

May 27, 2013

Miller Paving Limited
505 Miller Avenue
P.O. Box 4080
Markham, Ontario
L3R 9R8

Attention: Tom Jones

Subject: Application for a Category 2, Class 'A' Licence
Pt. Lots 16 & 17, Conc A Township of McNab/Braeside
(Geographic Township of McNab), County of Renfrew
Known as Miller's Braeside Quarry

In accordance with the Provincial Standards under the Aggregate Resource Act (ARA), staff of the Ministry of Natural Resources Pembroke district office have reviewed all your technical documentation in support of an application for a Category 2, Class A, quarry below water operation for the above noted property.

The proposed application is for an expansion to existing licence number 16173 for a combined licence area of 132.7 hectares (29.7 currently licence), with a total extraction area of 68.4 hectares which will be extracted in 5 phases with 2 lifts. The proposal requests an annual tonnage limit identical to their existing licence of 1,000,000 tonnes. The site plan includes an office building, a permanent wash and screening plant, a permanent ready-mix concrete plant and a permanent hot-mix asphalt plant. The final rehabilitation of the site will consist of a naturalized lake with a combination of cliffs and talus slopes and conventional 2 to 1 sloping. All equipment, buildings and aggregate stockpiles will be removed from the site upon final rehabilitation.

Natural resource interests associated with this site and within 120 meters include an unevaluated wetland, significant wildlife and woodland habitat, which include seasonal concentration areas (deer yard), rare vegetation communities (Alvar), specialized habitat (for area-sensitive species of conservation concern, amphibian woodland breeding ponds), and animal movement corridors. Fish habitat is also addressed to identify any potential impacts of water discharge from the site to known fish habitat down stream.

Based on MNR's review of this application we provide the following objections to the above noted application:

Natural Environment Report Level 1 & 2

Natural Environment Assessment Level 1 and 2 Braeside Quarry Expansion (Skelton Brumwell & Associates Inc. revised December 2, 2011 report):

1) Provincially Significant Wetlands (PSW)

The wetlands on and adjacent to the subject lands have not been evaluated using the Ontario Wetlands Evaluation Systems (OWES) methodology and therefore are considered to be unevaluated. Only after all wetlands and associated features and functions have been identified should an assessment of negative impacts on the natural features or on ecological functions be undertaken.

In addition to the known wetlands not being evaluated there are wetlands on and adjacent to the property that have not been identified in the Natural Environment Report see figure 1 below.

Please reference appendix A for a further review description.

2) Significant Woodland Habitat

Level 1 and Level 2 Natural Environment Reports need to be updated relative to significant woodland requirements. If the municipality has not established criteria for significant woodland habitat, the proponent should contact MNR to discuss specific criteria since it is MNR's opinion that the woodlands have known potential to be significant.

Once criteria have been established and identification of significant woodland has been determined and mapped, then the impact assessment as part of the Level 2 report can be undertaken.

Please reference appendix A for a further review description.

3) Significant Wildlife Habitat

Level 1 and Level 2 Natural Environment Reports need to be updated relative to significant wildlife requirements. If the municipality has not established criteria for significant woodland habitat, the proponent needs to contact MNR to discuss specific criteria since it is MNR's opinion that the woodlands have known potential to be significant.

Additional rationale/justification relative to criteria (established with municipality and/or MNR) needs to be established to support the identification and mapping of the 'significant wildlife habitat' both on the subject property and on adjacent lands.

Please reference appendix A for a further review description.

Deeryard

The entire application falls within a heavily used deer wintering yard. The entire yard encompasses approximately 900 hectares. Although much of the habitat has been fragmented by existing development, this area is still one of the largest forested sections of conifer left in the municipality. MNR has concerns with approximately 14 acres of prime deer winter cover being lost in the vicinity of the selected asphalt plant location. The proposed significant wildlife protection area contains habitat that is less desirable to deer for winter cover due to the stunted growth of the conifer cover. One of MNR's main concerns is maintenance of habitat connectivity along the south boundary of the property. This could be addressed by the creation of a conifer tree buffer to fill currently

open areas around the entrance of the site. This would allow for east to west travel of deer.

Please reference appendix B for a further review description.

4) Significant Habitat of Endangered and Threaten Species

The primary concern with the reports (NEL 1 & 2) is the lack of documentation of search efforts for SAR and any substantial discussion of the presence of suitable habitat. Without this documentation, it is not possible for MNR to determine if SAR has been assessed appropriately, whether further information is needed or whether a permit under the *Endangered Species Act, 2007* (ESA) may be required.

Please reference appendix C for a further review description.

Hydrogeological Assessment

Hydrogeological Assessment Final Report for Proposed Braeside Quarry Expansion (Project Ref. 08360; July 2012; by Jennifer B. Gorrell M.Sc. P. Geo. P. Eng.)

MNR has a number of concerns relating to the hydrogeological assessment report that require further information or clarification in order for MNR to be confident that there will be no negative effects on surface water features including wetland features on and adjacent to the site.

Please reference appendix D for a further review description.

Site Plan

Site Plan package prepared by Skelton Brumwell & Associates (project # 05-2033)

MNR would like to see more prescriptive details around progressive rehabilitation timing requirements. MNR recommend that condition of Ministry of Cultural, January 4, 2007 sign off letter be included on the site plan.

