Cooma Road Quarry

2025 Annual Review

Site Details

Organisation	Holcim (Australia) Pty Ltd
Project	Cooma Road Quarry
Developmental consent / project approval #	SSD-5109-MOD-2
Document Title	Annual Review 2025
Document Revision	A
Author	IEMA
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Annual review start date	1 January 2025
Annual review end date	31 December 2025

I, **Kurt Bridges**, certify that this audit report is a true and accurate record of the compliance status of the **COOMA ROAD QUARRY** for the period of **1 JANUARY 2025 – 31 DECEMBER 2025** and that I am authorised to make this statement on behalf of **HOLCIM (AUSTRALIA) PTY LTD**.

Note

a) *The Annual Review is an 'environmental audit' for the purposes of section 9.42 of the Environmental Planning and Assessment Act 1979 (NSW). Section 9.42(1) provides that a person must not include false or misleading information in, or provide information for inclusion in, an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. A contravention of this provision constitutes a Tier 3 offence under the Act (a maximum penalty: in the case of a corporation is $1 million; and for an individual is $250,000).*

b) *The Crimes Act 1900 (NSW) contains other offences relating to false and misleading information: Section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); and Sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or 200 penalty units, or both).*

Name of authorised reporting officer	Gordon Rippon
Title of authorised reporting officer	Quarry Manager
Signature of authorised reporting officer	
Document Date	27/03/26

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1 Statement of Compliance

The Statement of Compliance for the Cooma Road Quarry for the 2025 reporting period is provided in **Table 1**. The Compliance Status Key, outlined in **Table 2**, explains the risk levels and definitions used to classify non-compliances.

Table 1: Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
SSD 5109	Yes
EPL 1453	Yes

Table 2: Compliance Status Key

Risk level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: • Potential for serious environmental consequences, but is unlikely to occur; or • Potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: • Potential for moderate environmental consequences, but is unlikely to occur; or • Potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-complaint	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions).

2 Introduction

Holcim (Australia) Pty Ltd (Holcim) operates the Cooma Road Quarry, a hard rock quarry located on Old Cooma Road in the Queanbeyan Local Government Area. The site operates under Development Consent (SSD 5109) approved by the New South Wales (NSW) Department of Planning, Housing & Infrastructure on 27 September 2013.

The site also operates in accordance with the Environmental Protection Licence (EPL) No. 1453 issued by the NSW Environment Protection Authority (EPA). Cooma Road Quarry has been operating since 1959 and is a significant supplier of granite and dacite hard rock aggregates. The regional locality of the site and site layout is shown in **Figure 1** below.

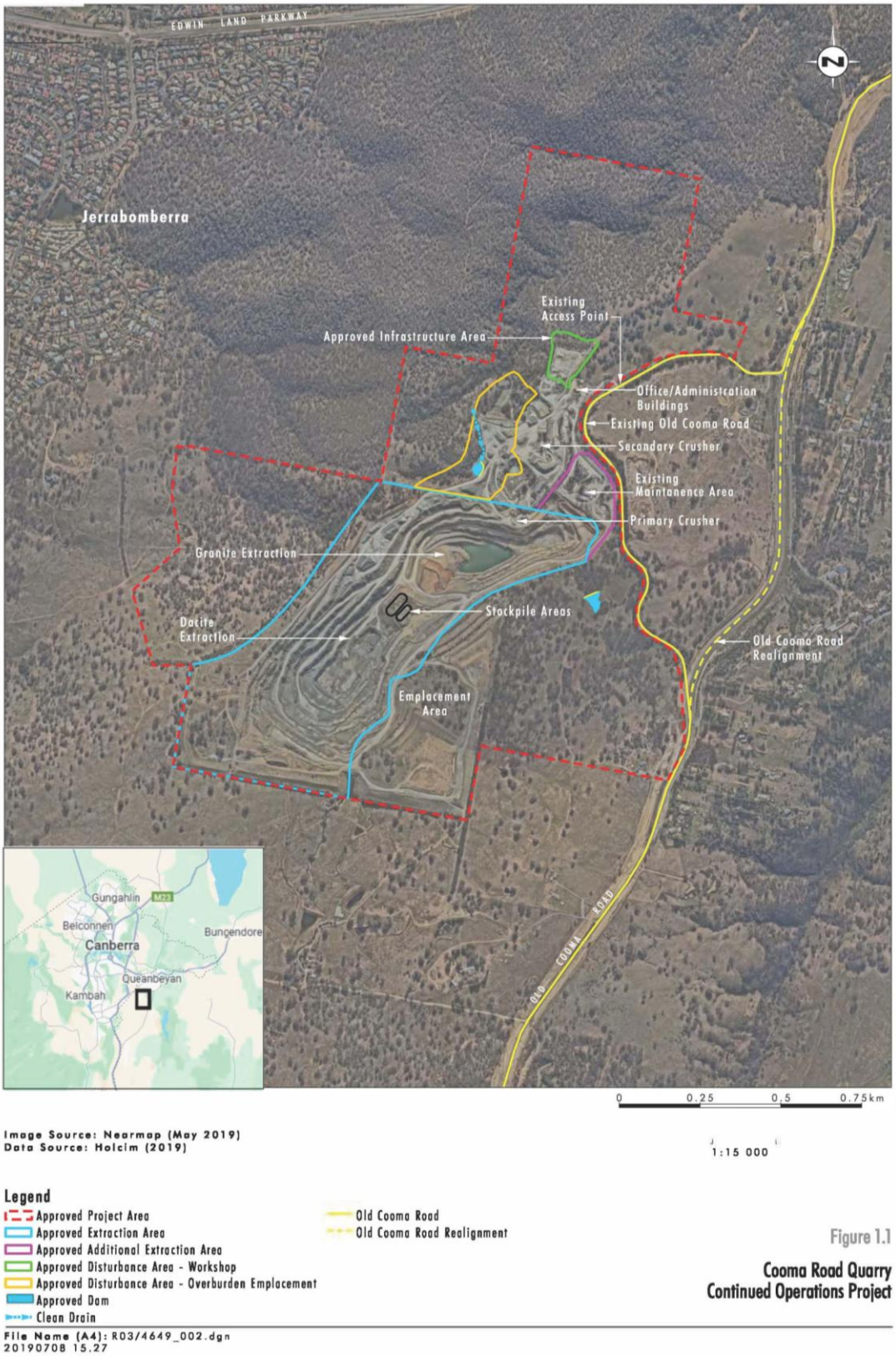

Figure 1: Locality and Site Layout Map (EMM, 2025)

In accordance with Schedule 5 Condition 9 of the modified Development Consent the site is required to prepare an Annual Review of the site in accordance with the conditions provided in **Table 3**.

Table 3: Annual Review Requirements

Condition	Section addressed in Annual Review
By the end of March each year, or other timing as may be agreed by the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must:	
a) describe the development (including rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;	**Section 8**
b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against: ● the relevant statutory requirements, limits, or performance measures/criteria; ● requirements of any plan or program required under this consent; ● the monitoring results of previous years; and ● the relevant predictions in the documents listed in condition 2(a) of Schedule	**Section 6 and 7**
c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;	**Section 1 and 13**
d) identify any trends in the monitoring data over the life of the development;	**Section 6**
e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	**Section 6**
f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the development.	**Section 14**

This Annual Review has also been prepared in accordance with the *Annual Review Guideline: Post-approval requirements for State significance mining developments (October 2015)*. This report documents the environmental performance of the quarry from 1 January to 31 December 2025.

2.1 Name and Contact Details

The key contact details for the site are outlined below:

Quarry Manager
Gordon Rippon
Mobile: +61 497 757 225
Email: Gordon.Rippon@holcim.com

Environment Manager – NSW
Dozie Egeonu
Mobile: +61 429 557 493
Email: Dozie.Egeonu@holcim.com

3 Approvals

The site operates under the following approvals listed in **Table 4**. The original Development Consent SSD 5109 was modified in 2016 (MOD 1) to approve the importation of VENM to the site. In 2019, the Development Consent was modified (MOD 2) to allow for the importation and application to land of excavated natural material (ENM) for the purposes of back filing and rehabilitation.

Table 4: Approvals for the Cooma Road Quarry Operations

Approval	Regulatory Authority
Development Consent SSD 5109	Department of Planning, Housing, and Infrastructure
EPL No. 1453	Environment Protection Authority
Water Approval No. 40WA413082	NSW Department of Industry - Water

Holcim holds EPL 1453 which covers its activities at the Cooma Road Quarry. **Table 5** outlines these licensing limits. The EPL was varied by the EPA on 17 April 2018 enabling the site to receive Virgin Excavated Natural Material (VENM) to match Development Consent Modification approved in 2016. The second Modification of Development Consent SSD 5109 was approved on the 30 April 2019 by Department of Planning, Housing and Infrastructure (DPHI).

Table 5: EPL Fee-Based Activity at the Cooma Road Quarry

Fee Based Activity	Scale (tonnes/T)
Crushing, grinding, or separating	>500,000 – 2,000,000 processed
Land-based extractive activity	> 500,000 – 2,000,000 extracted, processed, or stored

4 Operations Summary

4.1 Exploration

Exploration drilling was carried out in the Southern Extension area of the Cooma Road Quarry in the 2025 reporting period.

4.2 Land Preparation

No land preparation or stripping was conducted in the 2025 reporting period.

4.3 Construction Activities

No construction occurred in the 2025 reporting period.

4.4 Quarry Operations

Development activities undertaken at the Cooma Road Quarry in 2025 included:

- Drill, Blast, Load and Haul Activities;
- Crushing, screening, and stockpiling of product;
- Overburden removal and replacement in the southwest overburden dump;
- Maintenance of rehabilitation undertaken on the overburden dump in the south-western disturbance area; and
- Recycling of clean concrete on site for re-use as product.

All activities took place in accordance with the approved operating hours being 6am to 6pm, Monday to Saturday.

Operating hours relating to the Cooma Road Quarry are outlined in **Table 6**.

Table 6: Cooma Road Operating Hours

Activity	Operating Hours		
	Monday - Friday	Saturday	Sunday and Public Holidays
Primary Crushing, Laden Truck Movements	6 am – 6 pm	6 am – 6 pm	None
Construction Operations	7 am – 6 pm	8 am – 1 pm	
Unladen Truck Movements	6 am – 8 pm	6 am – 8 pm	
Other Operations	6 am – 10 pm	6 am – 10 pm	

Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residences.

Table 7 includes a summary of the operations undertaken during the reporting period against the Development Consent conditions regarding product transported from the Cooma Road Quarry, with the site well below the consent criteria.

Table 7: Total Product Distributed (Tonnes)

Material	Approval Limit	2021	2022	2023	2024	2025	2026 Forecast
Product Distributed - Total	1,500,000	1,066,320	899,442	1,042,190	683,263	717,226	900,000

Schedule 2, Condition 7 of SSD 5109 states that Holcim must not carry out quarrying operations below 635 metres (m) Australian Height Datum (AHD). The deepest recorded point of operations in 2025 was 660 m AHD which is within the approved extraction depth.

Schedule 2, Condition 17 of SSD 5109 states that Holcim must provide production data to DPHI and include this data in the annual review. Note that Holcim submit this data on a financial year (July-June), therefore production data will not align completely with this report. **Table 8** details the extractive data for the 2024-2025 period.

Table 8: Extractive production data 2024-2025 reporting period

Product	Mining Type	Tonnes[1]
Fill & Crusher Fines (under 5mm)	Construction sand	92,685
Manufactured Sand		23,457
Over 30mm-70mm (Railway Ballast)	Virgin materials - Crushed coarse aggregates	11,370
Over 5mm-30mm Concrete Aggregates		215,914
Over 75mm (Rock broken)		3,142
Prepared Road Base & Sub-base & Drainage Filter		401,435
	Total	748,003

[1]*Production data has been rounded.*

4.5 Next Reporting Period

Development activities proposed to be carried out at Cooma Road Quarry in 2026, include:

- Ongoing extraction of the resource within the approved quarry pit area;
- Allowance to receive quarry materials from other sites for crushing and screening (as required) and then sale. Total product (including from both materials quarried from the site and from materials imported to the site) will be maintained within the total production limit; and
- Recycling of clean concrete on site for re-use as product.

5 Actions Required from Previous Annual Review

5.1 DPHI Actions from Previous Annual Review

Holcim submitted the 2024 Annual Review to the Major Projects Portal by 31st March 2025. Upon review of the Annual report DPHI stated:

"NSW Planning has reviewed the Annual Review and considers it to generally satisfy the reporting requirements of the approval and the NSW Planning Annual Review Guideline (October 2015).'

However, DPHI did request some further information to be included in future Annual Reviews, see **Table 9** below.

Table 9: DPHI Required Actions from 2024 Annual Review for Future Annual Reviews

Proposed Action	Section Addressed in Annual Review / Comment
Provide update on investigation into Barracks Creek surface water results.	**Section 7.3**

5.2 Update on Proposed Actions from the Previous Annual Review

Table 10 outlines the actions proposed in the previous Annual Review (2024) for completion or commencement in 2025.

Table 10: Holcim Proposed Actions from 2024 Annual Review for the 2025 Reporting Period

Improvement Measure	Activities	Update for this Annual Review
Surface Water Monitoring	Investigation into increasing trends in surface water monitoring.	The Barracks Creek Surface Water Investigation was completed.
Updating the Water Management Plan	Review and updating of the current Water Management Plan.	Updated Water Management Plan currently with DPHI for approval.
Protection of heritage site	Weed management and fence mending as per recommendations from the 2024 Heritage monitoring report.	Weed management and fence maintenance completed as per recommendations.

6 Environmental Performance

6.1 Meteorological Monitoring

This report uses 2025 rainfall data collected from the onsite Meteorological Station. The site uses meteorological results to inform daily operational activities, and to control potential impacts around noise and air quality. Results from this meteorological monitoring station for the report period are summarised in **Table 11**.

Table 11: 2025 Rainfall Observations

Monthly Rainfall (millimetres (mm))												Total 2025
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
103.3	60.4	62.0	66.3	19.9	0.0	2.5	0.3	0.0	0.0	0.0	0.0	314.6

During the 2025 reporting period, the onsite weather station recorded 314.6 mm of rain, which is lower than the 2024 reporting period where 513.2 mm was recorded.

6.2 Noise

6.2.1 EIS Predictions

The 2012 Environmental Impact Statement (EIS) stated that:

'Modelling results indicate that under worst case operational and meteorological conditions, with the implementation of the noise management measures outlined above, the Project is predicted to result in an exceedance of the PSNLs at one privately owned residence located to the south-east of the Project area (N67) of up to 4dB during the daytime period. If the secondary crushing plant were to be operated during the evening under worst case meteorological conditions, this same residence could be expected to experience exceedances of up to 3dB during the evening period. Holcim is however committed not to operate the secondary crushing plant under such conditions, namely gradient winds from the north-east, thereby avoiding this potential impact.

6.2.2 Approved Criteria

The site has undertaken quarterly noise monitoring throughout 2025 in accordance with the Noise Management Plan. The Approved noise criteria from the Development Consent (Schedule 3 Condition 4) are provided in **Table 12**.

Table 12: Cooma Road Quarry Noise Criteria (SSD 5109)

Receiver	Morning Shoulder 6 – 7 am	Day 7 am – 6 pm	Evening 6 – 10 pm
	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)
N1, N7, N8, N56, N59, N63, N64, N65	40	44	39
N67	36	41	35
All other receivers between N9 and N71 inclusive	36	38	35
All other receivers	35	35	35

Notes:

- *To locate the receivers referred in Table 1 refer to Appendix 5 of the Development Consent.*
- *After the first review on any EPL granted for this development under Section 78 of the POEO Act, nothing in this approval prevents the EPA from imposing stricter noise limits on the quarrying operations on site under the EPL.*

Appendix 9 of the Development Consent sets out the metrological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria. However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner/s to generate higher noise levels, and the Applicant has advised the Department in writing of these terms of this agreement.

6.2.3 Key Environmental Performance

Quarterly attended noise monitoring was undertaken at the Cooma Road Quarry on the following dates:

- 8 to 9 January 2025.
- 6 to 7 May 2025;
- 6 to 8 August 2025; and
- 1 to 2 October 2025.

The compliance assessments for each monitoring location (N3, N8, N38, N60 and N67) are presented in **Table 13**.

Cooma Road Quarry was not operational in the evening period of the duration of 2025 and therefore did not exceed the minimum noise criterion of 35dBA. Non-quarry contributors to the noise survey results included traffic, aircraft, pedestrians, and birds.

Table 13: Cooma Road Quarry Noise Results 2025

Assessment Period	Receiver No.	Quarrying Noise Criteria	Q1		Q2		Q3		Q4	
		$LAeq_{(15min)}$	Quarry Noise Contribution	Compliance	Quarry Noise Contribution	Compliance	Quarry Noise Contribution	Compliance	Quarry Noise Contribution	Compliance
Morning Shoulder	N3	36	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N8	57	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N38	57	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N60	60	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N67	64	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
Daytime	N3	38	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N8	63	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N38	56	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N60	64	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N67	65	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
Evening[1]	N3	47	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N8	58	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N38	50	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N60	61	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant
	N67	70	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant	Inaudible	Compliant

Notes: Monday to Saturday; Day 6am to 6pm; Evening 6pm to 10pm. Saturday, On Sundays and Public Holidays, Closed.

[1] Quarry was not operating during the evening period throughout 2025.

Cooma Road Quarry was inaudible at all locations during all quarterly monitoring periods of 2025. The ambient noise environment at each monitoring location was typically dominated by extraneous noise sources including included traffic, aircraft, rustling trees, nearby residences, and wildlife. See **Appendix A** for the 2025 Noise Monitoring Reports.

Long-term Trends

Noise monitoring results were consistent with previous years and continued to meet the Development Consent criteria. The site continues to effectively manage noise.

6.2.4 Management Measures

Management measures relating to noise are outlined within the Cooma Road Quarry Noise Management Plan, these include:

- Defined operating hours;
- Work restrictions during the early morning shoulder period;
- Monitoring for noise and meteorological conditions;
- Broadband reversing beepers;
- Training of staff and contractors; and
- Controlled blasting activities.

6.2.5 Proposed Improvements

There are no proposed improvements to noise management.

6.3 Air Quality

6.3.1 EIS Predictions

A comprehensive Air Quality assessment was undertaken for the Project by Sinclair Knight Merz (SKM) for the 2012 EIS. The results of the predictive air quality modelling have identified that the Project will comply with the relevant air quality criteria at all nearby sensitive receiver locations under worst case operating conditions.

6.3.2 Approved Criteria

Depositional dust, Total Suspended Particulates (TSP), and particulate matter monitoring conducted at Cooma Road Quarry is compared with the monitoring criteria stipulated in Schedule 3, Condition 14 of SSD 5109 in **Table 14**. The site installed a High-Volume Sampling Unit (HVAS) in late 2016 to monitor PM_{10} in accordance with the criteria stipulated in Schedule 3, Condition 14 of SSD 5109. HVAS air quality monitoring at the site has been undertaken throughout 2025.

