20 October 2016

Tri-County Aggregates Ltd.
92 Kenhar Drive
North York, Ontario, Canada
M9L 1N2

Attn: Mr. Larry Pevato, Tri-County Aggregates

CC: Mr. Bob Long, Long Environmental

Re: Noise Impact Study for the Proposed Tri-County Pit
Response to Second Valcoustics Peer Review June 17, 2016

Aercoustics Engineering Limited (Aercoustics) has reviewed the second peer review letter prepared by Valcoustics Canada Ltd. (Valcoustics) dated June 17, 2016.

We submit the following itemized responses to Valcoustics’ peer review comments. A summarized version of the comments is presented below along with our responses. The numbering below aligns with the numbering used in the Valcoustics letter. Note that numbers that are missing represent items that have been resolved.

5. Table 2 and Table A should be revised to indicate that Loading and Shipping operations are permitted 06:00-07:00 Monday to Friday and 07:00-12:00 on Saturdays

We confirm that both Loading and Shipping operations are indicated to be permitted outside of daytime hours on the site plans. This has already been updated on the Operational Plan dated May 5, 2016.

6. Valcoustics would like to review a copy of the latest site plans to confirm the note about construction activities has been added as described.

Aercoustics can confirm that this note has been added in the Operational Plan dated May 5, 2016. We expect that the updated final site plans will be forwarded to Valcoustics for final review & approval.

**ACTION:** Forward final site plans to Valcoustics for review & approval.
7. **Aercoustics** used a 50% duty cycle for shipment loader operation, a 100% duty cycle should be used to reflect a worst case predictable condition of a busy operation

A 100% duty cycle was modelled at Valcoustics’ request and there was no effect on the reported maximum predicted sound levels. For example, the sound level at Receptor R02 increased from 41 dBA to 42 dBA for one scenario, but the maximum level of 45 dBA experienced by R02 at the worst case scenario did not change. All predicted sound levels remained below the sound level limits.

8. **Valcoustics requests specific details of the processing plant noise enclosure to be provided on the site plans**

In Tables 3 and B, the report provides the required noise emission levels to be satisfied for the enclosed processing plant; 83 dBA and 72 dBA in the loud side and quiet side respectively. In the recommended noise controls, the orientation of the enclosure, with the quiet side facing R02, is provided. This is also reflected in the Operational Plan notes and clearly shown on the drawing. These form the noise performance requirements and are independent of construction details.

Valcoustics has requested a post-construction performance verification by an acoustical consultant. Aercoustics agrees that a one-time acoustical audit to confirm the sound power of the ISO enclosure is appropriate.

**ACTION:** The requirement for this one-time audit shall be added to the site plans and should be conducted as soon as possible after the enclosed plant becomes operational.

9. **Valcoustics requests that the boundary of the pit Stages be clearly shown.**

The Operational Plan drawing correctly illustrates the Stages with directions of extraction.

Valcoustics requests that the boundary between each Stage be clearly marked, since certain noise controls are tied to these areas.

**ACTION:** The Stage boundaries on the Operational Plan should be clearly marked.

11. **Valcoustics requests additional detail on how the shipment truck 3 m deep cut out for Stage 1 will be created and noise impacts mitigated**

The following details were confirmed with the planner and the proponent:

“They will initially strip and built the berms. Then any haul road aggregate could be stockpiled, unprocessed, near the Stage 1 plant location. Processing would be
done after all of the site preparation, including the haul road cut, has been completed.”

13. **Clarification is requested for Stage 3 operation. The recommended extraction direction is towards R02 but the figures appear to show extraction progressing towards R07.**

As discussed with Valcoustics, the direction of extraction during the first lift of Stage 3 can be in any direction. The noise controls restrict all of Stage 3 to a northeast direction for simplicity, but if an operational issue arises during the small first lift, a direction change will not affect the noise controls.

**ACTION:** The Operational Plan dated May 5, 2016 has incorrect directions indicated in the Stage 3 and Stage 4 noise controls. These should be revised so notes N11 and N12 read: “NORTHEAST” and “SOUTHWEST”, respectively.

14. **Stage 3 and Stage 4 require that the extraction loaders are to operate no more than 30 m from the working face. The direction of this requirement should be provided.**

As per the above note, this is resolved.

15. **Additional detail on concrete recycling is needed.**

As noted in the report, Concrete Recycling may occur on this site. Aercoastics clarified that the Processing Plant operations include crushing of either native material or recycled material, or a blend. All of the noise control measures required of the portable processing operations apply to the concrete recycling operations, and only one may operate at a time.