Please view appendix E for detail description of MNR's concerns regarding the site plan package

Conclusion

Based on the review of the information submitted, MNR wishes to register a formal objection to the above noted Aggregate Resource Act licence application. I strongly encourage you to contact Michael Machin at (613) 732-5516 to arrange to meet with district staff to further discuss our concerns and to scope necessary work in addressing them.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rick Watchorn', with a long horizontal flourish extending to the right.

Rick Watchorn
District Manager
Ministry of Natural Resources,
Pembroke District
31 Riverside Drive
Pembroke, On
K8A 9R6

Attached
Appendix A to E

C. Skelton Brumwell & Associates

APPENDIX A

MNR District Ecologist Review of Miller Braeside Quarry Expansion Application (May 2013) Part Lots 16, 17, Concession A, McNab Geographic Township

The following documents were reviewed:

- √ Planning Justification Report – Skelton, Brumwell & Associates March 2013.
 - √ Hydrogeological Assessment - Final – Jennifer B. Gurwell July 2012
 - √ Hydrological Investigation -- Skelton, Brumwell & Associates July 2012
 - √ Level 1 and Level 2 Natural Environment Report - Skelton, Brumwell and Brunton Consulting Services, December 2011
 - √ Site Plan -- Skelton, Brumwell & Associates March 2013
-

Documents considered to assist in the review include:

- i) OMNR Policy A.R. 2.01.07 – Licence Applications: Natural Environment Report Standards (2006)
 - ii) Provincial Policy Statement (2005)
 - iii) Natural Heritage Reference Manual (2005)
 - iv) Significant Wildlife Habitat Technical Guide (2000)
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Provincially Significant Wetlands

MNR AR Policy 2.01.07 (pg 3) includes the following direction:

“Unevaluated wetlands cannot be assumed to be non-significant unless agreed to by the local MNR office. If MNR cannot advise on significance through reconnaissance, it will advise the applicant regarding MNR’s schedule to evaluate the wetland. The applicant can choose to wait until the MNR evaluation is completed or hire a trained wetland evaluator (trained in an MNR recognized OWES training course) to carry out an evaluation based on the criteria and procedures outlined in the OWES manuals. In the latter case, MNR will review the wetland evaluation file to confirm the wetland boundary and status and ensure the evaluation was completed to OWES standards. The local planning authority may consider non-provincially significant wetlands to be ‘regionally’ or ‘locally’ significant. However, the applicant is not required to address these features within the Natural Environment report.”

PSW Review Comments:

- The wetlands on and adjacent to the subject lands have not been evaluated (OWES methodology) to date and are therefore considered to be unevaluated at this time.

- All wetlands on and adjacent to the subject property have not been identified in the Natural Environment Reports. (see figure below)
- Based on information presently available, the wetlands associated with the subject lands (both on an adjacent) appear to be part of the same wetland complex. Recognizing that there may be special features associated with this wetland, there is good likelihood that an evaluation of the wetland complex could result in a PSW status.
- MNR Pembroke's present schedule to evaluate wetlands does not include the subject wetland complex.
- A wetland evaluation to OWES standards is recommended. The applicant can choose to wait until MNR evaluates OR undertake an evaluation as per OWES standards at their convenience. Should the applicant proceed with an evaluation, consultation with MNR during this effort is highly recommended.
- Only after all wetlands and associated features and functions have been identified should an assessment of negative impacts on the natural features or on ecological functions be undertaken.

PSW Related Requirements: All wetlands associated with the subject property require identification and evaluation to OWES standards by the applicant as part of the Level 1 report. The results of the level 1 wetland work should be reviewed by MNR prior to impact assessment in the level 2 report.



Preliminary mapping of wetlands in the area of the Miller Quarry based upon interpretation of c2009 DRAPE imagery. Mapping is considered conservative. Additional wetlands (swamps) are expected which will require field visits to confirm presence and boundaries.

ANSI's

- There are no Provincially Significant **ANSI's** on or adjacent to the subject lands.

ANSI Review Comments: Although the draft Ecodistrict 6E-16 report includes Braeside Alvar as a 'candidate' ANSI, no further ANSI consideration is necessary since the MNR AR Policy 2.01.07 (pg 5) speaks only to those areas identified as provincially significant. The natural heritage features that warrant 'draft candidate ANSI' status will be addressed in considerations relative to Significant Woodland Habitat and Significant Wildlife Habitat.

ANSI Related Requirements: No further action specific to ANSI's is required.

Significant Woodland Habitat

MNR AR Policy 2.01.07 (pg 6) includes the following direction:

"Where the official plan is silent on significant woodlands, the proponent should contact the municipality to determine if criteria have been developed for the identification of significant woodlands. In the event that the criteria have been developed but are not yet incorporated into the official plan, the proponent should seek direction from the municipality as to how to proceed in making the determination of significance.

If the municipality has not established the criteria, the proponent should contact the local MNR office to determine if the MNR has information that a woodland has known potential to be significant. Where the woodland has known potential to be significant, MNR should provide the proponent with specific criteria to assess the significance of the woodland. In the event that the woodland does not have known potential to be significant, or MNR cannot provide criteria for evaluation, the applicant is not required to identify the feature in the Natural Environment Level 1 report."

