

Our Ref: 22361_R01_March2022ENM_v1.docx

1 April 2022

Luke Robinson Daracon Systems Manager - Construction Materials

PO Box 401 Beresfield NSW 2322

Dear Luke

RE: Barrackville Quarry Compliance Noise Monitoring

Umwelt has completed attended compliance noise monitoring for Barrackville Quarry, Rye Park to satisfy the requirements of Environment Protection Licence (EPL) 21599.

This report presents the results of noise monitoring carried out on 7, 8 and 9 March 2022. The purpose of attended noise surveys is to quantify and describe the ambient noise environment in the region surrounding Barrackville Quarry and to estimate the Barrackville Quarry contribution to the ambient noise levels. Meteorological conditions present at the time of monitoring and the measured Barrackville Quarry noise levels are compared to criteria outlined in EPL21599.

1.0 Noise monitoring methodology

The compliance assessment methodology includes the following activities:

- Attended noise monitoring measurements, of fifteen-minute duration, at monitoring locations to measure the ambient noise levels in the surrounding region and to assess the Barrackville Quarry contribution (reported as an LAeq, 15 minute measurement) to the measured noise levels.
- Comparison of the Barrackville Quarry LAeq, 15 minute contribution with the relevant EPL LAeq, 15 minute noise criteria to assess compliance of Barrackville Quarry operations.

Attended noise monitoring for Barrackville Quarry was conducted in accordance with EPL21599, the NSW Environment Protection Authority (EPA) Noise Policy for Industry (NPfI, 2017), guidelines and the Australian Standard *AS1055:2018, Acoustics – Description and Measurement of Environmental Noise*.

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During the attended monitoring sessions, noise measurements were taken with a SVAN 958A Precision Integrating Sound Level Meter (Serial Number 59839) which was calibrated on-site using a Type SV-36, Svantek Sound Level Calibrators (Serial Number 90131). The noise meter was run using three measurement profiles, Z Weighting (linear), C Weighting and A Weighting and records A-weighted 1/3 octave noise levels at 10th of a second intervals over a 15-minute measurement period.

During the attended monitoring sessions, the operator maintained a log of noise-related events that occurred and contributed to the ambient noise environment. Particular attention and note was made for contributions associated Barrackville Quarry operations.

Attended noise monitoring data and results recorded include:

- the LAeq,15minute, LA10,15minute and LA90,15minute noise levels of the ambient acoustic environment for each 15-minute measurement period
- the recorded A-weighted 1/3 octave noise levels at 10th of a second intervals over each 15-minute measurement period
- the results of a 1000 Hz low pass filter at 10th of a second intervals over each 15-minute measurement period
- operator comments regarding any extraneous noise sources contributing to the ambient noise levels.

EPL21599 includes two compliance noise monitoring locations and specifies that noise monitoring be undertaken for 1.5 hours at each location over three consecutive days. To meet these requirements, six 15-minute measurements were undertaken at each location on three consecutive days.

2.0 Identification of suitable meteorological conditions

Umwelt aims to conduct compliance monitoring during meteorological conditions where criteria will apply. Publicly available weather forecasts, such as the Bureau of Meteorology's (BOM's) synoptic charts and MetEye forecasts are reviewed, and periods of low wind speeds and no rain are selected for monitoring. It is noted that inversion conditions can occur during periods of low wind speeds.

Based on the forecast meteorological conditions, monitoring was scheduled for 7, 8 and 9 March 2022.

Meteorological conditions during monitoring were determined from meteorological data obtained from the BOM Automatic Weather Station at Young Airport in accordance with EPL21599. Data was available in 10 minute intervals and the interval most overlapping the measurement period was used to determine if conditions were valid. Stability categories were conservatively assumed to be typical of day conditions, which would result in criteria applying.

The March 2022 attended noise monitoring results in **Table 1** and **Table 2** include:

- the ambient LAeq,15minute noise level during each measurement
- the ambient LA90,15minute noise level during each measurement
- the estimated LAeq,15minute noise contribution from Barrackville Quarry
- the noise criteria for each monitoring location



- whether the meteorological conditions occurring at the time of the measurement were valid in accordance with EPL21599
- whether Barrackville Quarry noise levels complied with the noise criteria at the time of monitoring
- notes relating to Barrackville Quarry noise sources noted during the monitoring period.

