used amongst *Qualified Persons*; and
- iv. Outline the disciplinary actions for violation of this policy.

3. APPLICATION

This policy applies to all *Qualified Persons* whom have or wish to pre-qualify under the City's Backflow Prevention Program, administered by the Water Operations Branch (WOB).

4. DEFINITIONS

For the purposes of this policy:

"*Application Form*" means a form that shall be completed and submitted initially and henceforth annually with associated fees by a *Qualified Person* on the prescribed City of Barrie "Application for Qualified Persons Registry", as amended from time to time;

"*Authorized Functions List*" means the list of functions and the persons with the required qualifications to carry out such functions as set out as Schedule "A" of Barrie's By-law 2010-102;

"*Cross connection*" means any actual or potential connection between a potable water system and any source of pollutant or contamination;

"*Cross connection control specialist*" means an individual who is recognized as such, shall have completed and passed an *Ontario Water Works Association* endorsed *Cross Connection Control Specialist Course*;

"*Cross connection survey*" means a report which shall include existing backflow preventers, *cross connections* discovered, corrective measures and recommendations on the prescribed City of Barrie Cross Connection Survey Form, F16-15 as amended from time to time;

"CSA" means the Canadian Standards Association;

"*CSA Standard*" means the document(s) entitled CAN/CSA B64.10/B64.10.1 Manual Selection and installation of *backflow preventers/Maintenance and field testing of backflow preventers*" as amended from time to time;

"*Qualified person*" means a person whom meets the following requirements;

- v. The person is registered with the City's Backflow Prevention Program's "Prequalification Program"; and
- vi. The person holds a valid and current Certificate of Achievement in Cross Connection Control endorsed by the Ontario Water Works Association (OWWA); and
- vii. The person possesses a current calibration certificate as required under the "Prequalification Program" for the testing equipment to be employed;
- viii. The person maintains commercial general liability insurance; and
- ix. The person is authorized to perform the specified task as indicated in the "Authorized Functions List" as set out in Schedule "A" of Barrie's By-law 2010-102, as amended from time to time;

"*Test Report*" means an inspection and testing report of a backflow preventer containing the make, model, serial number, size, type, installation date, location and installation address and the test results. The report must also contain information related to the *Qualified Person*. This report shall be completed on the prescribed City of Barrie "Testing and Inspection Report Form, F16-16", as amended from time to time;

"*Test Tag*" means a tag containing the make, model, serial number, size type, location, installation date and address as well as history of a backflow preventer. This tag shall be completed and updated annually by a *Qualified Person* on the prescribed City of Barrie "Test/Inspection Tag, F16-17", as amended from time to time;

5. REGISTRATION

Pursuant to By-Law 2010-102, persons applying for registrations as *Qualified Persons* shall submit and be approved by WOB using the *application form*.

6. RESPONSIBILITIES

THE QUALIFIED PERSON

The qualified person responsibilities are as follows:

- Ensure that Certificate of Commercial General Liability Insurance (CGLI), Certificate of Calibration for each test kit, Cross Connection Control Specialist Certificate, and Ontario College of Trades (OCOT) Membership (if applicable) are kept up to date and in good standing. When the certificates are renewed, a current copy must be provided to WOB immediately.
- Ensuring that the City's standard forms pertaining to Backflow Prevention have all fields completed legibly, and accurately prior to submission.
- When Installing, Testing, or Repairing a backflow prevention device:
 - Ensure that the installation, maintenance, and field testing of backflow prevention devices be in accordance with the *CSA Standard*.
 - Affix a standard City cross connection control *test tag* to the device or immediately adjacent to the device on the piping connected thereto.
 - Provide WOB with a test report within 14 days of testing the device.
 - Upon finding that such device is malfunctioning or otherwise not maintained in proper working order, immediately notify the owner of the premises and WOB in writing of such conditions.
- When conducting a *Cross Connection Survey*:
 - Ensure that the hazard assessment of cross connections and selection of backflow prevention devices are in accordance with the *CSA Standard*.
 - When a *cross connection* identified is not classified within the *CSA standard*; the qualified person shall assess the hazard and classify it in one of the following three categories:
 - **Minor** – any type of cross-connection or potential cross connection that involves a substance that constitutes only a nuisance and that results in a reduction in only the aesthetic qualities of the water.
 - **Moderate** – a minor hazard with a low probability of becoming a severe hazard. This category includes, but is not limited to, connections involving water where aesthetic qualities of the water have been reduced and under certain conditions, can create a danger to health.
 - **Severe** – any type of cross-connection or potential cross-connection involving water that has additives or substances that, under any concentration, can create a danger to health.

7. VIOLATIONS

For *Qualified Persons* who are found in violation of this policy, WOB will implement disciplinary actions that may range from warning letters to revocation of their designation in the program depending on the severity of this violation. Violations can be classified as:

Minor violations

- Submission of incomplete documentation.
- Failure to provide WOB with current Certificate of CGLI, Certificate of Calibration for each test kit, Cross Connection Control Specialist Certificate, and OCOT Membership (if applicable).
- Failure to immediately notify WOB in writing of a malfunctioning backflow prevention device.
- Failure to affix a standard City cross connection control *test tag* to the device or immediately adjacent to the device on the piping connected thereto

Recurrent violations

Recurrent violations are subsequent minor violations occurring within one year of occurrence of the first minor violation.

Severe violations

These are violations that involve professional misconduct, negligence, or poor workmanship that may result in potential health risks and compromising the City's drinking water supply system.

8. DISCIPLINARY ACTIONS

The following disciplinary actions will be implemented by WOB for the violations noted above:

Violation	Disciplinary Action
Minor	A warning letter issued to the <i>Qualified Person</i> .
Recurrent	Upon 2 nd occurrence, suspension of the <i>Qualified Person's</i> designation for a period of 6 months. Upon 3 rd occurrence, suspension of the <i>Qualified Person's</i> designation for a period of one year.
Severe	From a five year suspension to permanent revocation of <i>Qualified Person's</i> designation.

9. REFERENCE DOCUMENTS

- i. City of Barrie's current prevailing Backflow Prevention and Cross Connection Control By-Law as amended
- ii. CAN/CSA B64.10/B64.10.1 Manual Selection and installation of *backflow preventers/Maintenance and field testing of backflow preventers*" as amended
- iii. F16-17 Test/Inspection Tag
- iv. F16-16 Testing and Inspection Report Form
- v. F16-15 Cross Connection Survey Form
- vi. Application for Qualified Persons Registry