

**Re: St.Marys application for a Category 1- Class “A”
Pit Licence for below water extraction for Olszowka
Property at Bishopsgate Road and Concession
Road 5.**

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Concern 1: Poor Boreholes Data

Canadian Geological Survey and the US geological survey recommends using bore hole depths of 20-30 meters down and deeper still if there is recharge identified in an area.

This is because the first 12 meters of sediment is influenced by surface water events such as rain, spring thaw and weather events. The sediment in the first 12 meters are influenced from above the soil incidents and do not reasonably represent the underlying subsurface geology of an area.

Hydrogeological Assessment for Olszowka Property

Section 5.1 Geology

There are 16 wells on Site that have been monitored by Golder since November 2007 namely:

BH1, BH2, BH3, BH4, BH5, BH6, BH7B, BH9B, BH10B, BH11B, BH12B, BH13, MW11, MW24, MW07-01 and MW07-02.

Several wells were damaged by the Onsite farming so **MW5, BH7, BH9, BH11 and BH2** were REPLACED with BH7B, BH9B, BH10B and BH11B and BH12B.

Golder's Bore Hole Assessment Logs reveal the shallow depths of 8 of the 9 boreholes they used to test the area:

9.91m MWO7-01

10.67m MT07-02

7.6m BH1/04

10.7m BH2/04

9.1m BH3/04

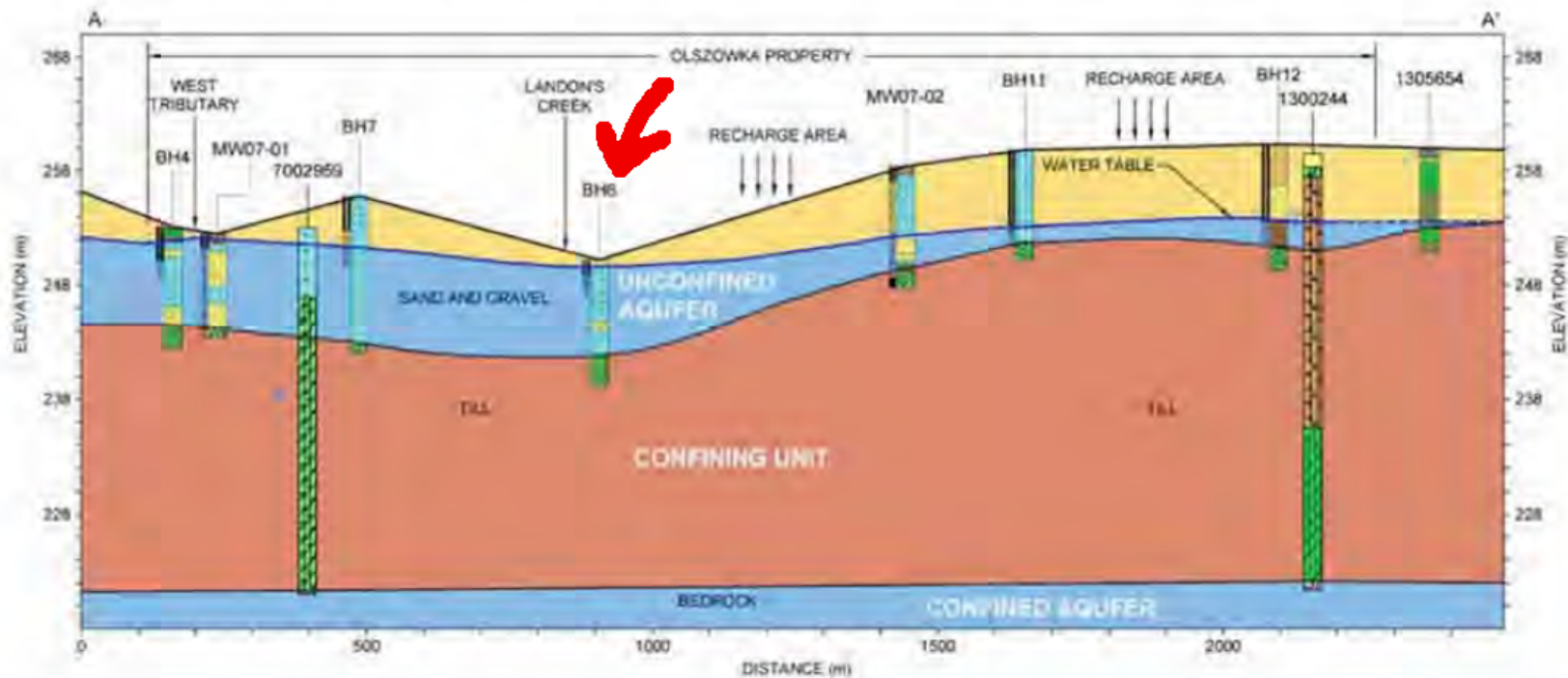
10.7m BH4/04

9.1m BH5/04

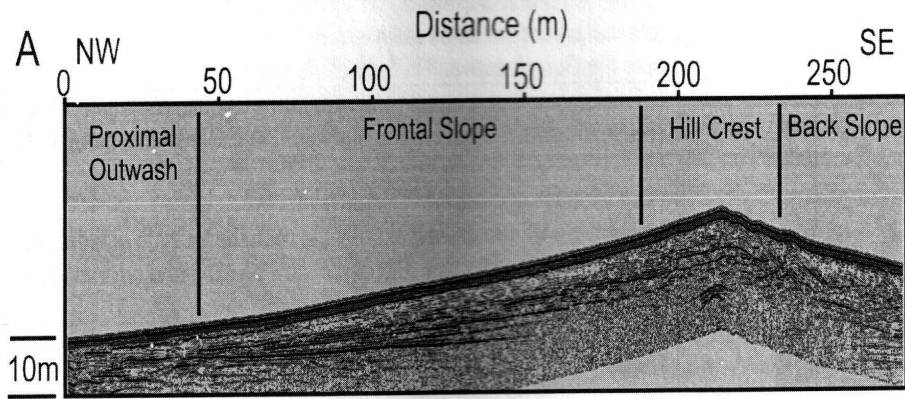
13.7m BH7/04

They are too shallow to reasonably assess the risks!

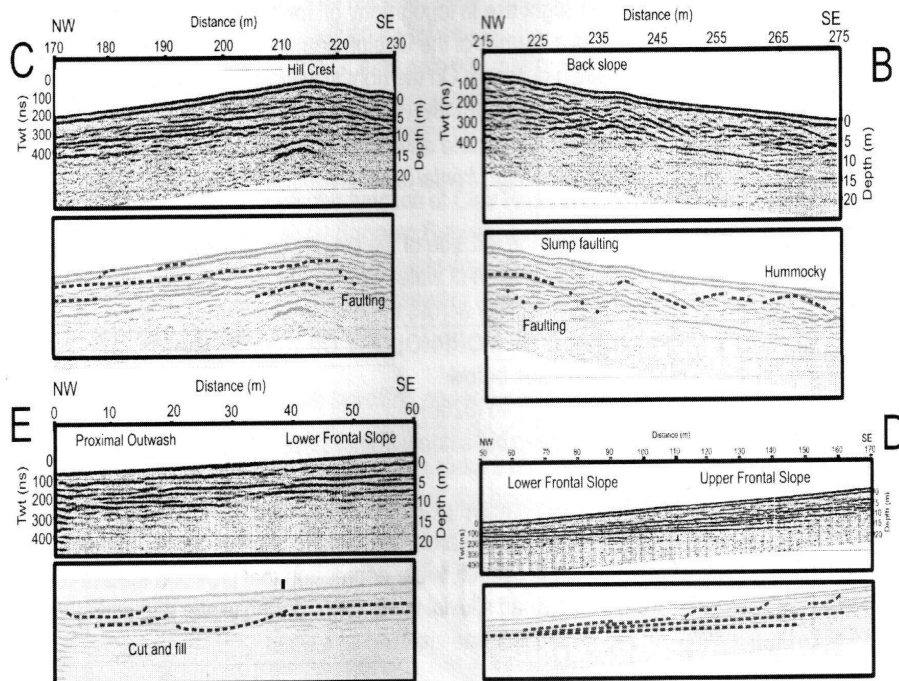
The Bore Hole Record of Installation for borehole BH6 by Langdon's Creek is MISSING from the Bore Hole Logs in spite of the fact is the most sensitive hydrogeological bore hole in the area.



Without Ground Penetrating Radar, bore hole data is unreliable in outwash moraine systems. Example: Arkell Research Centre in Guelph



- **Using standard bore hole testing, this area appears to be covered in a consistent clay layer.**
- GPR profiles identifies this area as a shallow outwash aquifer. The clay is discontinuous. The alluvial fans from glacial melt distributed sediment like shingles with many spaces of infiltration in between.