Significant Woodland Review Comments:

- Natural Environment Report Level I Report (Dec 2011), Significant Woodlands, Section 6.3 (pg 21-22) and Section 7.2 (pg 29-30): Discussion is limited to stating the municipality has not identified significant woodlands within or adjacent to the subject lands, and acknowledging that features warrant consideration as Significant Woodlands and referring to Level 2 report.
- It is unknown whether the proponent has sought criteria and direction from the municipality as to how to proceed in determining woodland significance.
- The Level 1 report should be based upon municipal or MNR input to specific criteria for determination and identification of significant woodland habitat.
- The MNR Pembroke office has applied criteria and determined that the woodland has "known potential to be significant".
- I concur with the Natural Environment Report that as a result of their field investigation, features and values occur on the subject property which warrant designation as Significant Woodland. However, additional rationale/justification

- relative to criteria (established with municipality and/or MNR) needs to be provided to support the identification and mapping of the 'significant woodland'.
- Once criteria have been established and identification of significant woodland has been determined and agreed to, then the impact assessment as part of the Level 2 report can be undertaken.

Significant Woodland Related Requirements:

Level 1 and Level 2 Natural Environment Reports need to be updated relative to significant woodland requirements. If the municipality has not established criteria for significant woodland habitat, the proponent should contact MNR to discuss specific criteria since it is MNR's opinion that the woodlands have known potential to be significant. The consideration of significant woodlands in both the Level 1 and 2 reports also needs to include adjacent lands.

Significant Wildlife Habitat

MNR AR Policy 2.01.07 (pg 7) includes the following direction:

"Where the official plan is silent on significant wildlife habitat, the proponent should contact the municipality to determine if criteria have been developed for the identification of significant wildlife habitat. In the event that criteria have been developed but are not yet incorporated into the official plan, the proponent should seek direction from the municipality as to how to proceed in making the determination of significance.

If the municipality has not established the criteria, the proponent should contact the local MNR office to determine if MNR has information that the wildlife habitat has known potential to be significant. Where the wildlife habitat has known potential to be significant, MNR should provide the proponent with specific criteria to assess the significance of the wildlife habitat. In the event Policy A.R. 2.01.07 Page 8 of 9 that the wildlife habitat does not have known potential to be significant, or MNR cannot provide criteria for evaluation, the applicant is not required to identify the feature in the Natural Environment Level 1 report." (MNR AR Policy 2.01.07 pg 7)

Significant Wildlife Habitat Review Comments:

- It is unknown whether the proponent has sought criteria and direction from the municipality as to how to proceed in determining wildlife habitat significance in the Level 1 report.
- The Level 1 report should include municipal or MNR input to determine specific criteria for application and identification of significant woodland habitat.
- Natural Environment Report Level 1 Report (Dec 2011), Significant Wildlife Habitat, Section 6.5 (pg 22-23) and Section 7.1 (pg 26-29): A "Significant Wildlife Area" has been defined and mapped (see Fig 8) only within the proposed licence boundary. However, there is little background as to the justification and rationale for the decision on these boundaries and whether this "area" is equivalent to 'Significant Wildlife Habitat' as per the PPS. The Level 2 report (pg 26) indicates the SWH was identified through the Level 1 report. I am trying to gain a 'comfort' in the criteria for delineating the 'significant wildlife habitat' by understanding specifically why certain areas are included while others are excluded. Was

guiding direction obtained from the municipality and MNR in mapping this feature? Introduction of new terms such as “Significant Wildlife Area” and “Significant Wildlife Protection Area”, within the apparent context of ‘Significant Wildlife Habitat’ of the PPS, makes it somewhat difficult to read. The “Significant Wildlife Protection Area” (see Fig 9 pg 28) includes areas not identified as part of “Significant Wildlife Area” (see Fig 8 pg 24), which raises further questions.

- The amphibian breeding sites (ponds) mentioned in Appendix (pg 29) should be included on mapping. Will these features be retained?
- Once criteria have been established and identification of significant wildlife habitat has been determined and agreed to, then the impact assessment as part of the Level 2 report can be prepared.

Significant Wildlife Related Requirements:

Level 1 and Level 2 Natural Environment Reports need to be updated relative to significant wildlife requirements. If the municipality has not established criteria for significant woodland habitat, the proponent needs to contact MNR to discuss specific criteria since it is MNR’s opinion that the woodlands have known potential to be significant.

I concur with the Natural Environment Report that as a result of their field investigation, features and values occur on the subject property which warrant designation as Significant Wildlife Habitat. However, additional rationale/justification relative to criteria (established with municipality and/or MNR) needs to be established to support the identification and mapping of the ‘significant wildlife habitat’ both on the subject property and on adjacent lands.

General Comments / Questions:

- 1) What is the long term security of the natural area protection provisions for Extractive Industrial Reserve – Exception One (EMR-E1)? The Planning Justification Report (pg 32-33) states that “the exceptional nature of part of the site generated the recommendation to preserve a large, self-sustaining Significant Wildlife Protection Area” with the recommendation being “preservation of the identified Significant Wildlife Protection Area to ensure its long-term survival”. Will the municipal planning designation recognize and ensure this intent for long term protection for natural areas features and functions OR is it interim protection with deferral of inevitable extraction to some point in the future? If it is the latter, then retention and protection of this area should not be used to justify the loss of the natural area within the current proposed expansion of the extraction limit. If on the other hand the EMR-E1 is for long term protection of the significant natural area features, functions and values as acknowledged in the Natural Environment Report, then why not rezone the area now as EP? Otherwise it appears to be a path of least resistance to a predetermined intent to extract everything, framed in a planning process giving false perceptions.
- 2) NER pg 1, para 2 – adjacent lands considerations should extend greater than the 120 meters stated. (see PPS and OMNR Policy A.R. 2.01.07)

