



July 28, 2014

Ms. Kim Wingrove
Township of Guelph/Eramosa
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P.O. Box 700
Rockwood, ON N0B 2K0

Legislative & Planning Services
Planning Services
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Oakville ON L6M 3L1
Fax: 905-825-8822

Dear Ms. Wingrove:

**RE: Region of Halton Technical Comments
 “Hidden Quarry” – James Dick Construction Ltd.
 Proposed Class ‘A’ Category 2 License – Aggregate Operation
 Township of Guelph/Eramosa Zoning By-law Amendment Application ZBA 09/12
 West Half Lot 1, Concession 6, former geographic area of the Township of Eramosa**

The following correspondence is provided to outline technical comments on the key hydrogeological-related matters as they relate to the above noted zoning by-law amendment application and Aggregate Resource Act application. These comments are not intended to supplant our July 5, 2013 letter as the requested additional studies and updates to the existing studies prepared in support of this proposal remain outstanding.

The following comments identify matters that require further clarification in order to protect Halton Region interests in relation to this proposal. These comments largely focus on water resources and potential sensitive receptors within Halton Region, including surface water features, groundwater levels, groundwater quality, domestic wells, on-site and off-site monitoring relevant to the Region, and reference to the site plan. The following materials have been reviewed as part of these comments:

- I. Letter from MOE’s Carl Slater to James Dick Construction Ltd. (JDCL), dated July 3, 2013.
- II. Letter-report from Harden Environmental Services Ltd. (Harden) to JDCL, dated July 15, 2013, responding to MOE’s comments of July 3, 2013.
- III. (i) Hydrogeological Summary (letter) Report for Township of Guelph Eramosa from Harden to JDCL, dated September 5, 2013; (ii) Burnside’s comments dated November 12, 2013 on Harden’s Hydrogeological Summary Report, and (iii) Burnside’s responses dated April 8, 2014 (C1) and April 9, 2014 (C2) to Harden’s letter (dated January 14, 2014) responding to Burnside’s comments of November 12, 2013.
- IV. (i) Letter from Grand River Conservation Authority (GRCA) to Township of Guelph/Eramosa dated November 4, 2013), and (ii) Letter from GRCA to Township of Guelph/Eramosa dated March 28, 2014; and (iii) Letter from GRCA to Township of Guelph/Eramosa dated April 23, 2014.
- V. Letter-report from Harden to JDCL, dated February 5, 2014, concerning “timeline for changes to monitoring plan”.
- VI. Site Plans; Stovel & Associates, June 6, 2014

Surface Water Features:

- Based on the GRCA's correspondence of April 15/13, Brydson Creek (i.e. an extension of Tributaries B+C south of Hwy 7) is classified as cold-water fish habitat. Except for SW3 at Hwy 7 crossing, there does not appear to be any surface water monitoring proposed at the Brydson Creek south of Hwy 7. Is SW3 representative of cold-water fish habitat at Brydson Creek? Are any fish habitat/ecological monitoring proposed along some specific section(s) of the creek? There is no evidence of such monitoring in any of the reviewed documents.
- Brydson Farm Spring is located south of Hwy 7 and within Halton Region. There does not appear to be any monitoring proposed in regards to groundwater spring which is apparently attributed to re-emergence of Tributary B about 400m south of the proposed quarry site (i.e. at the Brydson's Farm in Milton). Harden Environmental asserts that water levels at Brydson Spring will increase, if anything, as a result of the quarry and that 600 m travel-distance from the extraction edge to the Brydson Spring would be more than sufficient to attenuate thermal changes in the groundwater. A permanent monitoring station should be established (subject to property owners' permission) at spring re-emergence to monitor for flow, temperature, water quality and any groundwater-uses and groundwater-dependant habitats in this area.

Groundwater Levels:

- In their November 12, 2013 correspondence, Burnside indicated that there is significant potential for impacts from the proposed quarry activities on the groundwater resources in the surrounding area. This correspondence recommended, among other things, that all domestic wells within 500m of the quarry site be inspected and tested to evaluate how susceptible they are to water level variations, and that the proposed monitoring program should be expanded to include representative domestic wells. The groundwater levels and temperature monitoring at the south side of the subject lands should be expanded beyond M4, to all accessible domestic wells south of Hwy 7, as noted below.

