

May 31, 2011

The Corporation of the City of Brampton

2 Wellington Street West
Brampton ON.
L6Y 4R2

Reference: Peer Review of Noise Impact Assessment, Proposed Norval Quarry, Brampton Brick Limited

Introduction and Summary

As requested, we have completed a peer review of the Noise Control Study prepared in support of the proposed Norval Quarry. The opinions expressed in this peer review (including Appendices) may be supplemented, reconsidered or otherwise revised by the author due to new or previously unknown information. Our comments are provided below.

Our comments are based on our review of the following materials:

- “*Norval Quarry Noise Control Study, Part of West Half Lot 12, Concession 6 W.H.S. Geographic Township of Chinguacousy, City of Brampton, Regional Municipality of Peel*”, prepared for Brampton Brick Limited by Aercoustics Engineering Ltd. (AEL), dated July 14, 2010.
- “*Norval Quarry Site Plan, Drawings 1 to 7*” prepared for Brampton Brick Limited by Long Environmental Consultants Inc., dated August 5 – 10, 2010.
- 2006 Official Plan of the City of Brampton

As part of our review we also visited the proposed quarry site and surrounding area on November 9, 2010.

In summary, the AEL Noise Study has been completed using the appropriate Ministry of the Environment (MOE) Guidelines and criteria. It identifies that excessive levels of noise will be caused by operations in the quarry and identifies means of mitigation to maintain those noise emissions to within acceptable limits at neighbouring residential points of reception.

We generally agree with the methodology used in the report and the recommended physical control measures, but note that considerable mitigation and operational restrictions are required to maintain sound levels within acceptable limits. We are concerned that due to several factors

outlined in the comments below sound levels may exceed the criteria on occasion and there has been no mechanism proposed to ensure that the sound level limits are met on an ongoing basis.

Review Comments

1. The study states that it is in support of an application for a Class A Category 2 license under the Aggregate Resources Act. It does not state that it is in support of an application for a zone change or discuss any implications or issues arising therefrom.
2. There is no reference to any policy regime in the Brampton Official Plan with respect to the assessment/acceptability of noise.
3. AEL has calculated the receptor sound levels and berm heights based on a point of reception 1.5 m above the ground, typical of a person standing in their yard near the house. While this has been common practice in the industry in the past, the MOE now requires that the plane of any window be considered as a point of reception, even upstairs windows during daytime operations. Sound levels are typically higher outside upstairs windows and berm heights may need to be increased to fully protect them.
4. The study considers the sound levels only in the immediate vicinity of the residential dwellings, not at locations on the residential properties closer to the quarry operations, further to the rear of the lots on the east side of Old Pine Crest Road, for example, where sound levels may be higher.
5. The study identifies the residences to the east as being in a rural environment and the residences to the west as being in an urban environment, but does not present any quantitative evidence to support those classifications. This is important because the criteria are lower for rural points of reception, which would result in excesses under the proposed mitigation scheme (berms). In particular we are concerned about the urban classification of R5 and R6 on the east side of Old Pine Crest road. The acoustical environment in the rear yard areas of those properties may not be much different than the residences to the east of the site which are classified as rural. The reception point criteria and definitions of urban and rural classifications are contained in MOE Guidelines NPC-205 and NPC-232.
6. Clarification should be provided as to the manner in which the number of trucks required for the shipping of material to the plant (three per hour). If we consider the 200,000 tonne annual limit and the use of 20 tonne haul trucks 250 days per year, 8 hours per day, our calculation indicates a number closer to five per hour, and that is assuming that it will be a steady operation with no peak hours.
7. The noise source which is most often a source of complaint with respect to quarry operations is back-up beepers. There is no mention of back up beepers in the study. While back up beepers are excluded from assessment (Annex to NPC-205 and NPC-232) since they are "auditory warning devices required or authorized by law or in accordance with

good safety practices”, the study should discuss their use and indicate how they will be managed. Sometimes operations can be staged to minimize reverse operations, for example. We also recommend that alternative warning technologies be investigated.