Further details on the operator comments regarding any extraneous noise sources contributing to the ambient noise levels during the measurements can be found in **Appendix A** and **Appendix B** as notated run charts.

The meteorological conditions present during each measurement interval are presented in Table 3.

Calibration certificates for the sound and vibration analyser and sound level calibrator used are provided in **Appendix C**.



Road, Rye Park in dB(A)

Start Date and Time	Ambient LAeq,15min	Ambient LA90,15min	Barrackville Quarry EPL criteria LAeq,15min	Barrackville Quarry LAeq,15min ¹	Met applicable Yes/No ²	Barrackville Quarry Compliant Yes/No	Comments relating to Barrackville Quarry (BQ) noise levels	
7/03/2022 15:11	69	44	40	<35	No	Yes	BQ was audible as impact and hammering noise at times during the measurement.	
7/03/2022 15:33	72	48	40	IA	No	Yes	BQ was inaudible.	
7/03/2022 15:55	66	46	40	IA	No	Yes	BQ was inaudible.	
7/03/2022 16:17	62	41	40	<35	No	Yes	BQ was audible as engine continuum at times during the measurement.	
7/03/2022 16:41	50	41	40	<35	No	Yes	BQ was audible as engine continuum at times during the measurement.	
7/03/2022 17:06	59	39	40	<35	No	Yes	BQ was audible as engine continuum at times during the measurement.	
8/03/2022 8:40	61	37	40	<35	No	Yes	BQ was audible as engine and plant continuum and impact noise at times during the measurement.	
8/03/2022 9:04	60	40	40	<35	No	Yes	BQ was audible as engine and plant continuum and impact noise at times during the measurement.	
8/03/2022 9:27	60	42	40	<35	No	Yes	BQ was audible as engine continuum and impact noise at times during the measurement.	
8/03/2022 9:49	59	44	40	<35	No	Yes	BQ was audible as engine continuum and impact noise at times during the measurement.	
8/03/2022 10:11	54	47	40	<40	No	Yes	BQ was audible as a general continuum at times during the measurement.	
8/03/2022 10:33	57	47	40	<40	No	Yes	BQ was audible as a general continuum and track noise at times during the measurement.	
9/03/2022 9:35	57	52	40	<40	No	Yes	BQ was audible as a general continuum at times during the measurement.	
9/03/2022 10:00	59	50	40	<40	No	Yes	BQ was audible as a general continuum at times during the measurement.	
9/03/2022 10:22	59	49	40	IA	Yes	Yes	BQ was inaudible.	



Start Date and Time	Ambient LAeq,15min	Ambient LA90,15min	Barrackville Quarry EPL criteria LAeq,15min	Barrackville Quarry LAeq,15min ¹	Met applicable Yes/No ²	Barrackville Quarry Compliant Yes/No	Comments relating to Barrackville Quarry (BQ) noise levels	
9/03/2022 10:43	57	49	40	IA	No	Yes	BQ was inaudible.	
9/03/2022 11:04	58	44	40	<40	Yes	Yes	BQ was audible as a general continuum at times during the measurement.	
9/03/2022 11:25	58	52	40	<40	Yes	Yes	BQ was audible as impact noise at times during the measurement.	

Notes:

1. Assessed by the operator during the monitoring session

2. Meteorological conditions under which the noise criteria apply are defined in EPL21599. See Table 3 for specific meteorological data during the monitoring period.



