

## A PRESENTATION TO COMMITTEE OF THE WHOLE July 5 2021

By Hugh Whiteley

### EXECUTIVE SUMMARY

In this submission I describe my concerns about the process the City is following to resolve the problems posed by the operation and closure of the Dolime Quarry.

It is my submission that the process being followed contravenes basic principles of landuse planning and environmental protection that are required by Provincial Legislation and by City of Guelph policies. The process involved a confidential agreement that I believe is not authorized by any legislation and certainly violates the commitment to transparency and public participation in decision making that is supposed to apply to all planning decisions.

The following steps are needed to bring the process back to the rule of law.

- 1 The Annexation request should be paused until the steps below have been followed.
2. An urgent request must be made to the Ministry of Natural Resources and Forestry for revision of the Dolime Quarry licence to restrict the depth of extraction to the upper surface of the Vinemont aquitard as is required by its obligation under the Aggregate Act to minimize adverse impact on the environment in respect of aggregate operations.
3. If the MNRF refuses to meet its obligations the City must undertake the Environmental Assessment required by the Environmental Assessment Act in order for the City to conduct planning of what remedial actions are needed to deal with the threats to drinking water posed by a Quarry Lake at the Dolime Site.
- 4 Depending on the preferred alternative that results from the Environmental Assessment process the City may or may not proceed with Annexation.
- 5 Under no circumstances should the City seek to bypass public participation in the decision-making process by utilizing a Ministerial Order to impose zoning. City Council must use the well-established procedures under the Planning Act in all land use decisions to ensure the decisions are made for the betterment of the people and environment of Ontario and not for the benefit of the land owner.

### PROBLEM STATEMENT FOR THE DOLIME QUARRY

In the absence of a clear and complete statement from the City on what constitutes the problem with the Dolime Quarry I provide my understanding of the problem.

- Water pumped from the Middle Gasport Aquifer forms an essential part of the City of Guelph's drinking water supply.
- The Middle Gasport Aquifer is protected from direct contamination from surface-water sources by the Vinemount aquitard.
- The Dolime Quarry site is underlain by the Vinemount aquitard and below the aquitard by the Middle Gasport Aquifer.

- The Dolime Quarry has a licence for extraction of bedrock, issued by the Ontario Ministry of Natural Resources and Forestry under the Aggregate Resources Act, that allows the quarry to remove all of the Vinemount aquitard from its extraction area.
- The Rehabilitation Plan for the Dolime Quarry contained in the licence shows as the final condition a 35-ha lake overlying the Middle Gasport Aquifer with no aquitard barrier between the lake bottom and the aquifer.
- The removal of the aquitard barrier will allow transmission of contaminants commonly found in surface water such as cryptosporidium, giardia and viruses to the aquifer.
- Transmission of these pathogens to City wells near the Dolime Quarry could occur once the quarry lake is established. If transmission of these pathogens does occur this would require the City to add filtration treatment at the affected wells.

## DEFECTS IN THE DOLIME SETTLEMENT PATHWAY PROCESS

### DEFECT 1: UNAUTHORIZED ASSUMPTION OF SOLE RESPONSIBILITY FOR PROTECTION OF SOURCEWATER

City staff and City Council have been diligent in their efforts to ensure the highest level achievable in the protection of Guelph's drinking-water. When the Province began the development of much-needed Sourcewater Protection Plans for the province the City was quick to alert Provincial regulators of the drastic increase in vulnerability of portions of the City's water supply sources posed by continued quarrying at the Dolime Quarry. The first submission to the Province was made in 2003 – three years before the Clean Water Act was approved.

The science that supports the City's concerns about the extent of bedrock removal at the Dolime Quarry is well documented and unchallenged. The City wells within the influence zone of the Dolime Quarry draw water from the Middle Gasport Aquifer. This aquifer is shielded by the Vinemount aquitard which restricts the downward movement into the aquifer of water potentially contaminated at the land surface and provides addition protection through filtration and extended travel time.

The effectiveness of the Vinemont aquitard is well document in hydrogeological studies. The Vinemont aquitard has a wide extent from the Bruce Peninsula to the Niagara frontier. The Vinemont aquitard is not uniformly present at all locations in this broad region but where it is present – specifically in the Guelph area extending north to Fergus and south to Cambridge – it is recognized as a competent unit with low hydraulic conductivity – the essential properties for a protective aquitard.

