



TO:	GENERAL COMMITTEE
SUBJECT:	DRINKING WATER PROTECTION POLICY
WARD:	ALL
PREPARED BY AND KEY CONTACT:	S. BRUNET, B.SC, MANAGER OF BUSINESS PERFORMANCE AND ENVIRONMENTAL SUSTAINABILITY
SUBMITTED BY:	S. BRUNET, B.SC, MANAGER OF BUSINESS PERFORMANCE AND ENVIRONMENTAL SUSTAINABILITY
GENERAL MANAGER APPROVAL:	A. MILLER, RPP GENERAL MANAGER, INFRASTRUCTURE AND GROWTH MANAGEMENT
CHIEF ADMINISTRATIVE OFFICER APPROVAL:	M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RECOMMENDED MOTION

1. That the draft Drinking Water Protection Policy attached as Appendix "A" to Staff Report BPE001-21, be approved.
2. That the Manager of Business Performance and Environmental Sustainability or designate be delegated the authority to amend the Drinking Water Protection Policy on an as needed basis, and report back to General Committee through a memorandum to advise of any changes and associated rationale.

PURPOSE & BACKGROUND

Purpose

3. This Policy is being proposed for the protection of Barrie's drinking water sources; both groundwater and surface water. Clean and safe drinking water sources are essential for future growth.
4. Preparing for the risk associated with development and focusing on mitigating that risk through situational evaluation establishes a more resilient approach to protecting and enhancing our drinking water resources. This resiliency will also allow for timely responses to environmental and future legislative changes.
5. Applying this Policy consistently across the City of Barrie (City), rather than strictly within the vulnerable areas, allows for the protection of current drinking water sources, but also proactive protection of sources that may need to be used in the future as the City grows and changes.
6. The ultimate outcome is the reduction in pathways of contamination to the City's groundwater and surface water resources. This Policy creates the capability for managing these resources through the future growth that the City expects.

Legislative Background:

7. The City of Barrie currently draws water from groundwater sources and Kempenfelt Bay for the provision of municipal drinking water. As part of a multi-barrier approach, this water is treated to Provincial standards and consistently meets quality requirements.
8. The first step in this multi-barrier approach addresses the protection of drinking water sources and through the *Clean Water Act* and Source Protection Plans, and tools have been established to manage and/or eliminate activities that are or could become significant threats to water quality and quantity. These tools do not address the gap that exists with respect to impacts of development activities on drinking water sources.
9. Under the *Clean Water Act*, a “drinking water threat” means ‘an activity or condition that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of drinking water and includes an activity or condition that is prescribed by the regulations as a drinking water threat’. Development activities are not identified in the regulations as a drinking water threat, although these activities do have the potential to create a threat if the aquifer is punctured.
10. Regulation 287/07 under the *Clean Water Act* defines a highly vulnerable aquifer as ‘an aquifer on which external sources have or are likely to have a significant adverse effect and includes the land above the aquifer’.
11. Regulation 287/07 under the *Clean Water Act* also defines a significant groundwater recharge area as ‘an area within which it is desirable to regulate or monitor drinking water threats that may affect the recharge of an aquifer’. Recharge areas are areas that allow for infiltration of surface water into underlying aquifers at a greater rate than the surrounding landscape.
12. Regulation 287/07 under the *Clean Water Act* defines a surface water intake protection zone as ‘an area that is related to a surface water intake and within which it is desirable to regulate or monitor drinking water threats’.
13. Regulation 287/07 under the *Clean Water Act* defines a wellhead protection area as ‘an area that is related to a wellhead and within which it is desirable to regulate or monitor drinking water threats’.
14. Under the *Planning Act*, Provincial Policy Statement 2020 specifically addresses the Wise Use and Management of Resources/Water in Section 2.2.
15. Subsection 2.2.1 states that:
Planning authorities shall protect, improve, or restore the quality and quantity of water by:
 - f) Implementing necessary restrictions on development and site alteration to:
 - i. Protect all municipal drinking water supplies and designated vulnerable areas; and
 - ii. Protect, improve, or restore vulnerable surface and groundwater, sensitive surface water features and sensitive groundwater features and their hydrologic functions.
16. Section 2.2.2 states that:
 - i. Development and site alteration shall be restricted in or near sensitive surface water features and sensitive groundwater features such that these features, and their related hydrologic functions will be protected, improved, or restored; and
 - ii. Mitigative measures and/or alternative development approaches may be required in order to protect, improve, or restore sensitive surface water features, sensitive groundwater features, and their hydrologic functions.

