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**Attention:** Alex Irwin

20 July 2016

**Atkins Acoustics and Associates Pty Ltd.**  
Consulting Acoustical & Vibration Engineers

**SITE ATTENDED NOISE AUDIT**  
**WALLERAWANG QUARRY**  
**WALLERAWANG**  
**JULY 2016**

*Atkins Acoustics* was engaged by R W Corkery & Co Pty Ltd on behalf of *Walker Quarries Pty Limited* to conduct an environmental noise audit of operations at the Wallerawang Quarry, Wallerawang.

The purpose of the audit was to assess noise emissions from current operations and assess compliance with Environment Protection Licence (EPL 13172) as follows:

**L4 Noise Limits**

*L4.1 Noise from the premises must not exceed:*

- (a) 43dB(A)  $L_{Aeq(15\text{ minute})}$  during the day (7am to 6pm) Monday to Friday and 7am to 1pm Saturday; and*
- (b) 43dB(A)  $L_{Aeq(15\text{ minute})}$  during the evening (6pm to 10pm) Monday to Friday; and*
- (c) at all other times 39dB(A)  $L_{Aeq(15\text{ minute})}$ , except as expressly provided by this licence.*

*Where  $L_{Aeq}$  means the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise occurring over a measurement period.*

*L4.2 Noise from the premises is to be measured at the nearest or most affected residence to determine compliance with this condition.*

*L4.3 The noise emission limits identified in this licence apply under all meteorological conditions except:*

- (a) during rain or wind speeds (at 10m height) greater than 3m/s; and*
- (b) under “non-significant weather conditions”.*

*Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.*

In addition to the Environment Protection Licence (EPL 13172) issued by the *Department of Environment, Climate Change and Water (now Environment Protection Authority)* the quarry development was approved by the *Department of Infrastructure, Planning and Natural Resources (now Department of Planning and Environment)* under DA 344-11-2001. Condition 2.1 of DA 344-11-2001 reflects the noise limits imposed by EPL 13172, however Condition 2.4 also required the preparation of a *Reactive Noise Management Plan (RNMP)*.

Walker Quarries Pty Ltd *RNMP* dated December 2014 identifies three (3) reference noise measurement locations (N1, N2, N3) for noise monitoring purposes in addition to a schedule of plant and equipment with specified sound pressure levels at 10m from plant and equipment.

This report presents the results and findings of site attended audit noise measurements conducted between 8.00am and 1.00pm on Monday 4 July 2016. Prevailing weather conditions during the audit measurements were clear, cold and calm. Temperatures ranged from -1°C to 12°C.

A review of site operations during the audit confirmed that extraction was not occurring within the main quarry pit. Operating plant and equipment observed during the audit included:

- Excavator (x1) working on the northern side of extraction ridge.
- Dump Truck (6 wheeled) working on the northern side of extraction ridge.
- Front-end loader (FEL) working in pug mill area.
- Truck Loading from the pug mill.
- Screen/Pug Mill.
- Drill Rig, and
- Generator

The attended offsite noise measurements were conducted in proximity of the *RNMP* three (3) reference locations (*Attachment 1*) identified as:

- Location N1* Gemalong
- Location N2* Site Access - 'Cockatoo Pines' gate
- Location N3* Cypress Place

Due to access restrictions to private properties, the noise monitoring locations were selected to represent as close as practicable to the *RNMP* assessment locations.

The instrumentation utilised for the measurements consisted of a Svantek SVAN957 Sound & Vibration Analyser (Serial No. 21485). Instrumentation was checked before and after measurements with a Bruel & Kjaer Calibrator Type 4230 and remained within specification limits.

The offsite audit measurements were conducted over ten to fifteen (10-15) minute periods with statistical and instantaneous maximum noise levels recorded where appropriate. A summary of the measurement results is presented in *Table 1*.

**Table 1: Audit Sound Pressure Level Measurement Results**  
*dBA re: 20 x 10<sup>-6</sup> Pa*

Measured Statistical Noise Levels dBA			Estimated Quarry Contribution  L <sub>Aeq, 15 min</sub>	Comments
L <sub>Aeq, 15 min</sub>	L <sub>A90, 15 min</sub>	L <sub>Amin, 15min</sub>		
Location N1: Gemalong				
48.6	44.7	43.2	<34	Quarry operations inaudible. Ambient noise controlled by highway road traffic.
Location N2: Site Access – ‘Cockatoo Pines’ gate				
59.1	48.3	48.1	<38	Quarry operations inaudible. Ambient noise controlled by highway road traffic.
Location N3: Cypress Place				
52.4	43.0	42.2	<33	Quarry operations generally inaudible. Quarry reversing alarm audible L <sub>Amax</sub> <30dBA; Ambient noise influenced by highway and Barton Avenue road traffic, dog and birds.

Observations during the audit confirmed that quarry operations were generally inaudible at the three (3) reference monitoring locations, accordingly the noise contributions from quarry operations were 10dB or more below the measured L<sub>A90</sub> levels and satisfied the 43dB(A) noise limit in accordance with EPL 13172.

Nearfield audit measurements of plant and equipment were conducted at a reference distance of ten (10) metres during normal operation in accordance with the *RNMP*. A summary of the operating plant and measured noise levels is presented in *Table 2*.