The importance of aquitards to minimizing the vulnerability of aquifers was stressed in the experts report to the Walkerton Inquiry produced in 2001. These experts report later became the technical basis for the provisions of the Clean Water Act. In the words of the expert report:

*“The extent and the integrity of aquitards providing natural protection, as well as dilution and natural attenuation, play important roles in determining the vulnerability of an aquifer.....Aquitards can play an important role in protecting aquifers from contamination. However, this protective capacity depends critically on the integrity of the aquitard, which can be compromised by the presence of windows (openings), manmade penetrations such as*

*abandoned boreholes, and fractures in the aquitard (Howard and Gerber, 1997; Martin and Frind, 1998). In the case of large openings, the protective capacity can be completely lost..... The mapping of aquitards including their characteristics is therefore as important as the mapping of aquifers.*

This expert opinion on the vital role of aquitards in determining the vulnerability of aquifers was repeated in a 2004 Research Report of the American Water Works Association titled Role of Aquitards in the Protection of Aquifers from Contamination: A State of the Science Report. (The lead authors of this report – John Cherry and Beth Parker – are now at the University of Guelph’s G360 Groundwater Research Institute. John Cherry was awarded the 2020 Stockholm Water Prize for his internationally-recognized leadership in protection of groundwater)

The 2004 research report reached these conclusions about the importance of aquitards in reducing the vulnerability of aquifers:

*Aquitards are critical to protecting water supply wells from contamination. In general any well constructed with no aquitard between a contamination source and the well screen (or open borehole) is at great risk.*

*Hydrogeologic and engineering studies conducted when designing water supply wells should strive to collect sufficient data on adjacent aquitards to allow a reasonable assessment of vulnerability to contamination and prevent well designs that cross connect or breach aquitards.*

*With respect to the protection that aquitards offer for water supply wells finished beneath them, assessments of the risk or probability of contamination will be appropriate, meaningful, and useful only if the likely contaminant pathways through the aquitard are identified and characterized.*

In 2008 the Ontario Geological Survey was conducting a re-evaluation of the stratigraphy of the dolostone bedrock of southwestern Ontario. During a site visit to the Dolime Quarry by OGS geologists they observed that the floor of the quarry was being excavated to the top surface of the Vinemount aquitard and over a portion of the site the Vinemount aquitard layer had been removed.

OGS informed the City of the breach of the Vinemount aquitard at the Dolime Quarry and of the possible future removal of the remaining aquitard from the rest of the quarry extraction area. The City responded immediately and effectively. A Technical Working Group was formed in 2009 comprising City, MECP and River Valley Development experts. The Technical Working Group has been engaged with the issue for twelve years.

Much of the Technical Working Groups focus has been on a Permit to Take Water for the Dolime Quarry. This PTTW was first issued in 1993 and renewed in 2004 with no consideration given to the consequences to water quality of any removal of the Vinemount aquitard. In 2013 the PTTW was renewed by MECP despite submissions by the City and members of the public related to the effects of quarry operations on future water quality in the Middle Gasport Aquifer.

In February 2013 the City filed an application to appeal the renewal of the PTTW with the Ontario Environmental Review Tribunal. The ERT granted the application in May 2013 and the ERT held initial hearings on the appeal which were adjourned pending results from discussion about settlement among the Parties (City, MECP, RVD).

In November 2020 the ERT was informed by the Parties that a Settlement Agreement had been reached by the Parties which resulted in the City withdrawing its appeal. The settlement agreement did not require any change in the renewed PTTW and the ERT dismissed the appeal. The renewed PTTW is in effect.

I have two major objections to the process the City has followed and to the results of the process. The first objection is that the issue has been treated as a technical issue throughout instead of being a policy issue.

The policy issue is whether or not the MNRF must act to prevent removal of a competent aquitard that is protecting a vital drinking-water source aquifer in a quarry that is within a Wellhead Protection Area. In Appendix A I present the science that answers this policy question. The science is clear – aquitards are a vital part of the protection of drinking-water aquifers, the integrity of the aquitard is removed by creation of large openings in the aquitard, protection of aquitards is as important as protection of aquifers.