Domestic Wells:

- Little is known of the current status of private wells in Halton Region south of Hwy 7 as the last well survey was conducted in mid-1990s. Both a survey and well assessment should be carried on all wells in Halton Region potentially under the influence of the flow from the quarry site. At a minimum, all properties that lie within the 500m zone should be subject to a well survey, including wells at these properties that might be located somewhat outside of the 500m zone.
- Burnside stated that the monitoring program should reference the pre-extraction well survey that would include water quality/quantity testing and indicate which wells will be potentially involved in the monitoring program. Should access be limited to private wells within the Region for the purpose of long-term monitoring and testing, then additional (multi-level) monitoring installations should be established along the southerly boundary of the subject lands for monitoring and "early warning" purposes (i.e. west and east of the existing monitoring well M4).

Well Complaint Protocol:

- JDCL proposed to involve Water Well Drilling Company and have Harden on stand-by to address any water quantity or quality issues that arise. We assume that the "well complaint protocol" would encompass Halton residences downgradient of the site. Confirmation of this understanding is required from both JDCL and Burnside.

Water Quality:

Burnside expressed concerns that quarrying activities could impact current concentrations of nitrate, iron and also introduce surface water pathogens into the nearby groundwater system. We agree with

Burnside's comments and recommendations on the protection, monitoring and mitigation of water quality, and recommends further improvements as summarized below:

- Burnside suggested the establishment and sampling of on-site multi-level M15 to determine nitrate concentrations with depth and that any nitrate contributed by the blasting should be quantified and included in the mass balance. We recommend installing an additional multi-level monitor at the southern site boundary and incorporating monitoring data (water level and quality) in the mass balance nitrate calculations to better understand nitrate concentrations leaving the site (pre- and during extraction).
- Burnside noted that Harden should provide commentary as to the impact of water fowl on surface water in the quarry and how this may impact downgradient wells. We agree that additional information on the matter is required.
- Burnside noted that Harden should provide additional detail on how the existing monitoring well network would provide sufficient early warning so that the treatment system can be installed in downgradient domestic wells before unacceptable impacts to drinking water occur, and also that Harden would need to qualify if any existing wells could be deepened or whether the installation of water treatment equipment would be the preferred option. We support a pro-active approach to protection and mitigation of private wells in Halton Region.

Review of Monitoring Adjacent to Halton Region Lands:

It appears that JDCL intends to utilize two established monitoring locations at the southern boundary of the proposed Hidden Quarry and immediately north of Hwy 7: (i) M4 – a 18.6m deep bedrock monitoring well south of the Phase 3 area and (ii) SW3 - surface water flow station at the Tributary B crossing Hwy 7. It appears that drive-point(s) M7/M7R (i.e. 2.8m/3.1m deep overburden piezometers just east of M4) are not proposed for monitoring (we assume they are mostly dry). Our comments regarding the proposed monitoring program are as follows:

Groundwater monitoring program:

The extraction depth of the proposed quarry is approximately 30 metres below the water table using subaqueous methods without dewatering. It is noted that fully-penetrating bedrock wells are not proposed along the southern property line adjacent to the Phase 3 lands. Therefore, the full influence on water resources south of the quarry would not be known unless adequate instrumentation is added downgradient of the Phase 3 lands.

As M4 (18.6m deep) is the only observation well proposed for monitoring in this area, we recommend additional groundwater monitoring locations along the southern property line (i.e. approximately mid-way between M7 and SW3 and west of M4) prior to extraction in this area. The installations should be multi-level to adequately represent groundwater levels and quality throughout the bedrock profile and to protect private wells and properties located downgradient of the site in Halton Region. The new wells should be established sufficiently ahead of the extraction in Phase 2 and 3 in order to collect representative baseline data (both water levels and water quality). The monitoring should provide information on changing groundwater regime and serve as “early warning” for downgradient private wells in Halton Region.