Table 14: Deposited Dust, TSP and PM_{10} Criteria

Long-term impact assessment criteria for Deposited Dust			
Pollutant	**Averaging Period**	**Maximum increase in deposited dust level**	**Maximum total deposited dust level**
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month
Long-term impact assessment criteria for Particulate Matter (from Development Consent)			
Pollutant		**Averaging Period**	**[d] Criterion**
TSP		Annual	[a] 90 µm/m^3
Particulate matter < 10 µm (PM10)		Annual	[a] 30 µm/m^3
Short-term impact assessment criteria for Particulate Matter (from Development Consent)			
Pollutant		**Averaging Period**	**[d] Criterion**
Particulate matter < 10 µm (PM_{10})		24 hour	[b] 50 µm/m^3

Notes:

[a] Total impact (i.e., incremental increase in concentrations due to the development plus background concentrations due to all other sources)

[b] Incremental impact (i.e., incremental increase in concentration due to the development on its own)

[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia AS/NZS 3850:10.1.2003 – Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method

[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Secretary in consultation with EPA.

The main potential source of air emission contributions at the quarry is in the form of airborne dust, which can arise from activities such as quarrying, vehicle movements and crushing. To minimise dust emissions associated with vehicle movements, Holcim continued to dampen haul roads and utilise the quarry's wheel wash facility.

6.3.3 Key Environmental Performance

Depositional Dust Monitoring

Depositional dust monitoring was undertaken at five depositional dust gauges at Cooma Road Quarry in 2025. Results for this monitoring are provided in **Table 15**.

Table 15: 2025 Dust Monitoring (Depositional Dust)

Sample Date	Insoluble Solids (g/m^2/month)				
	DDG1	DDG2	DDG3	DDG4	DDG5
07/01/2025	2.1	3.8	1.0	0.5	0.9
03/02/2025	2.3	1.1	0.5	0.7	0.9
04/03/2025	1.2	1.1	1.5	1.0	0.9
03/04/2025	2.4	1.4	1.3	2.1	0.9
05/05/2025	0.8	0.2	0.4	0.4	0.5
03/06/2025	0.8	0.5	0.4	0.5	0.3
04/07/2025	1.9	1.3	1.2	1.6	1.2
05/08/2025	1.5	0.2	0.7	0.7	0.2
04/09/2025	2.3	1.5	0.8	1.6	0.3
02/10/2025	2.4	0.8	0.8	0.4	0.9
03/11/2025	1.8	1.3	1.1	3.3	0.4
04/12/2025	2.2	1.7	1.0	1.6	0.5
Annual Average	1.8	1.2	0.9	1.2	0.7

There were no depositional dust exceedances during the 2025 reporting period. A summary of depositional dust trends between 2018 and 2025 are outlined in **Table 16**.

Table 16: Depositional Dust Trends

Dust Depositional Gauge	Monitoring Summary for Annual Review Period	Monitoring Results (Contamination Removed) (g/m2/month)							
		2018	2019	2020	2021	2022	2023	2024	2025
DDG1	Insoluble Solids Reporting Period Average	3.8	4.9	3.6	2.6	2.2	1.75	2	1.8
	Max. Insoluble Solids	5.4	7.7	6.2	6.4	5.4	3.5	4.2	2.4
	Min. Insoluble Solids	1.9	2.8	0.5	2.5	0.3	0.1	0.9	0.8
DDG2	Insoluble Solids Reporting Period Average	1.7	2.2	1.9	2.1	1.1	1.0	1.11	1.2
	Max. Insoluble Solids	3.0	4.1	8.2	3.5	2.4	2.9	1.5	3.8
	Min. Insoluble Solids	0.7	1	0.9	1.2	0.2	0.1	0.3	0.2
DDG3	Insoluble Solids Reporting Period Average	1.5	2.1	1.9	1.3	1.1	1.0	1.02	0.9
	Max. Insoluble Solids	3.9	5	6.7	2.7	3.5	2.8	3.7	1.5
	Min. Insoluble Solids	0.5	0.3	0.6	0.5	0.4	0.1	0.2	0.4
DDG4	Insoluble Solids Reporting Period Average	4.2	3.6	2.1	3.7	4.5	1.8	1.01	1.2
	Max. Insoluble Solids	13.1	7.1	11.2	11.0	10	11	4.1	2.1
	Min. Insoluble Solids	0.3	1.7	0.2	0.4	0.4	0.1	0.2	0.4
DDG5	Insoluble Solids Reporting Period Average	2.2	2.0	1.5	2.0	0.9	0.5	0.76	0.7
	Max. Insoluble Solids	6.1	4.1	8.4	5.4	1.8	2.4	1.4	0.9
	Min. Insoluble Solids	0.3	0.5	0.2	0.6	0.5	0.7	0.3	0.2

PM_{10} Monitoring

Results for 2025 PM_{10} monitoring are provided in **Table 17**.

Table 17: 2025 Dust Monitoring (PM10)

Sample Date	PM_{10} (µg/m^3)	TSP (calculated)	PM_{10} 24-hour Compliance Status
5/01/2025	18.1	45.3	Compliant
11/01/2025	8.5	21.4	Compliant
17/01/2025	11.4	11.4	Compliant
23/01/2025	10.3	10.3	Compliant
29/01/2025	16.1	16.1	Compliant
4/02/2025	22.7	56.8	Compliant
10/02/2025	9.2	22.9	Compliant
16/02/2025	11.9	29.8	Compliant
22/02/2025	14.7	36.7	Compliant
28/02/2025	21.1	52.7	Compliant
6/03/2025	8.4	20.9	Compliant
12/03/2025	7.6	18.9	Compliant
18/03/2025	11.4	28.6	Compliant
24/03/2025	10.5	26.3	Compliant
30/03/2025	4.9	12.3	Compliant
5/04/2025	16.1	26.2	Compliant
11/04/2025	24.0	29.0	Compliant
17/04/2025	8.1	13.1	Compliant
23/04/2025	3.3	5.3	Compliant
29/04/2025	6.8	11.0	Compliant
5/05/2025	8.5	21.2	Compliant
11/05/2025	8.0	20.1	Compliant
17/05/2025	11.7	29.2	Compliant
23/05/2025	3.4	8.4	Compliant
29/05/2025	6.0	14.9	Compliant
4/06/2025	8.4	21.0	Compliant
10/06/2025	4.7	11.7	Compliant
16/06/2025	7.4	18.6	Compliant
22/06/2025	9.0	22.4	Compliant

Sample Date	PM_{10} (µg/m^3)	TSP (calculated)	PM_{10} 24-hour Compliance Status
28/06/2025	4.9	12.1	Compliant
4/07/2025	0.1	0.3	Compliant
10/07/2025	4.4	10.9	Compliant
16/07/2025	8.5	21.4	Compliant
22/07/2025	8.4	20.9	Compliant
28/07/2025	2.0	5.1	Compliant
3/08/2025	2.0	4.9	Compliant
09/08/2025	3.7	9.4	Compliant
15/08/2025	7.3	18.3	Compliant
21/08/2025	2.9	7.4	Compliant
27/08/2025	23.2	57.9	Compliant
02/09/2025	9.3	23.2	Compliant
08/09/2025	11.2	28.1	Compliant
14/09/2025	7.9	19.8	Compliant
20/09/2025	6.3	15.8	Compliant
26/09/2025	21.1	52.7	Compliant
02/10/2025	12.3	30.9	Compliant
08/10/2025	20.2	50.5	Compliant
14/10/2025	13.9	34.9	Compliant
20/10/2025	26.4	65.9	Compliant
26/10/2025	9.8	24.6	Compliant
01/11/2025	7.7	19.4	Compliant
07/11/2025	19.7	49.2	Compliant
13/11/2025	19	47.5	Compliant
19/11/2025	16.2	40.4	Compliant
25/11/2025	18.9	47.2	Compliant
01/12/2025	12.5	31.2	Compliant
07/12/2025	12.5	31.3	Compliant
13/12/2025	8.3	20.7	Compliant
19/12/2025	25.6	64.1	Compliant
25/12/2025	14.8	37.0	Compliant
30/12/2025	13.5	33.6	Compliant
Annual Average	11.3	26.1	Compliant

There were 61 sampling events recorded in the 2025 report period. There were no exceedances of the short term (24 hour) PM_{10} criterion of 50 µg/m^3.

Total Suspended Particulates (TSP) are also included in this report in **Table 17** as per the requirements of the Development Consent. These results have been calculated rather than directly measured through the monitoring program at Cooma Road, using a conversion factor as per the approved Cooma Road *Air Quality Management Plan,* which is consistent with the region.

The 2025 annual average for PM_{10} was 11.3 µg/m^3, compared to 7.8 µg/m^3 for 2024. A summary of average, minimum and maximum results from 2025 compared to results from previous years are outlined in **Table 18**.

Table 18: PM_{10} Monitoring Trends since 2017

Monitoring Summary for Annual Review Period	2018 Results (µg/m3)	2019 Results (µg/m3)	2020 Results (µg/m3)	2021 Results (µg/m^3)	2022 Results (µg/m3)	2023 Results (µg/m3)	2024 Results (µg/m3)	2025 Results (µg/m3)
PM_{10} Average	13.1	10.7	12.2	11.6	8.5	10.04	7.8	11.3
Max. PM_{10}	80.3	37	35.1	37.3	29.8	23.8	38.2	26.4
Min. PM_{10}	1	1.8	2.8	1.0	3.3	2.3	0.9	0.1

Long Term Trends

Depositional Dust

Holcim has monitored depositional dust on a monthly basis at five locations within the Cooma Road Quarry project area since 2001. Dust deposition data from the site shows that annual average dust deposition levels have remained below the Development Consent criteria of 4 g/m^2/month, and that average levels at all gauges in 2025 are similar to the 2024 average. Monitoring results for 2025 remain consistent with long-term dust trends at Cooma Road Quarry.

PM_{10}

PM_{10} results for 2025 are mostly consistent with previous years. There were no exceedances recorded in 2025.

The maximum PM_{10} result was 26.4 µg/m^3 which is consistent with previous years. The PM_{10} annual average for 2025 was below the criteria and consistent with previous years.

Comparison to EIS Predictions

The results for the annual average for depositional dust and PM_{10} were generally within the predicted limits of the EIS predictions.

6.3.4 Management Measures

Mitigation measures relating to air quality are outlined within the Cooma Road Quarry *Air Quality Management Plan* (2019). The plan outlines the control measures implemented by Cooma Road Quarry to minimise the potential air quality impacts on the local community, including:

- Inspections;
- Defined operating hours;
- Application of water for dust suppression;
- Enclosure of plants and transfer points;
- Monitoring for air quality and meteorological conditions; and
- Training of staff and contractors.

6.3.5 Proposed Improvements

There are no further proposed improvements for Cooma Road Quarry in the next reporting period.

6.4 Blasting

6.4.1 EIS Predictions

The 2012 EIS found that air blast and ground vibration levels would comply with relevant vibration and air blast criteria at all sensitive residential receivers through ongoing management of blast design and size.

6.4.2 Approved Criteria

According to both EPL 1453 and SSD 5109, the overpressure level from blasting operations must not exceed 115 dB (L) for more than 5% of the total number of blasts, at any residences or nearby receiver, and must not exceed 120 dB (L) at any time.

Ground vibration must not exceed 5 mm/s for 5% of the total number of blasts over a period of 12 months and must not exceed 10 mm/s at the nearby receiver.

6.4.3 Key Environmental Performance

Table 19 outlines the blast monitoring results at the Cooma Road Quarry during the Annual Review period.

Table 19: 2025 Blast Monitoring Results

Date	Heffernans House		Jerrabomberra		Compliance Status
	Overpressure (dBL)	Vibration (mm/s)	Overpressure (dBL)	Vibration (mm/s)	
15/01/2025	104.0	0.23	DNT	DNT	Compliant
23/01/2025	111.0	0.69	96.5	0.44	Compliant
17/02/2025	DNT	DNT	DNT	DNT	Compliant
03/03/2025	93.0	0.52	DNT	DNT	Compliant
25/03/2025	109.5	2.27	DNT	DNT	Compliant
14/04/2025	DNT	DNT	DNT	DNT	Compliant
05/05/2025	107.4	1.28	95.5	0.42	Compliant
20/05/2025	97.5	0.71	DNT	DNT	Compliant
16/06/2025	DNT	DNT	DNT	DNT	Compliant
30/06/2025	107.0	4.61	DNT	DNT	Compliant
22/07/2025	102.7	2.62	94.9	1.6	Compliant
29/07/2025	DNT	DNT	91.0	0.71	Compliant
05/08/2025	101.7	0.43	DNT	DNT	Compliant
11/09/2025	103.5	3.3	DNT	DNT	Compliant
15/09/2025	109.2	1.68	91.4	1.01	Compliant
22/09/2025	DNT	DNT	DNT	DNT	Compliant
07/10/2025	DNT	DNT	DNT	DNT	Compliant
16/10/2025	99.4	3.58	DNT	DNT	Compliant
28/10/2025	96.6	0.99	104.5	1.03	Compliant
06/11/2025	105.3	0.82	95.6	0.36	Compliant

Note: DNT = Did Not Trigger

In summary:

- There were 20 blasts during 2025; and
- All blasts were compliant with the overpressure and vibration criteria.

Holcim alerts the nearest sensitive receivers within 24 hours of a proposed blast. This process is managed by the weighbridge staff who send a text message to the tenants the day before a planned blast is undertaken.

Long-term Trends

Blasting levels from 2016 to 2025 measured at Heffernans House are presented in **Table 20**. Zero non-compliances for blasting occurred in the subsequent years including this report period.

Table 20: Long-term Blasting Trends

Year	Heffernans House				
	Number of Blasts	Max. Overpressure (dBL)	Average Overpressure (dBL)	Max Vibration (mm/s)	Average Vibration (mm/s)
2016	9	119.8	102.6	1.98	0.88
2017	32	113.5	101.4	4.34	0.75
2018	16	113.5	102.8	3.55	0.98
2019	25	114.7	102.5	4.00	1.12
2020	29	114.7	104.8	3.0	1.1
2021	15	112.9	104.0	2.0	1.1
2022	19	112.1	102	2.38	1.1
2023	29	103.5	103.95	1.88	1.12
2024	28	112.5	104.3	1.09	0.6
2025	20	111.0	103.4	4.61	1.7

Comparison to EIS Predictions

The results for blasting in 2025 were within the predicted limits of the EIS.

6.4.4 Management Measures

Management measures relating to blasting are outlined within the Cooma Road *Quarry Blast Management Plan (BMP)*. The BMP provides a mechanism for assessing blast monitoring results against the relevant blast impact assessment criteria and outlines the control measures implemented as part of the continued operations of the quarry to minimise the potential for blast related impacts in the local community.

6.4.5 Proposed Improvement

No proposed improvements. Blast monitoring will continue in 2026 and all blasts will be reported in the Annual Review.

6.5 Traffic Management

6.5.1 EIS Predictions

The 2012 EIS predicted the increased traffic associated with the Project on the local road network to be satisfactory. On the wider network, the increase in traffic as a result of the Project was predicted to comprise a very small proportion of total traffic and be dispersed over a number of routes, resulting in relatively small increase in the overall traffic levels on these roads and intersections.

The Project was not predicted to have a negative impact on road safety.

The road upgrades were predicted to assist in managing/addressing future road safety issues associated with the overall future traffic growth on the road network, including the relatively small increase in traffic volumes due to the Project.

6.5.2 Approved Criteria

According to Schedule 2, Condition 13 of SSD 5109, for the life of the development, the Applicant must ensure that:

- No more than an average of 48 truck movements per hour occur collectively to and from the site on any day; and
- No more than 30 laden trucks per hour are dispatched from or received at the site collectively.

6.5.3 Key Environmental Performance

Holcim recorded daily truck movements and volumes transported throughout 2025. Holcim maintained compliance with the conditions for truck movements throughout 2025. A copy of the truck movements and transported quarry product recorded throughout 2025 are outlined in **Table 21**. A total of 682,214 t of product was transported offsite during 2025.

Table 21: Transport Tonnages 2025

Month	Transport Tonnages	Truck Movements
January	39,907	1,301
February	63,711	2,040
March	66,353	2,017
April	51,470	1,713
May	80,636	2,558
June	47,288	1,645
July	56,270	1,995
August	60,426	2,086
September	49,206	1,686
October	55,789	2,055
November	73,592	2,552

Month	Transport Tonnages	Truck Movements
December	37,566	1,412
Total	**682,214**	**23,060**

6.5.4 Management Measures

Traffic and transport impacts are managed in accordance with the specific management measures and controls within the Cooma Road Quarry Transport Management Plan.

6.5.5 Proposed Improvements

Truck movements will continue to be monitored and recorded in the oncoming reporting period to ensure that they remain within the approved criteria.

6.6 Biodiversity

6.6.1 EIS Predictions

Consideration of the proposal under Section 5A of the *Environment Planning and Assessment Act 1979* (EPBC Act) determined there was unlikely to be any significant impacts to species or communities listed in NSW. The Project is also considered unlikely to result in a significant impact on EPBC Act listed species and communities, or on migratory species.

6.6.2 Approved Criteria

There are no specific criteria associated with biodiversity management for the site. The approved quarrying plan has been designed to include a number of biodiversity impact mitigation factors and rehabilitation design factors.

6.6.3 Key Environmental Performance

Weed spraying continued during the 2025 reporting period with spot control conducted in February and March. Maintenance of trees planted in 2017 continued in this reporting period. Holcim continued to collect boulders and fallen timber to promote increased habitat complexity in the site rehabilitation areas.

55 nest boxes were installed in 2021 after bushfires, including:

- 5 Large parrot nest boxes
- 16 Small parrot boxes
- 4 treecreeper nest boxes
- 8 Microbat nest boxes
- 9 Brushtail nest boxes
- 3 Ringtail nest boxes
- 10 Squirrel glider nest boxes.

The 2025 winter survey found that most boxes were in fair to good condition and contained evidence of vertebrate fauna use in the form of chewed entrances, hatched eggs and nesting material. Previous winter surveys by SLR Consulting Australia (2024) noted four boxes with active Apis mellifera (European honey Bee) hives however only two active nests were present during 2025 surveys. All boxes that contained old

inactive bee hives contained fresh nesting material and one box had a glider nesting inside it (no. 38). Overall, two boxes contained Trichosurus vulpecula (Common Brushtail Possum), two boxes contained Pseudocheirus peregrinus (Common Ringtail Possum) and three boxes contained gliders. Two families of three gliders were determined to most likely be BC Act listed vulnerable species Petaurus norfolcensis (Squirrel Glider) due to their face shape and size relative to the box they were in. A single glider was present in a third box and defining featured were not visible therefore it could either be a squirrel glider or a Petaurus breviceps (Sugar Glider). Two boxes were found to require replacement due to their poor condition, one box requires relocation as it is currently being crushed by trees and two boxes with active bee hives that require control and replacement with a new box.

The 2025 Biodiversity Monitoring Report can be found in **Appendix B**.

6.6.4 Management Measures

The ongoing management of the ecological values of the Project area are required to be conducted in accordance with the Cooma Road Quarry Rehabilitation Management Plan. The plan outlines the control measures to be implemented as part of the continued operations at the Cooma Road Quarry. This includes minimising the potential impacts on biodiversity as a result of quarrying activities as well as risks associated with unsuccessful post-quarrying rehabilitation.