The Technical Working Group has not responded to this policy issue. MNRF was not involved in the Working Group despite the requirements of the Aggregate Act which assign to MNRF the responsibility “*to minimize adverse impact on the environment in respect of aggregate operations*”, and to have regard to “any possible effects on ground and surface water resources including on drinking water sources;”

There is provision in the Aggregate Act for revisions in depth of extraction (Section 13.1) The MNRF has never been asked to exercise its authority under the Aggregate Act to protect groundwater. Failure to challenge the MNRF to be responsible is detrimental to water protection efforts not only in Guelph but across the Province.

My second concern is the willingness of the City to take on the sole responsibility and the expense of protection of groundwater quality when this should be the shared responsibility of the Province of Ontario, the landowner of the Quarry and the City. Relieving the Province and RVD of any responsibility for protection of groundwater quality sets a very bad precedent and bodes ill for the taxpayers in the City.

## **FLAW 2      TRANSFER TO THE CITY OF COST AND RESPONSIBILITY FOR REHABILITATION OF THE QUARRY**

Site Rehabilitation is an important responsibility of all quarry owners. Owners of quarries are required as part of their licence application to submit a rehabilitation plan. After a quarry is closed the property must be rehabilitated for future use according to the submitted plan. As part of the rehabilitation all risks of damage to the environment must be removed.

It is the position of the City, a position strongly supported by science, that the current Rehabilitation Plan for the Dolime Quarry with a 35-ha lake that has a bed elevation of 285 masl and a water surface elevation of 310 masl will create a high vulnerability rating for the underlying Middle Gasport aquifer and an unacceptable risk of transmission of the pathogens cryptosporidium, giardia and viruses to nearby City of Guelph wells.

It is the responsibility of the owners of the Dolime Quarry to find ways to rehabilitate the quarry lands in a way that eliminates or reduces to acceptable levels any risk to drinking water. Any and all costs incurred in rehabilitation are borne by the quarry owner.

The principle underlying the allocation of costs created by pollution is polluter pay”. The City is very familiar with the principle as it has been applied successfully to the numerous sites undergoing remediation of polluted groundwater in Guelph. As owner of abandoned polluted sites such as IMICo and the Coal Gas plant the City has direct experience of the need to hold owners responsibility for elimination of pollution risks while the owners are solvent.

It is therefore both a very bad precedent to set and an entirely unjustified expense for the City to assume the responsibility and cost of managing any risks of pollution created by past operations of the Dolime Quarry.

### FLAW 3      DISREGARDING THE REQUIREMENTS OF THE ENVIRONMENTAL ASSESSMENT ACT

The Environmental Assessment Act requires a municipality to seek approval of the Minister of Environment Conservation and Parks before beginning the planning, investigation and selection of alternatives for any undertaking. The language of the Act clearly establishes that this approval is to be sought at the very beginning of the consideration of an undertaking. “Every proponent who wishes to proceed with an undertaking shall apply to the Minister for approval” The application for approval to proceed must begin with a proposed terms of reference and proceeding with further steps toward a selection of a preferred option is conditional on the Minister’s approval of the terms of reference.

The regulations governing the steps in an Environmental Assessment are based on well-tested best-practice concepts that produce optimal solutions. The essential features of the EA process prescribed by the regulations involve a collaborative interaction with all stakeholders and the public, transparency at all stages with traceable decision-making steps. This includes collaborative definition of the problem to be solved, consideration of a wide range of possible solutions, selection of criteria for ranking alternatives, application of selection criteria with consideration of all aspects of the environment (biophysical, social and economic). Applying these steps results in a selected preferred alternative that best meets the needs of the community.

Conducting an EA should not be considered as a barrier to be overcome to gain approval of a predetermined course of action. Properly conducted an EA produces best available solutions that integrate well with both present and future needs and trends.

The Council approved Settlement Pathway includes the construction and in perpetuity operation of a Pond Management System for the Dolime Site based on dewatering as the preferred option. The selection of in perpetuity dewatering, an energy intensive option that was the decisive weakness of the rejected mega quarry proposal is a clear indication of the deficiencies in judgement that result from deviation from the requirements of the Environmental Assessment Act.

