

22 October 2013

Lafarge Canada Inc.

6509 Airport Road
Mississauga, ON
L4V 1S7

Attn: Ms. Mal Wensierski
Re: Lafarge Oro Pit – Review of Noise Berms

Lafarge currently operates a Class A for +/- 120 hectares on Part of Lots 7, 8 & 9, between Concession 7 & 9, in the Township of Oro, County of Simcoe. Aeroustics has been retained to assist altering the existing noise control mechanisms – specifically, reducing the berm heights along the entrance/exit of the Pit, at 7th Line North and altering the entrance/exit to the site.

1 Existing Noise Environment

The ambient acoustical environment at residences along 7th Line North is Class 2 (Urban) as defined by the MOE Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban). In a Class 2 area, the background sound levels during the daytime (07:00-19:00) are defined by man-made sources and in the evening and nighttime periods, natural sounds are typically dominant. The sound of existing pits & quarries (Walker Aggregates site and Sargeant Company site) and associated truck traffic will define the background sound levels at these residences.

1.1 Guidelines

The relevant guidelines for the acceptability of noise are outlined in the MOE Publications NPC-205 and NPC-232.

2 Operations

The site plans outline the phasing of extraction, and the sequence and direction of operations in each phase. In general terms, the types of work consist of site preparation, extraction and processing, shipment off-site, and site rehabilitation. The Operations Plan is shown in Figure 1.

Aggregate will be extracted from above the water table using front end loaders and processed in the processing area shown on Figure 1.

All material will be shipped to market through the entrance to 7th Line. It has been assumed that operations will occur between daytime hours of 0700-1900 and that shipping may occur outside these hours.

3 Existing Controls

In order to ensure that the noise levels from the proposed extraction and processing of aggregate will comply with the guidelines set forth by the MOE, noise control measures must be incorporated into the operation. The recommended noise controls are incorporated into the site and operating plans. The operation shall be consistent with the site and operating plans in terms of:

- Restrictions on the numbers and types of extraction and processing equipment, the noise emissions of the equipment, and the areas of operation.
- Berming and local shielding requirements.
- Restrictions on the hours of operation.

3.1 MODIFICATION TO CONTROLS

Currently there is a requirement for an eleven (11) meter berm tapering to six (6) m along the south of the entrance from 7th Line. Aercoustics has remodelled the impact with six (6) meter berms along the entrance.

Aercoustics has also modelled relocating the original exit/entrance to the new location to the north, located across from Sarjeant Oro Pit's exit/entrance.

Figure 2 shows a summary of the proposed changes.

4 Predictions

The noise levels of the proposed extraction, processing and shipping operations have been predicted at the two (2) residences south of the entrance of the site. It should be noted that both these receptors are owned by Lafarge Canada Inc. Receptor R2 is located on Lafarge's licensed Roehner Pit and is approved to be removed in the future.

These two receptors are also the only ones impacted by moving the exit/entrance further away. Figure 3 shows an aerial highlighting the receptors. A summary of the noise prediction methodology and sample predictions are contained in Appendix A.

The predicted noise levels are based on the scenarios that are expected to produce maximum noise impact. The majority of the time, the work would be occurring in other areas of the site resulting in lower noise levels. The predicted worst-case noise levels from extraction, processing and shipping operations at representative receptors are listed in the following table and compared to the allowable levels based on MOE guidelines.

Table 1: Worst-Case Pit Noise Levels - One Hour L_{EQ} (dBA)

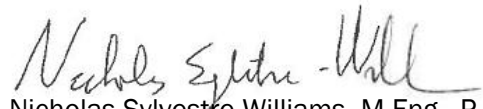
Receptor	06:00 – 07:00 Shipping Only		07:00 – 19:00 Extraction, Processing & Shipping	
	Predicted	Allowable	Predicted	Allowable
#1	40	45	49	50
#2	40	45	49	50

For all of the representative residences surrounding the site, the predicted worst-case noise levels (one-hour L_{EQ}) are in compliance with the MOE limits.

5 Conclusions

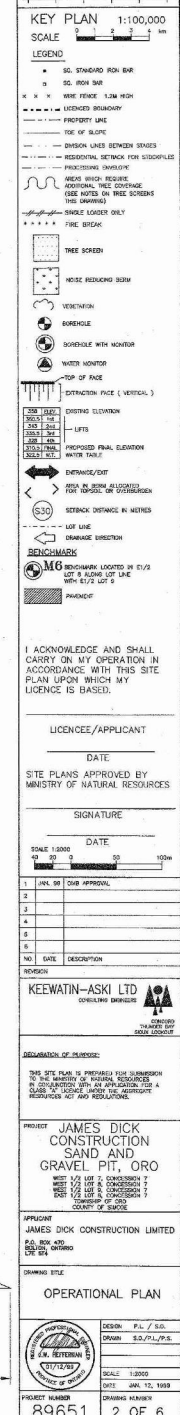
With the reduction of the berms along the entrance of the Oro Pit to a height of six (6) meters, and the relocation of the exit/entrance, the Oro Pit still complies with the Ministry of the Environment guidelines for noise from stationary sources.

Yours Truly,



Nicholas Sylvestre-Williams, M.Eng., P.Eng.
Aeroustics Engineering Limited

Figures





Proposed Berm for
Noise Mitigation for
Norman

Original Proposed
exit/entrance for
Lafarge Oro Pit on
Operations Page

Preferred new
exit/entrance across
from Sarjeant Oro
Pit exit/entrance



Figure 3: Aerial showing Receptors

Appendix A

Proj. #	Receptor	Period
13179		day

Freq	Crusher	Screen	Loader	Loader	Loader	PitTruck		
63	-3.8	-5.8	12.1	12.1	12.1	27.2		27.6 dBA
125	14.5	12.5	22.4	22.4	22.4	36.3		36.9 dBA
250	28.1	26.1	26.2	26.2	26.2	32.2		36.0 dBA
500	38.3	36.3	30.7	30.7	30.7	31.5		42.0 dBA
1000	42.5	40.5	32.7	32.7	32.7	32.9		45.7 dBA
2000	39.2	37.2	26.3	26.3	26.3	30.3		42.0 dBA
4000	19.7	17.7	3.1	3.1	3.1	16.6		23.1 dBA
8000	-46.7	-48.7	-62.3	-62.3	-62.3	-7.5		-7.5 dBA
	45.3	43.3	36.1	36.1	36.1	40.4		
Ref. LEQ (dBA)	85.0	83.0	74.0	74.0	74.0	71.9	TOTAL SPL	49 dBA
Ref. Dist. (m)	30	30	30	30	30	30	Target SPL	50 dBA
Src Height	3	3	2.5	2.5	2.5	2.5		
Src Elev	351	351	351	351	351	351		
Rec Height	1.5	1.5	1.5	1.5	1.5	1.5		
Rec Elev	352	352	352	352	352	352		
Dist: S to R	650	650	650	650	650	200		
Barr 1 Ht	6	6	6	6	6	6		
Base 1 Elev	352	352	352	352	352	352		
Dist: S to B1	600	600	600	600	600	175		
Barr 2 Ht	10	10	0	0	0	0		
Base 2 Elev	351	351	351	351	351	351		
Dist: S to B2	45	45	45	45	45	45		
G source	0	0	0	0	0	0		
G receiver	1	1	1	1	1	1		
G middle	1	1	1	1	1	1		
Penalty/Adjust.	0	0	0	0	0	0		
% Downwind	100	100	100	100	100	100		
Barrier Status	SingleB1	SingleB1	SingleB1	SingleB1	SingleB1	SingleB1		