- **GPR revealed this area gathers up to 7% of Guelph's potable water supply and it recharges cold water trout streams.**
- The GPR profiles for the Arkell Research Station were provided to me by Hazen Russell, Andy Bajc and David Sharp of the Canadian Geological Survey of Canada during a tour I took with them of the Galt Paris Moraine system.

Concern 2: The costs

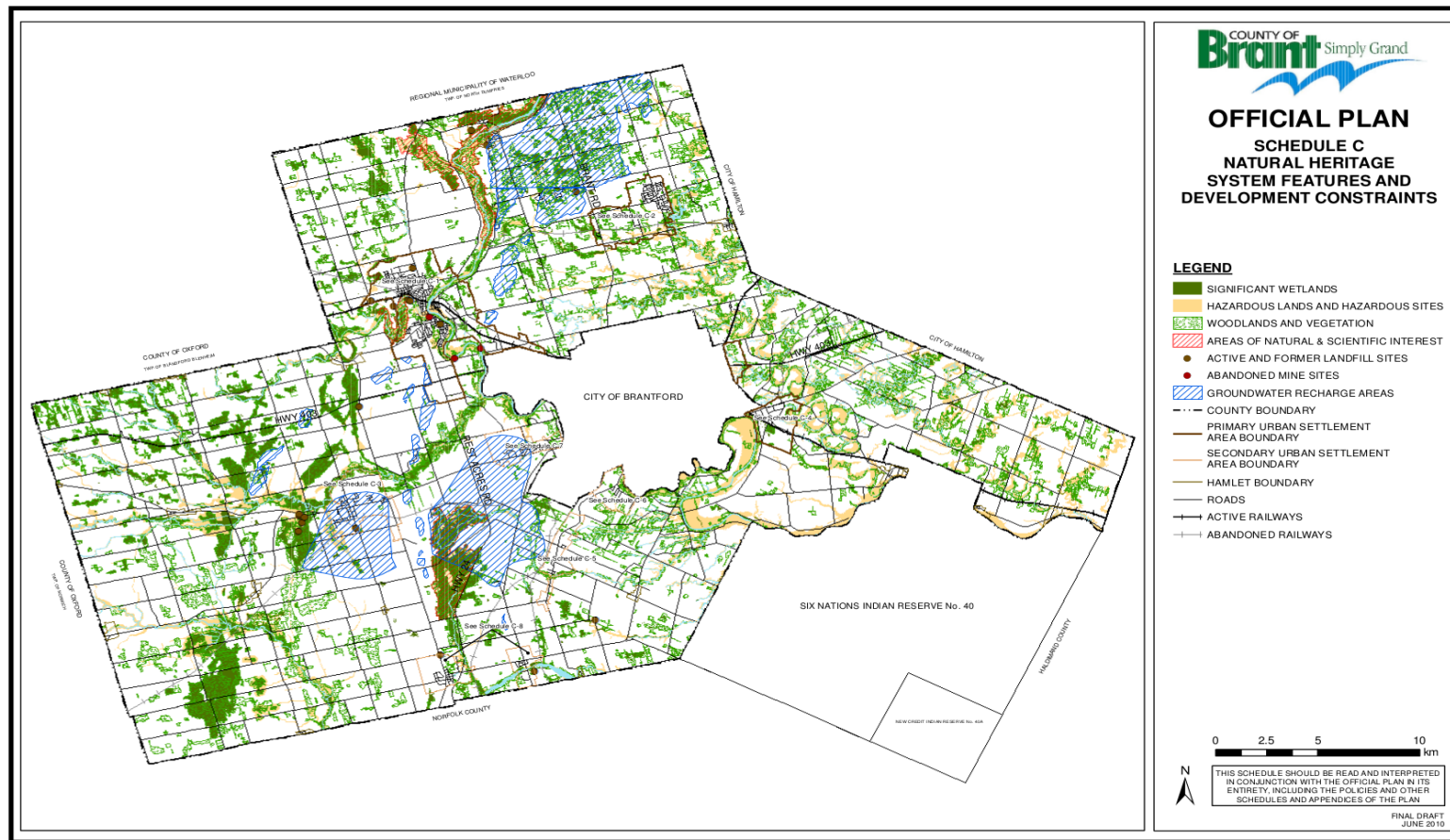
If Brant County loses 1%, 2% or 5% of their local potable water supply, here are the costs of the lost revenues associated.

