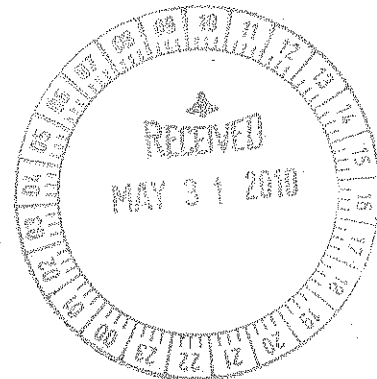




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May 26, 2010

John Emeljanow  
Valcoustics, Canada Ltd.  
30 Wertheim Court Unit 25  
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Dear Mr. Emeljanow:

**PEER REVIEW OF ACOUSTICAL STUDY - ZONE CHANGE 3/2009 (2167534 ONTARIO INC. KUNTZ)**

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) Page 2 of the Acoustical Study indicates that the area surrounding the proposed Jigs Hollow Pit is in a Class 2 area since the existing traffic on the surrounding roadways creates an urban hum during the daytime (i.e. 07:00 to 19:00 hours) period. We expect that 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 majority of the receiver locations are in proximity to the communities of Conestogo and Winterbourne (within 1,000m). Accordingly we had assumed Class 2. However, we agree that there is some question as to whether they are Class 2 or 3 and as such we have revised the report and assumed Class 3 for all receiver locations with the exception of Receiver I. Receiver I will remain Class 2 since it is located within the community of Conestogo.

To further assist with this characterization, the following text is taken directly from the Class definitions from NPC-205 and NPC-232.

*"Class 1 Area" means an area with an acoustical environment typical of a major population centre, where the background noise is dominated by the urban hum.*

*"Class 2 Area" means an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas, and in which a low ambient*

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*sound level, normally occurring only between 23:00 and 07:00 hours in Class 1 Areas, will typically be realized as early as 19:00 hours.*

*Other characteristics which may indicate the presence of a Class 2 Area include:*

- *absence of urban hum between 19:00 and 23:00 hours;*
- *evening background sound level defined by natural environment and infrequent human activity; and*
- *no clearly audible sound from stationary sources other than from those under impact assessment.*

*"Class 3 Area" means a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as the following:*

- *a small community with less than 1000 population;*
- *agricultural area;*
- *a rural recreational area such as a cottage or a resort area; or*
- *a wilderness area.*

Conestogo is primarily a residential community with a population of 1,235 (per the 2006 census). Refer to Appendix C for the 2006 census. This type of community will realize daytime noise such as cars, lawn mowers, air conditioning and other human activity. Accordingly, a Class 2 category is appropriate for receivers in or near this community.

- 2) **The Ministry of Environment (MOE) noise criteria outlined in Table 1 are not correct. During the daytime (i.e. 0700 to 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 to 0700 hours), no control measures 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 the report has been modified accordingly (see attached).

- 3) **We agree that the initial start up and rehab 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 stage, outline on Page 5 of the Acoustical Study are appropriate.**

No comment.

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- 4) **The MOE noise guidelines require the noise impact assessment reflect the predictable worst case operations at the proposed facility. We are concerned that the shipping rate of 2 trucks per hour does not reflect a predictable worst case. Review of the Traffic Study indicates that 5 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. In addition to vehicle movements on the site, the noise from idling trucks at the scale house and equipment at the re-fuelling area should be included in the noise assessment.**

While the written portion of the report cited a shipping rate of trucks of approximately two (2) trucks per hour (which we agree is incorrect) the analysis in fact accounted for 12 trucks entering and leaving the site per hour. Therefore, the findings of the modeling remain unchanged.

- 5) **The noise sensitive receptor locations used in the noise assessment are outlined in Table 2. Based on our site visit, it appears that here is an existing residence on the site. The noise report should discuss this receptor and indicate why it has not been considered as a sensitive receptor in the noise study.**

The existing residence on the site is owned by the proposed pit owner and as such, it is not a sensitive noise receiver since it will continue to be owned and controlled by the applicant (2167534 Ontario Inc.).

- 6) **Section 4.2 on page 5 of the Acoustical Study indicates that the extraction and processing equipment are assessed at an average of 5m from the pit face. Assuming the equipment is close to the working face maximizes the sound barrier attenuation from the working face which may not reflect a worst case mode of operation. It is not physically possible for the equipment to be within 5m of the working face for all receptors all of the time. This, confirmation that the MOE guidelines will be met when equipment is further from the working face is needed.**

We have further analyzed the pit using CadnaA software. We assumed all operations are at the pit floor elevation with the pit fully extracted (i.e. pit faces are at the limits of the pit). Multiple equipment locations were then modelled in an iterative approach to determine the worst case location of the equipment. The results of this analysis show that revised mitigative berms are required and restrictions must be placed on certain operations. Refer to the revised report.

- 7) **Recommendation 4. On page 8 of the Acoustical Study states that extraction operations must move towards the nearest receiver to maximize the effectiveness of the pit's face for the purpose of noise attenuation. Review of the site Plans indicates that extraction will be done from north to south, away from Receiver G which is the closest to the site. Thus, additional noise mitigation may be needed.**

Your comment is correct that Recommendation 4 and the intended direction of extraction are not congruent. However, as the Golf Course Road receivers are more difficult to protect due to the elevation difference, it is preferred that the direction of extraction move toward the receivers on Golf Course Road to best utilize the pit face for protection. The proposed berm located along Peel Street will be in place throughout the life of the pit and has been suitably designed to mitigate noise levels at Receiver G even with Phase 2 extraction proceeding north to south. However, we acknowledge that Site Plan Note 4 under Noise Recommendations be revised to state:

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*"In most circumstance it is the preference that extraction operations within each phase move toward the nearest receiver location to maximize the effectiveness of the pit face for the purpose of noise attenuation. However, Receiver G [110 and 125 Peel Street] will be sufficiently attenuated by the proposed Peel Street berm and therefore to augment the noise attenuation for Receiver I, extraction within Phase 2 shall be north to south."*

- 8) 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.**

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.

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- 9) 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. If additional equipment beyond that outlined in the acoustical study is to be used on the site, the acoustical study must be updated and submitted to the municipality for review and comment prior to the equipment operating on the site.

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.

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 THE 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, MNR 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.

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- 10) Policy 11.11.1 b) within OPA 13 states “any additional traffic and road improvements associated with the proposal will not have unacceptable impacts on the safe and efficient use of the road network and will not have unacceptable social, economic, cultural, heritage, or environmental impacts as a result of the use of roads in the vicinity of the proposal or along the proposed haul route”. Noise is considered an environmental impact. The Acoustical Study should evaluate the noise impacts along the proposed haul routes to confirm they are acceptable.**

The impacts created by additional trucks on the public haul routes would be small. The MOE noise criterion for road noise is 55 dBA during the day for OLA and building facades. The traffic volumes along Peel Street are low and even with the increased truck traffic from the pit will still be below the 40 vehicles per hour threshold for STAMSON and ORNAMENT and thus well below the 55 dBA criteria. If, however, we assume a worst case of 12 trucks (from the aggregate pit) and 28 cars per hour (minimum number of cars required to utilize STAMSON), STAMSON predicts an  $L_{eq}$  of 54.7 dBA at Receiver G which again is below the MOE criteria.

- 11) 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.

- 12) 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.

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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**



Trever O'Brien, B.Eng  
Engineer in Training



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cc: Jeremy Vink