Valcoustics would prefer to see the recycling operations called out specifically in the Table in Note N3.

**ACTION:** The first two rows of the Table in Note N3 should be updated to include “CONCRETE RECYCLING PLANT”. Specifically, “Portable Processing Plant and Concrete Recycling Plant” for the first row, and “Enclosed Portable Processing Plant and Enclosed Concrete Recycling Plant” for the second row.

**ACTION:** Note N4 should include the word “PORTABLE” before “PROCESSING PLANT”, as in “Only one portable processing plant”
16. Additional detail of potential noise impacts of off-site haul route noise is required.

Valcoustics has requested road traffic noise calculations to determine the worst case change in hourly equivalent sound level, based on the draft MOE Noise Guidelines for Landfill Sites.

As noted in the report, the proposed haul route is an existing truck haul route that is used by the existing pits in the area. There is a single haul route option: exiting the site north on 17th Line to County Road 3 and County Road 3 easterly. Refer to the attached excerpt from the Site Planning Report dated February 15, 2015 which describes the route and also the potential traffic impacts. Traffic data from the final Traffic Impact Study (TIS), dated March 2014 and prepared by C. F. Crozier & Associates Inc., was used.

The TIS for the subject site predicts a total of 36 truck passes (18 in and 18 out) in a regular peak hour, averaged from a peak month. The noise impact study conservatively assumed 60 truck passes (30 in and 30 out) in a single peak hour, which addresses a rarer predictable worst case hour. The haul route noise analysis that follows assumed the more conservative number of 60 truck passes in a peak hour for the subject site (Tri-County Aggregates).

A summary of the haul route road traffic noise calculations is provided in Table 1 which outlines the hourly traffic noise impact for the existing conditions and the Tri-County pit generated traffic. The predicted hourly sound levels used a reference distance of 30 m from the road.

Table 1: Summary of Haul Route Traffic Noise Analysis

<table>
<thead>
<tr>
<th></th>
<th>17th Line</th>
<th>Country Road 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise from existing traffic</td>
<td>59 dBA</td>
<td>66 dBA</td>
</tr>
<tr>
<td>Tri-County Pit new trucks per hour</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Noise including Tri-County Pit traffic</td>
<td>66 dBA</td>
<td>68 dBA</td>
</tr>
<tr>
<td>Difference in sound level</td>
<td>7 dB</td>
<td>2 dB</td>
</tr>
<tr>
<td>MOE qualitative description</td>
<td>Significant</td>
<td>Insignificant</td>
</tr>
</tbody>
</table>

The STAMSON calculation sheets are attached. The qualitative descriptions for change in sound level were adapted from the draft MOE Noise Guidelines for Landfill Sites (1998).

The existing background traffic was determined by traffic counts conducted on October 30, 2013, which is at the end of the production season and likely did not include much or any truck traffic from the existing aggregate operations. It is likely that the background traffic during summer months is higher, which would result in a smaller change in sound level. It should therefore be emphasized that the above
predicted changes in sound level are conservative and are comparing very quiet road traffic conditions to an assumed peak hour from the proposed operation.

To conclude, the haul route road traffic noise predictions indicate that, at times, the maximum change in sound level on 17th Line may be perceived as significant and the maximum change in sound level on Country Road 3 is insignificant. The proposed haul route remains the preferred route.

17. To address the Official Plan for the Township of East Garafraxa, a cumulative noise assessment of the haul route noise is needed.

To address the cumulative noise concerns relating to the proposed haul route, road traffic from the adjacent proposed licence by Greenwood Construction has been assessed. The traffic study for this proposed site, dated February 2014 and prepared by Paradigm, was provided by the planner for the proposed Tri-County Pit.

This traffic study indicated a maximum of 94 truck passes (47 in and 47 out) in an hour. This results in a cumulative change in sound level of 4 dB relative to the proposed Tri-County Pit peak truck traffic.

18. Valcoustics recommends a noise monitoring program.

Aercoustics does not agree that a regular periodic noise monitoring program is required for this site. In our opinion, a noise complaint response procedure can be more effective in addressing concerns or complaints of neighbours.

Valcoustics considers this resolved subject to the inclusion of the one-time plant enclosure audit on the Operational Plan, as described in Item 8 above.

19. Valcoustics recommends a noise complaint procedure.

Aercoustics can confirm that this note has been added in the Operational Plan dated May 5, 2016. We expect that the updated final site plans will be forwarded to Valcoustics for final review & approval.

Please do not hesitate to contact us if any further clarifications are required.