- 3) Did MNR participate in review of NER Level 1 and 2 reports dated Nov 2007 for rezoning?
- 4) NER Level 1, pg 9, last para and pg 20, para 2– where is the locational information on observations of vernal pooling, groundwater discharge areas, groundwater seepages, and watercourses? These are some key features of wetlands and wildlife habitat which should be receiving specific attention in the NER reports.
- 5) NER Level 2, Section 7.4 Monitoring (pg 32) Item 3: Shouldn't that be 6 biannual counts over 10 years, with first count being in year 0 to start?
- 6) The natural heritage features need to be appropriately identified prior to considering impact assessment, limits of development, and appropriate protection/mitigation measures. In addition to the loss of some wetland habitat, there is good likelihood that resulting changes in the hydrogeology will result in negative impacts to the natural features and functions of wetlands, wildlife habitat, and woodlands.
- 7) Many of the comments in the Golder peer review report do not appear to have been addressed in the NER Level 1 and 2 reports.
- 8) Hydrological Investigation Report (Skelton, Brumwell & Associates July 2012) does not include identification and assessment of surface water features south of the proposed quarry (see Figure 2). These features are an important feature of wetlands and wildlife habitat. They need to be included for appropriate impact assessment consideration in the NER level 2 report.
- 9) NER Level 1 and 2 should be incorporating hydrological and hydrogeological features and functions as they pertain to natural heritage features. The multidisciplinary approach is missing.
- 10) Hydrogeological Assessment Final Report (Jennifer B. Gurwell July 2012) on Figures 1 and 5 (pg 4 and 18) do not include lands south of the proposed quarry as being within the potential zone of influence or if they have the area has not been included in the assessment. Given that there are unmapped and unevaluated wetlands south of the proposed extraction, what is the basis for excluding this area as being within the potential zone of influence and from consideration? The spring zone appears to circle around the proposed extraction area to the south so why is this not considered? Wetlands should be shown on these figures rather than "local surface water feature (boundary approximate)". Since the hydrogeological assessment depends upon mapping of wetland features, the importance of accurate and complete mapping of the wetlands which is absent in the natural environment report for the aggregate licence and adjacent lands, takes on even more importance.
- 11) Section 7.4 Monitoring (pg 32) and Aug 2011 Report Section 5.3 Monitoring of Mitigation Measures (pg 36-37), "If two consecutive declines in populations of 33% are detected..." (NER pg 32) and "...interpreting a major population decline in a given year (33% was the figure suggested by Golder peer review team) can be problematic. Should two consecutive declines exceeding 33% be noted, however, this would trigger..." (2011 Report pg 36-37). I suspect that if there was detection of such a decline it may be too late to respond with mitigation? Has consideration been given to implementing preventative / mitigative measures (i.e. planting cedar hedge along exposed boundary of linear clear-cut) now, knowing that this will provide some mitigating benefits to negative changes in light, wind speed, relative humidity, temperature? It appears as though the extraction boundary line has already been clear cut (when?) so forest interior impacts have already started. However, the corridor clear cut may be providing an opportunity for a natural vegetative response along the proposed retained forest edge, providing mitigation

of impacts to the retained forest that would result once the proposed extraction area is cleared. When was the extraction boundary corridor clear-cut? Has there been any observations of a vegetative response which could mitigate impacts resulting from a proposed clearcut of the extraction area?

Conclusion:

The Natural Environment Reports needs to carefully review, consider and fulfill the requirements and expectations outlined in 'Natural Environment Report Standards' (MNR Policy No. A.R. 2.01.07) and appropriately address these in associated reports (hydrology and hydrogeology) within the licence application.

Daryl Coulson
District Ecologist
Ministry of Natural Resources,
Pembroke District
31 Riverside Drive
Pembroke, On, K8A 9R6
613-732-5563

APPENDIX B

**MNR Biologist Review
of
Miller Braeside Quarry Expansion Application (May 2013)
Part Lots 16, 17, Concession A, McNab Geographic Township**

The following documents were reviewed:

√ Level 1 and Level 2 Natural Environment Report - Skelton, Brumwell and Brunton Consulting Services, December 2011

Documents considered to assist in the review include:

- v) Provincial Policy Statement (2005)
 - vi) Significant Wildlife Habitat Technical Guide (2000)
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Significant Wildlife Habitat –Deer Yard

Based on the natural environment reports and focused site visit, I offer the following comments relating to deer yard (significant wildlife habitat).

Background

The entire deeryard encompasses approximately 900 ha and is one of the largest forested sections of conifer left in the municipality (fig. 1). It is not hard to see why deer flock to it in the winter months as much of the canopy is made up of conifer. It reduces snow loads on the forest floor making winter travel much easier for deer (less energy is spent)

Land-use activities such as growth of residential development, forest clearing, aggregate operations, new and expanding golf courses have had cumulative impacts on this yard particularly northeast of the subject lands and along the Ottawa River.

Much of the cover found on top of the alvar northeast of the existing quarry is stunted due to the shallow soil. This area does not provide much cover for deer during winter months but does provide food. Most of the dense forest cover to the north of the quarry has been removed by human activity right up to the new subdivision which in my opinion maybe causing deer displacement (looking for suitable cover elsewhere). New homes along Golf Course Road are causing fragmentation leaving no connecting corridors for deer movement in the winter months (see figure 1). The development has reduced the size of the yard approximately to less than 700 ha being available for over-wintering deer. This scenario increases the potential for human / deer conflict, and needs to be factored into consideration of impacts.

