6.1(a)

Harden Environmental Services Ltd.
4622 Nassagaweya-Puslinch Townline Road
R.R. 1, Moffat, Ontario, L0P 1J0
Phone: (519) 826-0099 Fax: (519) 826-9099

- Groundwater Studies
- Geochemistry
- Phase I / II
- Regional Flow Studies
- Contaminant Investigations
- OMB Hearings
- Water Quality Sampling
- Monitoring
- Groundwater Protection Studies
- Groundwater Modeling
- Groundwater Mapping
- Permits to Take Water
- Environmental Compliance Approvals

Our File: 0004

June 12, 2014

Township of Puslinch
7404 Wellington Road 34
Guelph, ON, N1H 6H9

Attention: Ms. Karen Landry
CAO

Dear Ms. Landry;

Re: Mill Creek Aggregates
Review of 2013 Monitoring Data

We are pleased to submit our review of the 2013 monitoring data as reported by Mill Creek Aggregates. Subtle and not so subtle changes are occurring to the groundwater and surface water flow systems at the site. The ongoing conversion of farm fields to open water bodies slowly but surely alters groundwater flow patterns and groundwater temperatures adjacent to Mill Creek. In the period of 1999 through 2003 this alteration (along with droughty conditions and on-going extraction from Reid's Heritage Home site) led to the reversal of groundwater flow to Mill Creek in a reach of Mill Creek adjacent to Hwy 401. These conditions are no longer present and groundwater discharge to Mill Creek is robust.

Our detailed review of the 2013 monitoring report is as follows;

1.0 Hydrographs

Monitoring locations are shown on Figure 1.

It is noteworthy that monitors 92-13, 92-14 and 92-15 are exhibiting a different pattern than 92-1, 92-5 and 92-8 and 92-12 (example shown on Figure 2). Monitors 92-13, 92-14 and 92-15 are located between Phase 1 Pond and Phase 4 Pond and are showing a greater water level decline in comparison to these other nearby groundwater monitors. As Phase 4 pond is expanding eastward there is a water leveling effect occurring (as expected) resulting in declining water levels in 92-13 through 92-15.

It is equally noteworthy that groundwater levels at 92-26 through 92-29 have been increasing in response to the creation of Phase 3 Pond and either stabilized at the higher water level or continued to rise in 2013(example shown on Figure 3). This level rise is anticipated but associated with the higher water level is an increase in temperature (as discussed in Section 3.0).

Extraction of Phase 3 is now complete and a silt barrier separating Phase 4 from Phase 3 is nearing completion. There remains approximately one metre of elevation difference between the Phase 1 pond and the Phase 4 pond. As extraction through Phase 4 continues there will be additional water-level-lowering to the east of the Phase 4 pond and greater water level rise west of the Phase 3 Pond.

2.0 Groundwater Discharge to Mill Creek

There are numerous drive-point piezometers in Mill Creek that confirm that groundwater discharge to Mill Creek is presently stable in the reach upstream from the site and stable or increasing downstream of the site.

3.0 Groundwater Temperatures

There has been a marked increase in groundwater temperatures in those monitors immediately adjacent to the Phase 3 Pond. Annual maximum groundwater temperatures have increased from 15°C to 25°C and minimum temperatures from 4°C to 1°C (Example shown on Figure 4). This is a significant increase in temperature, however, the monitors halfway between the Phase 3 Pond and Mill Creek are not displaying a similar magnitude of change. The ponds have advanced as close to Mill Creek as presently allowed on the site plans. Also, groundwater temperatures in the drive point piezometers in Mill Creek are not registering a significant increase in temperature (there may be a subtle increase but this is difficult to derive from the data so far).

4.0 Recommendations

It is my opinion that this site represents an excellent opportunity to study the heat transfer from a man-made pond to a sand and gravel aquifer adjacent to a sensitive fishery. There is no indication that that an impact to the fishery is occurring or about to occur, however, this type of study will greatly advance the science of thermal impact of water bodies on groundwater in Ontario. I understand that the University of Guelph agreed in the Ontario Municipal Board hearing to establish a research team to study the gravel pit, here is a good research topic given the expertise available at the University of Guelph through the Center for Applied Groundwater Research.

Sincerely,

Harden Environmental Services Ltd.

Stan Denhoed, P.Eng., M.Sc.
Senior Hydrogeologist

Figure 1

Source: Mill Creek Aggregates Pit Hydrogeology:

Appendix B of the 2013 Coordinated Monitoring Report

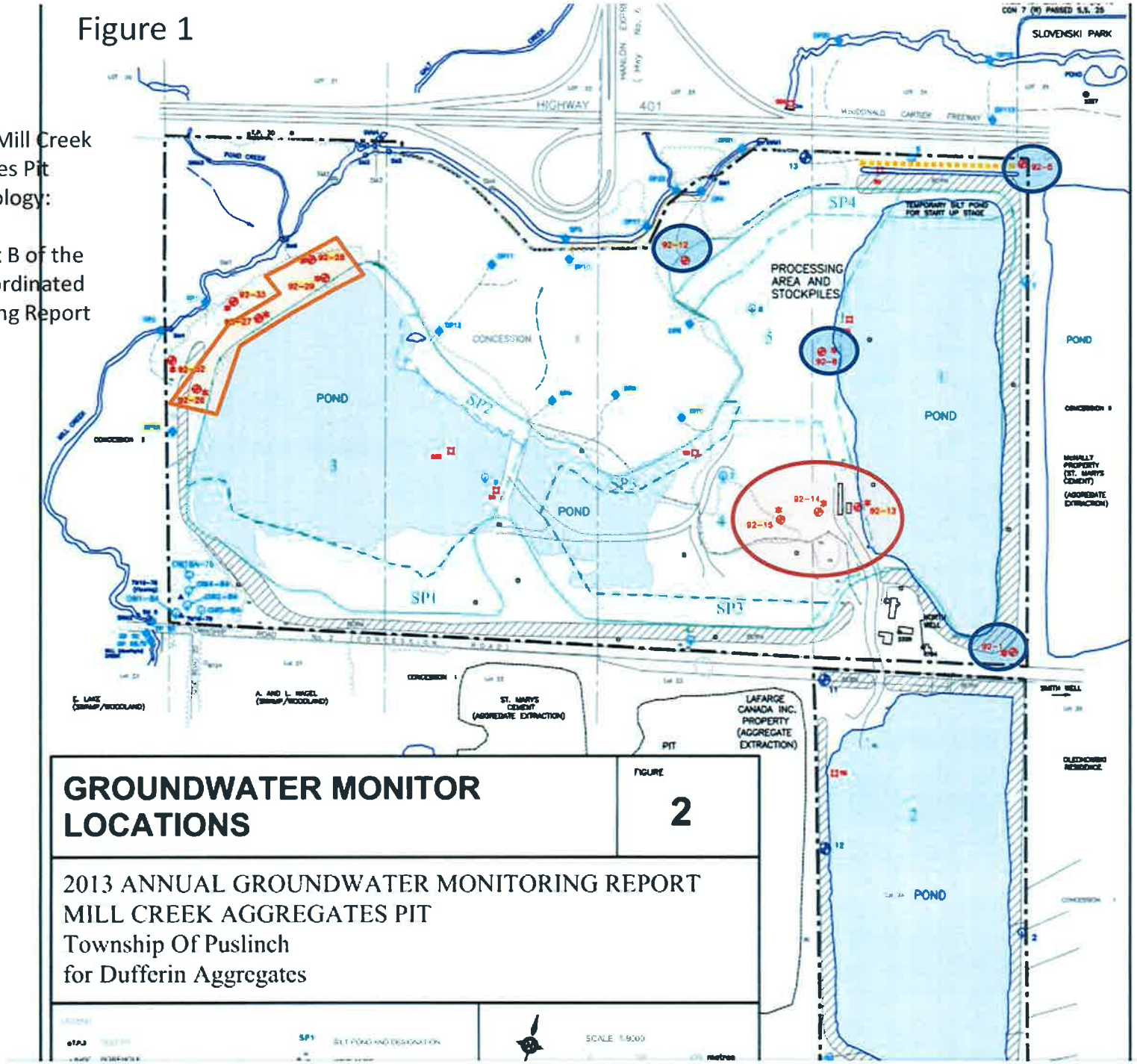
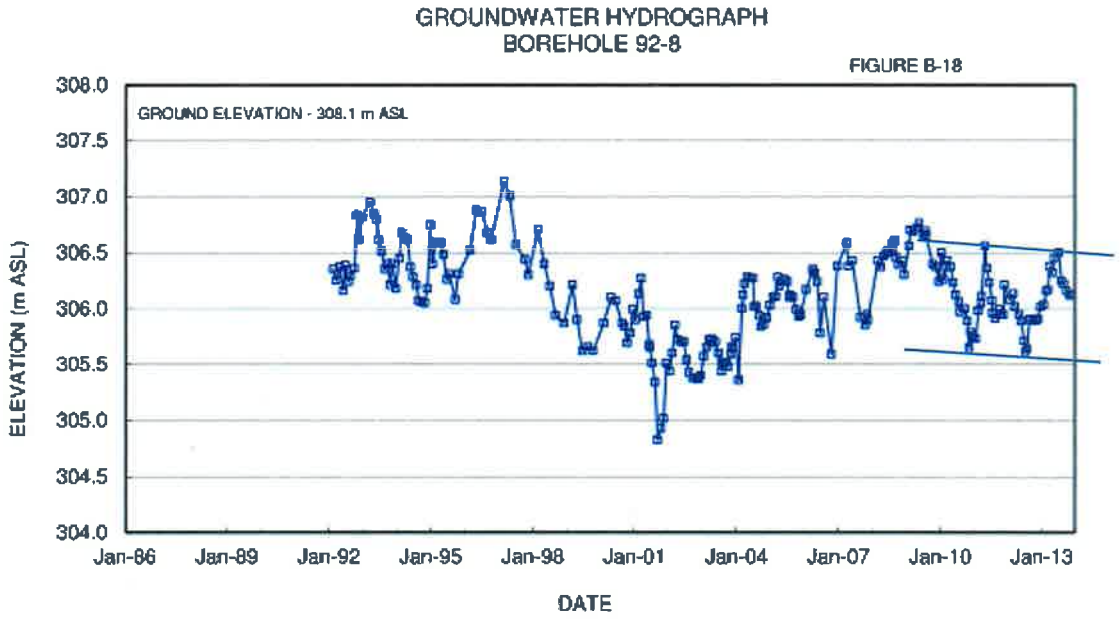
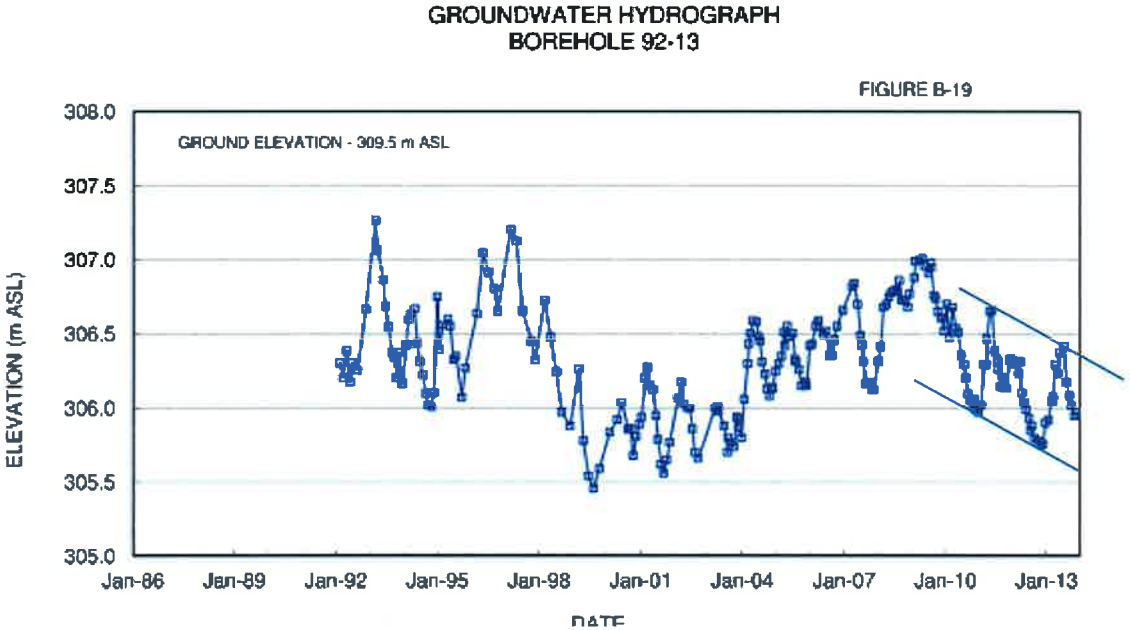


