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May 26, 2010

John Emeljanow
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30 Wertheim Court Unit 25
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Dear Mr. Emeljanow:

PEER REVIEW OF ACOUSTICAL STUDY - ZONE CHANGE 8/2009 (HUNDER DEVELOPMENT LTD.)

Further to the Peer Review comments dated December 18, 2009, we provide the following in response.

We have addressed your comments and prepared a revised noise study. As well, we have updated the modelling utilizing CadnaA software and octave band noise profiles for the various pit equipment to more accurately predict the noise impacts.

In specific reference to your December 18 comments, we offer the following. Please note that Valcoustics' comments appear in bold and IBI Group's comments follow in regular font.

- 1. The property areas outlined on page 1 of the acoustical study do not match those outlined on the site plans. IBI Group should confirm that the assessment results remain valid for the latest version of the site plans.**

The acoustical impacts have been re-assessed with the revised property areas and the report has been revised accordingly.

- 2. Page 2 of the Acoustical Study indicates that the area surrounding the proposed Hunsberger Pit is in a "Class 2" area since the existing traffic on the surrounding roadways creates an urban hum during the daytime (i.e. 0700 to 1900 hours) period. This may be true for the receptors along Katherine Street. However, traffic volumes on the local roads adjacent to most of the noise sensitive receptor locations are likely very low. Thus, detailed information to support the use of the Class 2 noise guideline limits is requested for all of the noise sensitive receptor locations.**

The acoustical study has been revised and all sensitive receivers located outside the community of Conestogo have been assumed to be in Class 3 areas.

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3. **The MOE noise criteria outlined in Table 1 are not correct. During the daytime (0700-1900 hours), no control measures are required if the worst case hourly sound exposure at a noise sensitive receptor is less than or equal to 50 dBA. During the evening and at night (i.e. 1900-0700 hours), no control measure are required if the worst case hourly sound exposures at a noise sensitive receptor is less than or equal to 45 dBA.**

We have re-checked Table 1 and modified accordingly.

4. **We agree that the initial start up and rehabilitation stages are considered construction and do not need to comply with the MOE stationary source limits. We also agree that the methods recommended for reducing noise during the construction state, outline on page 5 of the Acoustical Study, are appropriate.**

No comment.

5. **The MOE noise guidelines require the noise impact assessment to reflect the predictable worst case operations at the proposed facility. We are concerned that the shipping rate of 6 trucks per hour does not reflect a predicable worst case. Review of the Traffic Study indicates that 6 trucks per hour represents an average level of activity. The shipping rate used in the assessment should reflect the maximum rate that is expected to occur.**

While the written portion of the report cited a shipping rate of trucks of approximately six (6) trucks per hour (which we agree is an average) the analysis in fact did account for 24 trucks entering and leaving the site per hour which is conservative since the actual rate is expected to be lower.

6. **Page 4 of the Acoustical Study indicates that the analysis for each noise sensitive receptor was done for the worst case phase of operation. How was the worst case phase of operation for a receptor determined?**

In the original analysis, the trial and error method was used to determine the worst case location. Using CadnaA software, multiple noise source locations were modeled and the location with the highest noise impact was found and used to determine the appropriate mitigation.

7. **The noise sensitive receptor locations used in the noise assessment are outlined in Table 2. Review of the Noise Information Plan in Appendix B of the Acoustical Study indicates that there is a dwelling to the west of Receiver Location A which is closer to Phase 2 and also likely closer to Phase 6. Why was this dwelling not used in the assessment?**

In the original report, it was discovered that the dwelling to the west of Receiver A was at a lower elevation and was much less exposed than Receiver A. As a result, Receiver A was chosen to represent the worst case for those residents. In the revised analysis, CadnaA accounts for both receiver locations and the results confirm our original theory that Receiver A was in fact the worst case location for that group of residents.

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8. **Table 3 of the Acoustical Study indicates that the unmitigated sound exposure level at Receiver B is well above the MOE guideline limit. Review of the Noise Information Plan in Appendix B indicates that there are no berms recommended along the southern boundary of the proposed gravel pit. We are concerned that excesses above the MOE guideline limits may result at residences further south and at of Receiver B on River Run Place as these residences would appear to not benefit from acoustical screening provided by the perimeter berm. IBI should confirm there will be no sound exposure excesses above the MOE Noise guideline limits at noise sensitive receptors to the south of the proposed gravel pit.**

A 3.0m noise attenuation berm has now been added along the south boundary and is reflected in the revised study. It should be noted that there is dense forest to the south of Phase 3 which would provide additional noise attenuation (this was not included in the modelling).