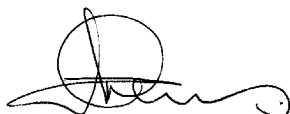
**Table 2: Plant and Equipment Noise Audits**  
*L<sub>Aeq, 90 sec</sub> re: 20 x 10<sup>-6</sup> Pa*

Item	Make & Model	SPL @10m dBA
Excavator 1	Komatsu PC300	79
Dump Truck	AD410	84
Loader	Komatsu WA501	78
Hydraulic Drill Rig	Ingersol Rand	87
Pug Mill/Screen	Scorpion Pugmill	77
Generator	Stamford	75 (radiator side) 68 (control side)

The attended noise audits confirmed that the EPL 13172 noise limit of  $L_{Aeq(15 \text{ minute})}$  43dB(A) was satisfied at the three (3) reference receptor locations. The results of the nearfield audit measurements summarised in *Table 2* satisfy levels reported in *Reactive Noise Management Plan (RNMP)* dated December 2014.

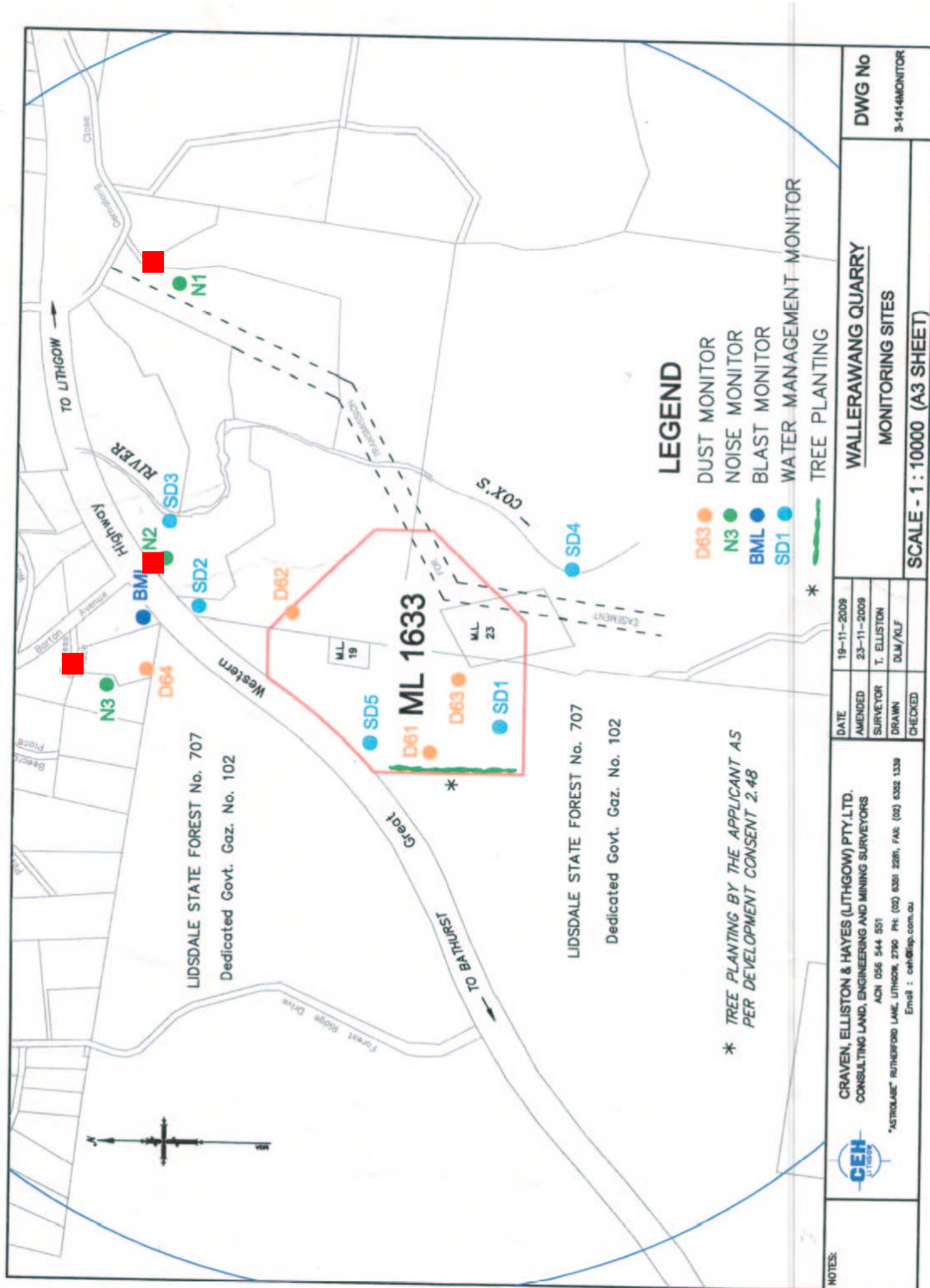
Yours sincerely,

**ATKINS ACOUSTICS & ASSOCIATES PTY LTD.**

A handwritten signature in black ink, appearing to read 'Graham Atkins', with a stylized flourish at the end.

Graham Atkins

# ATTACHMENT 1: NOISE MONITORING LOCATIONS



■ Noise Measurement Locations