Figure 2





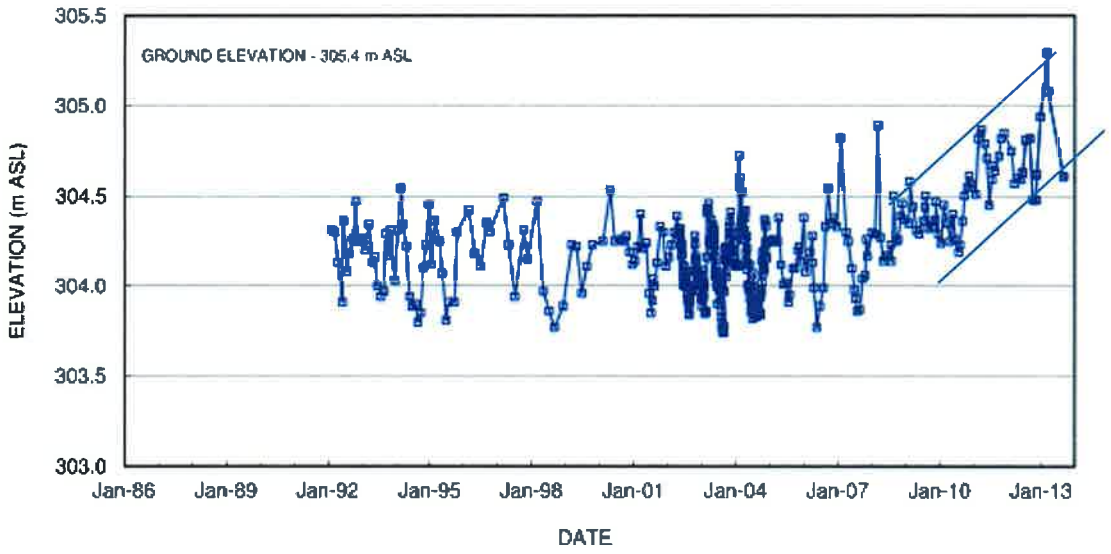
Source: Mill Creek Aggregates Pit Hydrogeology:

Appendix B of the 2013 Coordinated Monitoring Report

Figure 3

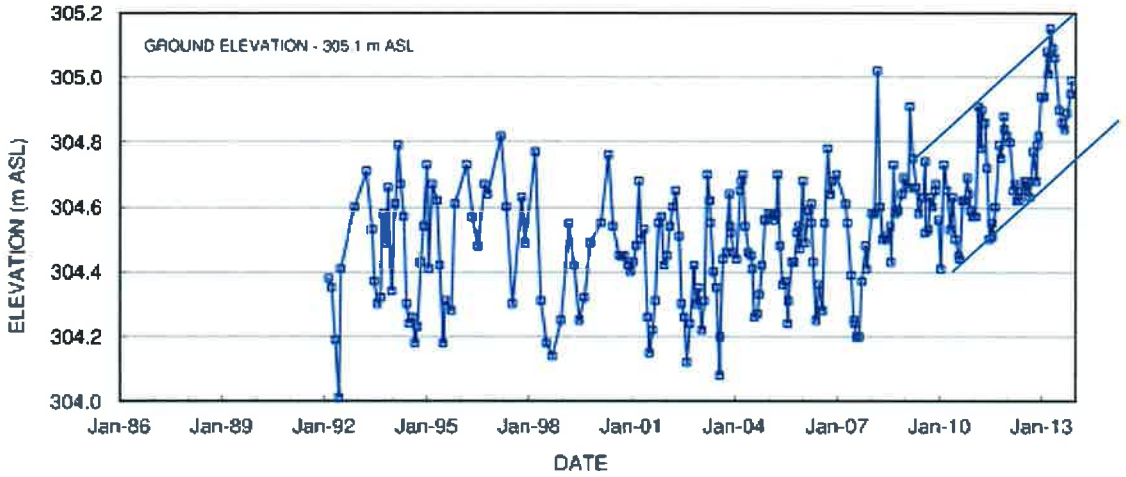
FIGURE B-22

GROUNDWATER HYDROGRAPH
BOREHOLE 92-26



GROUNDWATER HYDROGRAPH
BOREHOLE 92-27

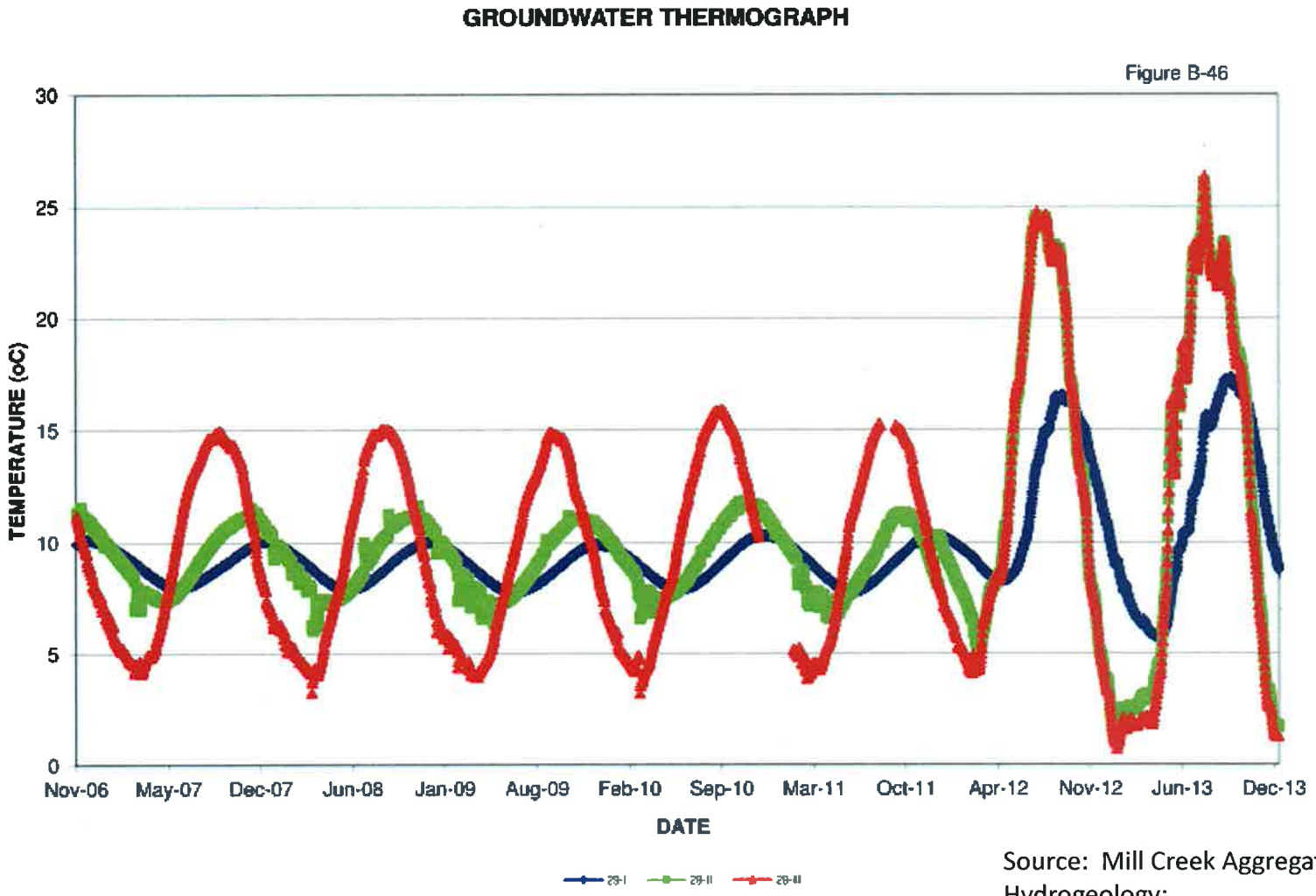
FIGURE B-23



Source: Mill Creek Aggregates Pit Hydrogeology:

