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# **QUARTERLY NOISE MONITORING ASSESSMENT – QUARTER 4 2022 DUNLOE SANDS QUARRY, POTTSVILLE, NSW**

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QUARTER 4 2022  
DUNLOE SANDS QUARRY, POTTSVILLE, NSW**

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## ABBREVIATIONS AND DEFINITIONS

<b>Ambient Noise</b>	The all-encompassing noise within a given environment. It is the composite of sounds from many sources, both near and far.
<b>Background noise</b>	The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is described using the LA90 descriptor (see below).
<b>dB</b>	Abbreviation for decibel, a measure of sound equivalent to 20 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure, and 10 times the logarithm of a given sound power to a reference power.
<b>dB(A)</b>	A measure of A-weighted sound levels. A Weighting is an adjustment made to the sound level measurement to approximate the response of the human ear.
<b>Extraneous noise</b>	Noise resulting from activities that are not typical of the area. Atypical activities may include construction, and traffic generated by holiday periods. Normal daily traffic is not extraneous noise.
<b>LA1</b>	The noise level, measured in dB(A), which is exceeded for 1 per cent of the measurement period.
<b>LA1(1min)</b>	The noise level, measured in dB(A), which is exceeded for 1 per cent of the time over a 1-minute measurement period, i.e., is exceeded for 0.6 seconds. This measure can approximate to the maximum noise level but may be less if there is more than 1 noise event during this 0.6 second period.
<b>LA10</b>	The noise level, measured in dB(A), which is exceeded for 10 per cent of the time.
<b>LA90</b>	The noise level, measured in dB(A), which is exceeded for 90 per cent of the time, referred to as the background noise level. This is considered to represent the background noise (see above).
<b>LAeq</b>	The level of noise equivalent to the energy average of noise levels occurring over a defined measurement period.
<b>LAeq (period)</b>	The average equivalent noise level, measured in dB(A), during a measurement period (e.g., 15-minute, day, evening, or night).
<b>LAm<sub>ax</sub></b>	The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured.
<b>NMA</b>	Noise Monitoring Assessment
<b>NMP</b>	Noise Management Plan

Source: Noise Guide for Local Government (NSW EPA, 2013)

# 1. OVERVIEW

## 1.1 Project Driver

Ramboll Australia Pty Ltd (Ramboll) has been commissioned by Holcim (Australia) Pty Ltd (Holcim) to complete a Noise Monitoring Assessment (NMA) for Dunloe Sands Quarry (“the quarry”) at Pottsville, NSW.

This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPI) (NSW EPA, 2017).
- Dunloe Sand Quarry Noise Management Plan (NMP) (GHD, 2020).
- Environment Protection Licence (EPL) number 13077 (NSW EPA, 2020).
- Notice of Modification (Draft) (NSW EPA, 2018).
- Australian Standard AS 1055:2018 Acoustics—Description and measurement of environmental noise (Standards Australia, 2018).
- IEC 60942 Ed. 3.0 b:2003 Electroacoustics - Sound calibrators (Standards Australia, 2003).

This NMA has been undertaken for the quarterly period October to December 2022, and forms part of the monitoring program to determine compliance with conditions of the Environmental Protection License (EPL).

## 1.2 Site Location and Sensitive Receptors

The quarry is approximately 2.5 km south of Pottsville, NSW, a town in the Northern Rivers region in Tweed Shire. Sensitive receptors surrounding the quarry are primarily rural and residential properties in coastal bushland with elevated and undulating topography.

Three monitoring locations have been selected as part of the NMA and in accordance with the EPL and are shown in **Table 1-1**.

**Table 1-1: Monitoring locations locality and sensitive receptors**

Monitoring Locations	Locality and Sensitive Receptors
R6	West of the quarry situated at a rural residential property at 157 Warwick Park Road.
R7	West of the quarry situated at a rural residential property at 129 Warwick Park Road.
R8	Northwest of the quarry situated at a rural residential property at 679 Pottsville Road.

The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1**.



**Legend**

- Noise monitoring location



**Figure 1: Noise monitoring locations at Dunloe Sands Quarry**

## 2. NOISE CRITERIA

**Table 2-1** brings the applicable noise criteria outlined in the NMP for residential receivers (R6, R7 and R8) surrounding the quarry. The noise criteria are applicable when the site is operational within the permitted operating hours Monday to Friday 7am-5pm, Saturday 7am-12pm with no operations on Sunday.

Compliance with the noise criteria below would also result in compliance with the noise limits outlined in the sites EPL (EPL 13077) which requires the quarry’s noise contribution to not exceed 48 dB LAeq(15min) at any of the residential receivers.