I am hopeful that on reflection City Council will chose to follow the laws of Ontario and will pause the Dolime Pathway activity until the required EA is conducted.

#### FLAW 4            BREAKING WISE PLANNING RULES TO ZONE DOLIME FOR HOUSING

The justification presented for adopting the Dolime Settlement Pathway gives two reasons for the City annexing the Dolime Property and zoning the property for housing. The first reason is to allow the City to gain control over the management of its drinking water source. This reason is invalid since the City is not authorized to be the steward of water and doesn't have the power or resources to be an effective steward. The proper role of the City is to encourage and facilitate the legal guardian of water – the Government of Ontario – to fulfill its role in the wise management of water as a common good and public trust.

The second reason given for annexation is to allow the land to be used for urban housing. The Municipal Act allows this as a reason for annexation but the City of Guelph has debated the option of using annexation to increase the land available for urban housing and decided not to expand its boundaries. This wise decision by City Council was based on the realization that in Guelph's case annexation would contribute to urban sprawl and detract from the City's intent to develop a compact urban form not dependent on automobile transportation and capable of sustaining a prosperous and thriving community in the net zero future we wish to achieve.

It is the height of irresponsibility for City Council to commit to annexing the Dolime property and to use Ministerial Order to bypass public consultation on the future uses of the land when there is existing City policy that says there is no need for annexation to provide additional land for housing and there is no assessment of the suitability of the Dolime Quarry for housing.

The standard planning process set out in the Planning Act is intended to allow decisions about changes in use of land that benefit the people and environment of Ontario not only now but for generations to come. Treating the well-tested procedures of the Planning Act as obstructive red tape is a huge mistake and I am very disappointed to see the City of Guelph engaging in this activity by invoking a Ministerial Order in the Dolime Pathway.

An essential procedure in good planning is to do the planning based on knowledge. A key part of knowledge about the Dolime Site is to establish what options there are for future use of the property and how each of the possible uses relate to the location and physical properties of the site. To make a decision on future use without this knowledge is foolish in the extreme.

There are good reasons to anticipate that the Dolime property is a last-to-be-used option for housing. The site is at the outskirts of the city, separated from the nearest roadway linkages by the Speed River and by bedrock cliffs. At present at least 20 ha of the Dolime site are excavated to be 15 m below the regional flood line and this portion of the site cannot be used for housing unless enormous amounts of fill are imported to bring this area above the regional flood line.

There are equally good reasons for considering the Dolime site as a valuable addition to the greenspace of the city and adjacent municipalities. Immediately downstream of Dolime the Speed valley has an exceptionally beautiful natural setting with 75 m wide woodland banks on each side. The City's River System Management Plan noted that this stretch of river was the best representation of presettlement river setting in the City and recommended that this setting be expanded upstream to the Hanlon crossing when the Dolime property was rehabilitated.

In summary the proposal to set aside planning rules and continue with the annexation and zoning of the Dolime Lands in a state of ignorance of the consequences in terms of costs to the city and lost opportunities is not wise planning.

The City is proceeding as if there was an emergency situation which justified proceeding against well-tested procedures. There is no emergency. Return to the pathway set out in the Planning Act and the Environmental Assessment Act and reap the benefits for current and future generations.

## APPENDIX A

### LEGISLATED ASSIGNMENT OF RESPONSIBILITY FOR PROTECTION OF SOURCEWATER IN ONTARIO

Listed below are the major pieces of legislation that govern the management of water in Ontario. The foundational principle underlying this legislative framework is that water, the essential basis for all life, is a common good and public trust not susceptible to ownership. Stewardship and management of all water in Ontario on or below the earth's surface is the responsibility of the Province of Ontario as exercised by the Government of Ontario.

#### **Ontario Water Resources Act**

##### **Purpose**

**0.1** The purpose of this Act is to provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use, in order to promote Ontario's long-term environmental, social and economic well-being. 2007, c. 12, s. 1 (1).

##### **Supervision of waters**

**29** (1) For the purposes of this Act, the Minister has the supervision of all surface waters and ground waters in Ontario. R.S.O. 1990, c. O.40, s. 29 (1).