9. **Review of the site plans and our site visit indicated that there is an existing residential dwelling (1081 Hunsberger Road) within the licensed boundary. No discussion or analyses is presented within the report regarding this dwelling.**

The existing residence on the site is owned by the proposed pit owner and as such, we suggest it is not a sensitive noise receiver since it will continue to be owned and controlled by the applicant.

10. **Our site visit also indicates that there is an existing residential dwelling to the north of the site, near the existing cemetery. This dwelling is significantly closer to the site than Receivers E and F. No discussion or analyses regarding this dwelling is presented within the Acoustical Study.**

The existing residence on the site is owned by the proposed pit owner and as such, we suggest it is not a sensitive noise receiver since it will continue to be owned and controlled by the applicant.

11. **Review of Tables 3 and 4 within the Acoustical Study, which present the analysis results, indicate a Receiver A2 was used in the assessment. However, Receiver A2 is not shown on the Noise Information Plan. IBI should confirm the location of Receiver A2.**

Receiver A2 is at the same location as Receiver A. Receiver A was impacted by multiple phases (Phase 2 and 6) so a second receiver at the same location was used to distinguish between the two phases in the analysis. This issue has been addressed in the revised report.

12. **The sample calculations presented in Appendix A of the Acoustical Study are not clear and do not confirm the results presented within the report. Our specific concerns are:**

- **Figure 2, which shows the reference noise emissions levels used in the assessment, does not indicate the units for the distance from the noise source. This information is critical in confirming the assessment results. In addition, it is not clear where the data presented in the table originates. The origin of the data should be provided by IBI. Also, the reference sound level used for trucks is not presented.**

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Data has been monitored over a number of years in various active pits. The revised report documents the reference noise levels used in the CadnaA modelling and utilized octave band noise profiles.

- **The total noise level of 65 dBA presented on the sample calculation page is not consistent with the results presented in Table 3 and 4 of the report. The receiver location this calculation is applicable to should be indicated.**
The total noise level of 65 dBA is an example used to demonstrate the calculations involved in adding noise levels. This number is not representative of any receiver location within this project. It is a standard appendix which we have used to demonstrate the calculations. However, the revised report is now based on CadnaA modeling software so this point is no longer relevant.
- **The reference sound level of 73.8 dBA for the front end loader at a reference distance of 15 (units not indicated) presented on the sample calculation page is different than that presented in Table 2. Table 2 indicates the reference sound level for the front end loader is greater than 80 dBA at a distance of 15 (units unknown). This discrepancy must be clarified by IBI.**

Assuming you meant Figure 2 instead of Table 2, the inconsistency is because the front end loader data has been updated for newer equipment. Figure 2 displayed older data for the loader. Typically newer loaders are approximately 5 dBA quieter. Again, the revised report is now using updated noise profiles including octave bands.

- **For the truck noise calculation equation presented within the sample calculations, the values used in the assessment are not presented. Thus, it is not possible to confirm the results. In particular, v (vehicle speed), T (the total time in seconds) and L_o (the peak sound level of a pass-by) are all not indicated.**

The revised report documents the reference noise levels used in the CadnaA modelling and utilized octave band noise profiles.

13. **One of the recommendations within the Acoustical Study is to monitor the noise levels at the off-site receptors twice per year. This is considered appropriate. The monitoring must be done in accordance with MOE publication NPC-103, "Procedures". In addition, we recommend that prior to the commencement of operations or if new or alternate equipment is to be used at the site, sound emission levels of all equipment to be used at the site be measured to confirm they do not exceed those used in the Acoustical Study or in NPC-115 if the equipment is being used for construction only. If the sound emission levels used in the noise assessment are exceeded, either different equipment meeting the emission levels from the noise assessment should be used or additional noise mitigation measure should be provided. A copy of the noise monitoring reports should be submitted to the Township of Woolwich within 30 days of completing the monitoring.**

We do not have a concern with adding the additional recommendations as suggested above but considering that the Township does not have qualified staff to review noise assessments or monitoring data, we would suggest that the reports also be forwarded to MOE and MNR as is the current recommendation for the annual Monitoring Report.