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17. The proposed Drinking Water Protection Policy aligns with Provincial legislative tools, as well as the drinking water policies identified in the City's proposed updated Official Plan and is intended to ensure that development activity does not unintentionally create a threat to municipal drinking water by puncturing the aquifer thereby creating a pathway for the movement of contaminants into the drinking water source.
 18. Currently, the City uses reactive enforcement tools such as the Sewer Use By-Law, Compliance Programs and Risk Management Plan Enforcement, that assist in addressing impacts to drinking water sources from existing activities but does not address the protection from other contamination pathways.
 19. Given the projected level of development activity, particularly in areas where there is potential for groundwater contamination, a proactive tool is required.

ANALYSIS

20. The growth planned for the City in the coming years supports positive environmental benefits through intensification.
21. An intensification approach to development promotes a built environment (building up versus out) that may require support structures and construction activities that, depending on structure height, may propose intrusion into the drinking water aquifer. These types of activities have the potential to negatively impact groundwater and/or surface water sources if the aquifer supplying groundwater is compromised.
22. The City groundwater source exists in three (3) somewhat distinct levels bounded by various soil substrate materials or confining layers; the upper aquifer, middle aquifer, and deep aquifer (municipal aquifer). The upper aquifer is most vulnerable to contamination, and the deep aquifer (municipal aquifer) is where the City draws its drinking water. Openings between the aquifers, or 'windows', exist between the layers in various areas creating pathways between the aquifers. As such, quality and/or quantity impacts in the upper aquifer can travel through and into lower aquifers.
23. Activities associated with private and municipal construction (i.e., a new City Facility), land development, renovation, repair, maintenance, or demolition at a property, if not proactively planned, have the potential to impact drinking water sources.
24. Soil investigations, including deep drilling to assess conditions for proposed structural requirements, intrude into subsurface layers, and can extend through the confining layers creating the potential for groundwater migration pathways between aquifers.
25. Based on proposed building heights and subsurface quality, building foundations may be designed to extend through confining layers creating the potential for groundwater migration pathways between aquifers.
26. Additionally, deep foundations are sometimes associated with structures that require continued dewatering. The process of removing water from a foundation pit or excavation in order to keep construction areas dry either for temporary or permanent conditions, have the potential to impact surface water and wastewater systems.
27. Permanent dewatering has the potential to change the quality of surface water leaving the City accountable for potential contamination and resulting negative impacts to the environment and add permanent capacity requirements to stormwater systems.

28. In addition to potential impact on the groundwater aquifer, should the quality of the discharged water dictate it to be directed to the wastewater system, there is the potential to create a hydraulic load on the Plant, i.e., remove capacity for the treatment of wastewater associated with growth and may cause challenges in meeting the City's wastewater environmental compliance approval obligations.
29. The City also obtains its drinking water from Kempenfelt Bay. This surface water source is vulnerable to quality impacts through creek discharges and overland flows.
30. The risk-based approach that this Policy allows for, introduces opportunities to minimize risk through a proactive and fulsome review of activities to identify and mitigate potential impacts. The knowledge gained through these reviews not only allows for risk reduction but also for tracking issues, identifying priorities, and leveraging opportunities through the enhanced management of our water resources.
31. This Policy also provides clear expectations for development and construction activities. Standardizing expectations, removes uncertainty that introduces delays and rework, creates a focus on items critical to success, efficiencies, and effectiveness, and leading to positive and timely outcomes.
32. This Policy sets the standard and allows for an approval process to assess the risk of development proposals. Research and technical reports will support a collaborative approach to ensuring that appropriate approvals are given that will protect the City's drinking water sources.
33. This Policy may have an impact on development as it could potentially impose restrictions to the type and size of structures built. These impacts are initially noted to developers at planning approvals stage during pre-consultation and included in conditions of approval via Site Plan, OPA, Zoning, etc.

ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS

34. The following environmental and climate change impact matters have been considered in the development of the recommendation:
 - a) The Drinking Water Protection Policy regulates the development of potential pathways of contamination to the City's groundwater and surface water sources.

ALTERNATIVES

35. There are two alternatives available for consideration by General Committee:

Alternative #1 General Committee could maintain the status quo.

This Alternative is not recommended as the current enforcement tools are not adequate to clearly protect the drinking water sources and do not provide for clarity of process that could remove delay barriers for development.

Alternative #2 General Committee could approve partial sections of the policy.

This Alternative is not recommended as the proposed Policy was structured based on historical obstacles to development planning and water protection issues. This alternative will not address all the challenges experienced in the past. Additionally, the Policy was developed to provide a risk-based approach that requires a wholesome approach to drinking water protection.

FINANCIAL

36. There are no financial expenditures for the Corporation resulting from the proposed recommendation.
37. Currently, reports addressing the environmental aspects for a development require a third-party review that is being funded by the proponent.

LINKAGE TO 2018–2022 STRATEGIC PLAN

38. The recommendations included in this Staff Report support the following goals identified in the 2018-2022 Strategic Plan:
 - Fostering a Safe and Healthy City.
39. The proposed Drinking Water Protection Policy will continue to protect the health of the City's groundwater resource, and Lake Simcoe and its recreational value. Managing the drinking water sources will provide for continued sustainable drinking water, foster a greener future for the City, and healthy water ways that are more resilient to Climate Change.
40. This Policy improves the success of protection the City's natural water assets.

APPENDIX "A"

DRINKING WATER PROTECTION POLICY

Policy Category/Section: C00- Governance – City Council
Approval Date and Motion:
Effective Date:
Last review date:

Policy Statement:

The Corporation of the City of Barrie (City) will protect its drinking resources from negative quantity and quality impacts due to activities related to private and municipal construction, land development, renovation, repair, maintenance, or demolition activity at a property.

Purpose/Application:

Deep drilling and construction activities that intercept the municipal supply aquifer can create transport pathways for possible contamination of the drinking water system. Additionally, activities that have the potential to mobilize contamination may allow existing or future contaminants to reach the municipal aquifer through 'windows' in the overlying aquitards or surface water sources through creeks and overland flows.

This Policy will address and mitigate the risks from the following activities, including but not limited to:

- New building foundations;
- Supports for infrastructure;
- Excavation;
- Geotechnical work related to boreholes and monitoring wells;
- Geothermal Heat Pump systems;
- Groundwater dewatering (quality);
- Private water wells; and
- Water taking.

Definition(s):

MUNICIPAL AQUIFER – Means groundwater beneath the earth's surface accumulating as a result of seepage from where municipal supply wells draw water.

OWNER – Means the person or entity that owns the land and controls activities occurring on the land.

CONTAMINATED SITE – Means a site at which substances occur at concentrations: (1) above background levels and pose or are likely to pose an immediate or long-term hazard to human health or the environment, or (2) exceeding levels specified in Municipal, Provincial, and Federal Policies and Regulations.

GEOHERMAL HEAT PUMP – Means a heating and/or cooling system that transfers heat to or from the earth and/or groundwater.

GROUNDWATER DEWATERING – Means the taking of water from a well or otherwise extracting groundwater, or any other combination of activities where the water from such activities would be discharged into the Municipal Sewage Works and such activities are related to a construction, land development, renovation, repair, maintenance, or demolition activity at a Site.

POTABLE and NON-POTABLE WATER STANDARDS – Means the standards set out in the applicable Tables of *Soil, groundwater, and sediment standards for use under Part XV.1 of the Environmental Protection Act*.