6.6.5 Proposed Improvements

During the 2025 reporting period Holcim will:

- Continue to manage weed species on the site.
- Continue to monitor next boxes.
- Assess the need for feral animal control and implement a program if required, however there have been no feral animal sightings to date.
- Salvage fallen timber and boulders to promote increased habitat complexity in the rehabilitation areas.

6.7 Heritage (Aboriginal Archaeology and Historic Heritage)

6.7.1 EIS Predictions

Aboriginal Archaeology

The 2012 EIS and associated due diligence assessment found that due to the highly disturbed nature of the Project Area, the potential for subsurface Aboriginal artefacts in modified areas would be extremely low. No previously recorded sites were identified within the proposed disturbance area.

One isolated artefact, a silcrete broken flake (identified at Cooma Quarry 2), was located on the spur crest adjacent to the proposed infrastructure area. Holcim has committed that the Project will not impact on this site.

Historic Heritage

The known, locally listed, Moses Morley Kiln is the only heritage item/site to be identified within the Project Area.

The Historic Heritage Assessment conducted as part of the 2012 EIS determined the Project would not physically impact on the kiln and it would be very unlikely to impact on the identified heritage significance of the site.

The EIS did identify the potential for indirect impacts as the result of vibration associated with blasting and construction. Holcim implemented additional management measures for construction and blasting operations.

No other potential heritage items/sites were identified within the Project Area.

6.7.2 Approved Criteria

There are no specific criteria associated with heritage relating to the project. The process for managing any unexpected heritage items is outlined in the Heritage Management Plan.

6.7.3 Key Environmental Performance

There were no issues relating to Aboriginal and historic heritage during the reporting period. Land clearing that occurred did not uncover any previous unidentified Aboriginal or Historic heritage artifacts.

6.7.4 Management Measures

Heritage impacts will continue to be monitored in accordance with the Heritage Management Plan.

6.7.5 Proposed Improvements

As there have been no Aboriginal heritage items located to date, no improvements to management measures are proposed.

7 Water Management

Water management at the Cooma Road Quarry is undertaken in accordance with the Water Management Plan. The 2014 Water Management Plan (Umwelt) (WMP) was updated and significantly altered in July 2019. The updated WMP was approved by DPHI 12 August 2019.

7.1 EIS Predictions

Section 5.3 of the EIS (2012) assessed impacts to local water systems. The Project is expected to have a negligible impact on annual flow volumes in Barracks Creek compared to the currently approved impacts. The Project will not impact on annual flow volumes within Jerrabomberra Creek. The Project is primarily located within the boundary of the existing water management system. The construction and operation of the Project will be consistent with the existing Water Management Plan and associated erosion and sediment controls. Therefore, it is considered that there will be negligible impact on water quality in downstream surface water systems. As such it is considered that the Project will result in no changes to the currently approved impacts.

Given both rock types (granite and dacite) quarried at the Cooma Road Quarry are relatively stable with respect to groundwater quality, there is no concern regarding the potential for the quarried material to affect groundwater quality.

7.2 Approved Criteria

Holcim are required to monitor surface water quality during discharge events at the Cooma Road Quarry licensed discharge point (LDP), in accordance with the requirements of EPL 1453 (provided in **Table 22**). These criteria only apply to water quality results when the site is discharging.

Table 22: Water Quality Criteria for the Cooma Road Quarry (EPL 1453) POINT 1

Pollutant	Units of Measure	100 percentile concentration limit
Oil and Grease	milligrams per litre (mg/L)	10
pH	pH	6.5-8.5
Total Suspended solids	mg/L	50

Holcim are also required to conduct monthly water quality monitoring at Barracks Creek in accordance with the *Water Management Plan*. See **Table 23** below.

Table 23: Barracks Creek Water Quality Trigger Values

Parameter	Unit	Trigger Values
pH	pH units	6.5-8.5[1]
EC	µS/cm	125-2200[2]
Oil and Grease	mg/L	10[1]
TSS[3]	mg/L	<50[1]

Notes:
[1] Based on limits in EPL 1453
[2] Based on Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Australian and New Zealand Environment and Conservation Council, 2000) default trigger values for slightly to moderately disturbed lowland river systems.
[3] TSS monitoring commenced June 2007.

7.3 Surface Water Results

There were no discharges from LDP1 to Barracks Creek in 2025.

Holcim monitors surface water quality in Barracks Creek monthly and these results are shown in **Table 24**.

Table 24: 2025 Surface Water Monitoring Results (Barracks Creek)

Sample Date	pH	Total Suspended Solids (mg/L)	Oil and Grease (mg/L)	Electrical Conductivity (µS/cm)
Trigger	**6.5-8.5**	**<50**	**10**	**125-2200**
8/01/2025	8.4	**230**	**12**	1300
4/02/2025	8.5	5	5	1220
4/03/2025	**10.6**	5	**12**	983
29/04/2025	7.8	5	5	749
5/05/2025	8.4	5	5	657
4/06/2025	8.3	5	10	1440
2/07/2025	8.3	5	7.3	971
6/08/2025	7.9	5	5.4	976
4/09/2025	8.3	5	7.1	1020
2/10/2025	7.7	5	5	937
4/11/2025	**6.2**	19	5	894
4/12/2025	8.4	5	10	949
Annual Average	8.2	24.9	7.4	1008

*Note – Exceedances are highlighted in **BOLD.***

Annual averages for all metrics were compliant with the trigger values.

The annual average for total suspended solids (TSS) in 2025 was 24.9 mg/L, which is higher than the annual average in 2024 which recorded 9.1 mg/L. This was primarily driven by a January outlier of 230 mg/L.

2025 monitoring showed a broad range of pH (6.2 to 10.6) with an annual average of 8.2 generally consistent with the 2024 average of 8.3. pH values exceeded the criteria level of 6.5-8.5 in March (10.6) and November (6.2).

Oil and grease were higher than the EPL criteria in January and March of 2025, with both samples recording 12mg/L, above the criteria limit of 10 mg/L. The annual average for oil and grease was 7.4 mg/L, which is lower than 2024, where 10.25 mg/L was recorded, and compliant with the EPL trigger level.

Long-term Trends

Table 25 shows a comparison of data between 2016 to 2025 and indicates that results for pH are consistent with recent years and are within trigger levels. Oil and grease has decreased compared to previous years and is compliant with the criteria level. TSS levels in 2025 have been marginally higher than in recent years but are within the EPL criteria.

Holcim engaged Ramboll Australia Pty Ltd to undertake a preliminary surface water investigation of Barracks Creek in response to a recommendation in the 2023 Annual Review. The investigation was proposed due to increasing trends in pH and oil and grease concentrations in Barracks Creek, with results also regularly exceeding site trigger values. The purpose of the investigation was to identify if Cooma Road Quarry may be contributing to the elevated results in Barracks Creek. Surface water sampling was conducted for the investigation on 2 July 2025.

The results of the investigation found it unlikely that Cooma Road Quarry was adversely affecting water quality within Barracks Creek. Samples taken downstream from Cooma Road Quarry were similar to, or slightly lower than, samples taken from background/reference sites for all relevant parameters.

Table 25: Long-term Water Monitoring Barracks Creek

Year	pH Average	Oil and Grease Average (mg/L)	TSS Average (mg/L)
2016	7.4	<1	2.5
2017	7.5	<1	2.6
2018	7.5	<1	4.75
2019	7.5	<1	5.0
2020	7.7	5.58	53.08
2021	8.3	8.25	36.95
2022	8.4	7.5	30.25
2023	8.9	14.67	7.74
2024	8.3	10.25	9.1
2025	8.2	7.4	22.9

Comparison to EIS Predictions

There was no evidence of any detrimental impact from the Quarry on surface water. This is consistent with the EIS predictions.

7.4 Groundwater

Schedule 3, Condition 20 of the Consolidated Consent states that Holcim must implement a groundwater monitoring program that includes:

- Baseline data of groundwater levels surrounding the development;
- Groundwater assessment criteria based upon analysis of baseline data for groundwater, including trigger levels for investigating any potentially adverse groundwater impacts; and
- A program to monitor and/or validate the impacts of the development on groundwater resources.

Groundwater monitoring is required in accordance with the WMP.

A groundwater assessment by Coffey Geotechnics (2012) concluded that the operation of Cooma Road Quarry is not considered to have a significant impact on the regional groundwater resources, as:

- The quarry site is in a tight rock formation where no meaningful groundwater extractions can be attained;
- Quarrying activities do not impact on a viable aquifer;
- The volume of groundwater affected by the Cooma Road Quarry is limited to the exposed water table in the granite pit;
- Interaction of the granite pit with regional groundwater is very limited; and
- The maximum extraction depth will not be increased.

Cooma Road Quarry is committed to the following to establish a regular groundwater monitoring system:

- Drilling of MB01 and MB02 bores;

- Casing and installation of piezometer;
- Obtain quarterly land access to bores with neighbours for access to GW400534 and GW 416130 for monitoring;
- Add groundwater monitoring to contractors quarterly environmental monitoring program;
- Update the Water Management Plan accordingly; and
- Engage consultant over the 24 months to set trigger values based quarterly level monitoring.

The Cooma Road Water Management Plan (WMP) was revised in 2019 to include a groundwater monitoring program that would require monitoring to occur at four groundwater bores. In 2020, a groundwater assessment occurred to establish criteria for the WMP, with trigger levels to be set after 24 months of monitoring.

A total of four bores were installed in early 2021. Quarterly groundwater monitoring commenced in June 2021.

The completion of the 24 months monitoring occurred in the 2023 period, and Holcim will use this data to determine trigger limits.

7.4.1 Groundwater Performance

Groundwater results for 2025 were compared to the trigger values in the Water Management Plan, outlined in **Table 26**.

Table 26: Interim Groundwater Quality Trigger Values (Water Management Plan)

Parameter	Unit	Trigger Values
pH	pH	6.5-8.5[1]
Electrical Conductivity (EC)	µS/cm	125-2200[1]
Total Dissolved Solids (TDS)	mg/L	600[2]

Notes

[1] Based on default triggers values for slightly to moderately disturbed lowland river systems for south east Australia in the ANZECC 2000 Guidelines

[2] Based on Groundwater Assessment Cooma Road Quarry (Coffey,2012).

Groundwater monitoring continued at bores MB01 to MB04. The monitoring results for 2025 are presented in **Table 27**.

Table 27: Groundwater Monitoring Results 2025

Sampling Period	Monitoring Location	pH	Total Dissolved Solids (TDS)	Electrical Conductivity (EC)	Standing Water level (mAHD)	Observation (Colour / Odour)
Trigger		**6.5 – 8.5**	**600 mg/L**	**125-2200 µS/cm**	**-**	**-**
Quarter 1 (04/03/2025)	MB01	7.9	**1040**	1640	637	Clear, colourless, no odour.
	MB02	7.8	543	849	710	Slightly yellow, slightly cloudy, no odour
	MB03	8.3	369	577	669	Slightly brown, slightly cloudy, no odour
	MB04	8.1	**1190**	1870	696	Cloudy cloudy, clear, no odour
Quarter 2 (06/05/2025)	MB01	7.7	**756**	1180	638	Cloudy, colourless, organic odour.
	MB02	7.7	323	505	710	Clear, slightly yellow, no odour.
	MB03	7.6	425	664	656	Brown, turbid, slight organic odour
	MB04	7.6	**1150**	1790	696	Clear, colourless, no odour
Quarter 3 (01/07/2025)	MB01	7.0	**830**	1277	636	Clear, colourless, organic odour
	MB02	7.6	186	589	709	Slightly yellow, slightly turbid, sulfidic odour
	MB03	6.8	470	722	669	Brown, turbid, no odour
	MB04	6.8	**1214**	1864	696	Clear, colourless, no odour.
Quarter 4 (02/10/2025)	MB01	6.7	**825**	1290	702	Slightly cloudy, colourless, sulphuric odour
	MB02	6.8	222	341	760	Slightly cloudy, slightly yellow, no odour
	MB03	6.7	**666**	1040	715	Brown, turbid/mud, no odour
	MB04	6.3	**1260**	1970	726	Cloudy, colourless, no odour

In 2025, all groundwater monitoring results for pH were within the trigger levels.

Nine monitoring events recorded TDS levels above the trigger level in 2025. These include:

- TDS level of 1040 mg/L at MB01 during Q1 monitoring
- TDS level of 1190 mg/L at MB04 during Q1 monitoring
- TDS level of 756 mg/L at MB01 during Q2 monitoring
- TDS level of 1150 mg/L at MB04 during Q2 monitoring
- TDS level of 830 mg/L at MB01 during Q3 monitoring
- TDS level of 1214 mg/L at MB04 during Q3 monitoring
- TDS level of 825 mg/L at MB01 during Q4 monitoring
- TDS level of 666 mg/L at MB03 during Q4 monitoring
- TDS level of 1260 mg/L at MB04 during Q4 monitoring.

TDS at MB02 remained below the trigger level throughout the year. The highest TDS level occurred in Q2 recording 1,260 µS/cm at MB04.

Electrical conductivity levels remained within the trigger values for all sampling events.

Because these trigger values are based on the ANZECC Guideline values, these exceedances are not considered to be non-compliances for the groundwater at site. Notwithstanding, all trigger exceedances were reported to DPHI.

Holcim engaged a consultancy to review the trigger values that were established after the groundwater assessment in 2020. The Water Management Plan was updated and submitted to DPHI with approval still pending.

Holcim will continue to perform groundwater monitoring in 2026.

7.5 Water Usage and Storage

Water storages utilised at the Cooma Road Quarry include:

- Extractive Area Sump;
- Granite Hole;
- Pump Dam;
- Sediment Interception Pond (SIP); and
- Discharge Pond.

During this reporting period water has been used for use in crushing and screening and watering of haul roads. Water usage has continued to be recorded during this reporting period.

7.6 Water Take

Table 28 outlines the water take at the Cooma Road Quarry in 2025. No water was taken during the period; therefore, the water take was within the limits of the water access licence (WAL) requirement.

Table 28: 2025 Water Take

WAL	Entitlement	2025	2024	2023	2022	2021	2020	2019
40SL27690	98 ML	No take	No take	No take	16.49 ML	31 ML	36 ML	70 ML

8 Rehabilitation and Landscape Management

The site is required to undertake progressive rehabilitation in accordance with Schedule 3, Condition 22 and 23 of SSD 5109 and their *Rehabilitation Management Plan*.

8.1 Rehabilitation Performance During the Reporting Period

No additional rehabilitation works were completed in the 2025 reporting period. Areas that were topsoiled and allowed to self-seed in 2024 were monitored throughout 2025 and deemed to be on track. Rehabilitation is expected to continue into 2026 and consist of planting tubestock or hydromulching. Existing rehabilitation areas continue to be inspected and maintained. See **Table 29** for details of rehabilitation performance against the requirements outlined in Section 8 of the *Annual Review Guideline* under the *Post approval requirements for State Significant Mining developments 2015*.

Table 29: Rehabilitation Performance in 2025

Guideline Requirement	Response
Extent of the operations and rehabilitation at completion of the reporting period	Progressive rehabilitation undertaken. Topsoil was placed on 12,000 m^2 on previous overburden area on the south eastern side of quarry and allowed to self-seed in 2024. This area was monitored and maintained as required in 2025.
Agreed post-rehabilitation land use	The final rehabilitation at the Cooma Road Quarry will consist of a woodland/grassland revegetation mix.
Key rehabilitation performance indicators	See Section 4 of the Rehabilitation Management Plan.
Renovation or removal of buildings	There was no construction activities or renovations performed in 2025
Any other Rehabilitation taken including: • Exploration activities; • Infrastructure; • Dams; and • The installation or maintenance of fences, bunds, and any other works.	No rehabilitation completed in 2025 relating to exploration, infrastructure, or dams.
Any rehabilitation areas which have received formal sign off from the Resources Regulator	No rehabilitation has received signoff.
Variations to activities undertaken to those proposed (including why there were variations and whether the Resources Regulator was notified)	Rehabilitation activities were undertaken as per the Rehabilitation Management Plan.
Outcomes of trials, research projects and other initiatives.	No trials proposed or required.
Key issues that may affect successful rehabilitation	There are several potential issues that can affect rehabilitation including availability of material, seed stock, climatic events, and rehabilitation methodology.

8.2 Summary of Current Rehabilitation and Performance

A summary of the rehabilitation and disturbance status of Cooma Road Quarry is outlined in **Table 30** and **Figure 2**.

Table 30: Rehabilitation and Disturbance Status

Quarry Area Type	2019 (ha)	2020 (ha)	2021 (ha)	2022 (ha)	2023 (ha)	2024 (ha)	2025 (ha)	Proposed 2026 (ha)
A. Total Quarry Footprint[1]	0	0	0	102	102	102	102	102
B. Total Active Disturbance[2]	71.5	71.5	71.5	71.5	88.9	90.5	90.5	90.5
C. Land Being Prepared for Rehabilitation[3]	0	0	0.5	0	1.2	1.2	0	0
D. Land Under Active Rehabilitation[4]	7.6	7.6	7.6	8.1	8.1	9.2	10.4	10.4
E. Completed Rehabilitation[5]	0	0	0	0	0	0	0	0

Notes:

[1] Total disturbance and rehabilitation.

[2] Total disturbance within the Project Approval boundary

[3] Rehabilitation that is being shaped in a phase of decommissioning, landform establishment and growth medium development.

[4] Rehabilitation under a phase of ecosystem and land use establishment or ecosystem and land use sustainability

[5] This refers to rehabilitation that has been signed off from the DRG.