Along the surrounding outer fringe of the wintering yard where soils appear to be much deeper (where the alvar drops off into the agricultural land) and more productive, tree growth is greater with ample vegetation providing good winter cover and travel corridors.

It is also south facing to the sun which can be heavily used by deer in later winter months (ie. March-April). It is particularly noticeable along the Brae Loch Road and Osborne Rds.



Figure 1, Display of deeryard and development along Golf Club Rd.

Site Specific Review

Based on our site visit May 8th, signs of deer activity were obvious. Abundant browsing and pellets were observed in the proposed area of the permanent asphalt plant and southward to Osborne Rd. The mature trees here are greater than 10 meters high with dense cedar (>60% crown closure) still present. Travel runways throughout this area were also noticeable with heavy browsing of the immature hardwoods. Deer tracks along with wild turkey tracks were observed in the hardened roadbed most likely laid down during the spring melt when the ground was soft and moist. There was a set of mature male deer antlers found in the lowland of the conifer swamp. The natural environment report classed this habitat as Mature Upland Mixed Forest (FOM4) (6), Coniferous Swamp Forest (SWC3) (8) and Mixed Swamp (SWM) (9). Habitat (5) found along the entrance is Young Upland Mixed Forest (FOM5-2). The report is short on defining and delineating key features and functions for critical wintering habitat.

The proposed asphalt plant location will remove 14 acres of prime wintering habitat from approximately 60 acres available to the southwest corner of the property. This is likely to lead to indirect impacts as deer avoid this industrialized area in which the extent is not full understood. The significant wildlife protection area does not mitigate for loss habitat connection or linkage to habitat in the adjacent lands. This is because this area contains very poor Alvar Coniferous Forest (ALTI), less cover, smaller trees, and is less suitable.

This development will possibly affect travel in those years with heavy snowfalls. The proposed significant wildlife protection area has not adequately mitigated for expect loss to linkages (providing for ability for deer to travel through the property to connect to

other portions of the deer yard on adjacent lands). Discussions with the Miller staff further support these comments. Deer are seen regularly on the premises and particularly near the entrance to the quarry. Mitigation should include a buffer strip of conifer along the entrance, thick enough to hold snow load, reducing depth under the canopy, and create a travel corridor that links the forest cover to both sides of the quarry and the yard (see figure 2). Deer tend to bask in the late winter months on south facing slopes, for example where this entrance is located. Having regard for this in a mitigation plan would not only help reduce human deer conflicts, but help re-establish linkages to other parts of the deeryard and also help establish better winter cover and browse for deer over time. This may also help reduce potential wildlife conflict and increase a sound barrier between the road and quarry.



Figure 2. Possible Deeryard Mitigation

Conclusion

The Natural Environment level 1 and level 2 reports do not go far enough to analysis impact or provide adequate protection for deer.

Kirby Punt
Area Biologist
Ministry of Natural Resources,
Pembroke District
31 Riverside Drive
Pembroke, On K8A 9R6
613-732-5565

APPENDIX C

**MNR SAR Biologist Review
of
Miller Braeside Quarry Expansion Application (May 2013)
Part Lots 16, 17, Concession A, McNab Geographic Township**

The following documents were reviewed:

√ Level 1 and Level 2 Natural Environment Report - Skelton, Brumwell and Brunton Consulting Services, December 2011

Documents considered to assist in the review include:

- vii) Endangered Species Act, 2007
 - viii) Provincial Policy Statement (2005)
 - ix) Significant Wildlife Habitat Technical Guide (2000)
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- None of the documents address or mention the ESA
- Overall there is a lack of documentation of search efforts for SAR or discussion of presence of suitable habitat.
- There is conflicting information in the reports stating that 'incidental wildlife observations including birds, herps and mammals during field investigations between 2006 and 2001' but in other sections it states 'searches were made' for various SAR. Which is it? What was level of effort? We recommend, at the very minimum, creating a table that summarizes the SAR considered, the efforts put forth and the potential for habitat on the subject property. Explicit rationale for why a species was not addressed should be provided.
- With respect to ESA and potential species requiring a permit, the main concern is Whip-poor-will. Section 4.3.2 of the August 2011 addendum states Whip-poor-will 'might be expected in extensive upland forests with intervening glades and opening. None of these animals were recorded in or near the study area during breeding season...' but there is no indication if targeted surveys were conducted. An appropriate survey would occur in the evening which is not a typical component of a standard breeding bird survey. If a targeted survey for Whip-poor-will has not been conducted, it will need to be completed. If one has been conducted, this must be clearly documented including the methodology used, the search effort, the location and the results.
- The reports indicate that breeding bird surveys were conducted on June 1, 2009 and June 2, 2011 but no description of methodologies or whether evening surveys were conducted to capture Whip-poor-will or Common Nighthawk
- Also, accepted protocols for breeding bird surveys involve at least 2 visits within 15 days of each other.
- Has the potential for bats been considered with respect to the fissures in the Karst formation?
- In the original report, Significant Habitat of Endangered and Threatened species (under the PPS) was not discussed in the Level II report since there were no

records for the subject property and field investigations found no occurrences. But there is no documentation as to the level of effort put forth into assessing their presence. MNR cannot support this rationale without appropriate documentation of search effort and discussion of potential habitat.