Appendix B of the 2013 Coordinated Monitoring Report

Figure 4



Source: Mill Creek Aggregates Pit Hydrogeology:

Appendix B of the 2013 Coordinated Monitoring Report

6.1(b) SD

Dufferin Aggregates
2300 Steeles Ave W, 4th Floor
Concord, ON L4K 5X6
Canada

RECEIVED
MAR 3 1 2014
Township of Puslinch

CLERK'S DEPARTMENT

TO	S D & Council noted for File
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For Your Information	✓
Council Agenda	

March 28, 2014

Area Supervisor, Guelph District
Ontario Ministry of Natural Resources
1 Stone Road W.
Guelph, ON
N1G 4Y2

Attn: Mr. Al Murray

Re: Mill Creek Property Annual Monitoring Reports

I am pleased to enclose copies of the annual monitoring reports for the University of Guelph Mill Creek Pit in compliance with the conditions of the Licence.

The report consists of five documents; the summary, called the Coordinated Monitoring Report, and the three technical appendices that cover surface water, ground water (two documents) and fisheries. As per last year, we have provided a hard copy of the Coordinated Report only, with the Technical Appendices provided on cd inside the back cover.

Please contact me if you have any questions.

Sincerely,

Ron VanOoteghem
Site Manager

Cc: Kevin Mitchell – Dufferin Aggregates
Philip Wong – University of Guelph
Karen Landry – Township of Puslinch
Grand River Conservation Authority
Jenifer Thomas - Fisheries and Oceans Canada
Andy Hims - Hims GeoEnvironmental
Greg Siiskonen – WSP Group
Mike Johns - Stantec
Chris Wren/Lisa Guenther-Wren – LRG Environmental

6.1(c)

LRG ENVIRONMENTAL

Dufferin Aggregates, a division of Holcim (Canada) Inc.

Mill Creek Coordinated Monitoring Report
January 1 to December 31, 2013

Project Number:

10-001

Date:

March 24, 2014

Prepared by:

LRG Environmental
RR 1, Markdale, ON, Canada N0C 1H0
T 519.986.2970 F 519.986.3127

in association with

WSP **Hims GeoEnvironmental Ltd.** Stantec

Forward

This report provides an overview of the operations and results of environmental monitoring programs for the period January 1, 2013 to December 31, 2013 for the University of Guelph Mill Creek pit, operated by Dufferin Aggregates, a division of Holcim (Canada) Inc. A discussion of compliance with the groundwater threshold values is also provided. Detailed monitoring data for hydrology, hydrogeology and fisheries are provided in separate Appendices.

Terrestrial biology and wetland monitoring is undertaken annually but only reported prior to the start of each new extraction phase. A Pre-Phase 3 terrestrial report was prepared and submitted to the Ministry of Natural Resources (MNR) in 2005 (Paul F.J. Eagles Planning Ltd. 2005). In addition, a comprehensive Pre-Phase 3 Monitoring Plan was submitted in January 2006 (C. Wren & Associates Inc. and Jagger Hims Ltd. 2006). A Pre-Phase 4 terrestrial report was prepared and submitted to the MNR July 6 2011 (Paul F.J. Eagles Planning Ltd. 2011). This report forms part of the Pre-Phase 5 submission.

This is the twentieth annual coordinated monitoring report for the Mill Creek program.

Data, text and figures have been integrated into this coordinated report from the following separate Technical Appendices which can be found on compact disc at the back of this report:

Appendix A - Surface Water (prepared by Stantec)

Appendix B - Hydrogeology (prepared by WSP Group)

Appendix C - Fisheries (prepared by LRG Environmental)

Executive Summary

Site Conditions and Operations

- Extraction in 2013 occurred in Phases 3 and 4 above and below the water table;
- Silt Pond 3 (SP3) extension was used to deposit silt in 2013;
- Silt Pond (SP3) operated within the minimum/maximum water level thresholds;

Climate

- Overall, 2013 had warmer air temperatures with the mean monthly air temperatures for June;
- July and August were 2.00, 2.92 and 2.27 °C higher than the 30 year average, respectively;
- During the early summer (June and July) higher than normal amounts of precipitation fell, while late summer (August) had precipitation well below the 30 year normal; and
- Precipitation in 2013 was 1109 mm which was almost 30% above the 30-year average of 856.8 mm.

Hydrology

- Flow data from SWM1 indicate that low flows were within historical ranges;
- Estimates of the 7-day low flow at SWM2 were likely compromised due to beaver dam activity which influenced water level measures and flow estimates at SWM2 beginning in mid August, 2013;
- Maximum flow at SWM1 was the second highest recorded in the past 15 years and well above flows recorded in the previous five years;
- The 2013 low flow period coincided with a period of reduced precipitation;
- Individual precipitation and melt events were reflected in changes in stream flow; and
- There is no indication that aggregate extraction has affected stream flow in Mill Creek.

Groundwater

- Interim groundwater thresholds were developed in 2001 after extensive agency discussions and are routinely updated as conditions change or monitoring points become no longer available; the groundwater monitoring program was expanded as extraction began in Phase 2 – 4.
- The early warning values were exceeded in 2013 during at least one event in January to March, November, and December at BH92-12 to DP17, and are attributed to frozen ground conditions and lower than normal precipitation amounts in November and December.
- The early warning values were exceeded during at least one monitoring event in January, April, and October at DP6 to DP3, and are attributed to the low amount of precipitation received at the property in 2012 and a slower response to precipitation at DP6 below the site compared to DP3.
- The early warning values were exceeded during at least one event in January, April, July, and September at OW5-84 to DP5C. Based on hydraulic conductivity testing, it is interpreted that DP5C was installed in lower-conductivity soil that is not reflective of the sand/gravel aquifer in which DP5A and 5B were developed. In August 2013, a replacement drive point, DP5D was installed slightly downstream of DP5C in an effort to screen the drive point in soils more representative of the hydraulic conductivity expected for the base of Mill Creek. New preliminary seasonal threshold values will be established for DP5D in 2014 once sufficient water level data have been collected.
- No Action thresholds for groundwater monitoring pairs were exceeded in 2013.
- Water levels in the Phase 1 pond, Phase 2 pond, Phase 3 pond, and Phase 4 pond did not exceed their respective threshold values.

- The estimated groundwater contribution from the Mill Creek Aggregates Pit property located north of Township Road 2 was higher in 2013 compared to the historic average, and also higher than the 2012 value. The higher value is attributed to the higher precipitation that occurred during the majority of 2013 compared to 2012, which increased the groundwater discharge throughout the year.
- The hydraulic gradient in drive points north of Highway 401 (DP 18, 19, and 20) displayed upward vertical gradients (discharge) for most of 2013.
- Groundwater temperatures at the monitoring stations closest to the Phase 1 and 3 Extraction Ponds were influenced by temperatures in the ponds; however, temperatures rapidly decreased away from the pond.
- Groundwater patterns in Mill Creek have been influenced by climatic conditions in recent years.

Mill Creek Water Quality and Temperature

- Surface water quality data indicate some loading of total coliform bacteria from upstream sources as observed in previous years;
- Groundwater quality has generally remained consistent over the years. Some Ontario Drinking Water Quality Standards are exceeded due to natural conditions in the area;
- Surface water quality has remained stable over the past decade although there are signs of increasing conductivity and chloride levels which may be attributed to road salting activities;
- The maximum stream temperature in 2013 in Mill Creek was 26.7°C, recorded at SWM1; and
- During the spring, summer and fall months, stream temperatures decrease across the University property due to a combination of inflowing coldwater tributaries, ground water input, and shading which continue to enhance the coldwater fish habitat attributes of the stream.

Fisheries

- There is no indication that aggregate extraction has affected the local brown trout population;
- The upper tolerable temperature for brook trout was exceeded in the main channel of Mill Creek during the summer of 2013;
- The estimated Brown trout population adjacent to the aggregate operation remained within historic ranges;
- Trout numbers and biomass continue to be higher in the University reach compared with the Hanlon reach due to better habitat conditions;
- In 2013, brown trout spawning activity remained high in the University reach similar to recent years, and the number of redds in the Hanlon reach was the highest recorded; and
- Habitat restoration could be conducted in the Hanlon reach to enhance trout productivity.

General Conclusions

- Based on the extensive monitoring data there is no indication that aggregate extraction on the Mill Creek Property has negatively affected water flow in Mill Creek or trout populations in the study area; trout populations have been consistent and/or increased since below-water table extraction began in 1995;
- No operational mitigation actions are required or recommended at this time;
- The interim ground water thresholds developed in 2001, 2003, 2004, 2008 and 2011 can be maintained; and
- The environmental monitoring program will continue in 2014 with amendments described in this report as outlined by the Ontario Ministry of Natural Resources in their letter of March 15th, 2013 to the University of Guelph (licence holder).