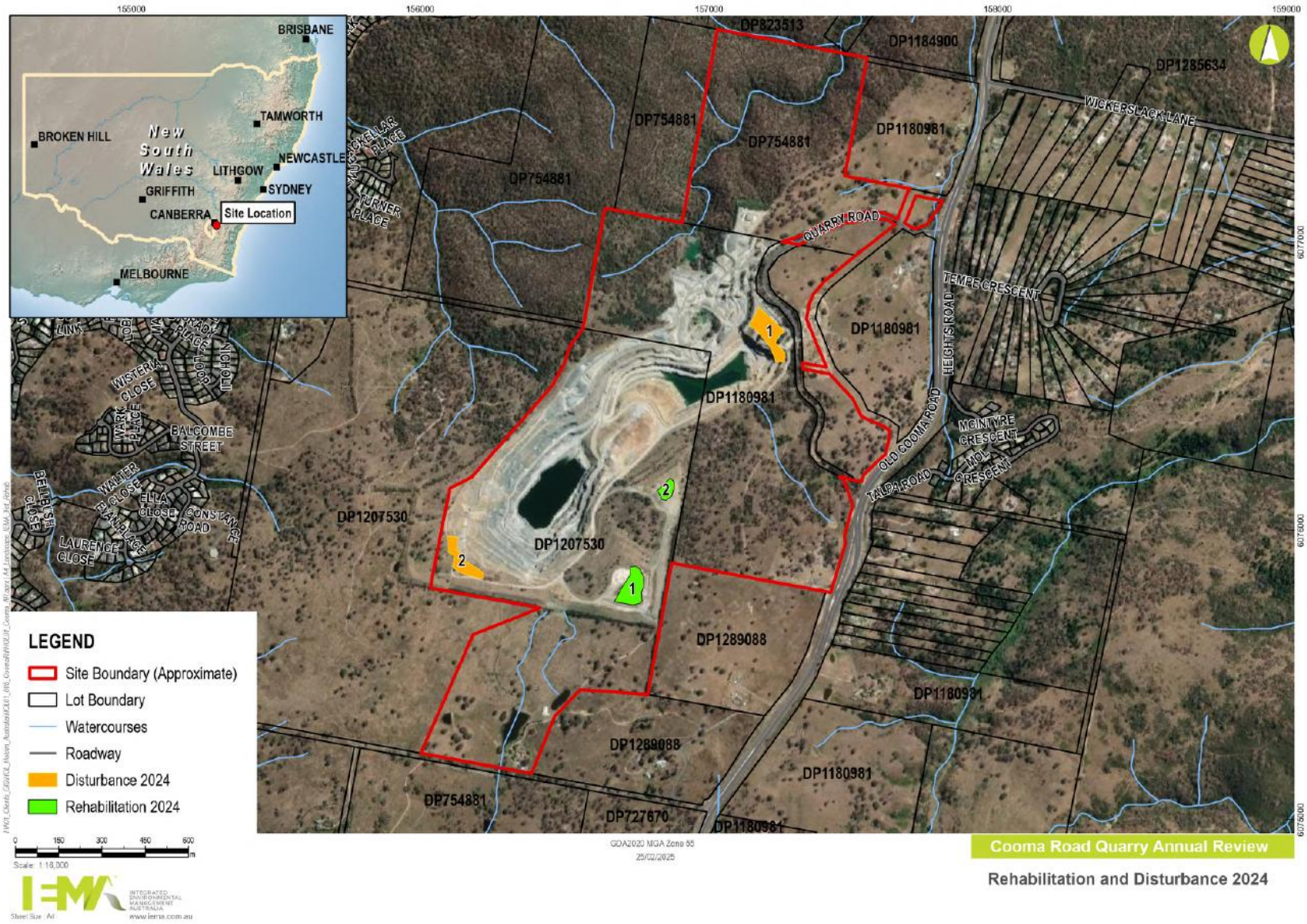

Figure 2: 2025 Rehabilitation and Disturbance

At the end of 2025, there was approximately 90.51 Ha of active disturbance and 10.4 Ha of active rehabilitation. There is no further disturbance or rehabilitation preparation activities planned for 2026. Rehabilitation maintenance will be continued into 2026.

Rehabilitation monitoring continued in 2025.

8.3 Actions for the Next Reporting Period

The Annual Review Guidelines (DPE, 2015) require the Annual Review to outline the rehabilitation actions proposed during the next reporting period. These actions are detailed in **Table 31**.

Table 31: Rehabilitation and Closure Actions for the 2026 Reporting Period

Requirement	Site Comment
Describe the steps to be undertaken to progress agreement during next reporting period, where final rehabilitation outcomes have not yet been agreed between stakeholders.	1.2 ha was prepared in 2024, with monitoring to continue through 2026. This area was allowed to self-seed.
Outline proposed rehabilitation trials, research projects and other initiatives to be undertaken during next reporting period.	No further trials are proposed.
Summary of rehabilitation activities proposed for next report period.	The maintenance of existing rehabilitation will continue in 2026. Rehabilitation monitoring is to continue into 2026 in order to meet Condition 24 of Schedule 3 of the Development Consent.

9 Summary of Environmental Performance

A summary of environmental management measures and sampling results for 2025 are detailed in **Table 32**.

Table 32: Environmental Performance at Cooma Road Quarry in 2025

Aspect	Approval Criteria / EIS Prediction	Performance during the reporting period	Trend / key management implications	Implemented / proposed management actions
Noise	EIS predictions are all below development consent criteria.	Quarter monitoring has met the Development Consent Criteria.	Consistently meets criteria.	EIS predictions are all below development consent criteria.
Air Quality	EIS predictions are all below development consent criteria.	Dust deposition results within criteria of EPL, EIS and Development Consent. PM10 results has met the Development Consent Criteria. All depositional dust results were within the Development Consent criteria. One invalidated reading at DDG4 in May.	Dust deposition was consistent with EIS and previous Annual Reviews. PM10 data was generally consistent with the previous period.	Holcim will continue to refine the implementation of the air quality monitoring program and air quality management measures.
Blasting	EIS predictions are all below development consent criteria.	All blasts reported during 2025 were below criteria. No exceedances.	Below criteria from 2017 to 2025.	None required.
Traffic Management	EIS predictions are all below development consent criteria.	Met the Development Consent Criteria.	Consistently meets criteria.	None required.
Biodiversity	It is unlikely there will be any significant impacts to species or communities listed in NSW.	No additional impacts. Monitoring of nest boxes was completed in 2025.	Biodiversity monitoring has been consistent with the *Rehabilitation Management Plan*.	Continue to implement the *Rehabilitation Management Plan.*
Heritage	No predictions.	No impacts to Aboriginal Cultural Heritage or European Heritage.	Continued to be no impacts.	None Required.

Aspect	Approval Criteria / EIS Prediction	Performance during the reporting period	Trend / key management implications	Implemented / proposed management actions
Water Management	EIS predictions are all below development consent criteria.	There were no discharges into Barracks Creek during the reporting period. Surface water annual average monitoring results were within trigger values outlined in the Water Management Plan. Some months pH, TSS, and Oil and Grease were slightly outside of the trigger levels. Groundwater monitoring results were generally aligned with Water Management Plan trigger levels, with the exception of TDS trigger exceedances each quarter.	Surface water monitoring generally met trigger levels. pH and Oil and Grease were slightly higher. Groundwater quality was generally compliant with trigger values. TDS were higher than trigger levels on 9 occasions in 2025.	Continued implementation of Water Management Plan.

10 Waste Management

The waste streams at Cooma Road Quarry are categorised as:

- General waste
- Recyclables such as cardboard and paper
- Scrap steel
- Oils, greases, and filters.

There are three 2 m^3 general waste bins and one 1.5 m3 recycling bin on site which are serviced weekly by contractors. Waste oil, grease, and associated filters are disposed of in a 44-gallon drum which is inspected monthly.

In 2019 Cooma Road Quarry became an accredited Smart Waste organisation. Cooma Road Quarry will continue to investigate potential improvements to increase the efficiency of their waste streams.

Cooma Road Quarry receives and processes waste concrete as per Schedule 2 Condition 14 of the Development Consent. This condition limits the intake of recycled concrete up to 10,000 t per calendar year. The site is compliant with this condition, receiving approximately 8,500 t of recycled concrete in 2025.

11 Community

11.1 Community Contributors

In 2025, community contributions included sponsorship of the local Rotary Club and the Queanbeyan Rodeo.

11.2 Complaints

A complaint register is updated and published on the Holcim website quarterly. No complaints were received during the 2025 reporting period**.** This continues a reduction in complaints from 2023 and aligns more closely with long-term complaint trends, see **Table 33**.

Table 33: Long term complaint trends

Year	Number of complaints
2025	0
2024	0
2023	5
2022	1
2021	0
2020	1
2019	0

All publicly listed information including this 2025 complaints register, incidents and contacts for locals in the community is available at http://www.holcim.com.au/cooma-road.html. Holcim continues to operate a community contact line.

11.3 Community Engagement Activities

Holcim has maintained community engagement measures during the reporting period by undertaking the following activities in accordance with Schedule 5 Condition 6 of the Development Consent:

- Maintenance of a website (containing publicly available documents);
- A telephone number, email, and postal address (on the website) for community complaints and feedback;
- A copy of the Complaints Register is maintained on the company website; and
- All documents and items displayed on the website are regularly updated by Holcim staff.

Schedule 5 Condition 6 also requires the establishment and operation of a Community Consultative Committee (CCC) for Cooma Road Quarry. The Cooma Road Quarry CCC was established in May 2014.

CCC meetings were held in the reporting period in March 2025 and October 2025.

Holcim prepared a Community Engagement Plan in 2016 to establish two-way communication with the community. Holcim understands that an integral part of ensuring the continuing success of the quarry operations is the fostering of positive community relations through effective two-way communications and through the promotion of a positive public image.

The Cooma Road Quarry has an extensive program for engagement with the local Ngambri Land Council including employment of Indigenous workers for maintenance and housekeeping activities, assistance in the start-up of a local native nursery and guidance on the establishment of a construction materials haulage company utilising Indigenous workers.

12 Independent Audit

The most recent Independent Environmental Audit (IEA) was undertaken by EMM Consulting Pty Ltd on behalf of Holcim in February 2024 as required in accordance with Schedule 5, Condition 10 of the Development Consent (SSD_5109) – MOD 2 for the quarry. This was the fourth IEA, with the previous IEA completed in 2021.

Holcim states that they have successfully completed all actions recommended by the most recent IEA.

The next IEA is due to be conducted in February 2027.

13 Incidents and Non-compliance

There were no incidents of non-compliances against the consent at Cooma Road Quarry in 2025.

14 Activities to be Completed in the Next Reporting Period

Proposed improvement actions for 2026 are noted in **Table 34**.

Table 34: Improvement Actions for 2026

Improvement Measure	Activities	Timeframe
Updating the Water Management Plan	Implement the updated Water Management Plan.	Pending approval from DPHI.

APPENDIX A -
2025 QUARTERLY NOISE MONITORING REPORTS

Intended for
Holcim (Australia) Pty Ltd

Document type
Report

Date
May 2025

Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 1 2025

RAMBOLL

Bright ideas.
Sustainable change.

Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 1 2025

Project name	**NSW Environmental Monitoring 2024-2025**
Project no.	**318001800**
Recipient	**David Manning**
Document type	**Report**
Version	**1**
Date	**02/05/2025**
Prepared by	**Jake Bourke, Brodie Wood**
Checked by	**Arnold Cho**
Approved by	**Gavan Butterfield**
Description	**Data collected on 8 and 9 January 2025 for the quarterly period ending March 2025 at Googong, NSW, as part of the noise monitoring program**

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Abbreviations and Definitions

	Description
ΔT	Vertical Temperature Difference, i.e. the measured difference in ambient temperature between two elevations on the same tower. It is defined as the upper-level temperature measurement minus the lower-level temperature measurement.
°	Degree
Ambient Noise	The all-encompassing noise within a given environment. It is the composite of sounds from many sources, both near and far.
Background noise	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).
C	Celcius
CCAM	Conformal Cubic Atmospheric Model
CSIRO	Commonwealth Scientific and Industrial Research Organisation
dB	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.
dB(A)	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.
DPHI	Department of Planning, Housing, and Infrastructure
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Extraneous noise	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.
m	Metre
LA1	The noise level, measured in dB(A), which is exceeded for 1 per cent of the measurement period.
LA1(1min)	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.
LA10	The noise level, measured in dB(A), which is exceeded for 10 per cent of the time.
LA90	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).
LAeq	The level of noise equivalent to the energy average of noise levels occurring over a defined measurement period.
LAeq (period)	The average equivalent noise level, measured in dB(A), during a measurement period (e.g., 15-minute, day, evening, or night).
LAmax	The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured.
NATA	National Association of Testing Authorities
NMA	Noise Monitoring Assessment
NMP	Noise Management Plan

	Description
NPfI	Noise Policy for Industry 2017
NSW	New South Wales
s	Second
SPL	The Sound Pressure Level. Sound pressure is the fluctuation in air pressure, from the steady atmospheric pressure, created by sound. The sound pressure level is the sound pressure expressed on a decibel scale.
TAPM	The Air Pollution Model

Source: Noise Guide for Local Government (NSW EPA, 2023)

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 Cooma Road Quarry ("the quarry") at Googong, NSW.

This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPfI) (NSW EPA, 2017)
- Cooma Road Quarry Noise Management Plan (NMP) (Holcim Australia, 2019)
- Development Consent Application Number SSD_5109 (Minister for Planning and Infrastructure, 2013)
- Environment Protection Licence (EPL) number 1453 (NSW EPA, 2020)
- Australian Standard AS 1055:2018 Acoustics—Description and measurement of environmental noise (Standards Australia, 2018)
- Australian Standard AS/NZS IEC 61672.1:2019 Electroacoustics – Sound level meters, Part 1: Specifications (Standards Australia and Standards New Zealand, 2019)
- IEC 60942:2017 Electroacoustics - Electroacoustics – Sound calibrators (International Standard, 2017).

This NMA has been undertaken for the quarterly period January to March 2025, and forms part of the monitoring program to determine compliance with conditions of the Development Consent.

1.2 Site Location and Sensitive Receivers

The quarry is in Googong, approximately 6 kilometres south of Queanbeyan, NSW. Sensitive receivers surrounding the quarry are primarily rural and residential properties in all directions. Old Cooma Road is located to the east of the quarry and passing road traffic is a dominate noise source for those receivers to the east of the quarry. Five monitoring locations have been selected for the NMA and in accordance with the Development Consent and are shown in **Table 1-1**.

Table 1-1: Monitoring locations locality and sensitive receivers

Monitoring Locations	Locality and Sensitive Receivers
N3	West of the quarry situated on a rural property off Copperfield Place. This location represents residential and rural receivers to the west of the quarry.
N8	Northeast of the quarry along Tempe Crescent and is representative of residential receivers in that area.
N38	On Heights Road and is representative of the elevated residential receivers to the east of the quarry.
N60	At 501 Old Cooma Road and represents the residence adjacent to the quarry access road.
N67	Situated on a rural property at 732 Old Cooma Road to the south of the quarry. This is representative of rural and residential receivers to the south, with direct line of site into the quarry pit

The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1**. The NMP states attended monitoring is to be undertaken within 30 metres of a private residence, where possible. During this NMA, monitoring at most locations (N3, N8, N60, and N67) was undertaken where safely accessible at each property boundary which was approximately 100 to 200 metres from each property dwelling.

Legend

- Noise monitoring location
- Property dwelling

Figure 1 : Noise monitoring locations at Cooma Road Quarry

2. Noise Criteria

Table 2-1 brings the applicable noise criteria outlined in the Development Consent for the residential receivers surrounding the quarry (N1–N71), and the five monitoring locations adopted from the NMP that are deemed representative and applicable for this NMA (N3, N8, N38, N60, and N67).

Table 2-1: Monitoring locations and noise criteria

Receiver[1]	Monitoring Locations	Morning Shoulder[2]	Day[3]	Evening[4]
		LAeq (15min)	LAeq (15min)	LAeq (15min)
		dB(A)		
N1, N7, N8, N56, N57, N59, N63, N64, N65	N8	40	44	39
N67	N67	36	41	35
All other receivers between N9 and N71 inclusive	N60, N38	36	38	35
All other receivers	N3	35	35	35

[1] Refer to Appendix 5 of the Consolidated Development Consent – SSD 5109 (DOC19/541449) and/or the NMP for receiver locations on the map.

[2] 6 am–7 am

[3] 7 am–6 pm Monday to Saturday

[4] 6 pm–10 pm Monday to Saturday

Note: No operations on Sundays and public holidays

3. Methodology

The monitoring program was developed in accordance with the procedures described in Australian Standard AS 1055:2018 and the Approval Documents referenced in Section 1.

The operator-attended measurements were carried out using a RION Sound Level Meter NL-52 on Wednesday 8 January 2025 and Thursday 9 January 2025. The acoustic instrumentation implemented carries current National Association of Testing Authorities (NATA) calibration and complies with AS/NZS IEC 61672-1:2019 Class 1. Calibration of all instrumentation was checked prior to and following the measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2017. Drift in calibration did not exceed ±0.3 dBA.

The attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over two days at each monitoring location. Where possible, throughout each measurement the operator(s) quantified the contribution of each significant noise source. Where the plant 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.

3.1 Meteorological Conditions

Meterology has an important influence on noise monitoring assessment. Where an onsite meterological station with data recorded at 10m height has not been available, the nearest Department of Planning, Housing and Infrastructure (DPHI) meterological station has been used to adopt wind direction, wind speed and rain data to inform this assessment. Temperature data has been adopted from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Conformal Cubic Atmospheric Model (CCAM) and modelled using The Air Pollution Model (TAPM) to determine the atmospheric category as outline in **Table 3-1**.

Table 3-1: Classification of Atmospheric Stability (NSW EPA, 2014)

Stability Classification	Pasquill Stability Category	Ambient temperature change with height (°C/100m)
Extremely unstable	A	$\Delta T \leq -1.9$
Moderately unstable	B	$-1.9 < \Delta T \leq -1.7$
Slightly unstable	C	$-1.7 < \Delta T \leq -1.5$
Neutral	D	$-1.5 < \Delta T \leq -0.5$
Slightly stable	E	$-0.5 < \Delta T \leq 1.5$
Moderately stable	F	$1.5 < \Delta T \leq 4.0$
Extremely stable	G	$\Delta T > 4.0$

As stated in the Development Consent, the noise criteria in Table 2-1 applies under all meteorological conditions except the following:

- During periods of rain or hail
- Average wind speed at microphone height exceeds 5 m/s
- Wind speeds greater than 3 m/s measured at 10 m above ground level
- Temperature inversion conditions greater than 3°C/100m.

Appendix 9 of the Development Consent also specifies that except for wind speed at microphone height, the data to be used for determing meterological conditons must be that recorded by the meterological station on or in the vicinity of the site.

4. Results and Discussion

4.1 Location N3

Noise monitoring at location N3 was conducted on Wednesday 8 January 2025 with results presented in **Table 4-1**. The quarry was inaudible at N3 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, birds, wind, trees, insects and aircraft. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance.

Table 4-1: Noise survey results and observations for Location N3

Date	Time	Descriptor (dBA)			Meteorology (Handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
8-01-25	6:00am to 6:15am (Morning Shoulder)	59.1	35.7	26.1	WD: n/a WS: 0 m/s Rain: Nil	WD: 133° WS: 2.0 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 30-47 Quarry inaudible	<16	35
8-01-25	8:46am to 9:01am (Day)	55.3	37.8	33.7	WD: 120° WS: 2.3 m/s Rain: Nil	WD: 140° WS: 2.7 m/s Rain: nil Stability Category: E[2]	Background motorway traffic, wind 30-43 Birds 44-67 Quarry inaudible	<24	35
8-01-25	6:00pm to 6:15pm (Evening)	69.6	47.3	41.1	WD: 82° WS: 0.4 m/s Rain: Nil	WD: 91° WS: 3.2 m/s Rain: nil Stability Category: E[2]	Background road traffic, trees, insects, wind 42-58 Aircraft 55-69 Quarry not operational	n/a[3]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Quarry not operational.

4.2 Location N8

Noise monitoring at location N8 was conducted on Wednesday 8 January and Thursday 9 January 2025 with results presented in **Table 4-2**. The quarry was inaudible at N8 during the morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, birds, passing cars on Tempe Crescent, trucks and motorcycles. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance.