Brant pulls 30 million litres annually. 1% per day = 821.92 Litres

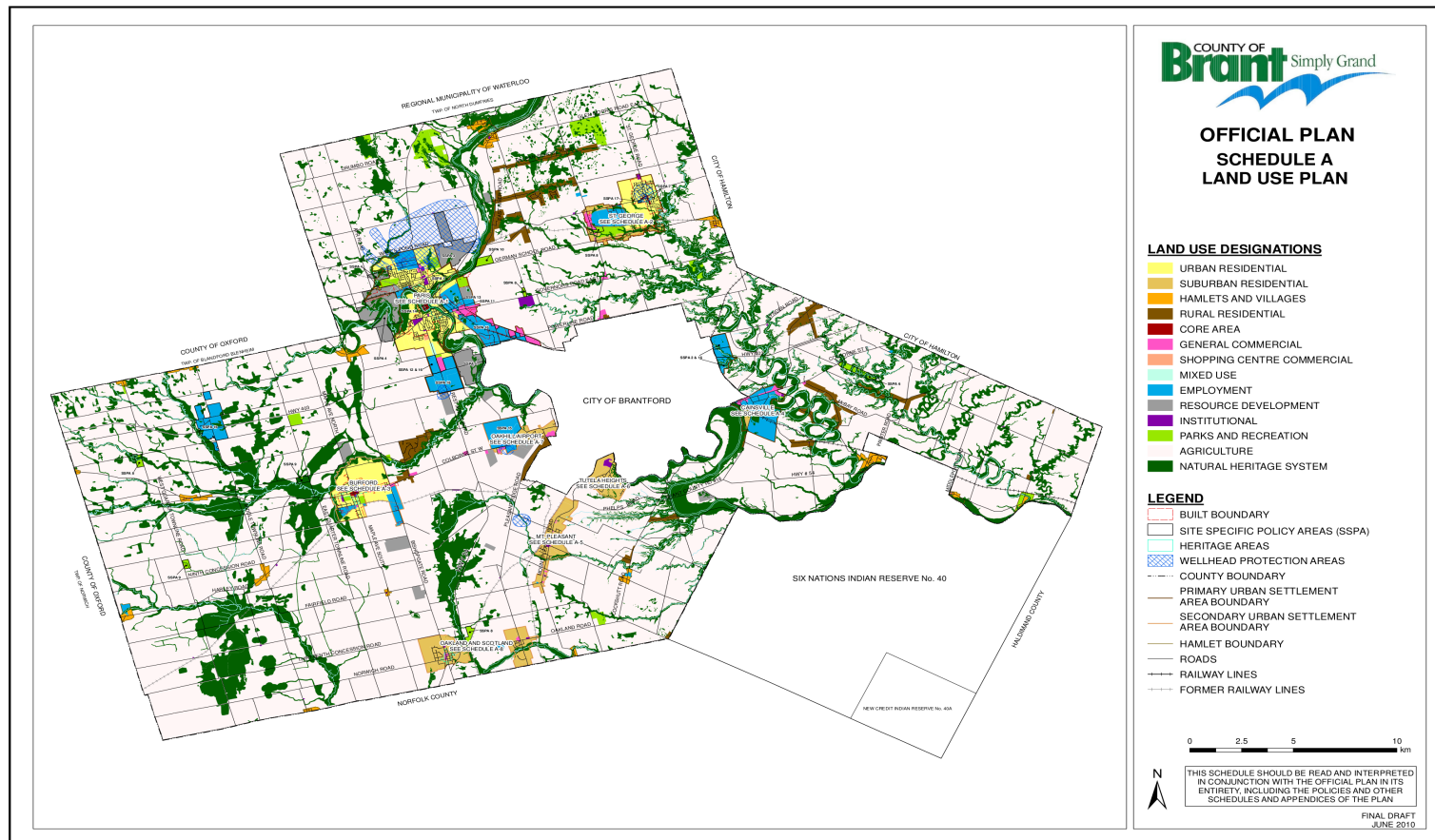
% of local municipal potable water supply	Value of water at 1 cent/litre Per day	Value of water at 2 cents/litre Per day	Value of water at 3 cents/litre Per day
1%	\$821.92	\$1643.82	\$2465.76
2%	\$1643.82	\$3287.68	\$4931.52
5%	\$4109.60	\$8219.20	\$12,398.80

Any project that compromises just 1% of Brant County's potable groundwater supply at 1 cent/Litre values results in a loss of \$300,000.80 per year in municipal revenues...in perpetuity.