##### **Discharge of polluting material prohibited**

**30** (1) Every person that discharges or causes or permits the discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters is guilty of an offence. R.S.O. 1990, c. O.40, s. 30 (1).

##### **Water taking**

**34** (1) Despite any other Act but subject to section 47.3 of the *Environmental Protection Act*, a person shall not take more than 50,000 litres of water on any day by any means except in accordance with a permit issued under section 34.1. 2007, c. 12, s. 1 (8); 2009, c. 12, Sched. H, s. 1 (2).

## **Environmental Protection Act**

**3 (1) The purpose of this Act is to provide for the protection and conservation of the natural environment. R.S.O. 1990, c. E.19, s. 3.**

### **PART II GENERAL PROVISIONS**

#### **Prohibition, contamination generally**

**6 (1)** No person shall discharge into the natural environment any contaminant, and no person responsible for a source of contaminant shall permit the discharge into the natural environment of any contaminant from the source of contaminant, in an amount, concentration or level in excess of that prescribed by the regulations. R.S.O. 1990, c. E.19, s. 6 (1).

### **PART II.1 ENVIRONMENTAL COMPLIANCE APPROVALS**

#### **Powers of Director**

**20.3 (1)** After consideration of an application for approval under section 20.2 in respect of one or more activities, the Director may,

- (a) issue or refuse to issue an environmental compliance approval in respect of one or more of the activities;
- (b) if the Director issues an environmental compliance approval,
  - (i) impose terms and conditions in the approval, and
  - (ii) incorporate any environmental compliance approvals that are in effect into the new approval and revoke the approvals that have been incorporated;
- (c) amend an environmental compliance approval that is in effect and impose, alter or revoke terms and conditions or expand the scope of the approval to other activities or sites;
- (d) revoke an environmental compliance approval in whole or in part, with or without issuing a new approval; and
- (e) suspend an environmental compliance approval in whole or in part. 2010, c. 16, Sched. 7, s. 2 (15).

## **Clean Water Act, 2006**

### **Purpose**

**1** The purpose of this Act is to protect existing and future sources of drinking water. 2006, c. 22, s. 1.

### **Obligations of municipalities**

**86** (1) A municipality in which any part of a source protection area is located shall co-operate with the source protection authority and source protection committee for the source protection area, with other municipalities in which any part of the source protection area is located, and with ministries of the Government of Ontario in addressing issues that affect the quality or quantity of any water that is or may be used as a source of drinking water. 2006, c. 22, s. 86 (1).

### **Same**

(2) Without limiting the generality of subsection (1), a municipality shall, on request, for a purpose listed in subsection (3),

- (a) provide a source protection authority, source protection committee, municipality or ministry with copies of any document or other record in the possession or control of the municipality that relates to the quality or quantity of any water that is or may be used as a source of drinking water, including,
  - (i) any technical or scientific studies undertaken by or on behalf of the municipality, and
  - (ii) any document or other record relating to a drinking water threat; and
- (b) assist a source protection authority, source protection committee, municipality or ministry in obtaining information. 2006, c. 22, s. 86 (2).

## **Aggregate Resources Act**

### **Purposes of Act**

**2** The purposes of this Act are,

- (a) to provide for the management of the aggregate resources of Ontario;
- (b) to control and regulate aggregate operations on Crown and private lands;
- (c) to require the rehabilitation of land from which aggregate has been excavated; and
- (d) to minimize adverse impact on the environment in respect of aggregate operations. R.S.O. 1990, c. A.8, s. 2.