6.2(a)

Ministry of Natural Resources

Office of the Director
Southern Region
Regional Operations Division
300 Water Street
Peterborough, ON K9J 3C7
Tel: 705-755-3235
Fax: 705-755-3233

Ministère des Richesses naturelles

Bureau du directeur
Région du Sud
Division des opérations régionales
300, rue Water
Peterborough (Ontario) K9J 3C7
Tél: 705-755-3235
Téléc: 705-755-3233

Ontario

CLERK'S DEPARTMENT	
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Council Agenda	July 2014
File	E10/CAR

May 8, 2014

Mr. Christopher Martin
Carmeuse Lime (Canada) Limited
PO Box 190
Oxford County, Road 6
Ingersoll, ON
N5C 3K5

Dear Mr. Martin:

RE: Licence Amendment under the Aggregate Resources Act - Licence #5482
Lot 1, 2, 3, Concession 4
Township of Puslinch, County of Wellington

Further to your request of November 25, 2013, please find enclosed an amended licence which reflects a name change from 'Carmeuse Lime (Canada)' to 'Carmeuse Lime (Canada) Limited'.

Please replace your existing licence with the amended version. A copy of the licence has been provided to the appropriate offices for their files.

Should you have any questions concerning this matter, please feel free to contact Diane Schwier, Aggregate Technical Specialist at 519-826-4930.

Yours truly,

Jane Ireland

Jane Ireland
Regional Director

c: Clerk, Township of Puslinch
Clerk, County of Wellington
The Ontario Aggregate Resources Corporation

Ontario

LICENCE
Aggregate Resources Act

PERMIS
Loi sur les ressources en agrégats

Licence No.
No du permis 5482

Amended Licence

Pursuant to the Aggregate Resources Act and Regulations thereunder, and subject to the limitations thereof and to the conditions of the licence and the requirements of the site plan,

Conformément à la Loi de 1997 sur les ressources en agrégats et à ses réglements, et sujet aux restrictions qu'ils comportent, aux conditions d'octroi du permis et aux exigences du plan du site,

this Class
nous délivrons ce permis de classe: A licence is issued to:
à:

CARMEUSE LIME (CANADA) LIMITED

P. O. BOX 190
Oxford County Road 6
INGERSOLL, ON
CANADA
N5C 3K5

to operate a
pour exploiter un/une Both Pit and Quarry on a
sur le terrain de 89.8 hectare site located in:
hectares situé à l'endroit suivant:

Lot	Concession	Section	Geographic Township	Local Municipality	County / Regional Municipality / District
1,2,3	4		PUSLINCH	PUSLINCH TP	WELLINGTON CO

The licence is subject to the following conditions:
Ce permis est assujetti aux conditions suivantes:

Effective the
En vigueur le 28 day of
jour de April , 2014

Jane Ireland per
Minister of Natural Resources
Ministre des Richesses Naturelles

6.3(a)

CAMBRIDGE CONCERT BAND

c/o Royal Canadian Legion, Branch 126,
334 Westminster Drive N.,
Cambridge, ON, N3H 1S5

June 15, 2014

Corporation of the Township of Puslinch,
Attention: Mayor Dennis Lever,
7404 Wellington Road 34, RR#3,
Guelph, ON, N1H 6H9

Dear Mayor Lever:

On behalf of the Cambridge Concert Band, I am writing to thank you and Council sincerely for the $50.00 scholarship awarded to us at the 2014 Guelph Kiwanis Music Festival.

Your support helps our Band contribute to the cultural life of our communities by playing free concerts for the general public, extended-care homes and veterans' ceremonial functions, as well as participating in music festivals. Our organization provides young and old musicians with a safe and supportive environment in which to continue developing their musical skills and striving towards performance excellence.

We very much appreciate this award and plan to use it to expand our music library.

Sincerely yours,

CAMBRIDGE CONCERT BAND

K. Wood-Lamont

Karin Wood-Lamont,
Treasurer

6.4(a)

The Whistle Stop Preschool Co-op
Puslinch Community Centre
23 Brock Road South
Aberfoyle, ON
N1H 6H9
www.whistlestoppreschool.com

Township of Puslinch Council
7404 Wellington Rd 34
Guelph, ON N1H 6H9
Date 2014-06-11

Dear Council,

The Whistle Stop Preschool Co-op program founded in 1987, is a non-profit, charitable organization which is devoted to making a difference in the community and its children. We provide the highest quality programs as shown by the number of returning children year after year.

Currently we have reviewed our marketing campaign and have decided to place a sign at the Optimist Recreation Centre Ice Rink in Aberfoyle. After much review we felt that this type of marketing will enhance and help keep the community and surrounding areas aware of our program and will increase the number of children attending. We ask that you consider supporting our cause by contributing the rental fee for this sign a total of $395.50 for the year of 2014 and subsequent years.

Your donation will be acknowledged in several ways. We will list you in our annual program book and as well as a contributor at our annual fundraiser in the winter. The Whistle Stop Preschool Co-op relies on generous donors such as you. Your donation will help ensure the success of our future.

We thank you for your consideration of our request, and look forward to hearing from you in the near future.

Sincerely yours,

S. Bailey

Sara Bailey, President

6.5(a).

Donna Tremblay

From: Emmanuelle Arnaud <earnaud@uoguelph.ca>
Sent: June-25-14 4:20 PM
To: Donna Tremblay
Cc: Lynda Moore
Subject: Groundwater Research - ORF proposal - Letter of Support
Attachments: ORF-RE7_Puslinch_June25.docx; G360 ORF-RE7_Proposal Scope_20140612 v.2.pdf

Hi Donna,
I wondered if you could forward this message and attachments to the Mayor and the members of Council.
Thank you very much for your time.
Best wishes,
Emmanuelle

Dear Mayor Lever and Members of Council,
I wanted to let you know that the research project on microbiological contaminants that we applied for this past spring through the OMAFRA-UofG Partnership was unfortunately not funded. I apologize for not getting in touch sooner- the decision was delayed by the provincial elections.

We are in the process of applying for a grant from another funding agency. This is the Ontario Research Fund-Research Excellence program associated with the Ministry of Research and Innovation and would be a continuation of the five year project that we are about to complete in the region. This was the project under which we did a study of the Paris Moraine (including the well we drilled/installed on Township of Puslinch property) as well as some of the work we did on nitrate and e-coli contamination at several sites within the Township boundary. We very much appreciated your support with the well installation at the Fox Run Estates. That core and the well have certainly helped us to characterize the nature of the subsurface and hydraulic conditions on the back slope of the Paris Moraine.

As you will see from the attached proposal scope, we continue to be interested in characterizing the groundwater flow system (including both the bedrock and the overburden), contaminant pathways, and groundwater-surface water interactions. The focus is now on adaptation to changing aspects of that groundwater system by having a strong science based framework for minimizing impacts and vulnerability. In this new project, we hope to expand our work to include other sites throughout Ontario. Nestle Waters is likely to be one of our new corporate partners so we anticipate further studies to be carried out in the Puslinch area.

I wondered if it would be possible for you to contribute a letter in support of our application? The timeline is again tight and I realize that we've just missed a council meeting last week. In that context, I respectfully attach a draft letter which you can use and/or modify as needed. We are hoping to capture as many support letters as we can by or before July 2 (UofG deadline) or no later than July 9 for inclusion into the MRI submission.

Thank your for your time in considering this request.
Do not hesitate to contact me should you have any questions.
Sincerely,

Emmanuelle

--

Emmanuelle Arnaud, PhD.

Associate Professor in glacial geology
School of Environmental Sciences- Alexander Hall Room 126 University of Guelph Guelph, Ontario, N1G 2W1, CANADA

Tel: (519) 824-4120 xt. 58087
Fax: (519) 837-0756
Email: earnaud@uoguelph.ca
Personal Website: http://www.uoguelph.ca/~earnaud/index.html
The Centre for Applied Groundwater Research: http://g360.uoguelph.ca/

For Township of Puslinch letter head

June 25, 2014

Dr. Beth Parker, PhD
NSERC Industrial Research Chair
School of Engineering
University of Guelph
Guelph, ON, N1G 2W1

RE: Letter of support for ORF Proposal "**Groundwater & Wellhead Protection: Adapting to Change in Large and Small Ontario Communities**"

Dear Dr. Parker:

The Township of Puslinch is pleased to support your proposal to the Ontario Research Fund-Research Excellence Round 7 funding program (ORF) that will enable field-focused research for the protection of groundwater as source water in large and small communities in Ontario.

The Township of Puslinch has collaborated with the G360 Centre for Applied Groundwater Research in the past, notably in allowing the installation of a monitoring well and recovery of drill core on township property as part of a previous ORF-RE study in the region. We were also interested in the findings of a study on non-point source contaminants, which was carried out in part within the township boundary.

As a relatively small Ontario community with various industrial, municipal and agricultural land uses and a reliance on private wells for many landowners, we are very much aware of the challenges associated with source water protection and groundwater resources management. We would certainly welcome new data on the local groundwater flow system to allow us to make more informed decisions in this changing environment.

Sincerely,

Signature block..

G360 Centre for Applied Groundwater Research

Groundwater and Wellhead Protection: Adapting to Change in Large and Small Ontario Communities

Funding Agency: Ontario Ministry of Research and Innovation (MRI)
Funding Program: Ontario Research Fund – Research Excellence (ORF-RE) – Round 7
Principal Investigator: Dr. Beth Parker, Director, G360 Centre for Applied Groundwater Research
Universities: Guelph (host), McMaster, Trent, Waterloo

Proposal Brief:

The goal of this proposal is to develop an improved, science-based framework for understanding and minimizing the vulnerability of drinking water aquifers and water supply wells in a changing environment. Establishing a science-based system for recognizing degree of vulnerability is a key element in drinking water security.

Overall Topic Components:

Field-based research on heterogeneous hydrogeology with focus/expertise on fractured rock and glacial-derived sediments: Characterizing aquitards, flow systems in fractured networks and complex glacial deposits, flow paths and velocities, recharge and discharge areas, well hydraulics, contaminant transport and fate with complementary datasets developing robust, process-based conceptual site models to be used in decision-making, engineering controls, and passive or minimum (appropriate) technology management (sustainable, low carbon, etc., enhancing values of safety of small groundwater supplies.