Table 4-2: Noise survey results and observations for Location N8

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
9-01-25	6:21am to 6.36am (Morning Shoulder)	71.3	56.7	47.9	WD: n/a WS: 0 m/s Rain: Nil	WD: 133° WS: 2.0 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 45-60 Birds 61-71 Quarry inaudible	<38	40
8-01-25	7:42am to 7:57am (Day)	81.2	62.5	55	WD: n/a WS: 0 m/s Rain: Nil	WD: 136° WS: 2.4 m/s Rain: nil Stability Category: E[2]	Background road traffic 62-74 Trucks 72-81 Quarry inaudible	<45[3,4]	44
8-01-25	7:12pm to 7:29pm (Evening)	82.7	57.8	45.7	WD: n/a WS: 0 m/s Rain: Nil	WD: 91° WS: 3.1 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 37-74 Motorcycle 73-82 Car passing 68-72 Quarry not operational	n/a[5]	39

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 55 was dominated by road traffic, including trucks, so unable to estimate contribution for quarry at the assessment location.

[4] Negligible exceedance (NPfI 2017 – Table 4.1). The estimated 45 dBA was primarily due to the significant impact of extraneous noise sources on the monitoring.

[5] Quarry not operational.

4.3 Location N38

Noise monitoring at location N38 was conducted on Wednesday 8 January and Thursday 9 January 2025 with results presented in **Table 4-3**. The quarry was inaudible at N38 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, trucks, and aircrafts. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance.

Table 4-3: Noise survey results and observations for Location N38

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	Laeq	LA90					
9-01-25	6:39am to 6:54am (Morning Shoulder)	76.4	56.5	40.3	WD: n/a WS: 0 m/s Rain: Nil	WD: 133° WS: 2.0 m/s Rain: nil Stability Category: E[2]	Background road traffic 42-62 Trucks 62-76 Aircraft 54-68 Quarry inaudible	<30	36
8-01-25	8:02am to 8:17am (Day)	76.5	56.1	45.2	WD: n/a WS: 0 m/s Rain: Nil	WD: 140° WS: 2.7 m/s Rain: nil Stability Category: E[2]	Background road traffic 38-70 Trucks 72-76 Quarry inaudible	<35	38
8-01-25	7:31pm to 7:46pm (Evening)	68.1	50.5	41.8	WD: n/a WS: 0 m/s Rain: Nil	WD: 91° WS: 3.1 m/s Rain: nil Stability Category: E[2]	Background road traffic 43-68 Quarry not operational	n/a[3]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Quarry not operational.

4.4 Location N60

Noise monitoring at location N60 was conducted on Wednesday 8 January and Thursday 9 January 2025 with results presented in **Table 4-4**. The quarry was inaudible at N60 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, birds, wind, trees, trucks and cars. These results are deemed to satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnote 3 below).

Table 4-4: Noise survey results and observations for Location N60

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
9-01-25	6:00am to 6:15am (Morning Shoulder)	74.4	60.2	39.0	WD: n/a WS: 0 m/s Rain: Nil	WD: 133° WS: 2.0 m/s Rain: nil Stability Category: E[2]	Background road traffic 39-72 Birds 66-74 Quarry inaudible	<29	36
8-01-25	7:00am to 7:15am (Day)	73.2	63.9	53.9	WD: n/a WS: 0 m/s Rain: Nil	WD: 136° WS: 2.4 m/s Rain: nil Stability Category: E[2]	Background road traffic 40-62 Trucks 60-73 Quarry inaudible	<44[3]	38
8-01-25	6:49pm to 7:04pm (Evening)	76.6	60.9	46.0	WD: 267° WS: 2.3 m/s Rain: Nil	WD: 155° WS: 1.4 m/s Rain: nil Stability Category: E[2]	Background road traffic, wind, trees 40-65 Car passing 70-76 Quarry not operational	n/a[4]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 53.9 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Quarry not operational.

4.5 Location N67

Noise monitoring results at location N67 was conducted on Wednesday 8 January 2025 with results presented in **Table 4-5**. The quarry was inaudible at N67 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, passing trucks, wind, trees, aircrafts and motorcycles. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-5: Noise survey results and observations for Location N67

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
8-01-25	6:30am to 6:45am (Morning Shoulder)	76.8	64.0	51.0	WD: n/a WS: 0 m/s Rain: Nil	WD: 133° WS: 2.0 m/s Rain: nil Stability Category: E[2]	Background road traffic 40-65 Trucks 60-72 Quarry inaudible	<41[3]	36
8-01-25	7:20am to 7:35am (Day)	94	65.2	54.4	WD: n/a WS: 0 m/s Rain: Nil	WD: 136° WS: 2.4 m/s Rain: nil Stability Category: E[2]	Background road traffic 60-72 Trucks, birds 70-76 Quarry inaudible	<44[4]	41
8-01-25	6:29pm to 6:44pm (Evening)	90	70.0	50.5	WD: n/a WS: 0 m/s Rain: Nil	WD: 91° WS: 3.2 m/s Rain: nil Stability Category: E[2]	Background road traffic, wind, trees 50-70 Aircraft 71-80 Motorcycle 65-99 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 51.0 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 54.4 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

5. Conclusion

This NMA was completed by Ramboll at the Holcim Cooma Road Quarry, Googong, NSW as a quarterly requirement of the NMP. Monitoring was carried out on Wednesday, 8 January and Thursday, 9 January 2025 at five locations selected as representative to the sensitive receivers at the surroundings to Cooma Road Quarry.

No audible noise from quarry operations was observed at any of the five locations during the morning shoulder and day periods. The quarry was not operational during the evening periods.

The results presented in this NMA show compliance with the relevant noise criteria applicable to the operation of the Holcim Cooma Road Quarry, Googong, NSW.

It is noted that at three assessment locations, some exceedances of the noise criteria have been recorded as follows:

- Up to 1 dB at N8 during the day period;
- Up to 6 dB at N60 during the day period; and
- Up to 3 dB at N67 during the morning shoulder and day periods

However, it should be noted that the noise environment during these periods, noise monitoring was heavily affected by extraneous noise sources whilst the site was inaudible. Therefore, it can be concluded that the exceedances were not caused by the site operation.

6. References

Holcim Australia (2019) *Cooma Road Quarry, Noise Management Plan*.

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Holcim (Australia) Pty Ltd

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Report

Date
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Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 2 2025

RAMBOLL

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Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 2 2025

Project name	**NSW Environmental Monitoring 2024-2025**
Project no.	**318001800**
Recipient	**David Manning**
Document type	**Report**
Version	**1**
Date	**12/08/2025**
Prepared by	**Jake Bourke, Brodie Wood**
Checked by	**Arnold Cho**
Approved by	**Gavan Butterfield**
Description	**Data collected on 6 and 7 May 2025 for the quarterly period ending June 2025 at Googong, NSW, as part of the noise monitoring program**

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Abbreviations and Definitions

	Description
ΔT	Vertical Temperature Difference, i.e. the measured difference in ambient temperature between two elevations on the same tower. It is defined as the upper-level temperature measurement minus the lower-level temperature measurement.
°	Degree
Ambient Noise	The all-encompassing noise within a given environment. It is the composite of sounds from many sources, both near and far.
Background noise	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).
C	Celcius
CCAM	Conformal Cubic Atmospheric Model
CSIRO	Commonwealth Scientific and Industrial Research Organisation
dB	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.
dB(A)	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.
DPHI	Department of Planning, Housing, and Infrastructure
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Extraneous noise	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.
m	Metre
LA1	The noise level, measured in dB(A), which is exceeded for 1 per cent of the measurement period.
LA1(1min)	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.
LA10	The noise level, measured in dB(A), which is exceeded for 10 per cent of the time.
LA90	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).
LAeq	The level of noise equivalent to the energy average of noise levels occurring over a defined measurement period.
LAeq (period)	The average equivalent noise level, measured in dB(A), during a measurement period (e.g., 15-minute, day, evening, or night).
LAmax	The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured.
NATA	National Association of Testing Authorities
NMA	Noise Monitoring Assessment
NMP	Noise Management Plan

	Description
NPfI	Noise Policy for Industry 2017
NSW	New South Wales
s	Second
SPL	The Sound Pressure Level. Sound pressure is the fluctuation in air pressure, from the steady atmospheric pressure, created by sound. The sound pressure level is the sound pressure expressed on a decibel scale.
TAPM	The Air Pollution Model

Source: Noise Guide for Local Government (NSW EPA, 2023)

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 Cooma Road Quarry ("the quarry") at Googong, NSW.

This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPfI) (NSW EPA, 2017)
- Cooma Road Quarry Noise Management Plan (NMP) (Holcim Australia, 2019)
- Development Consent Application Number SSD_5109 (Minister for Planning and Infrastructure, 2013)
- Environment Protection Licence (EPL) number 1453 (NSW EPA, 2020)
- Australian Standard AS 1055:2018 Acoustics—Description and measurement of environmental noise (Standards Australia, 2018)
- Australian Standard AS/NZS IEC 61672.1:2019 Electroacoustics – Sound level meters, Part 1: Specifications (Standards Australia and Standards New Zealand, 2019)
- IEC 60942:2017 Electroacoustics - Electroacoustics – Sound calibrators (International Standard, 2017).

This NMA has been undertaken for the quarterly period April to June 2025, and forms part of the monitoring program to determine compliance with conditions of the Development Consent.

1.2 Site Location and Sensitive Receivers

The quarry is in Googong, approximately 6 kilometres south of Queanbeyan, NSW. Sensitive receivers surrounding the quarry are primarily rural and residential properties in all directions. Old Cooma Road is located to the east of the quarry and passing road traffic is a dominate noise source for those receivers to the east of the quarry. Five monitoring locations have been selected for the NMA and in accordance with the Development Consent and are shown in **Table 1-1**.

Table 1-1: Monitoring locations locality and sensitive receivers

Monitoring Locations	Locality and Sensitive Receivers
N3	West of the quarry situated on a rural property off Copperfield Place. This location represents residential and rural receivers to the west of the quarry.
N8	Northeast of the quarry along Tempe Crescent and is representative of residential receivers in that area.
N38	On Heights Road and is representative of the elevated residential receivers to the east of the quarry.
N60	At 501 Old Cooma Road and represents the residence adjacent to the quarry access road.
N67	Situated on a rural property at 732 Old Cooma Road to the south of the quarry. This is representative of rural and residential receivers to the south, with direct line of site into the quarry pit

The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1**. The NMP states attended monitoring is to be undertaken within 30 metres of a private residence, where possible. During this NMA, monitoring at most locations (N3, N8, N60, and N67) was undertaken where safely accessible at each property boundary which was approximately 100 to 200 metres from each property dwelling.

Legend

- Noise monitoring location
- Property dwelling

Figure 1 : Noise monitoring locations at Cooma Road Quarry

2. Noise Criteria

Table 2-1 brings the applicable noise criteria outlined in the Development Consent for the residential receivers surrounding the quarry (N1–N71), and the five monitoring locations adopted from the NMP that are deemed representative and applicable for this NMA (N3, N8, N38, N60, and N67).

Table 2-1: Monitoring locations and noise criteria

Receiver[1]	Monitoring Locations	Morning Shoulder[2]	Day[3]	Evening[4]
		LAeq (15min)	LAeq (15min)	LAeq (15min)
		dB(A)		
N1, N7, N8, N56, N57, N59, N63, N64, N65	N8	40	44	39
N67	N67	36	41	35
All other receivers between N9 and N71 inclusive	N60, N38	36	38	35
All other receivers	N3	35	35	35

[1] Refer to Appendix 5 of the Consolidated Development Consent – SSD 5109 (DOC19/541449) and/or the NMP for receiver locations on the map.

[2] 6 am–7 am

[3] 7 am–6 pm Monday to Saturday

[4] 6 pm–10 pm Monday to Saturday

Note: No operations on Sundays and public holidays

3. Methodology

The monitoring program was developed in accordance with the procedures described in Australian Standard AS 1055:2018 and the Approval Documents referenced in Section 1.

The operator-attended measurements were carried out using a RION Sound Level Meter NL-52 on Tuesday 6 May 2025 and Wednesday 7 May 2025. The acoustic instrumentation implemented carries current National Association of Testing Authorities (NATA) calibration and complies with AS/NZS IEC 61672-1:2019 Class 1. Calibration of all instrumentation was checked prior to and following the measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2017. Drift in calibration did not exceed ±0.3 dBA.

The attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over two days at each monitoring location. Where possible, throughout each measurement the operator(s) quantified the contribution of each significant noise source. Where the plant 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.

3.1 Meteorological Conditions

Meterology has an important influence on noise monitoring assessment. Where an onsite meterological station with data recorded at 10m height has not been available, the nearest Department of Planning, Housing and Infrastructure (DPHI) meterological station has been used to adopt wind direction, wind speed and rain data to inform this assessment. Temperature data has been adopted from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Conformal Cubic Atmospheric Model (CCAM) and modelled using The Air Pollution Model (TAPM) to determine the atmospheric category as outline in **Table 3-1**.

Table 3-1: Classification of Atmospheric Stability (NSW EPA, 2014)

Stability Classification	Pasquill Stability Category	Ambient temperature change with height (°C/100m)
Extremely unstable	A	$\Delta T \leq -1.9$
Moderately unstable	B	$-1.9 < \Delta T \leq -1.7$
Slightly unstable	C	$-1.7 < \Delta T \leq -1.5$
Neutral	D	$-1.5 < \Delta T \leq -0.5$
Slightly stable	E	$-0.5 < \Delta T \leq 1.5$
Moderately stable	F	$1.5 < \Delta T \leq 4.0$
Extremely stable	G	$\Delta T > 4.0$

As stated in the Development Consent, the noise criteria in Table 2-1 applies under all meteorological conditions except the following:

- During periods of rain or hail
- Average wind speed at microphone height exceeds 5 m/s
- Wind speeds greater than 3 m/s measured at 10 m above ground level
- Temperature inversion conditions greater than 3°C/100m.

Appendix 9 of the Development Consent also specifies that except for wind speed at microphone height, the data to be used for determing meterological conditons must be that recorded by the meterological station on or in the vicinity of the site.

4. Results and Discussion

4.1 Location N3

Noise monitoring at location N3 was conducted on Tuesday 6 May 2025 and Wednesday 7 May 2025 with results presented in **Table 4-1**. The quarry was inaudible at N3 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, birds, wind, trees, insects and aircraft. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance.

Table 4-1: Noise survey results and observations for Location N3

Date	Time	Descriptor (dBA)			Meteorology (Handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
6-05-25	6:00am to 6:15am (Morning Shoulder)	55.3	38	36.7	WD: n/a WS: 0 m/s Rain: Nil	WD: 82° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background motorway, birds, insects 37-39 Magpies 39-40 Kookaburras 45-55 Quarry inaudible	<27	35
6-05-25	8:59am to 9:14am (Day)	68.2	45.9	41.6	WD: n/a WS: 0 m/s Rain: Nil	WD: 123° WS: 0.3 m/s Rain: nil Stability Category: E[2]	Background motorway, birds 42-50 Aircraft 50-54 Quarry inaudible	<32	35
7-05-25	6:00pm to 6:15pm (Evening)	56	43.2	38.7	WD: 285° WS: 2.9 m/s Rain: Nil	WD: 271° WS: 3.6 m/s Rain: nil Stability Category: E[2]	Background motorway, wind, trees 41-47 Aircraft 47-56 Quarry not operational	n/a[3]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Quarry not operational.

4.2 Location N8

Noise monitoring at location N8 was conducted on Tuesday 6 May 2025 and Wednesday 7 May 2025 with results presented in **Table 4-2**. The quarry was inaudible at N8 during the morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, birds, wind, trees, passing cars on Tempe Crescent, trucks and motorcycles. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3, 4 and 5 below).

Table 4-2: Noise survey results and observations for Location N8

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
7-05-25	6:07am to 6.22am (Morning Shoulder)	67.1	57.8	51.2	WD: n/a WS: 0 m/s Rain: Nil	WD: 315° WS: 1.2 m/s Rain: nil Stability Category: E[2]	Background road traffic 50-60 Car passing 64-67 Quarry inaudible	<41[3,4]	40
6-05-25	7:44am to 7:59am (Day)	70.1	62.6	58.9	WD: n/a WS: 0 m/s Rain: Nil	WD: 295° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 61-64 Trucks 75-80 Quarry inaudible	<49[5]	44
7-05-25	7:23pm to 7:38pm (Evening)	69.8	60	50.3	WD: 300° WS: 1.4 m/s Rain: Nil	WD: 316° WS: 0.7 m/s Rain: nil Stability Category: E[2]	Background road traffic, wind, trees, music 59-67 Trucks passing 68-70 Motorcycle 74 Quarry not operational	n/a[6]	39

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 51.2 was dominated by road traffic, so unable to estimate contribution for quarry at the assessment location.

[4] Negligible exceedance (NPfI 2017 – Table 4.1). The estimated 51 dBA was primarily due to the significant impact of extraneous noise sources on the monitoring.

[5] Measured LA90 value of 58.9 was dominated by road traffic, including trucks, so unable to estimate contribution for quarry at the assessment location.

[6] Quarry not operational.

4.3 Location N38

Noise monitoring at location N38 was conducted on Tuesday 6 May 2025 and Wednesday 7 May 2025 with results presented in **Table 4-3**. The quarry was inaudible at N38 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, birds, wind, trees, motorcycles and trucks. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-3: Noise survey results and observations for Location N38

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
7-05-25	6:25am to 6:40am (Morning Shoulder)	74.1	57.4	50.7	WD: n/a WS: 0 m/s Rain: Nil	WD: 315° WS: 1.2 m/s Rain: nil Stability Category: E2	Background road traffic, birds 53-60 Trucks 60-70 Motorcycle 74 Quarry inaudible	<41[3]	36
6-05-25	8:04am to 8:19am (Day)	82.7	61	52	WD: n/a WS: 0 m/s Rain: Nil	WD: 62° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 55-60 Trucks 75-80 Quarry inaudible	<42[4]	38
7-05-25	7:44pm to 7:59pm (Evening)	74.1	55.5	46.4	WD: 330° WS: 2.9 m/s Rain: Nil	WD: 316° WS: 0.7 m/s Rain: nil Stability Category: E[2]	Background road traffic, wind, trees 50-65 Motorcycle 67-74 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 50.7 was dominated by road traffic, including trucks and motorcycles so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 52 was dominated by road traffic, including trucks, so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

4.4 Location N60

Noise monitoring at location N60 was conducted on Tuesday 6 May 2025 and Wednesday 7 May 2025 with results presented in **Table 4-4**. The quarry was inaudible at N60 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, birds, wind, trees and trucks. These results are deemed to satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-4: Noise survey results and observations for Location N60

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
6-05-25	6:27am to 6:42am (Morning Shoulder)	82.3	63.7	50.6	WD: n/a WS: 0 m/s Rain: Nil	WD: 83° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 50-65 Trucks 70-74 Quarry inaudible	<41[3]	36
6-05-25	7:21am to 7:36am (Day)	78.4	64.6	56.7	WD: n/a WS: 0 m/s Rain: Nil	WD: 295° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background road traffic 63-70 Trucks 74-78 Quarry inaudible	<47[4]	38
7-05-25	7:00pm to 7:15pm (Evening)	78.3	59	46.4	WD: 333° WS: 2.9 m/s Rain: Nil	WD: 312° WS: 0.3 m/s Rain: nil Stability Category: E[2]	Background road traffic, wind, trees 56-67 Trucks 70-78 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 50.6 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 56.7 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

4.5 Location N67

Noise monitoring results at location N67 was conducted on Tuesday 6 May 2025 and Wednesday 7 May 2025 with results presented in **Table 4-5**. The quarry was inaudible at N67 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, birds, passing trucks and motorcycles. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3, 4 and 5 below).