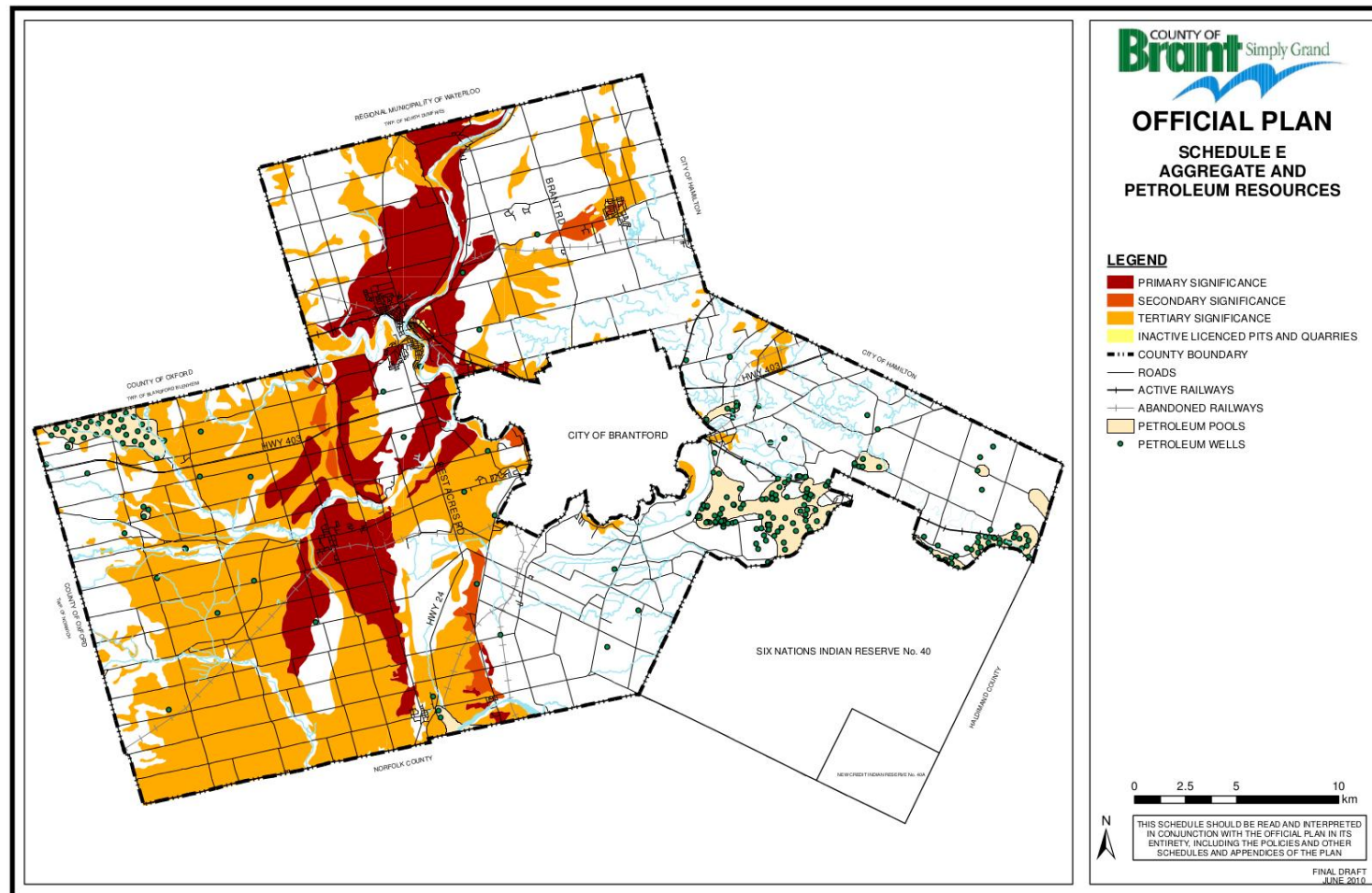
The blue areas gather water for municipal/industrial/farming use in Brant County. How much is that water worth?



Development is paving over recharge.



Gravel pits are digging up the water recharge zones.
what cost to the local, provincial and federal economy?



Food vs. Aggregates: Federal View

Source: Media Release by MPP for Kitchener-Conestoga Leeanna Pendergast "Let's Put Pits In Their Place", July 21, 2011.

Aggregates employ 35000 people directly and indirectly including 3.2 billion GDP and 1.8 million in Labour income.