Themes:

1. **Changing Contaminant Types and Inputs**
    a. Emerging contaminants and changes in waste streams (sewers, septics)
    b. Contaminant mobility and fate – different reactions; assimilation capacity
    c. Heterogeneous systems – different hydrogeology systems, role of complexity
    d. BMPs for bio-solids management, road salt, nitrate/pesticides, leaky sewers, storm sewer water quality
    e. Heat as a contaminant; geothermal energy impacts
2. **Changing Landscapes & Land Uses**
    a. Changes to physical system – natural flow system
    b. E.g. quarries, buildings, parking lots (impervious covers)
    c. Break walls at surface water boundaries
    d. Deep excavations for condominium buildings
    e. Old and new sewers
3. **Redistribution of Water Balance in Space & Time**
    a. Both engineering and natural changes (e.g. climate change)
    b. E.g. snow removal and storage
    c. Storm drains, run-off collection, surface retention and discharge (e.g. temperature, salinity)
    d. Changing precipitation intensity, distribution in space and time, climate (temp. & precip. effect)'
    e. Hydrogeology variability with depth – flow system characteristics, especially glacial deposits and fractured rock
4. **New Monitoring and Data Management Technologies**
    a. High resolution in measurement scale, detection limits and range, QC/QA
    b. Advanced technologies (fibre optics, heat, geophysics, hydrogeophysics, cross-hole and 3-D data) lead to improved site conceptual models; process-based
    c. Advanced temporal resolution and telemetry

d. Multi-level systems (MLS) designed from geol/hydrogeol data ("informed"monitoring systems)
e. High resolution spatial scale – multiple parameters
f. High resolution temporal scales
g. Data capture, storage and migration into software

Community Types:

1. **First Nations**
   a. Advantages of small capacity wells
   b. Philosophical/spiritual component of the natural water cycle and Earth system
   c. Remoteness of some communities
   d. Separate policy/legislative structure
   e. Appropriate technologies for community situations and conditions
2. **Rural / Private Supplies**
   a. Sparse population (diffused inputs)
   b. Individual wells, vulnerability concepts
   c. Individual waste management (septics – extent of treatment)
   d. Small wells and old/variable designs; improved designs for safety
   e. No routine monitoring; limited regulation
   f. Proximity to contamination threats
   g. Improvement of contamination impact indicator parameters
3. **Large Communities**
   a. Publically owned/managed and monitored with regulatory requirements, treated and distributed
   b. Proximity to industry, commercial waste
   c. Wider variety of waste types
   d. Different land use impacts (e.g. lots of pavement)
   e. Major flow system attenuation
   f. Proximity to skilled resources and services

Proposed Team:

1. Aravena, Ramon (UW)
2. Arnaud, Emmanuelle
3. Berg, Aaron
4. Bradford, Andrea
5. Cherry, John
6. Dickson, Sarah (MAC)
7. Dubey, Brajesh
8. Dunfield, Kari
9. Gharabaghi, Bahram
10. Gorecki, Tadeusz (UW)
11. Farahbakhsh, Khosrow
12. Habash, Marc
13. Levison, Jana
14. McBean, Ed
15. Metcalf, Chris (Trent)
16. Parker, Beth (Lead PI)
17. Pehme, Peeter
18. Shouakar-Stash, Orfan (UW)
19. Smith, Jim (MAC)

End Users:

A. Government
    a. Municipalities (Regions, Cities)
    b. Provincial Ministries
B. Community Organizations
    a. First Nations
    b. Conservation Authorities
C. Private Sector
    a. Landowners & Operating companies
    b. Engineering & Consulting companies

Background and Problem Statement:

The multidisciplinary team of researchers that is responsible for the ORF Round 7 proposal has held a previous ORF grant (Round 3) titled, "**Sustainable Bedrock Water Supplies for Ontario Communities**." This Round 7 proposal concerns research that builds on the success of the Round 3 project in that it maintains a groundwater focus, but it is broader to encompass groundwater in confined granular aquifers as well as the bedrock aquifers so important in Ontario. The sedimentary bedrock aquifers of southern and central Ontario provide drinking water for about 1 million people and in total groundwater provides drinking water for about 4 million Ontario residents. Relative to surface water supplies (rivers, lakes) that supply the rest of Ontario residents with drinking water, groundwater typically has a much narrower range of contaminant types, and generally needs minimal treatment for drinking. Ground-water supplies are generally viewed as 'pristine' because most aquifers are buried beneath protective geologic layers known as 'aquitards.' However, recent studies including those conducted in the ORF Round 3 project show that pristine groundwater in aquifers in Ontario used for water supply has become uncommon; generally, the groundwater has been impacted by anthropogenic chemicals of one type of another that have entered the subsurface environment during the past 50-75 years, ranging from road salt at one end of the spectrum to pharmaceutical chemicals at the other end. The degree of impact of each chemical and the chemical species can be expected to change over time as the chemicals migrating slowly into the aquifers arrive and, as changes in land use and chemical inputs at the surface occur. Therefore, the challenge facing groundwater-based communities large and small and users of domestic wells concerns understanding of the degree of anthropogenic impacts occurring at present and planning that includes prospects/uncertainties about changes, better or worse, in the future well water quality. Overall, this is an important component of a framework for assessment and creation of secure drinking water supplies.

Inherent in establishment of secure drinking water systems for groundwater communities is the concept of well head protection and aquifer protection. The former refers to measures aimed at protecting each municipal water supply well that draws its water from a particular part of the aquifer, and the latter refers to protecting the water contained in the entire aquifer regardless of its current use, or lack thereof, because future water demand may include use of the other parts of the aquifer. Nearly all public water supplies that are dependent on groundwater use aquifers, which are referred to in the hydrologic context as confined or semi-confined, due to aquitards which are relatively low-permeability geologic layers typically comprised of clayey deposits or shale beds. Therefore, an important part of assessing the vulnerability of aquifers is the assessment of the aquitards to determine the degree and nature of the protection provided to the aquifer. The status of an aquitard in this context is known as aquitard integrity and understanding it is a key aspect in the assessment of aquifer vulnerability.

Generally, the chemical composition of groundwater in drinking water aquifers is undergoing change in response to changes in land use (e.g. urbanization, quarrying, agricultural practice) and, perhaps now but more likely in the future, climate change. However, a complication common to groundwater resources is the long lag between the land use change and the time of arrival of the effects of this change on the groundwater resource, or any

particular well. Therefore, part of the challenge in anticipating or predicting future water quality or contamination, concerns understanding this arrival time, as for past episodes of land use change and chemical releases to the subsurface.

The purpose of this research is to provide the decision-making bodies which exist in various levels of government, better science on which to base decisions for land use planning, groundwater resource development and contingency plans both for the expected – as well as unexpected but plausible – episodes of groundwater contamination, so that advantages can be gained from better resiliency and drinking water security. This research is aimed at benefitting large communities relying on groundwater for municipal water supply, namely Guelph and Cambridge, mid-sized communities such as Fergus, and many small communities with population less than a few thousand people dependent on well water, particularly bedrock water. The smallest communities generally have less than 100 people, of which First Nations communities are a good example.

Benefits to Ontario:

The Walkerton tragedy in Ontario in 2000 resulted in major new policies and programs for groundwater protection in Ontario, including programs in well head protection and in assessments and numerical modelling of aquifer systems for large communities. However, the approaches that have been used are adapted from those established previously in other jurisdictions for granular aquifer systems without much adaptation for the unique aspects of bedrock aquifer systems, which are most important in several parts of southern and central Ontario. Bedrock aquifers like granular aquifers have vulnerabilities, but the nature of the vulnerabilities are generally different. Therefore, the conventional approaches for vulnerability assessments and groundwater monitoring are in many ways limited or inappropriate for bedrock aquifers. The results of this research will provide a much improved knowledge framework for government decision-making concerning management and protection of bedrock aquifers, for assessing the aquitard integrity concerning confined granular aquifers, and for design of groundwater monitoring systems for use in protection of aquifers used for drinking water. Another benefit of this research will be providing the science and technology framework needed to improve professional practice concerning groundwater management with focus on bedrock aquifers and complex granular aquifer-aquitard systems. An important part of this research project will be the outreach to bring advanced by low cost methods to create safe water supply wells in bedrock in First Nations communities. Here the aim is to demonstrate that these methods are both technically feasible and relatively low cost.

6.5(b)

Karen Landry

From: Stan Denhoed <sdenhoed@hardenv.com>
Sent: June-25-14 4:36 PM
To: Donna Tremblay; Dennis Lever; Wayne Stokley; Karen Landry
Subject: Support for Beth Parker Groundwater Research

Dennis, Karen, Donna and Wayne

I understand that the groundwater research group at the University of Guelph (G360) will be requesting a letter of support for the next five year research grant. There is a tight time line (they need the letter before the next council meeting) but I hope that you will be able to support this group. I cannot impress upon you how fortunate we are to have a world class research group in our back yard resulting in amazing research being conducted in the aquifers that supply our drinking water and source areas for wetlands and streams. I have attended the ORF sessions held at the U. of G. and the vast majority of research being presented includes either the Paris Moraine, the underlying Amabel aquifer or another nearby geological feature.

Your letter of support will go a long way to show that the G360 group has local connections.

Stan Denhoed, M.Sc. P.Eng.
Senior Hydrogeologist
Harden Environmental Services Ltd.
Phone (519) 826 0099
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6.6(a)

June 17, 2014
Our File: 111006-2

Township of Puslinch
RR3, 7404 Wellington Road 34
Guelph, ON N1H 6H9

Attention: Ms. Karen Landry
CAO/Clerk

Re: Mini Lakes Resident's Association
7541 Wellington Rd 34
Part Lot 21 & 22, Concession 8

Dear Ms. Landry:

Further to our previous discussion, this letter is to document the background information which we believe warrants the Township of Puslinch to enter in an Operation and Maintenance Agreement (also commonly referred to as a 'Municipal Responsibility Agreement') with the Mini Lakes Residents Association relating to the operation and maintenance of the Water Treatment System.