Start Date and Time	Ambient LAeq,15min	Ambient LA90,15min	Barrackville Quarry EPL criteria LAeq,15min	Barrackville Quarry LAeq,15min ¹	Met applicable Yes/No ²	Barrackville Quarry Compliant Yes/No	Comments relating to Barrackville Quarry (BQ) noise levels	
7/03/2022 12:37	54	48	40	<35	No	Yes	BQ was audible as loader engine noise briefly during the measurement.	
7/03/2022 13:16	55	48	40	<35	No	Yes	BQ was audible as loader engine noise briefly during the measurement.	
7/03/2022 13:38	55	48	40	<35	No	Yes	BQ was audible as loader engine noise briefly during the measurement.	
7/03/2022 13:59	52	48	40	IA	No	Yes	BQ was inaudible.	
7/03/2022 14:20	57	48	40	IA	No	Yes	BQ was inaudible.	
7/03/2022 14:41	55	47	40	IA	No	Yes	BQ was inaudible.	
8/03/2022 11:11	56	46	40	IA	No	Yes	BQ was inaudible.	
8/03/2022 11:32	57	44	40	<35	No	Yes	BQ was audible as low-level continuum briefly during the measurement.	
8/03/2022 11:54	47	42	40	IA	No	Yes	BQ was inaudible.	
8/03/2022 12:43	58	42	40	IA	No	Yes	BQ was inaudible.	
8/03/2022 13:05	51	41	40	IA	No	Yes	BQ was inaudible.	
8/03/2022 13:27	58	43	40	IA	No	Yes	BQ was inaudible.	
9/03/2022 11:54	55	49	40	IA	No	Yes	BQ was inaudible.	
9/03/2022 12:15	54	49	40	IA	Yes	Yes	BQ was inaudible.	
9/03/2022 12:38	56	48	40	IA	Yes	Yes	BQ was inaudible.	
9/03/2022 12:59	55	48	40	IA	No	Yes	BQ was inaudible.	
9/03/2022 13:28	52	47	40	IA	Yes	Yes	BQ was inaudible.	
9/03/2022 14:09	55	48	40	<30	Yes	Yes	BQ was audible as low-level continuum briefly during the measurement.	

Table 2 - Attended Noise Monitoring results for R231 – 4132 Dalton Road, Rye Park in dB(A)

Notes:

1. Assessed by the operator during the monitoring session

2. Meteorological conditions under which the noise criteria apply are defined in EPL21599. See **Table 3** for specific meteorological data during the monitoring period.



	Meteorological Asses			
Start Date and Time of 15 min period	Rain observations @ Mic ²	Avg. Wind Speed @ Mic.² (m/s)	Avg. Wind Speed @ 10m (m/s)	Valid meteorological conditions (Yes/No)
7/03/2022 12:37	Nil	<5	6.1	No
7/03/2022 13:16	Nil	<5	7.8	No
7/03/2022 13:38	Nil	<5	4.7	No
7/03/2022 13:59	Nil	<5	5.3	No
7/03/2022 14:20	Nil	<5	6.1	No
7/03/2022 14:41	Nil	<5	6.1	No
7/03/2022 15:11	Nil	<5	6.7	No
7/03/2022 15:33	Some spots	<5	5.6	No
7/03/2022 15:55	Nil	<5	6.7	No
7/03/2022 16:17	Nil	<5	6.7	No
7/03/2022 16:41	Some spots	<5	6.7	No
7/03/2022 17:06	Light shower	<5	5.6	No
8/03/2022 8:40	Some spots	<5	5.3	No
8/03/2022 9:04	Nil	<5	5.6	No
8/03/2022 9:27	Nil	<5	5.6	No
8/03/2022 9:49	Nil	<5	5.6	No
8/03/2022 10:11	Nil	<5	7.2	No
8/03/2022 10:33	Nil	<5	6.7	No
8/03/2022 11:11	Some spots	<5	7.2	No
8/03/2022 11:32	Some spots	<5	8.3	No
8/03/2022 11:54	Some spots	<5	8.3	No
8/03/2022 12:43	Some spots	<5	6.7	No
8/03/2022 13:05	Some spots	<5	8.9	No
8/03/2022 13:27	Light shower	<5	8.3	No
9/03/2022 9:35	Nil	<5	5.3	No
9/03/2022 10:00	Nil	<5	3.6	No
9/03/2022 10:22	Nil	<5	2.5	Yes
9/03/2022 10:43	Nil	<5	3.6	No
9/03/2022 11:04	Nil	<5	2.5	Yes
9/03/2022 11:25	Nil	<5	2.5	Yes
9/03/2022 11:54	Nil	<5	3.1	No
9/03/2022 12:15	Nil	<5	1.7	Yes
9/03/2022 12:38	Nil	<5	1.9	Yes
9/03/2022 12:59	Nil	<5	3.1	No
9/03/2022 13:28	Nil	<5	1.1	Yes
9/03/2022 14:09	Nil	<5	1.9	Yes

Table 3 - Meteorological Conditions During Attended Monitoring

Notes:

 Meteorological conditions were sourced from BOM's Young Airport
Rain affecting the validity of measurement was determined by the operator and wind speed at microphone height was measured using a Kestrel anemometer

3. EPL21599 outlines applicable meteorological conditions.



The results of the March 2022 noise monitoring program have been assessed against the EPL21599 noise criteria and the meteorological conditions identified in the license for Barrackville Quarry.