- The section on Significant Wildlife Habitat (SWH) does not explicitly address habitat for Species of Special Concern which is one of the primary components of SWH.
 - In the August 2011 addendum, page 6 indicates that particular attention was paid to endangered and threatened species and that all species known to occur in the Ottawa Valley in habitats found on site were considered, but there is no list of these species, no summary of potential habitat and no documentation of search efforts.
 - Appendix 3 lists Barn Swallow – this is a Threatened species and has protection under Sections 9 and 10 of the ESA. It was not mentioned in any of the text of the report. If it was observed on site, it must be addressed and discussed, so as to determine any permit requirements under the ESA.
-

April Mitchell
Ministry of Natural Resources,
Pembroke District
31 Riverside Drive
Pembroke, On, K8A 9R6
613-732-5568

APPENDIX D

MNR Hydrogeologist Review of Miller Braeside Quarry Expansion Application (May 2013) Part Lots 16, 17, Concession A, McNab Geographic Township

The following documents were reviewed:

Hydrogeological Assessment – Final. Proposed Braeside Quarry Expansion. Part Lots 16 and 17, Conc. A, Township of McNab-Braeside” of July 2012, prepared by Jennifer B. Gorrel, P.Geo.

Documents considered to assist in the review include:

- x) Aggregate Resource Act – Provincial Policy and Procedures
-

In general the report contains a lot of inconsistencies; two appendices of the report are other reports with its own appendices. This did not facilitate my review.

Please note that in accordance with an Agreement between MNR and MoE, my review focuses primarily on potential impacts on near-by surface water features, including near-by wetlands. MoE review would address potential impacts on water supply.

I have the following comments/ objections that I would appreciate the proponent to address:

1. The following terminology is used interchangeably in the report to describe a drilled opening: exploration hole, well, test well, test hole, piezometer, drill hole, hole, monitor, groundwater monitor, borehole, cored floor hole. Please provide definition for each of the term, use this term consistently throughout the report and use appropriate designation when referring to a specific drilled opening. As an example, for Test Well No. 1 please use consistent designation TW1; for Borehole No. 1 use consistent designation BH1; for Monitoring Well No. 1 use consistent designation MW1; for Piezometer No. 1 , use consistent designation P1 etc.
2. The report does not explain seasonal relationship between groundwater/wetlands and streams water level nor does it provide clear and accurate boundaries of the wetland features. This is important part of the hydrogeological assessment that is missing.
3. In Section 2. Please clearly indicate how many wells were installed and their designation and location on a map. Second paragraph of the section 2 states that 13 new test wells were constructed. Third paragraph states that 10 additional wells were drilled. Does this mean that in total there are 23 new wells drilled?

4. Section 2 , pg. 7, Paragraph 5. Please clarify which piezometers and two additional cored floor holes the rising head hydraulic conductivity tests were completed at.
5. Section 2, the last paragraph. "Borehole logs for the test wells at the site can be found in Appendix C." I note that I could not locate logs for all of the boreholes. Please include logs for all drilled openings referred to in the report. Please use clear and consistent designation so that the holes can be easily referenced between text, logs and maps.
6. Section 3, Paragraph 1. Please show how were the transmissivity values estimated? Please include a complete analysis and results of the pumping tests. What is referred to as well response test? Is it rising head or pumping test, or both?
7. Table 1. Please clarify how the test interval was established? Is it screened interval or high permeable interval determined from logs? Please clarify how Water Bearing Zone was established? Please clarify how transmissivity values were established. What aquifer thickness was used during calculation of transmissivity. What are the assumptions used during pumping test interpretations, and what methods were used to calculate transmissivity values.
8. Section 3, Paragraph 2. Please include detailed analysis and results for the hydraulic conductivity analysis.
9. Figure 3. Please include legend explaining dots on the test wells, colours etc.
10. Section 4. Paragraph 1. "The aquifers and aquitard are shown in plan on Figure 2 and in profile in Appendix A, Figure 3." I note that I could not find aquifers and aquitards shown in Figure 2 and Figure 3 in Appendix A. Please clearly show on a map and cross sections aquifers and aquitards referred to in Section 4 and its subsections with different colours (overburden aquifer, weathered bedrock zone aquifer, upper competent bedrock, competent bedrock aquifer, discontinuous water bearing zones, first significant water bearing zone.) Please provide these maps for conditions before the proposed expansion and after the proposed expansion. Please clearly show the aquifers and aquitard designation in the legend. Please plot water level and potentiometric level for each of the aquifers in the cross-section. Indicate the time when the water level used to create the water level and potentiometric level was measured. Please create hydrogeological cross-sections extending to wetlands and show how the water level in wetlands related to the groundwater levels.
11. Section 4. Please clearly explain how aquifers and aquitards were delineated.
12. Section 4.1.2 paragraph 2. Please show how thickness of the weathered bedrock was established.
13. Section 4.1.2. page. 10 paragraph 1. The report states that "The weathered zone is shown in plan view on Figure 2 and in cross-section in Appendix A, Figure 3." I note that I could not find the weathered zone shown in cross-section in Appendix A, Figure 1.