The existing Mini Lakes Residential Community consists of 261 lots (referred to as 'Phase 1'), with a further 31 lots proposed (referred to as 'Phase 3'). The existing site is leasehold however the Mini Lakes Residents Association proposes to register a Plan of Subdivision and Plan of Common Elements Condominium on its lands to permit the sites to be held as freehold, with each lot tied to the Common Elements Condominium. Draft approval of the Plan of Subdivision and Plan of Common Elements Condominium for the Mini Lakes Development, at 7541 Wellington Rd 34, was granted on November 8, 2011. As part of the redevelopment process, the Mini Lakes Residents Association is required to enter into new development and condominium agreements with the Township, as well as a new operation and maintenance agreement for the Sewage Treatment System.

The community is serviced by existing communal water and wastewater treatment systems. The wastewater system is a rotating biological contactor plant and subsurface disposal bed that is subject to an existing Certificate of Approval (C of A) issued under the Section 53 of the Ontario Water Resources Act. The Mini Lakes Residents Association has subsequently submitted an application to amend the C of A in order to undertake proposed plant improvements, re-rate the plant and revise the nitrate compliance limit and definition of non-compliance. The modifications are proposed to address ongoing compliance issues with respect to nitrate exceedance. The application was submitted in December 2012, however is still pending review and approval by the Ministry of Environment. The wastewater system is also subject to an existing Operations and Maintenance Agreement between the Mini Lakes Residents Association and the Township of Puslinch, dated October 20, 1999. The existing agreement describes requirements for operation, maintenance and financial contributions to assure the long term viability of the communal system. As noted above, a new Operations and Maintenance Agreement between the Mini Lakes Residents Association and the Township of Puslinch is proposed as part of the re-development process. The revised agreement is proposed to provide for the assumption of the Sewage Treatment System by the Common Elements Condominium and incorporate the trust fund required by

the existing agreement into the reserve fund required by the Condominium Act. We note that the Operation and Maintenance Agreement for the Sewage Treatment System is also a requirement of the existing C of A for the system.

The water system which serves the community is classified as a 'Non-Municipal Year-Round Residential' system by Ontario Regulation 170/03, under the Safe Drinking Water Act (2002). The system consists of three groundwater production wells, each with respective pumping and treatment systems, connected to a common distribution system. The Engineering Evaluation Report for the system was prepared by Stantec in June 2006 as required by the regulations. There does not appear to be any existing Operations and Maintenance or Municipal Responsibility Agreement between the Mini Lakes Residents Association and the Township of Puslinch relating to the water system.

Generally speaking, private systems are considered to have a greater likelihood to malfunction as a result of poor management and private operators are less likely to have sufficient funds in place to remediate problems. The Ontario Safe Drinking Water Act (2002), Part IX – Compliance and Enforcement, includes provisions by which the Minister, under certain circumstances, may require a municipality to take charge of a Non-Municipal Drinking Water System serving residents within its jurisdiction. To protect the Municipality from financial burden of assuming a malfunctioning system, the MOE strongly recommends, and in many cases even requires, that the Municipality in which the communal system is located enters into an agreement to govern operation, maintenance and financial contribution requirements to assure proper management of the services.

It is noted that the condominium act does contain provisions for management of condominium elements including communal services. The act outlines requirements for conducting reserve find studies at regular intervals, establishing a reserve trust fund and provides the condominium the right of 'first charge' against a defaulting payers home. The condominium act does not however contain provisions for reporting to the Municipality or provide the Municipality with rights in terms of enforcing the terms of the Condominium Act. If a condominium corporation does not comply with the requirements of the Act, it would be necessary for one or more lessor or mortgagee to apply to the court to request enforcement.

It is noted that at least two previous Condominium Developments in the Township are known to have Municipal Responsibility Agreements in place relating to the communal water supply and/or sewage systems including: Meadows of Aberfoyle Condominium and Irish Creek Condominium.

Recommendations

We recommend that the Township of Puslinch enter into an Operation and Maintenance agreement with the Mini Lakes Residents Association relating to the operation and maintenance of the Water Treatment System, similar to that which is provided for the Sewage Treatment System. As an alternative, we suggest that the existing Operation and Maintenance Agreement for the Sewage Treatment System could likely be suitably revised to incorporate requirements relating to the communal Water System.

We trust this is sufficient for your requirements. If you have any questions please call.

Yours truly,

GM BLUEPLAN ENGINEERING
Per:

Amanda Pepping, P.Eng.

AP/

cc: Ms. Dianne Paron, Mini Lakes Residents Association
Mrs. Judy Beachamp, Stantec Consulting Ltd.

6.6.(b)

June 17, 2014
Our File: 199-024

Township of Puslinch
RR3, 7404 Wellington Road 34
Guelph, ON N1H 6H9

Attention: Ms. Karen Landry
CAO/Clerk

Re: Mini Lakes Wastewater Treatment Plant Effluent Monitoring Report, 1st Quarter (2014)

Dear Ms. Landry:

We have reviewed the "Mini Lakes Mobile Home Community Quarterly Monitoring Program – 1st Quarter 2014" report, as submitted by Stantec Consulting Limited on May 1, 2014. We are pleased to provide our comments for your consideration.

The following table summarizes the average effluent quality for the first quarter (Q1) (column 2), the year to date (YTD) average (column 3), the 12-month rolling average (column 4), the previous YTD average (2013) (column 5) and the MOE Certificate of Approval (C of A) compliance limits (column 6).

1	2	3	4	5	6
Parameters (mg/L)	**Q1 Avg.,** (Jan. 1 to Mar. 31, 2014)	**YTD Avg.,** (Jan. 1 to Mar. 31, 2014)	**Twelve-Month Rolling Avg.,** (Apr. 1, 2013 to Mar. 31, 2014)[a]	**Previous YTD Avg.** (Jan. 1 to Dec. 31, 2013)	**Compliance Limit**
$CBOD_5$[b]	16.5	16.5	15.0	12.9	20.0
TSS[c]	8.5	8.5	13.4[f]	16.0	20.0
TP[d]	0.2	0.2	0.3	0.42	1.0
NO_3[e]	9.9	9.9	4.9	4.8	5.0

a. Condition 3.1 of the MOE C of A, average is defined as "any twelve (12) consecutive calendar months"
b. $CBOD_5$ = 5 day Carbonaceous Biological Oxygen Demand
c. TSS = Total Suspended Solids
d. TP = Total Phosphorous
e. NO_3 = Nitrate
f. Note: Discrepancy compared to Table 1 in Stantec report due to Dec, 27, 2013 TSS results reported as <10 mg/L. Results were interpreted by G&M as 10 mg/L for purposes of calculating averages. Results were interpreted by Stantec as 0 mg/L for purposes of calculating averages.

The MOE C of A requires that plant effluent be sampled and analyzed on a monthly basis for each of the parameters defined above. As a minimum, plant effluent was sampled monthly for all parameters during this quarter.

Effluent $CBOD_5$

The average $CBOD_5$ effluent concentration for this quarter was 16.5 mg/L. This is below the C of A compliance limit of 20.0 mg/L for this parameter. Effluent $CBOD_5$ concentrations were below the compliance limit on three of the four sampling occasions during this quarter. The exception occurred on January 17, 2014, however the sample result of 51.0 mg/L is considered anomalous result. The twelve month rolling average for this parameter remains in compliance at 15.0 mg/L, demonstrating that the plant is generally performing acceptably with respect to $CBOD_5$.

Effluent TSS

The average TSS effluent concentration for this quarter was 8.5 mg/L. This is below the C of A compliance limit of 20.0 mg/L for this parameter. Effluent TSS concentrations were below the compliance limit on all four sampling occasions this quarter. The twelve month rolling average for this parameter remains below the compliance limit at 13.4 mg/L, demonstrating that the plant is generally performing well with respect to TSS.

Effluent TP

The average TP effluent concentration for this quarter was 0.2 mg/L. This is well below the C of A compliance limit of 1.0 mg/L for this parameter. Effluent TP concentrations were below the compliance limit on all three sampling occasions this quarter. The twelve month rolling average for this parameter is in compliance at 0.3 mg/L, demonstrating that the plant is generally performing well with respect to TP.

Effluent NO_3

The average effluent NO_3 concentration for this quarter was 9.9 mg/L which is above the C of A compliance limit of 5.0 mg/L for this parameter. Effluent NO_3 concentrations were above the compliance limit on all three sampling occasions this quarter. The twelve month rolling average remains just below the compliance limit at 4.9 mg/L. In February 2014 the 12-month rolling average exceeded the compliance limit at 5.04 mg/L, and was reported to the Ministry of the Environment (MOE). Sludge cleanout of the system and dentrification zone was subsequently undertaken in early March as a mitigation measure.

The long term strategy for improving plant performance is to provide better sludge management capabilities by partitioning the existing primary clarifier into two chambers, one to be used for primary clarification and sludge storage and the other for effluent polishing. It is anticipated that this will resolve issues with sludge carryover and improve sludge and effluent recirculation abilities in order to optimize nitrogen removal.

On December 6, 2012 Stantec applied on behalf of Mini Lakes for an amendment to the Environmental Compliance Approval (ECA) for the proposed sludge management improvements as well as to re-rate the plant for an average daily flow of 158 m^3/d, revise the nitrate limit upwards to 8.0 mg/L and change the definition of non-compliance to "during any calendar year" from "during any 12 consecutive calendar months". It is acknowledged that review times for an ECA amendment can be quite lengthy, however the waiting period for this application has surpassed what is considered typical. Stantec has recently followed up with the MOE and was advised that the application will be reviewed 'shortly'. At the time this letter was prepared, the application has not yet been posted to the Environmental Registry for the 30 day comment period.

Average Sewage Flows

The average daily sewage flow rate to the plant ranged between 93.9 m^3/d and 108.5 m^3/d during this quarter. This is below the plant's current design capacity of 216 m^3/d, and proposed re-rated plant capacity of 158 m^3/d. The estimated number of occupied homes ranged between 220 and 225 this quarter, which represents approximately 75% of units in the current Draft Plan of Subdivision application of 292 units.