### **Matters to be considered**

**12** (1) In considering whether a licence should be issued or refused, the Minister or the Tribunal, as the case may be, shall have regard to,

- (a) the effect of the operation of the pit or quarry on the environment;
- (b) the effect of the operation of the pit or quarry on nearby communities;
- (c) any comments provided by a municipality in which the site is located;

- (d) the suitability of the progressive rehabilitation and final rehabilitation plans for the site;
- (e) any possible effects on ground and surface water resources including on drinking water sources;
- (f) any possible effects of the operation of the pit or quarry on agricultural resources;
- (g) any planning and land use considerations;
- (h) the main haulage routes and proposed truck traffic to and from the site;
- (i) the quality and quantity of the aggregate on the site;
- (j) the applicant's history of compliance with this Act and the regulations, if a licence or permit has previously been issued to the applicant under this Act or a predecessor of this Act; and
- (k) such other matters as are considered appropriate. R.S.O. 1990, c. A.8, s. 12; 1996, c. 30, s. 9 (1, 2); 2002, c. 17, Sched. F, Table; 2017, c. 6, Sched. 1, s. 11 (1); 2017, c. 23, Sched. 5, s. 2; 2021, c. 4, Sched. 6, s. 30 (1).

## **Environmental Assessment Act**

**2** The purpose of this Act is the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment. R.S.O. 1990, c. E.18, s. 2.

### **Application of Act**

**3** This Act applies to,

- (a) enterprises or activities or proposals, plans or programs in respect of enterprises or activities by or on behalf of Her Majesty in right of Ontario or by a public body or public bodies or by a municipality or municipalities;

“undertaking” means,

- (a) an enterprise or activity or a proposal, plan or program in respect of an enterprise or activity by or on behalf of Her Majesty in right of Ontario, by a public body or public bodies or by a municipality or municipalities

### **Approval for undertaking**

**5** (1) Every proponent who wishes to proceed with an undertaking shall apply to the Minister for approval to do so. 1996, c. 27, s. 3.

### **Application**

(2) The application consists of the proposed terms of reference submitted under subsection 6 (1) and the environmental assessment subsequently submitted under subsection 6.2 (1). 1996, c. 27, s. 3.

## APPENDIX B

### SCIENCE BASE FOR PROTECTION OF AQUITARDS IN ONTARIO

The Clean Water Act 2006 has as its purpose the protection of existing and future sources of drinking water in Ontario. The content of the Clean Water Act is science based. One of the primary documents setting out the science base of the Clean Water Act is a commissioned study submitted to the Walkerton Inquiry titled *The Case for Groundwater Protection in Ontario: Results of the Workshop held at the University of Waterloo, May 1, 2001 A Contribution to the Walkerton Inquiry, Phase II*.

The participants in the workshop included many highly-regarded hydrogeological experts who agreed on the following statements concerning the importance of protection of aquitards as a central requirement for protection of sources for drinking water.

- The extent and the integrity of aquitards providing natural protection, as well as dilution and natural attenuation, play important roles in determining the vulnerability of an aquifer. (Page 5)
- Aquitards can play an important role in protecting aquifers from contamination. However, this protective capacity depends critically on the integrity of the aquitard, which can be compromised by the presence of windows (openings), manmade penetrations such as abandoned boreholes, and fractures in the aquitard (Howard and Gerber, 1997; Martin and Frind, 1998). In the case of large openings, the protective capacity can be completely lost, while in the case of fractures, matrix diffusion may still act as a protective process. Although the controlling processes are understood, the associated parameters are often not well known. The distribution of natural tracers can sometimes yield an indication of migration rates through an aquitard (Rudolph et al., 1991). The mapping of aquitards including their characteristics is therefore as important as the mapping of aquifers. (page 12).

The conclusions of the 2001 Workshop on the importance of preserving the physical integrity of aquitards for protection of underlying aquifers serving as a source of drinking water were confirmed in a Research Report published by the American Water Research Foundation in 2004 with the lead authors being John Cherry and Beth Parker of the University of Guelph. The report titled *“Role of Aquitards in the Protection of Aquifers from Contamination: A “State of the Science” Report “* had the following conclusions:

Aquitards are critical to protecting water supply wells from contamination. In general any well constructed with no aquitard between a contamination source and the well screen (or open borehole) is at great risk.

Hydrogeologic and engineering studies conducted when designing water supply wells should strive to collect sufficient data on adjacent aquitards to allow a reasonable assessment of vulnerability to contamination and prevent well designs that cross connect

or breach aquitards.

With respect to the protection that aquitards offer for water supply wells finished beneath them, assessments of the risk or probability of contamination will be appropriate, meaningful, and useful only if the likely contaminant pathways through the aquitard are identified and characterized.