Table 4-5: Noise survey results and observations for Location N67

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
6-05-25	6:44am to 6:59am (Morning Shoulder)	77.2	66.6	53.2	WD: n/a WS: 0 m/s Rain: Nil	WD: 83° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 52-74 Quarry inaudible	<43[3]	36
6-05-25	7:02am to 7:17am (Day)	79.1	66.6	53.1	WD: n/a WS: 0 m/s Rain: Nil	WD: 295° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background road traffic, birds 59-72 Trucks 74-76 Quarry inaudible	<43[4,5]	41
7-05-25	6:35pm to 6:50pm (Evening)	75.9	60.1	51.1	WD: 287° WS: 2.1 m/s Rain: Nil	WD: 271° WS: 3.6 m/s Rain: nil Stability Category: E[2]	Background road traffic 54-67 Trucks 68-70 Motorcycle 75 Quarry not operational	n/a[6]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 53.2 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 53.1 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[5] Negligible exceedance (NPfI 2017 – Table 4.1). The estimated 43 dBA was primarily due to the significant impact of extraneous noise sources on the monitoring.

[6] Quarry not operational.

5. Conclusion

This NMA was completed by Ramboll at the Holcim Cooma Road Quarry, Googong, NSW as a quarterly requirement of the NMP. Monitoring was carried out on Tuesday, 6 May 2025 and Wednesday, 7 May 2025 at five locations selected as representative to the sensitive receivers at the surroundings to Cooma Road Quarry.

No audible noise from quarry operations was observed at any of the five locations during the morning shoulder and day periods. The quarry was not operational during the evening periods.

The results presented in this NMA show compliance with the relevant noise criteria applicable to the operation of the Holcim Cooma Road Quarry, Googong, NSW.

It is noted that at three assessment locations, some exceedances of the noise criteria have been recorded as follows:

- Up to 5 dB at N8 during the morning shoulder and day periods
- Up to 4 dB at N38 during the morning shoulder and day periods
- Up to 9 dB at N60 during the morning shoulder and day periods
- Up to 7 dB at N67 during the morning shoulder and day periods

However, it should be noted that the noise environment during these periods, noise monitoring was heavily affected by extraneous noise sources whilst the site was inaudible. Therefore, it can be concluded that the exceedances were not caused by the site operation.

6. References

Holcim Australia (2019) *Cooma Road Quarry, Noise Management Plan*.

International Electrotechnical Commission *IEC 60942:2017 Electroacoustics – Sound calibrators*

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Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 3 2025

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Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 3 2025

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Background noise	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).
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CCAM	Conformal Cubic Atmospheric Model
CSIRO	Commonwealth Scientific and Industrial Research Organisation
dB	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.
dB(A)	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.
DPHI	Department of Planning, Housing, and Infrastructure
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Extraneous noise	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.
m	Metre
LA1	The noise level, measured in dB(A), which is exceeded for 1 per cent of the measurement period.
LA1(1min)	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.
LA10	The noise level, measured in dB(A), which is exceeded for 10 per cent of the time.
LA90	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).
LAeq	The level of noise equivalent to the energy average of noise levels occurring over a defined measurement period.
LAeq (period)	The average equivalent noise level, measured in dB(A), during a measurement period (e.g., 15-minute, day, evening, or night).
LAmax	The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured.
NATA	National Association of Testing Authorities
NMA	Noise Monitoring Assessment
NMP	Noise Management Plan
NPfI	Noise Policy for Industry 2017
NSW	New South Wales
s	Second

	Description
SPL	The Sound Pressure Level. Sound pressure is the fluctuation in air pressure, from the steady atmospheric pressure, created by sound. The sound pressure level is the sound pressure expressed on a decibel scale.
TAPM	The Air Pollution Model

Source: Noise Guide for Local Government (NSW EPA, 2023)

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 Cooma Road Quarry ("the quarry") at Googong, NSW.

This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPfI) (NSW EPA, 2017)
- Cooma Road Quarry Noise Management Plan (NMP) (Holcim, 2019)
- Cooma Road Quarry Continued Operations Project Development Consent SSD_5109 (Minister for Planning, 2019)
- Environment Protection Licence (EPL) number 1453 (NSW EPA, 2020)
- Australian Standard AS 1055:2018 Acoustics—Description and measurement of environmental noise (Standards Australia, 2018)
- Australian Standard AS/NZS IEC 61672.1:2019 Electroacoustics – Sound level meters, Part 1: Specifications (Standards Australia and Standards New Zealand, 2019)
- International Electrotechnical Commission (IEC) 60942:2017 Electroacoustics - Electroacoustics – Sound calibrators (IEC, 2017).

This NMA has been undertaken for the quarterly period July to September 2025, and forms part of the monitoring program to determine compliance with conditions of the Development Consent.

1.2 Site Location and Sensitive Receivers

The quarry is in Googong, approximately 6 kilometres south of Queanbeyan, NSW. Sensitive receivers surrounding the quarry are primarily rural and residential properties in all directions. Old Cooma Road is located to the east of the quarry and passing road traffic is a dominate noise source for those receivers to the east of the quarry. Five monitoring locations have been selected for the NMA and in accordance with the Development Consent and are shown in **Table 1-1**.

Table 1-1: Monitoring locations locality and sensitive receivers

Monitoring Location	Locality and Sensitive Receivers
N3	West of the quarry situated on a rural property off Copperfield Place. This location represents residential and rural receivers to the west of the quarry.
N8	Northeast of the quarry along Tempe Crescent and is representative of residential receivers in that area.
N38	On Heights Road and is representative of the elevated residential receivers to the east of the quarry.
N60	At 501 Old Cooma Road and represents the residence adjacent to the quarry access road.
N67	Situated on a rural property at 732 Old Cooma Road to the south of the quarry. This is representative of rural and residential receivers to the south, with direct line of site into the quarry pit

The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1**. The NMP states attended monitoring is to be undertaken within 30 metres of a private residence, where possible. During this NMA, monitoring at most locations (N3, N8, N60, and N67) was undertaken where safely accessible at each property boundary which was approximately 100 to 200 metres from each property dwelling.

Legend

- Noise monitoring location
- Property dwelling

Figure 1 : Noise monitoring locations at Cooma Road Quarry

2. Noise Criteria

Table 2-1 brings the applicable noise criteria outlined in the Development Consent for the residential receivers surrounding the quarry (N1–N71), and the five monitoring locations adopted from the NMP that are deemed representative and applicable for this NMA (N3, N8, N38, N60, and N67).

Table 2-1: Monitoring locations and noise criteria

Receiver[1]	Monitoring Locations	Morning Shoulder[2]	Day[3]	Evening[4]
		LAeq (15min)	LAeq (15min)	LAeq (15min)
		dB(A)		
N1, N7, N8, N56, N57, N59, N63, N64, N65	N8	40	44	39
N67	N67	36	41	35
All other receivers between N9 and N71 inclusive	N60, N38	36	38	35
All other receivers	N3	35	35	35

[1] Refer to Appendix 5 of the Consolidated Development Consent – SSD 5109 (DOC19/541449) and/or the NMP for receiver locations on the map.

[2] 6 am–7 am

[3] 7 am–6 pm Monday to Saturday

[4] 6 pm–10 pm Monday to Saturday

Note: No operations on Sundays and public holidays

3. Methodology

The monitoring program was developed in accordance with the procedures described in AS 1055:2018 (Standards Australia, 2018) and the Approval Documents referenced in Section 1. The operator-attended measurements were carried out using a RION Sound Level Meter NL-52 on Wednesday 6 August 2025 and Friday 8 August 2025. The acoustic instrumentation implemented carries current National Association of Testing Authorities (NATA) calibration and complies with AS/NZS IEC 61672-1:2019 Class 1 (Standards Australia and Standards New Zealand, 2019). Calibration of all instrumentation was checked prior to and following the measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2017 (IEC, 2017). Drift in calibration did not exceed ±0.3 dBA.

The attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over two days at each monitoring location. Where possible, throughout each measurement the operator(s) quantified the contribution of each significant noise source. Where the plant 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.

3.1 Meteorological Conditions

Meterology has an important influence on noise monitoring assessment. Where an onsite meterological station with data recorded at 10m height has not been available, the nearest Department of Planning, Housing and Infrastructure (DPHI) meterological station has been used to adopt wind direction, wind speed and rain data to inform this assessment. Temperature data has been adopted from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Conformal Cubic Atmospheric Model (CCAM) and modelled using The Air Pollution Model (TAPM) to determine the atmospheric category as outline in **Table 3-1**.

Table 3-1: Classification of atmospheric stability (NSW EPA, 2014)

Stability Classification	Pasquill Stability Category	Ambient temperature change with height (°C/100m)
Extremely unstable	A	$\Delta T \leq -1.9$
Moderately unstable	B	$-1.9 < \Delta T \leq -1.7$
Slightly unstable	C	$-1.7 < \Delta T \leq -1.5$
Neutral	D	$-1.5 < \Delta T \leq -0.5$
Slightly stable	E	$-0.5 < \Delta T \leq 1.5$
Moderately stable	F	$1.5 < \Delta T \leq 4.0$
Extremely stable	G	$\Delta T > 4.0$

As stated in the Development Consent, the noise criteria in Table 2-1 applies under all meteorological conditions except the following:

- During periods of rain or hail
- Average wind speed at microphone height exceeds 5 m/s
- Wind speeds greater than 3 m/s measured at 10 m above ground level
- Temperature inversion conditions greater than 3°C/100m.

Appendix 9 of the Development Consent also specifies that except for wind speed at microphone height, the data to be used for determing meterological conditons must be that recorded by the meterological station on or in the vicinity of the site.

4. Results and Discussion

4.1 Location N3

Noise monitoring at location N3 was conducted on Wednesday 6 August 2025 with results presented in **Table 4-1**. The quarry was inaudible at N3 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, fauna and aircrafts. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance.

Table 4-1: Noise survey results and observations for Location N3

Date	Time	Descriptor (dBA)			Meteorology (Handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
6-08-25	6:10am to 6:25am (Morning Shoulder)	58.2	38.1	34.5	WD: n/a WS: 0 m/s Rain: Nil	WD: 2° WS: 0.1 m/s Rain: nil Stability Category: E[2]	Background traffic, birds 36-58 Quarry inaudible	<25	35
6-08-25	8:45am to 9:00am (Day)	65.2	47	38.7	WD: n/a WS: 0 m/s Rain: Nil	WD: 332° WS: 0.1 m/s Rain: nil Stability Category: E[2]	Background traffic, birds 42-55 Aircraft 53-58 Bird 60-61 Quarry inaudible	<29	35
6-08-25	6:00pm to 6:15pm (Evening)	64	43.8	33.5	WD: 270° WS: 0.3 m/s Rain: Nil	WD: 265° WS: 2.8 m/s Rain: nil Stability Category: E[2]	Background traffic, insects, birds 34-37 Dog barking 45 Aircraft 58-64 Quarry not operational	n/a[3]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Quarry not operational.

4.2 Location N8

Noise monitoring at location N8 was conducted on Wednesday 6 August 2025 and Friday 8 August 2025 with results presented in **Table 4-2**. The quarry was inaudible at N8 during the morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, birds and insects. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3, 4 and 5 below).

Table 4-2: Noise survey results and observations for Location N8

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
8-08-25	6:38am to 6.53am (Morning Shoulder)	68.9	61	54.8	WD: n/a WS: 0 m/s Rain: Nil	WD: 118° WS: 1.2 m/s Rain: nil Stability Category: G[2]	Background traffic, birds 52-75 Quarry inaudible	<45[3]	40
6-08-25	7:59am to 8:14am (Day)	75	61.8	57.4	WD: n/a WS: 0 m/s Rain: Nil	WD: 332° WS: 0.1 m/s Rain: nil Stability Category: E[2]	Motorway traffic, birds 61-74 Quarry inaudible	<47[4]	44
6-08-25	7:13pm to 7:28pm (Evening)	64.5	59.1	52.7	WD: 300° WS: 1.4 m/s Rain: Nil	WD: 282° WS: 0.8 m/s Rain: nil Stability Category: E[2]	Motorway traffic, insects 58-67 Quarry not operational	n/a[5]	39

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 54.8 was dominated by road traffic, so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 57.4 was dominated by road traffic, including trucks, so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

4.3 Location N38

Noise monitoring at location N38 was conducted on Wednesday 6 August 2025 with results presented in **Table 4-3**. The quarry was inaudible at N38 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, fauna and a motorcycle. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-3: Noise survey results and observations for Location N38

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
6-08-25	6:38am to 6:53am (Morning Shoulder)	71.2	58.3	51	WD: n/a WS: 0 m/s Rain: Nil	WD: 2° WS: 0.1 m/s Rain: nil Stability Category: E[2]	Background traffic, birds 48-70 Quarry inaudible	<41[3]	36
6-08-25	8:18am to 8:33am (Day)	82.6	61	54.3	WD: n/a WS: 0 m/s Rain: Nil	WD: 332° WS: 0.1 m/s Rain: nil Stability Category: E[2]	Background traffic, birds 55-70 Motorcycle 70-83 Quarry inaudible	<44[4]	38
6-08-25	7:32pm to 7:47pm (Evening)	73.8	56.3	49.3	WD: n/a WS: 0 m/s Rain: Nil	WD: 282° WS: 0.8 m/s Rain: nil Stability Category: E[2]	Background traffic, insects 56-73 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 51 was dominated by road traffic, so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 54.3 was dominated by road traffic, including motorcycles, so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

4.4 Location N60

Noise monitoring at location N60 was conducted on Wednesday 6 August 2025 and Friday 8 August 2025 with results presented in **Table 4-4**. The quarry was inaudible at N60 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, birds and trucks. These results are deemed to satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-4: Noise survey results and observations for Location N60

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
8-08-25	6:18am to 6:33am (Morning Shoulder)	80.7	65.7	50	WD: n/a WS: 0 m/s Rain: Nil	WD: 118° WS: 1.2 m/s Rain: nil Stability Category: G[2]	Background traffic, bird 55-76 Trucks 78-81 Quarry inaudible	<40[3]	36
6-08-25	7:37am to 7:52am (Day)	79.9	70.5	57.3	WD: n/a WS: 0 m/s Rain: Nil	WD: 298° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Background traffic 54-80 Trucks 76-80 Quarry inaudible	<47[4]	38
6-08-25	6:52pm to 7:07pm (Evening)	82.4	65.5	51.3	WD: n/a WS: 0 m/s Rain: Nil	WD: 265° WS: 2.8 m/s Rain: nil Stability Category: E[2]	Background traffic, bird 55-71 Trucks 76-80 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 50 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 57.3 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

4.5 Location N67

Noise monitoring results at location N67 was conducted on Wednesday 6 August 2025 and Friday 8 August 2025 with results presented in **Table 4-5**. The quarry was inaudible at N67 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, trucks, a motorcycle and aircraft. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3, 4 and 5 below).

Table 4-5: Noise survey results and observations for Location N67

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
8-08-25	6:00am to 6:15am (Morning Shoulder)	81.7	67	49.4	WD: n/a WS: 0 m/s Rain: Nil	WD: 118° WS: 1.2 m/s Rain: nil Stability Category: G[2]	Motorway traffic 43-78 Trucks 78-81 Quarry inaudible	<39[3]	36
6-08-25	7:18am to 7:33am (Day)	81.9	70.9	55.5	WD: n/a WS: 0 m/s Rain: Nil	WD: 298° WS: 0.2 m/s Rain: nil Stability Category: E[2]	Motorway traffic 54-77 Aircraft 60-68 Motorcycle 75-80 Quarry inaudible	<46[4]	41
6-08-25	6:29pm to 6:44pm (Evening)	81.7	66	50	WD: 287° WS: 2.1 m/s Rain: Nil	WD: 265° WS: 2.8 m/s Rain: nil Stability Category: E[2]	Motorway traffic 43-78 Trucks 78-81 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 49.4 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 55.5 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

5. Conclusion

This NMA was completed by Ramboll at the Holcim Cooma Road Quarry, Googong, NSW as a quarterly requirement of the NMP. Monitoring was carried out on Wednesday 6 August 2025 and Friday 8 August 2025 at five locations selected as representative to the sensitive receivers at the surroundings to Cooma Road Quarry.

No audible noise from quarry operations was observed at any of the five locations during the morning shoulder and day periods. The quarry was not operational during the evening periods. Exceedances were recorded at four locations as follows:

- Up to 5 dB at N8 during the morning shoulder and day periods
- Up to 6 dB at N38 during the morning shoulder and day periods
- Up to 9 dB at N60 during the morning shoulder and day periods
- Up to 5 dB at N67 during the morning shoulder and day periods

However, it should be noted that the noise environment was heavily affected by extraneous noise sources whilst the site was inaudible. Therefore, it can be concluded that the exceedances were not caused by the site operation.

The results presented in this NMA show compliance with the relevant noise criteria applicable to the operation of the Holcim Cooma Road Quarry, Googong, NSW.

6. References

Holcim. (2019). *Cooma Road Noise Management Plan.*

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Report

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Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 4 2025

RAMBOLL

Bright ideas.
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Cooma Road Quarry Quarterly Noise Monitoring Assessment

Quarter 4 2025

Project name	**NSW Environmental Monitoring 2024-2025**
Project no.	**318001800**
Recipient	**David Manning**
Document type	**Report**
Version	**1**
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Prepared by	**Brodie Wood**
Checked by	**Arnold Cho, Jake Bourke**
Approved by	**Gavan Butterfield**
Description	**Data collected on 1, 2 and 3 October 2025 for the quarterly period ending December 2025 at Googong, NSW, as part of the noise monitoring program**

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Abbreviations and Definitions

	Description
ΔT	Vertical Temperature Difference, i.e. the measured difference in ambient temperature between two elevations on the same tower. It is defined as the upper-level temperature measurement minus the lower-level temperature measurement.
°	Degree
Ambient Noise	The all-encompassing noise within a given environment. It is the composite of sounds from many sources, both near and far.
Background noise	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).
C	Celcius
CCAM	Conformal Cubic Atmospheric Model
CSIRO	Commonwealth Scientific and Industrial Research Organisation
dB	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.
dB(A)	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.
DPHI	Department of Planning, Housing, and Infrastructure
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Extraneous noise	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.
m	Metre
LA1	The noise level, measured in dB(A), which is exceeded for 1 per cent of the measurement period.
LA1(1min)	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.
LA10	The noise level, measured in dB(A), which is exceeded for 10 per cent of the time.
LA90	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).
LAeq	The level of noise equivalent to the energy average of noise levels occurring over a defined measurement period.
LAeq (period)	The average equivalent noise level, measured in dB(A), during a measurement period (e.g., 15-minute, day, evening, or night).
LAmax	The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured.
NATA	National Association of Testing Authorities
NMA	Noise Monitoring Assessment
NMP	Noise Management Plan

	Description
NPfI	Noise Policy for Industry 2017
NSW	New South Wales
s	Second
SPL	The Sound Pressure Level. Sound pressure is the fluctuation in air pressure, from the steady atmospheric pressure, created by sound. The sound pressure level is the sound pressure expressed on a decibel scale.
TAPM	The Air Pollution Model

Source: Noise Guide for Local Government (NSW EPA, 2023)

1. Overview

1.1 Project Driver

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This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPfI) (NSW EPA, 2017)
- Cooma Road Quarry Noise Management Plan (NMP) (Holcim Australia, 2019)
- Development Consent (SSD_5109) Cooma Road Quarry Continued Operation Project (Minister for Planning, 2019)
- Environment Protection Licence (EPL) number 1453 (NSW EPA, 2020)
- Australian Standard AS 1055:2018 Acoustics—Description and measurement of environmental noise (Standards Australia, 2018)
- Australian Standard AS/NZS IEC 61672.1:2019 Electroacoustics – Sound level meters, Part 1: Specifications (Standards Australia and Standards New Zealand, 2019)
- International Electrotechnical Commission (IEC) 60942:2017 Electroacoustics - Electroacoustics – Sound calibrators (IEC, 2017)

This NMA has been undertaken for the quarterly period October to December 2025, and forms part of the monitoring program to determine compliance with conditions of the Development Consent.