The estimated average daily flow per home ranged between 417 L/d and 493 L/d, below the design average daily flow per home of 540 L/d. The average flow is somewhat higher than has typically been observed during this quarter in previous years. The maximum daily flow rate of 800 L/unit/day was exceeded on one occasion when the flow per unit was estimated at 884 L/unit/day. The cause of the flow exceedance is not known at this time, and it is noted that there was no record of extreme weather or melt conditions that appeared to contribute to the exceedance. At this time, the flow exceedance is considered an anomaly, although we will closely review flows in coming reports to determine whether further investigation is needed.

We trust this is sufficient for your requirements. If you have any questions please call.

Yours truly,

GM BLUEPLAN ENGINEERING
Per:

Amanda Pepping, P.Eng.

AP/mh

cc: Ms. Dianne Paron, Mini Lakes Residents Association
Ms. Lynnette Armour, Ministry of the Environment – Guelph District Office
Mr. Stan Denhoed, Harden Environmental Services Ltd.
Ms. Judy Beauchamp, Stantec Consulting Ltd.

6.6(c)

June 17, 2014
Our File: 199-024

Township of Puslinch,
RR#3, 7404 Wellington Road 34,
Guelph, ON N1H 6H9.

Attention: Ms. Karen Landry
CAO/Clerk

Re: Mini Lakes Mobile Home Community
2013 Annual Operation & Maintenance Report

Dear Ms. Landry:

We have reviewed the '2013 Operation and Maintenance Report' for the above facility, as submitted by Stantec Consulting Limited, dated March 21, 2014. We are pleased to provide our comments for your consideration.

The Mini Lakes Mobile Home Community is permitted a maximum of 400 year round units based on the original design or 292 based on the current draft plan of subdivision application. The number of homes occupied varies throughout the year as well as the corresponding sewage flows to the wastewater treatment plant. Currently, the wastewater treatment plant is rated for an average daily flow of 216 m^3/d with the effluent compliance limits stipulated in the Table below.

In December 2012, an application for amendment to C of A Number 2113-7M8RBP was submitted to the Ministry of the Environment (MOE) to undertake proposed plant improvements, re-rate the plant for an average daily flow of 158 m^3/d, revise the nitrate limit upwards to 8.0 mg/L and change the definition of non-compliance to "during any calendar year" from "during any 12 consecutive calendar months".

EFFLUENT QUALITY:

The following Table summarizes the average effluent quality for the year 2013 presented as year to date (YTD) average (column 2), previous YTD average (2011) (column 3) and Ministry of the Environment (MOE) Certificate of Approval (C of A) Compliance Limit (column 4).

1 **Parameters (mg/L)**	2 **YTD Avg.,** (Jan. 1, 2013 to Dec.31, 2013)[a]	3 **Previous YTD Avg.,** (Jan. 1, 2012 to Dec.31, 2012)[a]	4 **C of A Compliance Limit**
$CBOD_5$[b]	12.9	11.5	20.0
TSS[c]	16.0[f]	15.0	20.0
TP[d]	0.42	0.43	1.0
NO_3[e]	4.8	4.7	5.0

a. Year to date (YTD) average, as reported by Stantec Consulting Ltd
b. $CBOD_5$ = 5 day Carbonaceous Biological Oxygen Demand
c. TSS = Total Suspended Solids
d. TP = Total Phosphorous
e. NO_3 = Nitrate
f. Note: Discrepancy compared to Table 2 in Stantec report due to Dec, 27, 2013 TSS results reported as <10 mg/L. Results were interpreted by G&M as 10 mg/L for purposes of calculating averages. Results were interpreted by Stantec as 0 mg/L for purposes of calculating averages.

The YTD average concentrations for $CBOD_5$, TSS, TP and NO_3 are all within C of A compliance limits for the year 2013. Periodic exceedances of TSS were observed in February, August and November. One exceedance of

$CBOD_5$ was observed in November. Exceedances of NO_3 occurred most frequently of any parameter and were observed in January, February, March, April, May, June, September and December. Plant effluent was sampled monthly during 2013, with the exception of nitrate and nitrite which were sampled more frequently as the result of ongoing denitrification issues.

TP concentrations were below the effluent limit in all 12 samples taken during 2013. The average TP concentration of 0.42 was well below the effluent limit of 1.0 mg/L. Overall the plant is considered to have performed well in terms TP removal during 2013.

$CBOD_5$ concentrations were below the effluent limit in 11 of 12 samples taken during 2013. The average $CBOD_5$ concentration of 12.9 mg/L was well below the effluent concentration of 20 mg/L. Overall the plant is considered to have performed well in terms of $CBOD_5$ during 2013.

TSS concentrations exceeded the effluent limit in three of the 12 samples taken in 2013. The average TSS concentration of 16.0 mg/L was below the effluent limit of 20 mg/L however. TSS has the potential to affect the long term performance of leaching beds and should therefore be monitored closely given past issues with TSS. Overall the plant is considered to have performed acceptably with respect to TSS during 2013.

The average nitrate concentration was, although below the compliance limit at 4.8 mg/L, is approaching the compliance limit of 5.0 mg/L. Nitrate values exceeded the effluent limit on eight of the 21 sampling visits during 2013. High nitrate concentrations during the winter of 2012 and spring of 2013 meant that the plant was out of compliance on a 12-month rolling average basis for the third quarter of 2013. The reduction in denitrification during the winter and spring is attributed to colder temperatures which is known to impact the denitrification process. Operations staff members continue to closely monitor nitrate levels, and are undertaking additional operational and maintenance procedures required to maintain denitrification.

PROPOSED UPGRADES:

In December 2012 Stantec applied on behalf of Mini Lakes for an amendment to the current C of A (now known as an Environmental Compliance Approval or ECA) for various upgrades, including proposed sludge management improvements. The Approval process is ongoing and is still awaiting MOE approval. The application for amendment also includes a proposal to re-rate the plant based on the current the Draft Plan of Subdivision to 158 m^3/d and revise the nitrate limit upwards to 8.0 mg/L, based on lower long term projected nitrate loadings than originally designed. Stantec has recently followed up with the MOE and was advised that the application will be reviewed 'shortly'. At the time this letter was prepared, the application has not yet been posted to the Environmental Registry for the 30 day comment period. It is acknowledged that review times for an ECA amendment can be quite lengthy, however the waiting period for this application has surpassed what is considered typical.

It is noted that the system is not presently in conformance with the specific requirements of the C of A with respect to chemical storage. In order to achieve conformance with the C of A, a 900 L carbon tank and a 2,300 L alum tank, complete with spill containment facilities are recommended. The community currently has approval and funding in place for chemical building upgrades. Upgrades will be completed as part of the 2014 upgrades project awaiting approval by the MOE.

Other upgrade plans are ongoing and subject to approval and financial resources. Improvements to the control of sludge return rates and the removal of floating sludge remains a priority, however the replacement of intermediate and final clarifier pumps and scum removal systems are currently on hold due to the higher priority nature of the sludge management improvements planned for construction in 2014.

SEWAGE FLOWS:

From Table 3 of the 2013 Operation and Maintenance Report, the monthly average daily flow ranged from 88.5 m^3/d to 105.7 m^3/d during 2013. The monthly average daily flow for 2013 was 99.87 m^3/d which represents approximately 46% of the current rated capacity (216 m^3/d) and 63% of the proposed rated capacity (158 m^3/d). The monthly average daily flow of 99.87 m^3/d is an increase of 6.9% from 2012.

The estimated number of homes occupied during 2013 ranged between 215 and 265 units, which represents approximately 80% occupancy based on the 292 units proposed under the Draft Plan of Subdivision Application. The estimated average daily flow per home ranged between 379 L/d and 453 L/d with an overall average of 424 L/d. This is a slight increase from the average per unit flow over the past three years of 399 L/unit/day, and is below the design average of 540 L/unit/day.

The overall plant maximum daily flow rate of 320 m^3/d has not been exceeded, even during periods of high occupancy and wet periods. Based on the above trends infiltration and inflow is not considered to be an issue at this time.

SYSTEM MAINTENANCE:

Table 4, in the annual report summarizes the system maintenance during the year. For the most part the maintenance is general housekeeping items normally found in the operation of a wastewater treatment plant and sewage collection system.

Key maintenance items conducted during 2013 included the installation of alarms to each new lift station, and electrical work conducted on lift stations, WWTP electrical panel and plant wiring.

ENVIRONMENTAL/OPERATING PROBLEMS AND MITIGATION MEASURES:

Operational problems during 2013 mostly involved small issues with pumps and alarms, which were resolved and have not since recurred. Operational issues included a 'go-switch' alarm for RBC#2, which required clearing of alarm; Significant power outage resulting in pumpout of SPS#2, Sensaphone trending reports not showing all data, and issues with various pumps tripping out in October.

CHEMICAL STORAGE CONTAINMENT REQUIREMENTS:

As reported by Stantec, the wastewater treatment plant is currently out of compliance with the C of A requirements for chemical storage. In order to achieve conformance with the C of A, a 900 L carbon tank and 2300 L alum tank, complete with spill management facilities, are recommended. Stantec report that they are working with the Mini Lakes Residents Association to implement this project during the 2014 upgrades project.

OTHER SYSTEM IMPROVEMENT:

American Water Canada Corporation (AWC), the system operator, has identified a number of recommendations to improve the overall system. These include:

- Improved chemical delivery system for reduced materials handling
- Improved sludge management and increased recirculation rates (scheduled for 2014, pending C of A amendment application and approval)
- There is no sludge removal system for the denitrification zone; sludge removal in this zone is necessary to maintain the efficiency of nitrogen removal from the system to stay within the C of A limits (not currently scheduled for feasibility reasons).

These recommendations are under consideration by the owner, operators and Stantec. Implementation will depend on evaluation, priority levels and funding availability.