Yours Truly,

AERCOUSTICS ENGINEERING LIMITED

Derek Flake, M.Sc., P.Eng.  
Bob Rimrott, M.A.Sc., P.Eng.
STAMSON 5.0        NORMAL REPORT        Date: 20-10-2016 14:19:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 17_line.te        Time Period: 1 hours
Description: 17th Line – Existing

Road data, segment # 1: 17 Line
-------------------------------------
Car traffic volume :    87 veh/TimePeriod
Medium truck volume :     0 veh/TimePeriod
Heavy truck volume :    15 veh/TimePeriod
Posted speed limit :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: 17 Line
-----------------------------
Angle1   Angle2           :   -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  30.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: 17 Line
-----------------------------
Source height = 1.96 m
ROAD (0.00 + 59.12 + 0.00) = 59.12 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---------------------------------------------
-90     90   0.65  65.51   0.00   -4.96  -1.43   0.00   0.00   0.00  59.12
---------------------------------------------
Segment Leq : 59.12 dBA
Total Leq All Segments: 59.12 dBA
STAMSON 5.0        NORMAL REPORT        Date: 20-10-2016 14:20:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 17_line.te    Time Period: 1 hours
Description: 17th Line - Tri-County Trucks

Road data, segment # 1: 17 Line
-----------------------------------
Car traffic volume : 87 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 75 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient     : 0 %
Road pavement     : 1 (Typical asphalt or concrete)

Data for Segment # 1: 17 Line
-----------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth : 0            (No woods.)
No of house rows : 0
Surface     : 1            (Absorptive ground surface)
Receiver source distance : 30.00 m
Receiver height    : 1.50 m
Topography          : 1            (Flat/gentle slope; no barrier)
Reference angle    : 0.00

Results segment # 1: 17 Line
-----------------------------
Source height = 2.40 m

ROAD (0.00 + 65.62 + 0.00) = 65.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------------------
-90   90  0.63  71.95  0.00   -4.92  -1.41  0.00  0.00  0.00  65.62
-----------------------------------------------------------------------------------
Segment Leq : 65.62 dBA
Total Leq All Segments: 65.62 dBA
STAMSON 5.0 NORMAL REPORT Date: 20-10-2016 14:20:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 17_line.te Time Period: 1 hours
Description: 17th Line - Tri-County and Greenwood Trucks

Road data, segment # 1: 17 Line
-----------------------------------------------
Car traffic volume :  87 veh/TimePeriod
Medium truck volume :  0 veh/TimePeriod
Heavy truck volume :  169 veh/TimePeriod
Posted speed limit :  80 km/h
Road gradient :  0 %
Road pavement :  1 (Typical asphalt or concrete)

Data for Segment # 1: 17 Line
-----------------------------------------------
Angle1 Angle2 :  -90.00 deg  90.00 deg
Wood depth :  0 (No woods.)
No of house rows :  0
Surface :  1 (Absorptive ground surface)
Receiver source distance :  30.00 m
Receiver height :  1.50 m
Topography :  1 (Flat/gentle slope; no barrier)
Reference angle :  0.00

Results segment # 1: 17 Line
-----------------------------------------------
Source height = 2.40 m
ROAD (0.00 + 69.06 + 0.00) = 69.06 dBA

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th>Alpha</th>
<th>RefLeq</th>
<th>P.Adj</th>
<th>D.Adj</th>
<th>F.Adj</th>
<th>W.Adj</th>
<th>H.Adj</th>
<th>B.Adj</th>
<th>SubLeq</th>
</tr>
</thead>
<tbody>
<tr>
<td>-90</td>
<td>90</td>
<td>0.63</td>
<td>75.39</td>
<td>0.00</td>
<td>-4.92</td>
<td>-1.41</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>69.06</td>
</tr>
</tbody>
</table>

Segment Leq : 69.06 dBA
Total Leq All Segments: 69.06 dBA
11. TRAFFIC

Crozier & Associates was retained to conduct a traffic study in October 2013. Crozier's scope and a draft of its report were reviewed by the County, the Township and its Consulting Engineer. It was confirmed, during a traffic review meeting on January 28, 2014 that the total annual aggregate production, to be transported on the 17th Line haul road, will be 2 million tonnes: 1 million from the existing Greenwood pits and 1 million from the proposed Tri-County Pit. It was recognised, during meetings with the County and the Township, that structural improvements to the 17th Line will be required. The Township's will retain it's Consulting Engineer for any necessary design and construction coordination.