14. Section 4.1.2. page. 10 paragraph 2. Please correct test well designation in the last sentence, the values of hydraulic conductivities are not correct.
15. Please provide discussion and explanation as to why there is such a significant variation in hydraulic conductivity test results obtained by the two different tests. Also please explain why conductivity value obtained as a result of packer test or rising test head was chosen to use as the most representative.
16. Tables 2 and 3 would benefit from a column including hydro stratigraphic units.
17. Section 4.1.2. Pg.10 last paragraph. Please provide explanation what is difference between “the weathered bedrock zone” and “the most highly weathered part of the property”. Also please clearly show these two zones on a map.
18. Section 4.1.3. Pg.11. Paragraph 1. Please provide reference to the statement that “The upper 6 m has a slightly higher hydraulic conductivity than below”.
19. Section 4.1.3. Pg.11. Paragraph 2. Please clarify what is meant by “potential hydraulic conductivity”.
20. Section 4.1.3. Pg.11. Paragraph 2. Please clarify why for over half of the test sections the results were not calculable?
21. Please clarify the difference between Upper Competent Bedrock and Competent bedrock aquifer described in Sections 4.1.3 and 4.1.4. Please clarify why Competent bedrock is considered an aquifer.
22. Section 4.1.4 Pg. 12. Last paragraph. TW12-2 is completed in Upper competent Bedrock according to Table 3. Please clarify why TW 12-2 is included in discussion under Competent Bedrock Aquifer section.
23. Section 4.1.5 The report states “An examination of the groundwater elevation data for these two wells (Appendix A, Appendix VI) illustrates that the confined zones provide a very small contribution to the water levels in the open boreholes.” Please clarify what examination or analysis was conducted to arrive to this conclusion. No examination is found in Appendix A, Appendix VI. Please indicate which boreholes are open which aren't.
24. Section 4.1.5 The report states “Figure 13 of Appendix A shows how the water level measurements varied, rising above the water bearing zone in the spring recharge period, but dropping down to an below the zone through the season”. Please clarify specifically what wells are talked about, when recharge period begins and ends. Please provide larger scale graphs of groundwater level vs. time.
25. Section 4.1.6 Please clarify how was the location of the highest consistent water bearing zone was established. How was the top of the zone “measured”?

26. Section 4.1.6 Pg. 14. Paragraph 1 Report states "The data show that the groundwater elevation rises as high as 138.3 m ASL in central part of the Miller property (TW 5-1)..." I note that according to the water level graph in Appendix A, the groundwater elevation rises above 140 m.
27. Section 4.1.6 Pg 14 . Paragraph 2. Please clarify what was the methodology in using door to door survey in identification of additional water bearing zones.
28. Section 4.2.1. Please clarify what "The areas shown on Figure 14 in Appendix A" are referred to. I could not find these areas shown in Figure 14 of Appendix A.
29. Section 4.2.1. The report states that the boundaries of wetlands are approximate. I note that based on my site visits of April 24 and 25 it appears that the wetland boundaries extend far beyond shown in Figure 14 of Appendix A. The wetland boundaries need to be re-established based on field studies. I also note that the wetland boundaries referred in hydrogeological, hydrological and natural heritage report should be identical.
30. Section 4.2.2 Please clarify if the springs form a wetland? Do the springs flow year around?
31. Section 4.2.4 The report states "Although the pond has not been evaluated, it is the opinion of the team ecologists that there are no indications of significant natural features or functions...." Please provide reference to this statement.
32. Under section 4.2 Surface Water and Drainage please include description of all surface water features within and near the property.
33. Section 5.1 Please clarify why the author feels it is appropriate to use data from only three wells to characterise highly variable, karsteous weathered zone. I note that hydraulic conductivity of karst is best measured during large scale tests such as pumping tests, not slug tests or packer tests
34. Section 5.1 Please clarify why an average saturated thickness of 2.5 m with a more permeable upper 2 m and less permeable lower 0.5 was assumed during calculation of potential radius of influence.
35. Section 5.1. pg. 17 last paragraph. Please clarify why "the down-gradient impact of the expanded excavation on the weathered bedrock zone will be restored as long as the quarry sump discharge continues in the same pattern"? What is meant by down-gradient impact? Is pumping from sump going to continue up until the quarry is filled with water? What are the impact if there is no pumping after excavation completed? I disagree with the statement that "the existing discharge pattern restores the weathered bedrock zone hydrogeology by distributing the accumulated water back into the pathway it would have followed in pre-development." Please clarify how would this mechanism work in the eastern and western parts of the quarry.
36. Section 5.1. pg. 19 paragraph 1. The report states "Any impacts to the weathered zone and the springs are mitigated by the discharge pattern from the sump." I disagree with this statement. Please clarify what is this statement based

on? How will discharge of sump water to the west will restore the flow to the east of the quarry?