**Table 2-1: Monitoring locations and noise criteria**

Receiver	Monitoring Locations	Day <sup>1</sup>
		LAeq (15min)
		dB(A)
157 Warwick Park Road	R6	42
129 Warwick Park Road	R7	48
679 Pottsville Road	R8	41
<sup>1</sup> 7 am–6 pm Monday to Saturday Note: no operations on Sundays and public holidays		

### 3. METHODOLOGY

The monitoring program was created in accordance with the procedures described in Australian Standard AS 1055:2018 and the Approval Documents referenced in Section 1. The measurements were carried out using a RION Sound Level Meter NL-52 on Thursday 15 December 2022. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672-1:2013/2002 class 1. Calibration of all instrumentation was checked prior to and following measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2003. Drift in calibration did not exceed  $\pm 0.3$  dBA.

Attended noise monitoring was conducted for 15-minutes at each location during the day period over one day. Where possible, throughout each measurement the operator(s) quantified the contribution of each significant noise source.

Where the quarry was not distinctly audible during the attended monitoring, the quarry contribution is estimated to be at least 10 dBA below the ambient noise level, as determined by the LA90, or estimated to be less than criteria value.



## 4. RESULTS AND DISCUSSION

### 4.1 Location R6

Noise monitoring at location R6 conducted on Thursday 15 December 2022 resulted in inaudible quarry noise during the day. These results meet the established noise criteria and indicate that noise emissions from Dunloe Sands Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring event at Location R6 are presented in Table 4-1.

Noise sources measured included birds. No vehicle traffic occurred on Warwick Park Road during the measurement period.

**Table 4-1: Noise survey results and observations for Location R6**

Date	Time	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Dunloe Quarry LAeq(15min) Contribution (dBA)	LAeq(15min) Criteria (dBA)
		LAmx	LAeq	LA90				
15-12-22	7:28 (Day)	69.6	45.9	38	WD: n/a WS: 0 Rain: Nil	Birds 40 Quarry inaudible	<42	42

### 4.2 Location R7

Noise monitoring at location R7 conducted on Thursday 15 December 2022 resulted in inaudible quarry noise during the day. These results meet the established noise criteria and indicate that noise emissions from Dunloe Sands Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location R7 are presented in Table 4-2.

Noise sources measured included birds and a passing car on Warwick Park Road.

**Table 4-2: Noise survey results and observations for Location R7**

Date	Time	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Dunloe Quarry LAeq(15min) Contribution (dBA)	LAeq(15min) Criteria (dBA)
		LAmx	LAeq	LA90				
15-12-22	7:45 (Day)	78.9	57.3	42	WD: n/a WS: 0 Rain: Nil	Car passing 57-67 Birds 50 Quarry inaudible	<48	48

### 4.3 Location R8

Noise monitoring at location R8 conducted on Thursday 15 December 2022 resulted in inaudible quarry noise during the day. These results meet the established noise criteria and indicate that noise emissions from Dunloe Sands Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location R8 are presented in Table 4-3.

Noise sources measured included birds, highway traffic and a passing car on Pottsville Road.

**Table 4-3: Noise survey results and observations for Location R8**

Date	Time	Descriptor (dBA)			Meteorology	Apparent Noise Source, Description and LAeq (dBA)	Dunloe Quarry LAeq(15min) Contribution (dBA)	LAeq(15min) Criteria (dBA)
		LAmx	LAeq	LA90				
15-12-22	8:09 (Day)	77.6	59.6	50	WD: n/a WS: 0 Rain: Nil	Birds Highway traffic 48 Car passing 70-78 Quarry inaudible	<41	41

## 5. CONCLUSION

Monitoring was carried out on Thursday 15 December 2022 at three locations selected as representative to the sensitive receptors at the surroundings to Dunloe Sands Quarry. No audible quarry noise was recorded at any of the selected monitoring locations.

This NMA completed by Ramboll at the Holcim Dunloe Sands Quarry, Pottsville, NSW as a quarterly requirement of the NMP showed compliance to the relevant noise criteria.

## 6. REFERENCES

GHD (2020) *Dunloe Sand Quarry Noise Management Plan*.

NSW EPA (2018) Notice of Modification (Draft)

NSW EPA (2020) Environment Protection Licence number 13077

NSW EPA (2013) *Noise Guide for Local Government*. Sydney NSW: NSW Environment Protection Authority. Available at: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/noise/20130127nlg.pdf> (Accessed: 25 October 2022).

NSW EPA (2017) *Noise Policy for Industry (NPfI)*. Sydney NSW: NSW Environment Protection Authority. Available at: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/noise/17p0524-noise-policy-for-industry.pdf> (Accessed: 25 October 2022).

Standards Australia (2018) *AS 1055:2018 Acoustics—Description and measurement of environmental noise*. Australian Standard. Available at: [https://infostore.saiglobal.com/preview/825367946534.pdf?sku=1131503\\_SAIG\\_AS\\_AS\\_2626154](https://infostore.saiglobal.com/preview/825367946534.pdf?sku=1131503_SAIG_AS_AS_2626154) (Accessed: 19 January 2023).

Standards Australia (2003) *AS 60942:2003 Electroacoustics - Sound calibrators*. Australian Standard.