8. There are some inconsistencies in the calculations which should be explained. Particularly related to the nearest residences to the west, which could result in higher than predicted sound levels at those residences. For example, in Appendix B the source “BBNQScrapper” is assigned a Penalty/Adjust value of -5 decibels for all residences except R5 and R6, which are assigned a value of -7 decibels. Had a consistent value of -5 decibels been used higher sound levels, potentially exceeding the criteria may have been determined at R5 and R6.
9. Another similar situation exists at R1, the nearest residence to the east where the source “BBQNloader” is assigned a Penalty/Adjust value of -1 dB, and 0 dB at most other receptors.
10. Also with respect to the calculations for R1, the sound level is calculated to be 45.5 dBA, which is rounded down to be 45 dBA to be exactly equal to the criteria, rather than being rounded up to 46 dBA, a more common rounding technique. A similar situation exists with respect to R6 where the calculated sound level is 50.5 and the criteria value is 50.0.
11. The calculation sheets contain the inputs to the model and the overall results. There is no way of determining from what has been provided if the calculations have been conducted in accordance with the applicable model. For example, to what specifically does Penalty/adjust refer; what factors were used for air absorption; how are moving pieces of equipment modeled, along what paths, etc.
12. Places of worship are considered to be Points of Reception in both NPC-205 and NPC-232. A Jehovah’s Witness Kingdom Hall and Assembly Centre located to the north of Highway 7 within 500 m south of the site which was not considered in the study.
13. The noise from haul trucks travelling on public roadways is not regulated, but must be studied, reported and be considered in the selection of the haul route. The AEL Noise Report deals with this matter on an average hour basis and the impact (increased sound levels) is found to be insignificant. That may not be the case in the quieter (off peak) hours of the day when the background traffic volumes (in particular on Winston Churchill Blvd sound of Wanless Road) can be fairly low. Increased truck traffic on public roadways is a major source of concern related to quarrying operations, and in this case it appears that there is a limited selection of potential haul routes. We are of the opinion that the potential impact of offsite truck traffic may have been underestimated in the AEL Noise Report and that there should be a clear understanding of the potential impact of offsite truck traffic before the application is approved. Additional analysis is recommended.

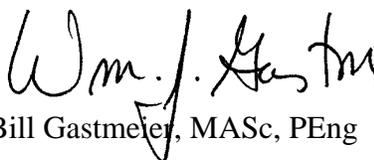
14. The quarry operator has indicated that the haul trucks will likely be operated by Brampton Brick. In our opinion, consideration should be given in the Noise Study as to means to manage the noise of haul trucks operating both within the quarry and on public roadways.
15. Clarification should be provided that the source sound levels assumed for the bulldozer contain the noise from the claw being dragged through the shale.
16. There is no discussion of how the noise from final extraction of the shale below the berms will be addressed after the berms are removed so that the underlying material is accessible. This activity will occur in close proximity to R1.
17. The noise study states that only a scraper, dozer and loader will be used on the site. The operational plan indicates that a backhoe and excavator could also be used. This inconsistency should be addressed.
18. The report does not recommend any means of verifying the compliance of the facility with MOE sound level limits during its operational life, such as conducting an acoustical audit upon startup and regularly scheduled monitoring on an ongoing basis.

Based on our professional review, the AEL Noise Study supplied by Brampton Brick does not warrant approval by required legislation and is therefore unacceptable to the City of Brampton.

Thank you for the opportunity to provide this information. We trust it is sufficient for the present purposes. Please call if you have any questions.

Yours truly,

Howe Gastmeier Chapnik Limited


Bill Gastmeier, MAsc, PEng



References:

- 1) NPC-205, "Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban)"
- 2) NPC-232, "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)"
- 3) LU-131, "Noise Assessment Criteria in Land Use Planning"

Appendix A: Preliminary Review Table

Guideline Question	Findings regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
Purpose		
Is the purpose of the work clearly and understandably stated in the applicant's report?	Yes in terms of an MNR license application. However, the report does not indicate if and how it applies to an application to rezone the lands for the intended use. It does not reference the Planning Act or the Noise Guidelines which apply thereto.	Does not address the question of the compatibility with surrounding land uses.
Does the purpose set out the proper direction to undertake the study?	Yes	
Methodology		
Is the methodological approach technically sound? Is the review of issues, data, facts objective and appropriate?	With respect to onsite operations, there are a number of inconsistencies and points of clarification which should be addressed. The methodological approach to offsite truck traffic is not well defined in the guidelines and requires additional consideration and analysis.	Noise impacts from on-site operations may be higher than predicted, resulting in the need for additional mitigation. The methodology used for offsite truck traffic may result in an underestimation of its significance.
Does the peer review identify any technical concerns stemming from the methodology (and assumptions made to inform the methodology) that may compromise the analysis and/or conclusions of the report?	Yes. There is some question as to the choice of the acoustical environment and correspondingly the assignment of criteria at specific receptors. The choice of a ground level receptor height and several calculation inconsistencies are questionable.	Noise impacts from on-site operations may be higher than predicted, resulting in the need for additional mitigation.
Information		
Are relevant data and facts clearly and consistently presented in the technical report?	Generally yes.	
Is information gathered from appropriate sources? Is the information useful? Accurate? Are there concerns regarding their quality or validity?	One sensitive receptor was not included in the study.	Potential for unmitigated excesses.
Is the data used critical to the conclusions?	Yes	
Is the Brampton Brick report thorough/comprehensive/complete? To respond to this question, peer reviewers must consider accuracy, appropriateness and timing/seasonality of the data collection (if applicable).	No. There was no monitoring of the existing background sound levels conducted. There was no consideration of back up alarms. There was no discussion of best practices for both on and offsite trucking (minimize use of engine brakes, backup	