Crozier's Traffic Impact Study is bound in Appendix 7. It includes a complete traffic assessment, with plan and profile drawings of the 17th Line and County Road 3. It is concluded that there is sufficient road capacity, mainline stopping sight distance and turning sight distances available for the proposed pit entrance and the intersection of the 17th Line with County Road 3. Levels of service will be unchanged. The currently configured intersection of the 17th Line with Dufferin County Road 3 will continue to operate at a Level Of Service B during peak hours under future total traffic conditions.

Crozier's report was circulated to the County and the Township in April 2014. Comments have not yet been received.

Tri-County's 2 - lane internal haul road extends 700 m from the 17th line to the stockpile and loading area. The incoming, south lane will be used for internal truck queuing. Parking on the 17th line will be prohibited.

Since circulation of our TIS, consultants for Greenwood have advised that it intends to increase its total annual production to 2 million tonnes/year. Including the Tri-County production, up to 3 million to/year will be transported on the 17th Line haul road. In its February 2014 Traffic Study, Greenwood's consultant advised that this total production can be supported on the 17th Line and at County Road 3, with construction of a 25 m westbound left turn storage lane for the latter. In a 17th Line Geotechnical Investigation, SPL Consultants reported that the majority of the existing granular base materials do not meet Provincial specifications. Complete reconstruction, with a 240 mm raise in pavement elevation, is recommended for long term haul road operation.

Paradigm Transportation Solutions: Greenwood Construction Traffic Study, February 2014
SPL Consultants Limited: Geotechnical Investigation For 17th Line, June 2014
EcoVue Consulting Services Inc.: Letter Re: Greenwood Pits Production, October 2014
Future Expansion Volumes

The expansion plan to 3,000,000 tonnes annually would result in a maximum truck volume of 47 trucks/hour exiting and 47 trucks/hour entering at the intersection of County Road 3 and 17th Line during the peak month.

**Table 1: Existing and Future Truck Traffic – Peak Month**

<table>
<thead>
<tr>
<th>1,000,000 Tonnes per Annum</th>
<th>3,000,000 Tonnes per Annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Operation/Month</td>
<td>23 Days</td>
</tr>
<tr>
<td>Peak Month % of Annual Volume</td>
<td>15% Percent</td>
</tr>
<tr>
<td>Average Day of Peak Month</td>
<td>6520 Tones</td>
</tr>
<tr>
<td>Tractor Trailer Use</td>
<td>85% Percent</td>
</tr>
<tr>
<td>Tractor Trailer Total</td>
<td>5,540 Tonne/Day</td>
</tr>
<tr>
<td>Tractor Trailer Capacity</td>
<td>38 Tonne/Load</td>
</tr>
<tr>
<td>Number of Tractor Trailer Loads</td>
<td>146 Trucks/Day</td>
</tr>
<tr>
<td>Tri-axle Vehicles Use</td>
<td>15% Percent</td>
</tr>
<tr>
<td>Tri-axle Vehicle Total</td>
<td>980 Tonne/Day</td>
</tr>
<tr>
<td>Tri-axle Vehicle Capacity</td>
<td>23 Tonne/Load</td>
</tr>
<tr>
<td>Number of Tri-axle Vehicle Loads</td>
<td>43 Trucks/Day</td>
</tr>
<tr>
<td>Total Trucks</td>
<td>189 Trucks/Day</td>
</tr>
<tr>
<td>Hours of Operation/Day</td>
<td>12 Hours</td>
</tr>
<tr>
<td>Average Trucks Per Hour</td>
<td>16 Outbound</td>
</tr>
<tr>
<td>Average Trucks Per Hour</td>
<td>32 In + Out</td>
</tr>
<tr>
<td>Total Trucks</td>
<td>566 Trucks/Day</td>
</tr>
<tr>
<td>Hours of Operation/Day</td>
<td>12 Hours</td>
</tr>
<tr>
<td>Average Trucks Per Hour</td>
<td>47 Outbound</td>
</tr>
<tr>
<td>Average Trucks Per Hour</td>
<td>94 In + Out</td>
</tr>
</tbody>
</table>

The intersection impact at 17th Line and County Road 3 is evaluated based on a 5 year forecast of traffic on County Road 3 as it is conventional that a future horizon year be examined. Therefore, the existing volumes on County Road 3 were increased by 1.6% per year from 2012 (date of the count) to 2019 based on the historical growth rate noted above. The existing and future projected volume at the intersection with County Road 3 and 17th Line is shown below with an additional allowance for passenger cars generated by local residents.

**Figure 3: Comparison of Projected 2019 Volumes (Average Day of Peak Month)**