1.2 Site Location and Sensitive Receivers

The quarry is in Googong, approximately 6 kilometres south of Queanbeyan, NSW. Sensitive receivers surrounding the quarry are primarily rural and residential properties in all directions. Old Cooma Road is located to the east of the quarry and passing road traffic is a dominate noise source for those receivers to the east of the quarry. Five monitoring locations have been selected for the NMA and in accordance with the Development Consent and are shown in **Table 1-1**.

Table 1-1: Monitoring locations locality and sensitive receivers

Monitoring Locations	Locality and Sensitive Receivers
N3	West of the quarry is situated on a rural property off Copperfield Place. This location represents residential and rural receivers to the west of the quarry.
N8	Northeast of the quarry along Tempe Crescent and is representative of residential receivers in that area.
N38	On Heights Road and is representative of the elevated residential receivers to the east of the quarry.
N60	At 501 Old Cooma Road and represents the residence adjacent to the quarry access road.
N67	Situated on a rural property at 732 Old Cooma Road to the south of the quarry. This is representative of rural and residential receivers to the south, with direct line of site into the quarry pit

The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1**. The NMP states attended monitoring is to be undertaken within 30 metres of a private residence, where possible. During this NMA, monitoring at most locations (N3, N8, N60, and N67) was undertaken where safely accessible at each property boundary which was approximately 100 to 200 metres from each property dwelling.

Legend

- Noise monitoring location
- Property dwelling

Figure 1 : Noise monitoring locations at Cooma Road Quarry

2. Noise Criteria

Table 2-1 brings the applicable noise criteria outlined in the Development Consent for the residential receivers surrounding the quarry (N1–N71), and the five monitoring locations adopted from the NMP that are deemed representative and applicable for this NMA (N3, N8, N38, N60, and N67).

Table 2-1: Monitoring locations and noise criteria

Receiver[1]	Monitoring Locations	Morning Shoulder[2]	Day[3]	Evening[4]
		LAeq (15min)	LAeq (15min)	LAeq (15min)
		dB(A)		
N1, N7, N8, N56, N57, N59, N63, N64, N65	N8	40	44	39
N67	N67	36	41	35
All other receivers between N9 and N71 inclusive	N60, N38	36	38	35
All other receivers	N3	35	35	35

[1] Refer to Appendix 5 of the Consolidated Development Consent – SSD 5109 (DOC19/541449) and/or the NMP for receiver locations on the map.

[2] 6 am–7 am

[3] 7 am–6 pm Monday to Saturday

[4] 6 pm–10 pm Monday to Saturday

Note: No operations on Sundays and public holidays

3. Methodology

The monitoring program was developed in accordance with the procedures described in AS 1055:2018 (Standards Australia, 2018) and the Approval Documents referenced in Section 1. The operator-attended measurements were carried out using a RION Sound Level Meter NL-52 on Wednesday 1 October 2025, Thursday 2 October 2025 and Friday 3 October 2025. The acoustic instrumentation implemented carries current National Association of Testing Authorities (NATA) calibration and complies with AS/NZS IEC 61672-1:2019 Class 1 (Standards Australia and Standards New Zealand, 2019). Calibration of all instrumentation was checked prior to and following the measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2017 (IEC, 2017). Drift in calibration did not exceed ±0.3 dBA.

The attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over two days at each monitoring location. Where possible, throughout each measurement the operator(s) quantified the contribution of each significant noise source. Where the plant 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.

3.1 Meteorological Conditions

Meterology has an important influence on noise monitoring assessment. Where an onsite meterological station with data recorded at 10m height has not been available, the nearest Department of Planning, Housing and Infrastructure (DPHI) meterological station has been used to adopt wind direction, wind speed and rain data to inform this assessment. Temperature data has been adopted from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Conformal Cubic Atmospheric Model (CCAM) and modelled using The Air Pollution Model (TAPM) to determine the atmospheric category as outline in **Table 3-1**.

Table 3-1: Classification of Atmospheric Stability (NSW EPA, 2014)

Stability Classification	Pasquill Stability Category	Ambient temperature change with height (°C/100m)
Extremely unstable	A	$\Delta T \leq -1.9$
Moderately unstable	B	$-1.9 < \Delta T \leq -1.7$
Slightly unstable	C	$-1.7 < \Delta T \leq -1.5$
Neutral	D	$-1.5 < \Delta T \leq -0.5$
Slightly stable	E	$-0.5 < \Delta T \leq 1.5$
Moderately stable	F	$1.5 < \Delta T \leq 4.0$
Extremely stable	G	$\Delta T > 4.0$

As stated in the Development Consent, the noise criteria in Table 2-1 applies under all meteorological conditions except the following:

- During periods of rain or hail
- Average wind speed at microphone height exceeds 5 m/s
- Wind speeds greater than 3 m/s measured at 10 m above ground level
- Temperature inversion conditions greater than 3°C/100m.

Appendix 9 of the Development Consent also specifies that except for wind speed at microphone height, the data to be used for determing meterological conditons must be that recorded by the meterological station on or in the vicinity of the site.

4. Results and Discussion

4.1 Location N3

Noise monitoring at location N3 was conducted on Wednesday 1 October and Thursday 2 October 2025 with results presented in **Table 4-1**. The quarry was inaudible at N3 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, fauna and aircrafts. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 below).

Table 4-1: Noise survey results and observations for Location N3

Date	Time	Descriptor (dBA)			Meteorology (Handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
2-10-25	6:01am to 6:16am (Morning Shoulder)	60.5	41.3	37.5	WD: n/a WS: 0 m/s Rain: Nil	WD: 302° WS: 2.3 m/s Rain: nil Stability Category: F[2]	Birds, insects, background traffic 36-58 Quarry inaudible	<28	35
2-10-25	9:03am to 9:18am (Day)	66.8	56.5	50.1	WD: 285° WS: 3 m/s Rain: Nil	WD: 278° WS: 5.1 m/s Rain: nil Stability Category: F[2]	Wind, trees, birds 54-60 Quarry inaudible	<40[3]	35
1-10-25	6:25pm to 6:30pm (Evening)	56.2	49.3	45.8	WD: 319° WS: 3 m/s Rain: Nil	WD: 282° WS: 2.6 m/s Rain: nil Stability Category: E[2]	Wind, trees, birds 42-54 Aircraft 50-55, motorbike 50-56 Quarry not operational	n/a[4]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 50.1 was dominated by wind, trees and birds so unable to estimate contribution for quarry at the assessment location

[4] Quarry not operational.

4.2 Location N8

Noise monitoring at location N8 was conducted on Wednesday 1 October, Thursday 2 October and Friday 3 October 2025 and with results presented in **Table 4-2**. The quarry was inaudible at N8 during the morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, wind, trees, insets and aircraft. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance.

Table 4-2: Noise survey results and observations for Location N8

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
3-10-25	6:00am to 6.15am (Morning Shoulder)	76.5	54.3	43.4	WD: n/a WS: 0 m/s Rain: Nil	WD: 276° WS: 1.9 m/s Rain: nil Stability Category: F[2]	Background traffic, birds 44-56 Trucks/cars passing on Tempe Cres 57-77 Quarry inaudible	<33	40
2-10-25	7:24am to 7:39am (Day)	71.7	54.7	50	WD: 330 WS: 1.5 m/s Rain: Nil	WD: 287° WS: 3.5 m/s Rain: nil Stability Category: F[2]	Background traffic, wind, trees 46-58 Car passing 60-70 Quarry inaudible	<40	44
1-10-25	7:52pm to 8:07pm (Evening)	59.1	48.2	41.2	WD: 329° WS: 1.3 m/s Rain: Nil	WD: 284° WS: 2.1 m/s Rain: nil Stability Category: E[2]	Background traffic, insects 43-58 Aircraft 44-50, motorcycle 55-60 Quarry not operational	n/a[3]	39

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Quarry not operational.

4.3 Location N38

Noise monitoring at location N38 was conducted on Wednesday 1 October, Thursday 2 October and Friday 3 October 2025 with results presented in **Table 4-3**. The quarry was inaudible at N38 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources include background road traffic, wind, trees and fauna. results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-3: Noise survey results and observations for Location N38

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
3-10-25	6:18am to 6:33am (Morning Shoulder)	60.7	52.7	48.4	WD: n/a WS: 0 m/s Rain: Nil	WD: 276° WS: 1.9 m/s Rain: nil Stability Category: F[2]	Background traffic, birds 50-58 Quarry inaudible	<38[3]	36
2-10-25	7:43am to 7:58am (Day)	67.3	55.3	51.4	WD: 330° WS: 1.5 m/s Rain: Nil	WD: 287° WS: 3.5 m/s Rain: nil Stability Category: F[2]	Background traffic, birds 48-60 Car passing 60-66 Quarry inaudible	<41[4]	38
1-10-25	8:19pm to 8:34pm (Evening)	56.2	44.2	37.9	WD: 303° WS: 1.3 m/s Rain: Nil	WD: 307° WS: 1.1 m/s Rain: nil Stability Category: E[2]	Background traffic, wind, trees, birds 41-56 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 48.4 was dominated by road traffic, so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 54.1 was dominated by road traffic, so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

4.4 Location N60

Noise monitoring at location N60 was conducted on Wednesday 1 October, Thursday 2 October and Friday 3 October 2025 with results presented in **Table 4-4**. The quarry was inaudible at N60 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, wind, trees, fauna and trucks. These results are deemed to satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-4: Noise survey results and observations for Location N60

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
2-10-25	6:45am to 6:30am (Morning Shoulder)	77.7	66.3	50.9	WD: n/a WS: 0 m/s Rain: Nil	WD: 302° WS: 2.3 m/s Rain: nil Stability Category: F[2]	Motorway traffic, birds 42-70 Loud car 70-77 Quarry inaudible	<41[3]	36
2-10-25	7:03am to 7:18am (Day)	77.5	64	51.1	WD: 342 WS: 1.5 m/s Rain: Nil	WD: 287° WS: 3.5 m/s Rain: nil Stability Category: F[2]	Motorway traffic, birds, trees 44-62 Birds 68-71, truck 71-77 Quarry inaudible	<41[4]	38
1-10-25	7:28pm to 7:43pm (Evening)	72.5	55.9	42	WD: 302 WS: 3 m/s Rain: Nil	WD: 286° WS: 1.6 m/s Rain: nil Stability Category: E[2]	Motorway traffic, trees, wind, insects 50-72 Aircraft 40-44 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 50.9 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Measured LA90 value of 51.1 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[5] Quarry not operational.

4.5 Location N67

Noise monitoring results at location N67 was conducted on Wednesday 1 October and Thursday 2 October 2025 with results presented in **Table 4-5**. The quarry was inaudible at N67 during morning shoulder and day periods. The quarry was not operational during the evening period. Measured predominant ambient noise sources included road traffic, trucks, wind, trees. a motorcycle and aircraft. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance (see Footnotes 3 and 4 below).

Table 4-5: Noise survey results and observations for Location N67

Date	Time	Descriptor (dBA)			Meteorology (handheld at microphone height)	DPHI Met Station (at 10m)[1]	Apparent Noise Source, Description and SPL (dBA)	Cooma Road Quarry LAeq(15min) (dBA) Contribution	LAeq(15min) Criteria (dBA)
		LAmax	LAeq	LA90					
2-10-25	6:27am to 6:42am (Morning Shoulder)	70.3	53.6	47.2	WD: 339° WS: 1.2 m/s Rain: Nil	WD: 302° WS: 2.3 m/s Rain: nil Stability Category: F[2]	Motorway traffic, birds, trees 44-60 Plover 65-70 Quarry inaudible	<37[3,4]	36
2-10-25	8:09am to 8:24am (Day)	72.5	52.3	47	WD: 330° WS: 1.6 m/s Rain: Nil	WD: 282° WS: 4.5 m/s Rain: nil Stability Category: F[2]	Motorway traffic, trees, birds 54-61 Trucks 63-72 Quarry inaudible	<37	41
1-10-25	7:05pm to 7:20pm (Evening)	60.8	50.2	43.3	WD: 296° WS: 3 m/s Rain: Nil	WD: 286° WS: 1.6 m/s Rain: nil Stability Category: E[2]	Motorway traffic, wind, trees 46-60 Aircraft 46-50 Quarry not operational	n/a[5]	35

[1] Data sourced from Goulburn DPHI Met Station.

[2] Temperature data sourced from CSIRO CCAM and modelled using TAPM to determine Stability Category.

[3] Measured LA90 value of 47.2 was dominated by road traffic so unable to estimate contribution for quarry at the assessment location.

[4] Negligible exceedance (NPfI 2017 – Table 4.1).

[5] Quarry not operational.

5. Conclusion

This NMA was completed by Ramboll at the Holcim Cooma Road Quarry, Googong, NSW as a quarterly requirement of the NMP. Monitoring was carried out on Wednesday 1 October, Thursday 2 October and Friday 3 October 2025 at five locations selected as representative to the sensitive receivers at the surroundings to Cooma Road Quarry.

No audible noise from quarry operations was observed at any of the five locations during the morning shoulder and day periods. The quarry was not operational during the evening periods. It is noted that at four assessment locations, some exceedances of the noise criteria have been recorded as follows:

- Up to 5 dB at N3 during the morning shoulder and day periods
- Up to 3 dB at N38 during the morning shoulder and day periods
- Up to 5 dB at N60 during the morning shoulder and day periods
- Up to 1 dB at N67 during the morning shoulder and day periods

However, it should be noted that during these periods, noise monitoring was heavily affected by extraneous noise sources whilst the site was inaudible. Therefore, it can be concluded that the exceedances were not caused by the site operation.

The results presented in this NMA show compliance with the relevant noise criteria applicable to the operation of the Holcim Cooma Road Quarry.

6. References

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Standards Australia. (2018). *AS 1055:2018 Acoustics—Description and measurement of environmental noise.*

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APPENDIX B –
2025 BIODIVERSITY MONITORING REPORT

WILDTHING
Environmental Consultants

05 September 2025 Job No. 12569

Holcim (Australia) Pty Ltd
Level 7 Tower B - 799 Pacific Highway
CHATSWOOD NSW 2067

Attention: David Manning

RE: COOMA ROAD QUARRY - ECOLOGICAL MONITORING PROGRAM 2025 - WINTER SURVEY RESULTS

Introduction

Wildthing Environmental Consultants have been engaged by Holcim Australia Pty Ltd to undertake the 2025 winter ecological monitoring surveys at the Cooma Road Quarry. These surveys included nest box inspections and avifauna surveys.

The primary objectives of the winter surveys are to:

- Ascertain condition and usage of nest boxes installed in April 2021.
- Determine presence of threatened birds at the site.

Methods

Nest Box Inspection

Nest boxes were inspected by a suitably qualified fauna ecologist using a 10m pole inspection camera. All 55 nest boxes were inspected to determine their usage and if any repairs or replacement are required. A total of 34 boxes were located in the north-west area while 21 boxes were in the south-east area. A photo of the exterior and interior of each box was taken.

Nest Boxes present included:

- 5 Large parrot nest boxes
- 16 Small parrot boxes
- 4 treecreeper nest boxes
- 8 Microbat nest boxes
- 9 Brushtail nest boxes
- 3 Ringtail nest boxes
- 10 Squirrel glider nest boxes.

Avifauna Survey

Avifauna surveys involved 20 minute long point assessments in four locations. Surveys were conducted in the morning, at similar times to previous winter surveys (7:30-10:30am). Two surveys were carried out in each area containing nest boxes.

Results

Nest Box Inspection

Nest box inspections were carried out on 27 August 2025. Most boxes were found to be in fair to good condition and contained evidence of vertebrate fauna use in the form of chewed entrances, hatched eggs and nesting material. Previous winter surveys by SLR Consulting Australia (2024) noted four boxes with active *Apis mellifera* (European honey Bee) hives however only two active nests were present during 2025 surveys. All boxes that contained old inactive bee hives contained fresh nesting material and one box had a glider nesting inside it (no. 38). Overall, two boxes contained *Trichosurus vulpecula* (Common Brushtail Possum), two boxes contained *Pseudocheirus peregrinus* (Common Ringtail Possum) and three boxes contained gliders. Two families of three gliders were determined to most likely be BC Act listed vulnerable species *Petaurus norfolcensis* (Squirrel Glider) due to their face shape and size relative to the box they were in. A single glider was present in a third box and defining featured were not visible therefore it could either be a squirrel glider or a *Petaurus breviceps* (Sugar Glider).

Two boxes were found to require replacement due to their poor condition, one box requires relocation as it is currently being crushed by trees and two boxes with active bee hives that require control and replacement with a new box.

The previously identified location of box no. 23 was found to be inaccurate and the coordinates of the box were updated (Table 2).

Weather conditions during surveys are present in Table 1. The results of the nest box inspection are shown in Table 1 and the location of the nest boxes is shown in Figure 1. Photos of the inspection are shown in Plates 1 - 14.

Table 1: Survey Dates, Times and Weather Conditions

DATE	TIME	SURVEY EFFORT (PERSON HOURS)	ACTIVITY	WEATHER
Wednesday 27/08/2025	1100-1430	7.0hrs (2 people)	Nest box inspection Incidental observations	3/8 Cloud, 11°C, 73% Relative humidity, Wind 28km/h WNW
Thursday 28/08/2025	740-100	4hrs 40min (2 people)	Avifauna survey Incidental observations	7/8 Cloud, 6.9°C, 80% Relative humidity, Wind 24km/h NW

Table 2: Details of inspected nest boxes – 27 August 2025.