The March 2022 attended noise monitoring results show that Barrackville Quarry was compliant with the EPL21599 noise criteria for LAeq,15minute noise levels for both monitoring locations.

We trust this information meets with your current requirements. Please do not hesitate to contact the undersigned on 0438 007 971 should you require clarification or further information.

Yours sincerely

Tim Procter Practice Lead – Acoustic Environment

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R229 – 4483 Dalton Road

































































































Measured SPL - 1000Hz Filter + Observations ---- Recorded LA1,1min ---- Recorded LA10 ------ Recorded LAeq ---- Recorded LA90 100 95 + Passing car(s) + Passing car(s) + Wind in foliage + Passing car(s) + Insects continuous 90 + Wind in foliage Wind in foliage Wind in foliage + Wind in foliage Wind in foliage Wind in foliage Wind in foliage + Wind in foliage + Wind in foliage Wind in foliage + Wind in foliage Wind in foliage Wind in foliage + Wind in foliage Wind in foliage 85 + Dog(s) 80 + Birds + 75.9 75 70 Measured SPL, dB(A) 65 60 54.8 55 50 48.7 45 40 35 30 25 11:56 11:59 12:00 12:01 12:02 12:03 12:04 12:05 12:07 12:09 11:54 11:55 11:57 11:58 12:06 12:08 Time 09 March 2022 - R231 4132 Dalton Rd

















CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: SLM 27353 & FILT 5902

Equipment Description: Sound & Vibration Analyser

Manufacturer:	Svantek					
Model No:	SVAN-958A	Serial No:	59839			
Microphone Type:	7052E	71106				
Preamplifier Type:	SV12L	Serial No:	73586			
Filter Type:	1/3 Octave	Serial No:	59839			
Comments:	All tests passed for class 1. (See over for details)					
Owner:	Umwelt (Australia) Pty Ltd 75 York Street Teralba, NSW 2284					
Ambient Pressure:	1007 hPa ±1.	5 hPa				
Temperature:	23 °C ±2° C	Relative H	umidity: 39% ±5%			
Date of Calibration:	17/07/2020	Issue Dat	te: 20/07/2020			
Acu-Vib Test Procedur	e: AVP10 (SLN	/) & AVP06 (Filters)			
CHECKED BY:	AUTHORISED	SIGNATURE:	Hein Soe			

Accredited for compliance with ISO/IEC 17025 - Calibration The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C29893

EQUIPMENT TESTED: Sound Level Calibrator

Manufacturer: Svantek Type No: SV-36

Serial No: 90131 **Owner:** Umwelt (Australia) Pty Ltd 75 York Street Teralba, NSW 2284

Tests Performed: Measured Output Pressure level, Frequency & Distortion Comments: See Details overleaf, All Test Passed.

Parameter	Pre- Adj	Adj Y/N	Output: (dB re 20 µPa)	Frequency (Hz)	THD&N (%)		
Level1: NA		N	93.98 dB	1000.00 Hz	0.79 %		
Level2:	NA	N	113.96 dB	1000.00 Hz	0.50 %		
Uncertainty			±0.11 dB	±0.05%	±0.20 %		
Lincertainty (at 95% all) k=2							

Uncertainty (at 95% c.l.) k=2

CONDITION OF TEST: Ambient Pressure 1015 Temperature **Relative Humidity**

Date of Receipt: 29/06/2021 Date of Calibration: 01/07/2021 Date of Issue: 01/07/2021

Acu-Vib Test AVP02 (Calibrators) Procedure:

CHECKED BY:

Test Method: AS IEC 60942 - 2017 AUTHORISED

hPa ±1 hPa

°C ±1° C

% ±5%

24

48



Hein Soe

Accredited for compliance with ISO/IEC 17025 - Calibration Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

SIGNATURE:

This report applies only to the item identified in the report and may not be reproduced in part.

The uncertainties quoted are calculated in accordance with the methods of the ISO Guide to the Uncertainty of Measurement and quoted at a coverage factor of 2 with a confidence interval of approximately 95%.



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Measurements

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