RECOMMENDATIONS:

Based on the information provided in the '2013 Annual Operation and Maintenance report', the Mini Lakes wastewater treatment plant effluent met the MOE (C of A) compliance limits for TP, $CBOD_5$ and TSS on an annual average basis during 2013. The wastewater treatment plant was in compliance on a 12-month rolling average basis for all parameters, with the exception of a nitrate during the third quarter. The situation has been reported to the MOE and operational changes and upgrades to resolve the nitrate issues are ongoing.

We recommend that;

1. The operators continue to closely monitor effluent parameters in 2014 and take corrective action if the effluent is approaching the C of A limits.

2. The operators continue to implement the general measures outlined in the Stantec annual report to maintain the denitrification process.

3. The operators continue to report average daily flow, maximum daily flow and estimated number of occupied homes for each month in the quarterly reports. The estimate of occupied homes should include all occupied homes contributing sewage flows to the wastewater treatment plant.

4. The owner and operators take appropriate action to bring the wastewater treatment plant into compliance with respect to C of A requirements for chemical storage (scheduled for implementation during 2014 plant upgrades).

5. The owner continues to provide updates to the Township in the quarterly monitoring reports with respect to the status of the MOE approval and timing for implementation of the sludge management upgrades and plant re-rating proposed to address nitrate compliance issues (scheduled for implementation during 2014, pending receipt of approval).

We trust this is sufficient for your requirements. If you have any questions please do not hesitate to contact us.

Yours truly,
GM BLUEPLAN ENGINEERING
Per:

Amanda Pepping, P.Eng.

AP/mh

cc: Ms. Dianne Paron, Mini Lakes Residents Association
Ms. Lynnette Armour, Ministry of the Environment – Guelph District Office
Mr. Miles McCormick, Stantec Consulting Ltd.

6.7(a).

NEWS RELEASE

Ted Arnott, MPP
Wellington-Halton Hills

FOR IMMEDIATE RELEASE
July 9, 2014

Premier acknowledges importance of the Morriston bypass

(Queen's Park) – In Question Period on July 8, Premier Kathleen Wynne publicly acknowledged the importance of the Highway 6 Morriston bypass project and Wellington-Halton Hills MPP Ted Arnott's efforts to get the project on to the Ministry of Transportation's 5 year plan.

In response to a question from Opposition Leader Jim Wilson, Premier Wynne said: "...We understand the constraints that have to be in place. But the other reality is that there are investments needed. I would just call attention to a statement that the member for Wellington–Halton Hills made yesterday in his first member's statement..."

Mr. Arnott's July 7 statement began by highlighting the importance of the Highway 6 Morriston bypass and the need to get the project on the Ministry of Transportation's 5 year plan.

"I'm glad that the Premier has finally acknowledged that the Morriston bypass is needed," said Mr. Arnott. "As a former Minister of Transportation, she must know the importance of this project."

"It's clear that that the Premier is paying attention," he added. "I just hope that the Minister of Transportation was listening too."

Once a provincial budget is passed, it is normal for the Ministry of Transportation to review its 5 year plan and make changes as projects are completed and new ones are considered.

Page 265 of the 2014 Ontario Budget Papers indicates that the Ontario Government plans to spend almost $2.5 billion on provincial highway infrastructure this fiscal year.

"Now that the Premier has acknowledged the need for this project in the Legislature, I hope that we will soon see the Highway 6 Morriston bypass added to the Ministry's 5 year plan," said Mr. Arnott.

Working with Township of Puslinch Council and the County of Wellington, Mr. Arnott has persistently raised the need for the Highway 6 Morriston bypass in the Ontario Legislature for years.

(Attached: Hansard record of Mr. Wilson's question and the Premier's response in the Ontario Legislature, July 8, 2014 and Mr. Arnott's Member's Statement, July 7, 2014)

– 30 –

Wellington-Halton Hills MPP Ted Arnott was re-elected to the Ontario Legislature on June 12. The 41st Provincial Parliament began a summer sitting on July 2, and the session continues.

Ted Arnott, MPP, Phone: 416-325-3880, Email: ted.arnott@pc.ola.org

Ontario Hansard - 08-July 2014

ONTARIO BUDGET

Mr. Jim Wilson: Thank you, Mr. Speaker. Certainly the introduction of pages is important. It's historic for them to be here, and we certainly welcome them all.

Now let's get down to business.

My question is for the Premier. Moody's credit rating agency has changed Ontario's debt rating outlook from stable to negative. After 11 years of a Liberal regime in Ontario, you've managed to double our debt, and paying the interest on that debt is now the third-largest expenditure in the budget. When referencing the debt, even former Liberal MPP Donna Cansfield said, "This province is in deep trouble."

Premier, your proposed budget has caused a credit downgrade to hang over Ontario. Tell us today, does the government's fiscal plan take into account a further credit rating downgrade, which would increase the cost of servicing the debt? Or will you assure us that your budget will not result in a credit downgrade?

Hon. Kathleen O. Wynne: What I can assure the Leader of the Opposition is that we are determined to eliminate the deficit by 2017-18. We have laid that out in our budget. We will reintroduce our budget next week. We have been very, very clear about the constraints that we know have to be put in place. We have been clear about that path to balance.

But we've also been clear-and we were clear with the people of Ontario as we went through the election campaign-that our plan was based on investments in communities, investments in the talent and skills of our people, our children, our grandchildren, investments in infrastructure that we know are necessary, whether it's roads or bridges, whether it's transit, whether it's hospitals or schools. Those investments are necessary in order for the province to thrive.

That is the basis of our plan, and it is laid out very clearly in our budget documents.

The Speaker (Hon. Dave Levac): Supplementary?

Mr. Jim Wilson: Again to the Premier: Premier, you claim that you want to build Ontario up, but the fact is, the massive debt your government has created is now threatening front-line services that we cherish here in Ontario, like health care and education. Even former Finance Minister Dwight Duncan says that the province's finances are "a ticking time bomb," yet you're still working to push through a budget that the credit rating agencies are already frowning upon.

Premier, is it your intention to rush through this budget, then shut down the Legislature so that you can negotiate new public sector contracts without the Legislature being in session to hold you to account?

Hon. Kathleen O. Wynne: As the Leader of the Opposition knows, we are back here within 20 days because I said that it was important that we get the budget reintroduced and that we have the opportunity to debate it. We're willing to stay as long as that takes, to have the budget debated and to make sure that we get the full input from this House.

But the reality that the Leader of the Opposition puts forward, that there are challenges ahead, that's not news to us. We know that there are challenges, Mr. Speaker. That's why in our budget, we lay out the path to balance. We understand the constraints that have to be in place.

But the other reality is that there are investments needed. I would just call attention to a statement that the member for Wellington-Halton Hills made yesterday in his first member's statement. He talked about the need in his riding-

The Speaker (Hon. Dave Levac): Answer?

Hon. Kathleen O. Wynne: -and I will quote in the final supplementary, but he talked about the need in his riding for investments in infrastructure.

The Speaker (Hon. Dave Levac): Final supplementary.

Mr. Jim Wilson: Well, the honourable member for Halton-

Interjections.

Mr. Jim Wilson: I just say to the Premier, the honourable member for Wellington-Halton Hills has a far better record of sticking up for his constituents and setting priorities, because he was part of a government that set priorities for eight years in this province and balanced the budget.

Premier, in Europe, they-

Interjections.

The Speaker (Hon. Dave Levac): Order.

Interjections.

The Speaker (Hon. Dave Levac): That will do.

Mr. Jim Wilson: We've seen in Europe, where they didn't care about the credit rating, or didn't care enough about it, and they didn't care enough about their debt obligations-in fact, their debt obligations just kept growing-that they actually did have to cut services that we cherish here in Ontario, like health care and education.

You need to treat the credit rating as sacrosanct to make sure that we spend within our means, because we owe that to the hard-working people of Ontario. That's an obligation we have, and we have an obligation to preserve front-line services.

Premier, will you take your time with the budget? We'll forgive you if you don't introduce it next Monday. Take your time with the budget. Fix it so that we don't lose our current credit rating.

Hon. Kathleen O. Wynne: What is sacrosanct to me are the needs of this province and the needs of the people in this province, and those needs are multi-faceted. As the Leader of the Opposition notes, there are challenges ahead for our fiscal situation, and we have laid out our path to balance in our budget.

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But we also have a need to make investments in infrastructure. The Leader of the Opposition references the history of the member for Wellington-Halton Hills and his participation in the government, his membership in the government, and his membership in a government that in fact didn't make the investments that were needed, didn't make the investments in infrastructure that were needed, which is why yesterday he was standing in this House saying, "On June 13, the day after"-and I'm quoting the member for Wellington-Halton Hills-"On June 13, the day after the election, we were back to work at my constituency office, and I wrote the Premier to highlight three key issues in my riding: the Highway 6 Morriston bypass, improved GO train service, and high-speed Internet in rural Ontario." So, Mr. Speaker-

The Speaker (Hon. Dave Levac): Thank you.

New question.

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Mr. Ted Arnott: Mr. Speaker, I want to congratulate you and every member of this House on their successful election on June 12. I'm looking forward to working with each of them over the next four years in the 41st Parliament as we all seek to make Ontario a better place for all of its residents.

On June 13, the day after the election, we were back to work at my constituency office, and I wrote the Premier to highlight three key issues in my riding: the Highway 6 Morriston bypass, improved GO train service, and high-speed Internet in rural Ontario. On July 3, I tabled three private members' resolutions on these issues. They are the first three items listed on the order paper today.

Highway 6 serves as a vital link between the 401 and the Hamilton-Niagara region and the US border. A bypass around Morriston will eliminate a major traffic bottleneck, improve safety and allow for the free flow of goods to the border.

During the election campaign, the government promised full-day two-way GO train service between Waterloo region and the GTA. What is the time frame for keeping this commitment? How does the government define "full-day two-way service"? Will this include more stops in Wellington-Halton Hills?

Finally, lack of access to high-speed Internet in rural Ontario continues to be a concern. Reliable and affordable access to high-speed Internet is essential in today's economy. A provincial strategy for expanding affordable high-speed Internet would help our local businesses grow and attract new investment to our rural communities.

I commend all of these issues to the government and urge immediate support for them.