37. Section 5.1 pg. 19 Paragraph 2. Please provide information on surface water, springs and groundwater contributions to the wetlands. Please clarify why contribution of water from springs is negligible compared to runoff? Please provide information on groundwater contribution to the wetlands. Please provide information as to how different water balance elements contribute to the wetland seasonally.
38. Section 5.6; Appendix D. Section 4.3.2., Calculation Sheet 2. I disagree that a representative upward leakage was calculated on Calculation sheet 2. Specifically, I disagree with the parameter SWBZ elevation used in the calculation of upward leakage. The SWBZ Elevation should be the top of the water significant water bearing zone. Please clarify why hydraulic conductivity values not representative for the significant water bearing zone were used in calculations?
39. Appendix D. Pg. 2. I note that there are only three wells completed in the weathered bedrock. I disagree that the representative value of hydraulic conductivity was obtained only by testing the three wells.
40. Appendix D. Pg. 3. Section 4.1. The report states that "the average saturated thickness of the weathered bedrock is assumed to be about 2.5 m in total with the more permeable upper 2m and less permeable 0.5 m" Please clarify how this change in permeability was determined. Please clarify why this saturated zone thickness is different from the one provided on pg. 9 of the main report.
41. Appendix D. Pg. 3. Section 4.1. I note that hydraulic conductivity of 0.00001 m/s is not representative of weathered and karst environment. More studies are needed to establish a representative value.
42. Section 5.7. I note that the section does not address potential impact on all surface water features, as suggested in the title of the section, located in the vicinity of the proposed expansion.
43. Section 5.8. I note that the section does not address as to how much the spring will be affected by the proposed expansion. Please provide quantitative evaluation as to how much springs flow in the vicinity of the development (not just the western part) will be affected during the expansion, during quarry filling stage and after quarry has been filled with water.
44. Section 5.9 and Section 5.10 . Please provide numerical estimate how different water balance components will be affected during the expansion, during quarry filling stage and after quarry has been filled with water. Please show how the different water balance components affect near-by streams, including wetlands. Please clarify how it was established that the South-East wetland is not groundwater dependant.

45. Section 5.11 This is the first time when Ryan Creek is specifically discussed in the report. Where is Ryan Creek located? Please provide background information.
46. Section 5.12. Please provide calculations as to how the final lake elevation of 132 m was estimated
47. Section 5.12.2 Please update calculations using representative hydraulic conductivity values and updated seepage values.
48. Section 5.12.2 The report states that it would take approximately 12 years for the quarry to be filled in with water. This disagrees with the estimate of 27 years provided on pg 3.
49. Section 6, Section 7 and Section 8 need to be updated based on the above comments

Oleg Ivanov, P.Geo.
Regional Hydrogeologist
Southern Region
Ministry of Natural Resources
51 Heakes Lane
Kingston, ON, K7M 9B1
w.613-531-5705
oleg.ivanov@ontario.ca

APPENDIX E
MNR Aggregate Resource Officer Review
of
Miller Braeside Quarry Expansion Application (May 2013)
Part Lots 16, 17, Concession A, McNab Geographic Township

The following documents were reviewed:

Documents Reviewed Include:

- Section 11: Summary Statement within the Planning Justification Report
- Natural Environment Level 1 and 2 Report – Skelton Brumwell & Bruton
- Site Plan Package – Skelton Brumwell
- Blast Impact Assessment - Explotech
- Acoustic Assessment Report – Hugh Williamson
- Stage 1 & 2 Archaeological Assessment – Ken Swayze

Additional material reviewed includes: conclusion/recommendation sections for:

- Hydrogeological Assessment - Gorrell
 - Hydrological Investigation – Skelton Brumwell
 - Traffic Impact Study – Skelton Brumwell
 - Air Quality Assessment Report – Church & Trought Inc.
-

Documents considered to assist in the review include:

- xi) Aggregate Resource Act – Provincial Standards
 - xii) Aggregate Resource Act – Policy and Procedure
-

Site Plan Notes

Blast frequency?

1.2.26 details of frequency and timing of blasts; and

Timing of progressive rehabilitation – no specific timeline for completion of progressive rehanilitation

Site Plan - Monitoring and Mitigation

Review technical reports to ensure that all recommendations made were incorporated into the site plan as per:

1.2.28 any recommendations and/or monitoring program(s) identified in the technical reports.

Natural Environment

All recommendations have been applied to page 5 of the site plan

Archaeological Assessment

Low potential – report recommends sign off

MoC sign off January 4th, 2007

As per sign off letter from Ministry of Culture date January 4th, 2007 (found in Appendix B of the Planning Justification Report) a statement should be included on the site plan stating steps to be followed if either human remains are discovered on site or heritage values are discovered on site.

Blasting Impact Assessment

Vibration limits 12.5 mm/sec PPV

Overpressure limit 128 dB PSPL

Recommendation have been applied to page 6 of the site plan

Air Quality Assessment

Asphalt plant/concrete plant – fall under their own Environment Compliance Approval issues by MOE

ECA required to discharge substances into the atmosphere – i.e. emissions from portable processing equipment

Braeside Quarry - obtain a air and noise emission C of A (ECA)

Dust management plan be adopted – all recommendations applied to page 6 of the plan

Prescribed condition 3.1 – dust will be mitigated on site

Acoustic Assessment Report

Noise sources: portable equipment: crushing plant, drill, crusher, haul trucks, loader
permanent structures: ready-mix asphalt plant, concrete batch plant,
wash and screening plant

Asphalt plant below grade at 138 m asl (pg 7) – site plan states plant at 140 m asl

Night operations – (pg 16) – states “when permitted under Township of McNab/Braeside Noise By-Law” – this part of the recommendation was not included on the site plan under section B

Page 17 – berm minimum top elevation not included on the site plan as per the recommendation

All other Accoustic recommendation applied to site plans

Traffic Impact Study

No traffic mitigation measures suggested

Entrance improvement required as per entrance permit

Hydrological Investigation

Site Plan note B7 – Beaver dam destruction – should obtain prior MNR approval

Michael Machin
Aggregates-Forestry
Pembroke District
Ministry of Natural Resources
31 Riverside Drive,
Pembroke ON K8A 8R6
613 732-5516
michael.machin@ontario.ca