Canadian Agriculture and Agri-food sectors (2008) employ 2.2 million jobs. (one in 8 jobs in Canada.) and generates 99 Billion GDP. 8.1% of Canada's total GDP.

Farming in Ontario = \$50 billion/year

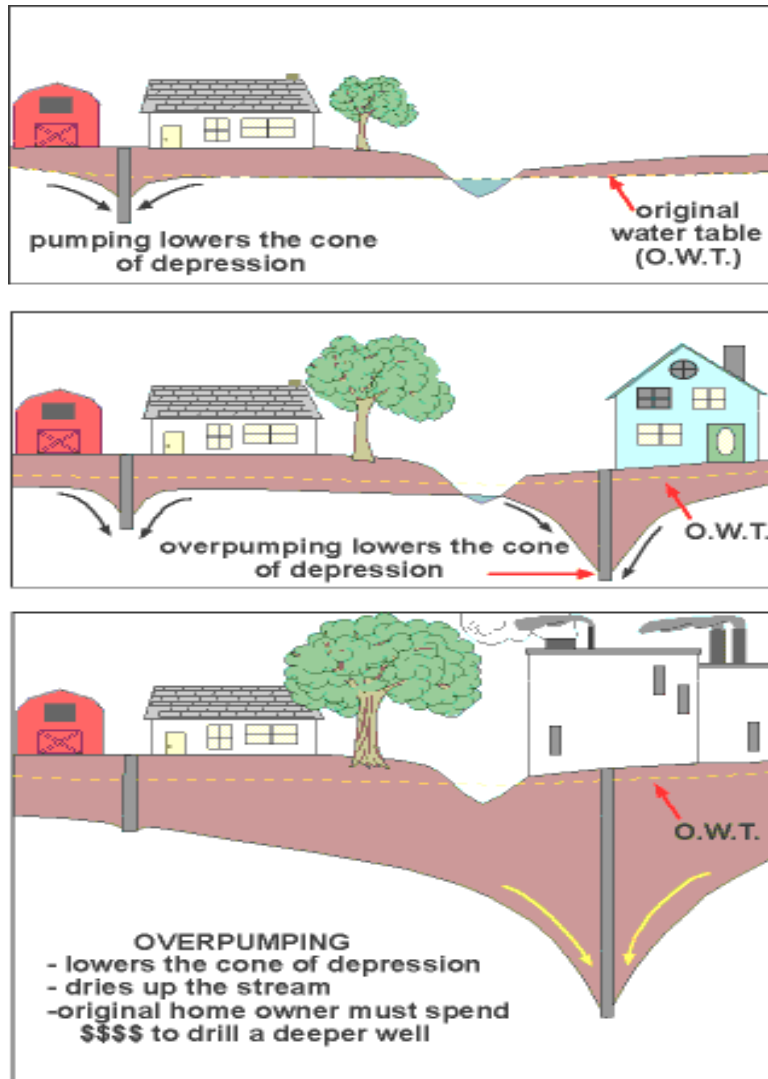
Direct employment in the automotive sector in 2010 was 31,500, while food processing hit 127,000.

The Alliance of Ontario Food Processors also reported the farming created an additional 90,000 jobs.

In 2010, the auto sector had \$43.6 billion in revenue in Ontario, while food processing, agriculture products and farming grossed nearly \$50 billion.

<http://ca.news.yahoo.com/food-processing-beats-auto-industry-ontario-report-says-110736478.html>

Concern 2: Contamination Risks



The cone of depression from onsite wells will gather both water and area contaminants impacting area water quality and water volumes in area wells and trout habitats.

Nitrate, phosphates, farm pesticides will be loosed up with pit operation and the rinsing of aggregates.

The assessment conducted by Golder did not review water contamination risks.

Contamination Risks re: Local Geology

- Dolomite releases magnesium and can bump up manganese deposits in tributaries and water supplies.
- Gypsum tends to expand upwards releasing calcium sulfur and hydrogen sulphide that can create black water issues and explosions.
- Phenol content in the bedrock was found by way of a black patina in deep bore holes studies in the area. This could cause cross contamination risks, explosions, fish kills etc.
- Saline aquifers, sour gas and sour water could cross contaminate aquifer systems through vertical fractures and the draw down impacts. Deep bore hole testing is needed to mitigate such risks.

Concern 3: Is farmland restoration even possible?