Where specific technical report warrants, there may be a need to consider broader connections (i.e.: water inter-relationships). Please indicate if you feel this is lacking in the Brampton Brick report and what broader connections should be considered.	alarms, etc.)	
How comprehensive and complete are the recommended mitigation and monitoring measures proposed by Brampton Brick? This includes assessing direct and indirect impacts; short and long term aspects.	Mitigation measures (berms) are generally appropriate for a quarry operation but the recommended berm heights and extents may not be sufficient in this case. There was no mention of how mitigation will be addressed during final excavation of material after berms have been removed. There was no noise monitoring recommended to ensure ongoing compliance during operations.	Sound levels at residences may be excessive on occasion. There are no means in place to ensure ongoing compliance.
The gap analysis will assess the relative importance of the data gaps and limitations to the project and identify potential options for addressing them. As such, a recommendation from a peer reviewer could be that additional survey and baseline monitoring must be undertaken as the project proceeds, provided the necessary frameworks are in place to direct this data collection and any changes that are triggered.	Additional monitoring of background baseline sound levels would be useful in determining the existing acoustical environment at the receptors and confirming the choice of acceptability criteria.	Incorrect assignment of criteria (urban/rural) at some receptors resulting in an underestimation of impacts.
Certainty		
Are certainties and uncertainties of the proposal's success openly and objectively stated in the applicant's report/study?	No	
Are all assumptions clearly stated? Are the assumptions reasonable? Analysis of assumptions and parameters.	Generally yes for on-site operations but not for offsite haul traffic.	
Are the standards or thresholds commonly accepted in this type of technical area identified and appropriately utilized? (ie: transportation, soils, natural environment? Etc...)	Yes	
Issue Gaps		
Are there issue gaps arising from the review?	Yes.	
Were the identified issues addressed in the technical report?	No	
Are there key issues, related to the specific technical report, that have not been considered?	There is no consideration of noise monitoring to ensure ongoing compliance.	
Mitigation/Monitoring		

Are realistic mitigation measures/rehabilitation plans proposed in the applicant's report? Is there sufficient detail?	The proposed mitigation measures are typical of quarrying operations, but may not be sufficient.	
Do the proposed measures mitigate the impacts? Is the end result desirable from a technical point of view?	Given the noted gaps and inconsistencies, additional mitigation may be required.	
Will the proposed measures be adequate to address outstanding concerns?	Given the noted gaps and inconsistencies, additional mitigation may be required.	May need to increase berm heights and extents
Conclusion		
Do the conclusions satisfy the applicable policies of the relevant policy documents that need to be consulted as per the specific discipline (ie: Official Plan, Provincial legislation, standards and guidelines, etc...). This should be informed by the policy matrix. Have implications relating to required jurisdiction and agency approvals including environmental assessments been identified?	No. There is no mention in the report of the rezoning application or any Official Plan Policies.	
Are the conclusions relevant to the purpose/objectives and supported by the work undertaken by the report authors?	No. noise impacts from on-site operations may have been underestimated.	Additional noise controls may be required.
Based on the peer review, would the same conclusions be determined?	With respect to onsite operations increased mitigation may be required. The report reaches no conclusions with respect to quarry truck traffic. It does state that the increase in road traffic noise on Winston Churchill Blvd. will be acoustically insignificant, inferring that it should not be a factor haul route selection.	The impact of off-site truck traffic may have been underestimated. Roadside noise barriers are typically not required for quarry applications. Only two haul routes are available (north or south on Winston Churchill Blvd) and a clear understanding of the potential impacts should be required before the project is approved.
Adequacy		
Does the applicant's report/study adequately address the stated purpose?	No	
Is there anything that should, in your opinion, have been done differently?	The upstairs windows and all useable locations on the residential properties should have been considered as points of reception. Additional analysis of offsite truck traffic is recommended as is the consideration of best practices to manage noise from back up beepers, engine brakes etc.	Sound levels at residences may be excessive on occasion. Additional mitigation may be required.

Conclusions Summary:

- Additional study/clarification is required concerning several items. These include the impact of off-site trucking, discussion of best practices around back up beepers and trucking operations, mitigation for final extraction of the material under the noise mitigation berms.
- The proposed mitigation may be insufficient. Additional analysis and calculations are recommended concerning several calculation inconsistencies and the use of upper storey windows as receptors. Additional mitigation may be required for normal operations.
- A noise monitoring program should be considered to ensure ongoing compliance.

Gap Analysis:

- No mention is made of the rezoning application and the implications with respect to noise and Land Use Compatibility.
- There is no consideration of a noise monitoring program.