PRIVATE WATER WELL – Means any well that removes groundwater for domestic, commercial, or industrial uses that is not owned and maintained by the Corporation of the City of Barrie.

Specific Policy Requirements:

1. Contaminated Sites
 - 1.1. On-site activities (drilling, excavation, etc.) extending beyond the upper aquitard on sites with known or suspected contamination shall not occur without review and approval from the City.
 - 1.2. Consideration for approval requires that information be submitted to the City by the Owner. Information requirements will be in accordance with City procedures.
 - 1.3. Any required information may be subject to third-party technical review at the expense of the Owner.
2. Deep Drilling
 - 2.1. Drilling activities (boreholes, monitoring wells, etc.) expected or planned to enter the municipal aquifer shall not be undertaken without review and approval from the City.
 - 2.2. Consideration for approval requires that information be submitted to the City by the Owner. Information requirements will be in accordance with City procedures.
 - 2.3. Any required information may be subject to third-party technical review at the expense of the Owner.
 - 2.4. The Owner shall inform the City of drilling activities expected or planned to extend beyond the upper aquitard in accordance with City procedures.
3. Foundations and Subsurface Activities
 - 3.1. Building foundations shall be designed to stay above the municipal aquifer.
 - 3.2. Activities (excavations, shoring, foundations, piling) expected or planned to extend beyond the upper aquitard shall not be undertaken without review and approval from the City.
 - 3.3. Consideration for approval requires that information be submitted to the City by the Owner. Information requirements will be in accordance with City procedures.
 - 3.4. Any required information may be subject to third-party technical review at the expense of the Owner.
4. Geothermal Heat Pump Systems
 - 4.1. Geothermal Heat Pump systems shall be designed to stay above the municipal aquifer.
 - 4.2. Geothermal Heat Pump systems expected or planned to extend beyond the upper aquitard shall not be constructed without review and approval from the City.
 - 4.3. Consideration for approval requires that information be submitted to the City by the Owner. Information requirements will be in accordance with City procedures.
 - 4.4. Any required information may be subject to third-party technical review at the expense of the Owner.
5. Groundwater Dewatering
 - 5.1. Permanent dewatering required for development is not permitted.
 - 5.2. Temporary dewatering required for development is not permitted to be directed into a municipal sewer system unless approved by the City through a Sewer Discharge Agreement under the Sewer-Use Bylaw.

6. Private Water Wells

- 6.1. All private water wells shall be designed to stay above the municipal aquifer.
- 6.2. Private water wells to be used for domestic purposes are prohibited if municipal services are available.
- 6.3. Private water wells for non-domestic purposes expected or planned to extend beyond the upper aquitard shall not be constructed without review and approval from the City.
- 6.4. Consideration for approval requires that information be submitted to the City by the Owner. Information requirements will be in accordance with City procedures.
- 6.5. Any required information may be subject to third-party technical review at the expense of the Owner.

7. Potable Water Standards

- 7.1. The City shall object to requests made for the application of non-potable groundwater standards to sites required to obtain a Record of Site Condition under O. Reg 153/04.
- 7.2. Potable water standards must be applied to all other contaminated sites undergoing land development or construction where a Record of Site Condition is not required under O. Reg 153/04.

Responsibilities:

All private landowners, Members of Council and Officers, and employees of The Corporation of the City of Barrie are required to adhere to this Policy and its governing provisions.

Rationale and Legislative Authority:

The *Safe Drinking Water Act, 2002* details a standard of care whereby a Municipality must act competently and with integrity to ensure the protection and safety of users of a municipal drinking water system.

The City of Barrie Official Plan gives direction for controlling growth so that the City's capacity for providing a healthy community environment is not exceeded. Specifically, Policy 3.5.2.3 outlines that "the City will maintain and, where possible, protect, improve or restore the quality and sustainability of surface and groundwater resources".

Related Policies, Legislation and By-laws

City of Barrie Official Plan Policy 3.5.2.3

Safe Drinking Water Act, 2002

Clean Water Act, 2006

Sewer Use By-Law 2020-002

Department Contact

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