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Olszowka Property March, 2012

Following extraction operations approximately 70% of the subject land will be rehabilitated to agricultural fields. Therefore, this application will not have any great effects on the agricultural resources.

Mark Reusser, Vice President of the Waterloo Federation
of Agriculture states:

"Prime farmland is a non-renewable
natural resource" and needs protection
from aggregate extraction, since it difficult
if not impossible to restore a gravel pit to
prime farmland."

Source: Media Release by MPP for Kitchener-Conestoga Leeanna Pendergast "Let's Put
Pits In Their Place", July 21, 2011.

To view online visit: <http://www.wrfoodsystem.ca/files/www/pendergast.20110621.pdf>

A View of Ontario's Farmlands

2011 Census of Agriculture

Ontario has the biggest agricultural output as measured by farm cash receipts, with 12.6 million acres in agricultural production, **just 5.6% of Ontario's land base.**

Though Ontario has less than a quarter of the farmland of either Saskatchewan or Alberta, the combination of soil and climate mean yields on Ontario farmland are often double or more than that of the Prairies.

There is an overwhelming lack of data!

Because of uncertainties in the subsurface data available, the exact amount of recharge cannot be calculated with any degree of confidence. Half the meters were damaged by farm equipment during the study period and bore holes were too shallow to reflect anything but subsurface water influences.

Without Ground Penetrating Radar, we really cannot reasonably understand how much recharge may exist along the slope of the outwash moraine system or determine how suitable the land will be for future agricultural land restoration.

We have no values provided regarding the estimated costs to restore 70% of the lands for agricultural use nor do we have any information on how will they overcome the issue of soil compaction.

continued...

Because geologic and hydrogeologic data for the entire area are scarce, a meaningful characterization would require the drilling of a sufficient number of deep wells (approximately 100 m) to reach the lower aquifer. Testing done by the engineering firm has been limited to a very small number of very shallow holes and test pits, and as a result, there is a lack of reasonable data available to characterize the deep aquifer underlying area in a meaningful way.

Concerns re: Cold water trout habitats

There has been inadequate monitoring to accurately calculate existing runoff conditions, infiltration conditions and groundwater discharge to Langdon's Creek and therefore these components of the water balance may be grossly inaccurate. Very rudimentary flow calculations were used to estimate groundwater flow based on shallow bore holes.

It is my opinion that more detailed calculations and streamflow observations at deeper bore hole depths should be used to verify baseflow conditions and to assess if there are any window recharge zones in this area.

International Joint Commission



It is clear that human and ecosystem health in the Great Lakes basin cannot be protected without protecting ground water resources.

http://www.ijc.org/rel/news/2011/110308_e.htm

Outline of Contents

- Land Use Planning
- Relevant Planning Legislation
- Planning Issues Not Met
- Issues and Concerns (not conclusive)
- Conclusion
- References

Land-Use Planning

- Land-use planning can be understood as a process to regulate the private and public use of land and buildings in order to resolve conflicts between private and public interests and between present and future generations (Swaigen, 1993).

Land-Use Planning

- Traditionally, the underlying belief of planning is that collective rationality can be brought into the way our cities are built rather than leaving it up to individuals in the marketplace where inefficiencies may prevail especially with respect to long-term thinking (Makuch, 2004).

Land-Use Planning and Political Considerations

- Although decision-makers in land-use planning are still often kept at a distance from political shifts there is now considerable consensus that the essence of land-use planning comes down to politics as more often than not there is simply no right or wrong answer to planning in our complex, pluralistic society (Makuch, 2004).

Land-Use Planning and Political Considerations

- Thus, one large feature of land-use planning is to take care in providing hearings, access to information, and developing procedures to make decisions 'fairer' and reconcile competing objectives (Makuch, 2004).

Land Use Planning and Private Development Bias

- Planning is a highly charged financial process - development or redevelopment can mean big bucks for private individuals.
- Private interests may have deleterious implications despite the benefits they may bring about and thus must be reconciled with the interests that the public has for appropriate development that takes into consideration other values such as environmental protection and not overburdening municipal services (Swaigen, 1993).

Planning Act

- The Act contains myriad policies in support of strict prohibition of proposed development on sensitive environments
- Section 1.1 outlines the purpose:
 - (a) to promote sustainable economic development in a healthy natural environment within the policy and by the means provided under this Act

Planning Act cont'd...