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Therefore we are recommending the following changes to the Site Plan notes as follows:

8. That prior to the commencement of operations and twice annually the pit operator shall monitor the noise levels at all the receiver locations to ensure noise levels are kept within the established criteria. All monitoring must be conducted by a qualified acoustical engineer and shall follow the guidelines and specifications outlined in NPC-233 "Information to be submitted for approval of stationary sources of sound". An annual report must be issued to the Ministry of Environment (MOE) and Ministry of Natural Resources (MNR).
 9. If new or alternate equipment is to be used at the site, sound emission levels of all equipment to be used at the site will be measured to confirm they do not exceed those used in the acoustical study or in NPC-115 if the equipment is being used for construction only. If the sound emission levels used in the noise assessment are exceeded, either different equipment meeting the emission levels from the noise assessment will be used or additional noise mitigation measures should be provided. A copy of the interim noise monitoring reports will be submitted to MOE, MRN and the Township of Woolwich within 30 days of completing the monitoring. If additional equipment beyond that outlined in the acoustical study is to be used on the site, the acoustical study must be updated and re-submitted to MOE, MNR and the Township for review and comment prior to the equipment operating on the site.
- 14. OPA 13 Policy 11.11.10 outlines the requirements for a noise study to be prepared in support of an application for an aggregate extraction operation within the Township of Woolwich. Trucks travelling along the haul route to and from a proposed aggregate extraction facility are considered a noise source that needs to be assessed as part of the Acoustical Study. The haul route noise assessment should be completed using the procedures outlined in the MOE publication Noise Guidelines for Landfill sites. Policy 11.11.4d) within OPA 13 requires an evaluation of the alternative haul routes to identify the haul routes with the least impact, which is consistent with the requirements outlined in the Noise Guidelines for Landfill sites. The acoustical study should also confirm the noise impacts along the haul route will be acceptable in accordance with OPA 13 policy 11.11.10c).**

Regional roads are designed to account for higher vehicle volumes and the Regional roads are not the responsibility of the pit. However, we undertook a brief analysis and found:

Current noise levels at furthest west resident at Receiver A area:

Morning: 40.2 dBA
Mid-Day: 42.1 dBA
Afternoon: 39.3 dBA

Predicted noise levels after increase of trucks:

Morning: 43.7 dBA (3.5 dBA increase)
Mid-Day: 44.8 dBA (2.7 dBA increase)
Afternoon: 43.3 dBA (4.0 dBA increase)

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As shown above, the increase in noise levels as a result of the increased truck traffic are less than 5 dBA and remain below the MOE noise criteria for road noise (55 dBA for outdoor living areas/window façade during the daytime hours).

- 15. The site plans indicate that the recycling of asphalt and concrete will be done on the site. The potentially noisy activities are not addressed within the Acoustical Study. The noise impacts on noise sensitive receptors from these recycling activities, including the hauling of this material to and from the site, should be evaluated.**

The recycling of asphalt and concrete would take place during the time when the crusher is on site. The noise study accounts for the crusher noise. The truck counts used in the analysis also include the recycling trucks as the trucks entering the pit would carry the recycled materials, and exit the pit carrying the aggregate.

- 16. Back up beepers are excluded from the MOE stationary noise source guideline requirements since they are considered a safety measure. However, our experience is that they are often a source of off-site noise complaints at operating pits and quarries. We recommend that alternative warning technologies, such as the use of broad band alarms, be investigated and implemented if they are found to be feasible to reduce their off-site noise impacts and maintain their safety function. Product information on a typical broad band alarm is attached.**

Agreed, as such, the following additional Site Plan note is being recommended to be added under Noise Recommendations.

10. Alternative warning technologies, [back-up beepers] such as the use of broad band alarms shall be used by on-site extraction equipment if

- i) They are approved by MOL;
- ii) Found to be feasible to reduce off-site noise impacts; and
- iii) They maintain the safety function.

We trust that this information is satisfactory.

Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Yours truly

IBI GROUP



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cc: Jeremy Vink