Surface water monitoring program:

Based on the GRCA's correspondence of April 15/13, Brydson Creek is classified as cold-water fish habitat south of Hwy 7. There does not appear to be any surface water monitoring proposed at the Brydson Creek south of Hwy 7. There does not appear to be any monitoring proposed in regards to the groundwater spring attributed to re-emergence of Tributary B about 400m south of the site in Halton Region (i.e. at the Brydson farm in Milton). Further Regional comments on surface water

monitoring program will be provided as part of our technical comments on the Natural Environment Technical Report (to be provided under separate cover).

Private Well Monitoring:

We note that the Harden Environmental February 5, 2014 letter indicates that a well monitoring program for water quality and an action plan to remedy any issues is proposed to protect neighbouring private wells. It is not clear to Regional Staff how this program protects or addresses private wells within the Region of Halton. Further, it is not clear to Regional Staff that all private wells in close proximity to the extraction site have been evaluated or are included in this program.

Additionally, the private well complaint protocol (Section 6.0 of the February 5, 2014 Harden letter) should be revised to include the Region of Halton and the Town of Milton as parties to be notified in the event that a water well complaint is received. Further, clarity on how the complaints will be handled should be provided.

Other:

- Trigger levels and contingency measures are proposed for northwest and north areas of the proposed quarry site, mainly in association with the on-site wetlands. No trigger water levels are proposed on at the south end of the extraction area. Further discussion to this point is requested.
- The apparent “benefits” of the on-site pond creation (subject to approval) on downstream wells, springs, ponds or streams, and properties should be subject to confirmation (through modeling) based on future (enhanced & multi-level) monitoring results; however, no off-site downgradient monitoring is proposed.
- The effects of blasting on private wells within Halton Region are not known and should be addressed.
- Based on *Site Plans*; Stovel & Associates, June 6, 2014: As the site plan does not refer to any downgradient private well/private property monitoring, the following issues need to be clarified:
 - *Page 2 of 5:* (i) “extraction footprint” on the site plan and in the latest hydrogeology reports do not align (ii) in regards to “*a main processing area will be developed in the southwestern portion of the site once a sufficient area had been cleared*”, this area is not identified as part of any extraction stage; does the extraction include overburden only? (iii) “spills” protocol should include immediate notification to downgradient properties utilizing domestic wells as their primary drinking water supply.
 - *Page 3 of 5:* (i) What are the anticipated “silt pond” depth/fill elevation in relation to groundwater levels to the south? The pond is proposed almost directly to the north of a sensitive receptor (private well W19 defined as R16 on the site plan) in Halton Region. Is M4 installed to monitor potential impact from this pond? In reference to a “blasting line” on the south side of the west extraction area, what monitoring is proposed to ensure that private wells and other structures to the south (i.e. in Halton Region) are not affected by blasting activities?

Further to our July 5, 2013 letter, Regional Staff requested that an Adaptive Management Plan (AMP) be prepared as part of the review process for this proposed quarry. Regional Staff believe that this plan would provide for an effective tool to formalize any resolutions and commitments to monitor and mitigate water resources issues which would include Halton Region lands.

It is noted that further technical comments with respect to other Regional interests on this proposed quarry will be forthcoming under separate cover.

Regional Staff note that the Region's Review fee (\$18,714.19) remains outstanding. As noted in our April 2, 2013 correspondence, we kindly request that James Dick Construction Limited submits this review fee to the Region in accordance with the Region's Development Application Requirements.

In the meantime, please forward any further materials to Adam Huycke, Planner at (905) 825-6000 Ext. 7604 (adam.huycke@halton.ca).

Sincerely,

A handwritten signature in blue ink that reads "Brian Hudson". The signature is written in a cursive style.

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Cc Greg Sweetman, James Dick Construction Limited
Ron Glenn, Director of Planning Services and Chief Planning Official
Adam Farr & Jeff Markowiak, Town of Halton Hills Planning Services
Barb Koopmans, Town of Milton Planning and Development Department
Liz Howson, Macaulay Shiomi Howson Ltd.
Linda Sword, Concerned Residents Coalition