Section 2 stipulates the Provincial Interest in broad terms:

- (a) the protection of ecological systems, including natural areas, features and functions
- (c) the conservation and management of natural resources and the mineral resource base
- (h) the orderly development of safe and healthy communities;

‘Consistency’ with Provincial Policy Statement (PPS)

Pursuant to Section 3 subsection 5 of the *Planning Act*, all land-use decisions must be consistent with the PPS

- a more stringent standard compared with earlier planning documents

Supporting PPS Provisions

- **2.1.1** Natural features and areas shall be protected for the long term.
- **2.1.2** The diversity and connectivity of natural features in an area, and the long-term *ecological function* and biodiversity of *natural heritage systems*, should be maintained, restored or, where possible, improved, recognizing linkages between and among *natural heritage features and areas*, *surface water features* and *ground water features*.

Supporting PPS Provisions cont'd...

- **2.1.3** *Development and site alteration* shall not be permitted in: *significant habitat of endangered species and threatened species*;
- **2.1.6** *Development and site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features and areas* identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*.

Supporting PPS Provisions cont'd...

- **2.2.1** Planning authorities shall protect, improve or restore the *quality and quantity of water* by:
 - a) using the *watershed* as the ecologically meaningful scale for planning;
 - b) minimizing potential *negative impacts*, including cross-jurisdictional and cross-*watershed* impacts;
 - c) identifying *surface water features, ground water features, hydrologic functions* and *natural heritage features and areas* which are necessary for the ecological and hydrological integrity of the *watershed*;
 - d) implementing necessary restrictions on *development* and *site alteration* to:
 - 1. protect all municipal drinking water supplies and *designated vulnerable areas*; and
 - 2. protect, improve or restore *vulnerable* surface and ground water, *sensitive surface water features* and *sensitive ground water features*, and their *hydrologic functions*;

Supporting PPS Provisions cont'd...

- e) maintaining linkages and related functions among *surface water features, ground water features, hydrologic functions and natural heritage features and areas*;
- f) promoting efficient and sustainable use of water resources, including practices for water conservation and sustaining water quality; and
- g) ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.

2.2.2 *Development and site alteration* shall be restricted in or near *sensitive surface water features and sensitive ground water features* such that these features and their related *hydrologic functions* will be protected, improved or restored.

Endangered Species Act, 2007

- The *Endangered Species Act, 2007* (ESA), which came into force on June 30, 2008, identifies species at risk and protects them and their habitat.
- **The ESA cannot be grandfathered.** A current risk is deemed a current risk according to senior planning advisor Gail Jackson of the MNR and any species on site which is protected as a threatened or endangered species requires a proper delineation of critical habitat to comply with this policy.
- It is the responsibility of the proponent to be compliant with the ESA or *they may be subject to prosecution under the act.*

Planning criteria not met

Pursuant to Section 51 subsection 24 of the *Planning Act*, decision makers must have regard to the following:

- a) the effect of the proposed quarry on matters of provincial interest as referred to in section 2;
- b) whether the proposed quarry is premature or in the public interest;
- c) whether the plan conforms to the official plan;
- d) the suitability of the land for the purposes for which it is to be used;
- e) conservation of natural resources and flood control;

Summary of Issues and Concerns (not exhaustive):

Leads to Environmental Degradation of the Community

- Water quantity and quality issues
- Air pollution and incomplete environmental assessments

Does not conform to all necessary Municipal, or Provincial policy and legislation

- Non-conforming to Municipal Policy
- Non-conforming to Planning Act and March 2005 Provincial Policy Statement
- Non-conforming to Endangered Species Act 2007
- Non-conforming to the Aggregate Act

Therefore the St. Mary's Quarry expansion for at Bishopsgate Road and Concession Road 5 appears to represent bad planning.

In Conclusion

- In order to comply with Provincial planning laws it is recommended that the City of Brantford deny the permit for St. Mary's Aggregate Quarry Expansion.

References

- *Hydrogeological Assessment Olszowka Property, Appendix A, Bore Hole Logs, Golder and Associates, February 2012*
- *Olszowka Property Summary Report March, 2012, CBM Aggregates, a division of St. Marys Cement Inc. (Canada)*
- *Ontario Provincial Policy Statement March 2005*
- *Ontario Planning Act*
- *Endangered Species Act, 2007*
- *Makuch, S.M. from Municipal and Planning Law. Carswell Publishing, 2004.*
- *Swaigen, John and David Estrin. “Environment on trial: a guide to Ontario environmental law and policy”. Canadian Institute for Environmental Law and Policy. Toronto : E. Montgomery Publications Ltd., 1993*