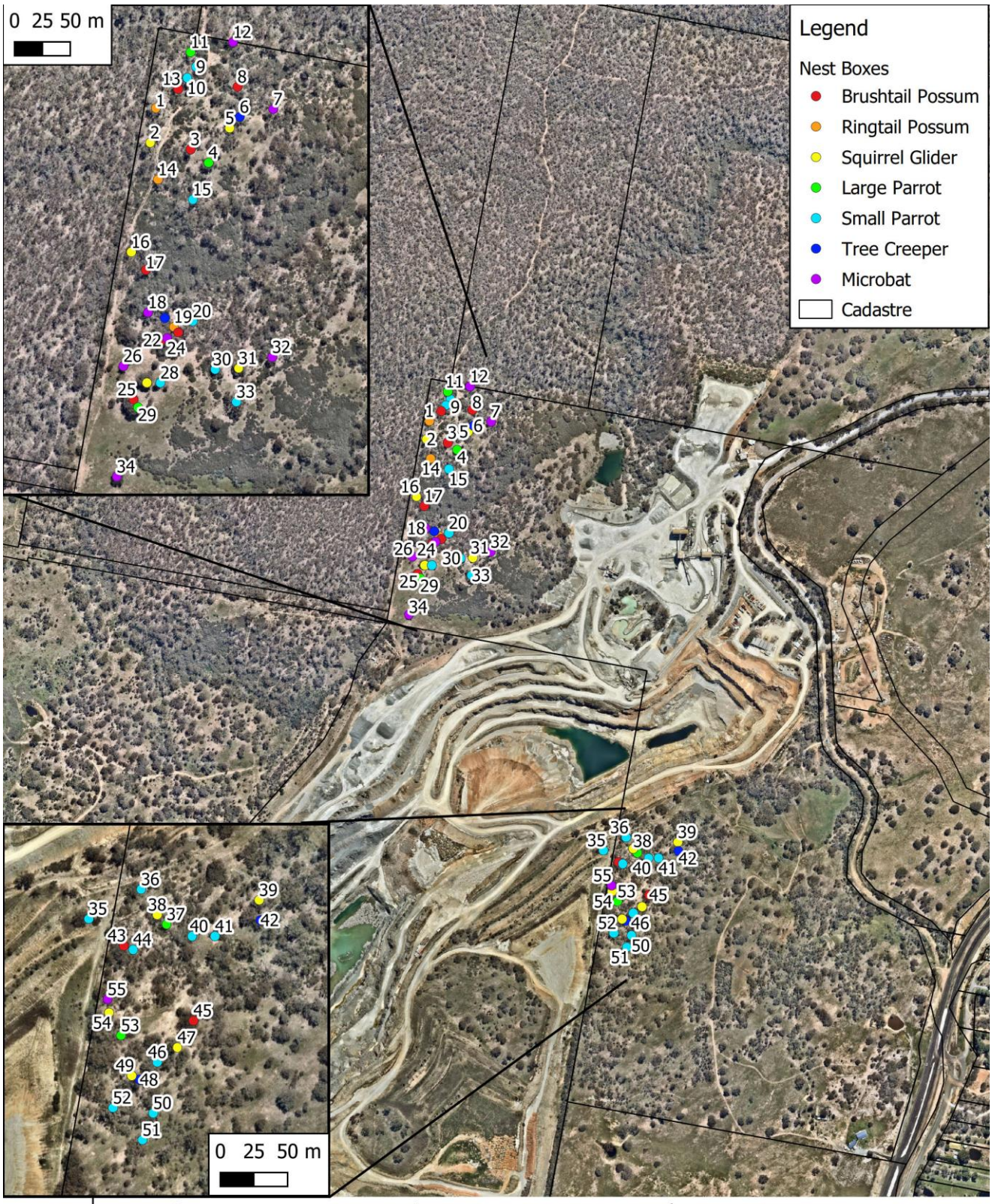
Box No.	Tree Species	Box Type	Location (Co-ordinates) GDA 2020 MGA 56		Tree DBH (m)	Nest Box Height (m)	Fauna present or evidence of occupation	Condition of Nest Box	Replacement or repair required?
			Easting	Northing					
1	*Eucalyptus polyanthemos* Red Box	Ringtail Possum	701667	6081200	0.55, 0.50	12	No vertebrate fauna present. Some old leaves and shredded bark nesting material.	Nest Box in good condition.	No
2	*E. polyanthemos*	Squirrel Glider	701662	6081169	0.46	13	No vertebrate fauna present. Unoccupied old glider nest. Cobwebs present. Wear around entrance.	Nest Box in fair condition.	No
3	*E. polyanthemos*	Brushtail Possum	701698	6081163	0.48	12	No vertebrate fauna present. Some fresh leaves present.	Nest Box in good condition.	No
4	*E. polyanthemos*	Large Parrot	701714	6081151	0.46	14	No vertebrate fauna present. Evidence of past avifauna nesting. Cobwebs present. Wear around entrance.	Nest Box in good condition.	No
5	*E. polyanthemos*	Squirrel Glider	701733	6081182	0.46	12	Old bee hive. Unoccupied recent glider nest.	Nest Box in fair condition. Box is being crushed by nearby trees	Should be relocated
6	*Eucalyptus macrorhyncha* Red Stringybark	Tree Creeper	701742	6081192	0.43	10	No vertebrate fauna present. No nesting material. Wear around entrance.	Nest Box in poor-fair condition.	No
7	*Eucalyptus mannifera* Brittle Gum	Microbat	701772	6081199	0.32	9	No vertebrate fauna present.	Nest Box in good condition.	No
8	*E. polyanthemos*	Brushtail Possum	701740	6081219	0.32	9	One *Trichosurus vulpecula* (Common Brushtail Possum). No nesting material. Some wear around entrance.	Nest Box in good condition.	No
9	*E. mannifera*	Small Parrot	701703	6081237	0.63	13	No vertebrate fauna present. Shredded bark nesting material and some fresh leaves consistent with Ringtail Possum nest. Wear around entrance.	Nest Box in good condition.	No
10	*E. polyanthemos*	Small Parrot	701695	6081227	0.38	9	No vertebrate fauna present. Rodent droppings and insect egg sack present.	Nest Box in good condition.	No
11	*E. macrorhyncha*	Large Parrot	701698	6081250	0.55	10	No vertebrate fauna present. Shredded bark nesting material consistent with Ringtail Possum nest.	Nest Box in good condition.	No
12	*E. macrorhyncha*	Microbat	701736	6081259	0.3	9	No vertebrate fauna present. Cobwebs present.	Nest Box in poor condition. Box is splitting open.	Replacement required.
13	*E. macrorhyncha*	Brushtail Possum	701687	6081217	0.7	14	No vertebrate fauna present. Small amount of fresh leaves present.	Nest Box in good condition.	No

Box No.	Tree Species	Box Type	Location (Co-ordinates) GDA 2020 MGA 56		Tree DBH (m)	Nest Box Height (m)	Fauna present or evidence of occupation	Condition of Nest Box	Replacement or repair required?
			Easting	Northing					
14	*E. polyanthemos*	Ringtail Possum	701669	6081136	0.43, 0.45	10	No vertebrate fauna present. Rodent droppings and cobwebs present.	Nest Box in good condition.	No
15	*E. polyanthemos*	Small Parrot	701700	6081118	0.52	12	One *Pseudocheirus peregrinus* (Common Ringtail Possum). Shredded bark nesting material. Wear around entrance.	Nest Box in good condition.	No
16	*E. mannifera*	Squirrel Glider	701645	6081071	0.30, 0.40	9	Three gliders in fresh leaf nest. Likely *Petaurus norfolcensis* (Squirrel Glider). Edges of lid chewed and wear around entrance.	Nest Box in good condition.	No
17	*E. polyanthemos*	Brushtail Possum	701658	6081055	0.55	14	Active *Apis mellifera* (European honey Bee) hive.	Nest Box in good condition.	Control bees and install new box
18	*E. polyanthemos*	Microbat	701660	6081017	0.11	14	No vertebrate fauna present.	Nest Box in good condition.	No
19	*E. polyanthemos*	Ringtail Possum	701683	6081004	0.70, 0.30	15	No vertebrate fauna present. Old leaves nesting material.	Nest Box in good condition.	No
20	*E. polyanthemos*	Small Parrot	701700	6081009	0.5	15	Scratches on front of box and wear around entrance. Old broken avifauna eggs.	Nest Box in good condition.	No
21	*E. polyanthemos*	Tree Creeper	701675	6081012	0.55	12	No vertebrate fauna present. Old leaves likely glider nesting material.	Nest Box in good condition.	No
22	*E. polyanthemos*	Brushtail Possum	701672	6080992	0.55	16	No vertebrate fauna present. No nesting material. Some wear around entrance.	Nest Box in good condition.	No
23	*E. polyanthemos*	Brushtail Possum	~~701644~~ 701687	~~6081002~~ 6080999	0.6	16	*Apis mellifera* (European honey Bee) coming out of nest box and box opening full of bee hive. Box not inspected further.	Nest Box in good condition.	Control bees and install new box
24	*E. polyanthemos*	Microbat	701677	6080994	0.5	14	No vertebrate fauna present. Insect egg sack present.	Nest Box in good condition.	No
25	*E. polyanthemos*	Brushtail Possum	701647	6080939	0.48	10	No vertebrate fauna present. Shredded bark nesting material consistent with Ringtail Possum nest	Nest Box in good condition.	No
26	*E. macrorhyncha*	Microbat	701638	6080969	0.6	10	No vertebrate fauna present. Cobwebs present.	Nest Box in good condition.	No
27	*E. polyanthemos*	Squirrel Glider	701659	6080954	0.45	13	Old *Apis mellifera* (European honey Bee) hive. Unoccupied recent glider nest. Wear around entrance.	Nest Box in good condition.	No
28	*E. macrorhyncha*	Small Parrot	701671	6080954	0.47	10	No vertebrate fauna present. No nesting material. One broken avifauna	Nest Box in fair-good condition.	No

Box No.	Tree Species	Box Type	Location (Co-ordinates) GDA 2020 MGA 56		Tree DBH (m)	Nest Box Height (m)	Fauna present or evidence of occupation	Condition of Nest Box	Replacement or repair required?
			Easting	Northing					
							egg. Insect egg sack. Some wear around entrance.		
29	*E. macrorhyncha*	Large Parrot	701651	6080932	0.68	14	No vertebrate fauna present. Fresh green leaf nesting material consistent with beginning of glider nest. Some wear around entrance.	Nest Box in fair condition.	No
30	*E. mannifera*	Small Parrot	701720	6080966	0.4. 0.35	10	One *Pseudocheirus peregrinus* (Common Ringtail Possum) with shredded bark nesting material.	Nest Box in good condition.	No
31	*E. mannifera*	Squirrel Glider	701741	6080967	0.75	14	No vertebrate fauna present. Unoccupied recent glider nest. Insect egg sack.	Nest Box in fair condition.	No
32	*E. mannifera*	Microbat	701771	6080977	0.4, 0.35	9	No vertebrate fauna present. Huntsman spider present.	Nest Box in good condition.	No
33	*E. polyanthemos*	Small Parrot	701739	6080937	0.8	17	Evidence of past avifauna nesting. Wear around entrance.	Nest Box in good condition.	No
34	*E. polyanthemos*	Microbat	701632	6080870	0.3	9	No vertebrate fauna present. Cobwebs present	Nest Box in good condition.	No
35	*E. mannifera*	Small Parrot	701963	6080468	0.45, 0.5	10	No vertebrate fauna present. No nesting material. Some wear around entrance.	Nest Box in good condition.	No
36	*E. polyanthemos*	Small Parrot	702002	6080490	0.4, 0.4	8	No vertebrate fauna present. Unoccupied recent glider nest. Wear around box entrance.	Nest Box in good condition.	No
37	*E. polyanthemos*	Large Parrot	702021	6080464	0.55	9	No vertebrate fauna present. Old leaf nesting material. Wear around box entrance.	Nest Box in good condition.	No
38	*E. macrorhyncha*	Glider Box	702014	6080471	0.5	10	One glider in fresh leaf nest. Could not see defining species features. Some wear around box entrance. Old *Apis mellifera* (European honey Bee) hive. Some wear around entrance.	Nest Box in good condition.	No
39	*E. polyanthemos*	Squirrel Glider	702090	6080482	0.37, 0.28	10	No vertebrate fauna present. Unoccupied recent glider nest. Insect egg casings. Some wear around entrance.	Nest Box in good condition.	No
40	*E. polyanthemos*	Small Parrot	702040	6080455	0.47	10	No vertebrate fauna present. Unoccupied old glider nest. Insect egg sacks. Some wear around entrance.	Nest Box in fair condition.	No
41	*E. polyanthemos*	Small Parrot	702057	6080455	0.4	10	No vertebrate fauna present. Old leaf	Nest Box in fair-good	No

Box No.	Tree Species	Box Type	Location (Co-ordinates) GDA 2020 MGA 56		Tree DBH (m)	Nest Box Height (m)	Fauna present or evidence of occupation	Condition of Nest Box	Replacement or repair required?
			Easting	Northing					
							and shredded bark nesting material.	condition.	
42	*E. macrorhyncha*	Tree Creeper	702091	6080467	0.45	10	No vertebrate fauna present. Unoccupied recent glider nest. Insect egg sack. Wear around box entrance.	Nest Box in good condition.	No
43	*E. polyanthemos*	Brushtail Possum	701989	6080448	0.55, 0.6	12	One *Trichosurus vulpecula* (Common Brushtail Possum). No nesting material. Some wear around entrance.	Nest Box in good condition.	No
44	*E. mannifera*	Small Parrot	701996	6080445	0.55	11	No vertebrate fauna present. Evidence of past avifauna nesting. Lots of wear around box entrance that has slightly enlarged it.	Nest Box in fair condition.	No
45	*Eucalyptus melliodora* Yellow Box	Brushtail Possum	702041	6080392	0.65	13	No vertebrate fauna present. Fresh green leaf nesting material consistent with beginning of glider nest.	Nest Box in good condition.	No
46	*E. polyanthemos*	Small Parrot	702014	6080361	0.56	12	No vertebrate fauna present. Unoccupied old glider nest. Wear around entrance.	Nest Box in good condition.	No
47	*E. polyanthemos*	Squirrel Glider	702029	6080372	0.4, 0.55	15	No vertebrate fauna present. Old leaf nesting material. Wear around entrance.	Nest Box in fair condition.	No
48	*E. macrorhyncha*	Tree Creeper	702001	6080348	0.45	14	No vertebrate fauna present. Unoccupied recent glider nest. A lot of wear around box entrance.	Nest Box in good condition.	No
49	*E. macrorhyncha*	Squirrel Glider	702001	6080348	0.62	12	No vertebrate fauna present. Unoccupied recent glider nest. Wear around entrance.	Nest Box in good condition.	No
50	*E. polyanthemos*	Small Parrot	701995	6080351	0.5	12	No vertebrate fauna present. Evidence of past avifauna nesting. Box entrance has been chewed to larger size.	Nest Box in fair condition however entrance has been chewed too larger for target species.	Replace with box with appropriate entrance size but leave current one up
51	*E. melliodora*	Small Parrot	702011	6080323	0.7	15	No vertebrate fauna present. Stick nesting material.	Nest Box in poor condition. Wind is pushing tree limb against box and popping lid off box.	Replace and move to new location
52	*E. melliodora*	Small Parrot	702003	6080303	1.1	18	No vertebrate fauna present. Unoccupied recent glider nest. Wear around box entrance.	Nest Box in fair condition.	No

Box No.	Tree Species	Box Type	Location (Co-ordinates) GDA 2020 MGA 56		Tree DBH (m)	Nest Box Height (m)	Fauna present or evidence of occupation	Condition of Nest Box	Replacement or repair required?
			Easting	Northing					
53	*Eucalyptus goniocalyx* Bundy Box	Large Parrot	701981	6080327	0.7	12	Evidence of past avifauna nesting. Wear around box entrance.	Nest Box in good condition.	No
54	*E. goniocalyx*	Squirrel Glider	701987	6080381	0.7	16	Three gliders in fresh leaf nest. Likely *Petaurus norfolcensis* (Squirrel Glider). Some wear around entrance.	Nest Box in fair condition.	No
55	*E. goniocalyx*	Microbat	701978	6080398	0.38	7	No vertebrate fauna present. Cobwebs present	Nest Box in good condition.	No



Job No.	12569
A4 Scale	1:8,000

Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, no guarentee is given that the information protrayed is free from error or omission. In addition the spatial accuracy of the map is wholly dependant on source data. Please verify the accuracy of all information prior to use. Development footprint areas should be used for indicative areas only.

0 100 200 300 m

Map Projection GDA2020 MGA Zone 56
Data Sources: LPI (2025), NearMap (07/02/2021)

Figure 1

Nest Box Locations

Cooma Quarry
Queanbeyan, NSW

05 September 2025

WILDTHING Environmental Consultants
(a Division of Tattersall Lander Pty Ltd)
ABN 41 003 509 215

Plate 1: Box no. 5 that is being crushed by tree.

Plate 2: Glider family in box no. 16.

Plate 3: Entrance of box no. 23 that is filled with European Honey Bee hive.

Plate 4: Ringtail Possum nesting material in box no. 25.

Plate 5: Box no. 27 about to be inspected with pole camera

Plate 6: Old bee hive and fresh glider nest in box no. 27

Plate 7: Ringtail possum in box no. 30


Plate 8: Wear around entrance and lid to box no. 33.

Plate 9: Glider in box no. 38 with old bee hive

Plate 10:Brushtail possum in box no. 43

Plate 11: Wear around entrance to box no. 49.


Plate 12: Entrance of box no. 50 that has been chewed.

Plate 13: Box no. 51 that is being squeezed between two trees and lid has come off.

Plate 14: Gliders in box no. 54

Avifauna Surveys

Avifauna surveys were carried out on 28 August 2025 between 7:30-10:00am. Weather conditions were windy which may have reduced bird activity. Overall, 14 species of bird were recorded during surveys and 3 more were incidentally observed. Details of each survey are presented in Table 3 and results of each survey are presented in Table 4. The locations of the surveys are shown in Figure 2.

Table 3: Avifauna survey details

Survey No.	Easting	Northing	Time
1	701633	6081023	7:45-8:05am
2	701669	6081158	8:10-8:30am
3	702015	6080334	9:05-9:25am
4	702086	6080468	9:30-9:50am

Table 4: Avifauna survey results

Scientific Name	Common Name	Observation Type
Survey 1		
Strepera graculina	Pied Currawong	Heard
Acanthiza pusilla	Brown Thornbill	Heard & seen
Cormobates leucophaea	White-throated Treecreeper	Heard
Pardalotus punctatus	Spotted Pardalote	Heard & seen
Platycercus elegans	Crimson Rosella	Heard & seen
Manorina melanophrys	Bell Miner	Heard
Gymnorhina tibicen	Australian Magpie	Heard & seen
Cracticus nigrogularis	Pied Butcherbird	Heard
Survey 2		
Strepera graculina	Pied Currawong	Heard
Acanthiza pusilla	Brown Thornbill	Heard & seen
Cormobates leucophaea	White-throated Treecreeper	Heard
Gymnorhina tibicen	Australian Magpie	Heard & seen
Coracina novaehollandiae	Black-faced Cuckooshrike	Heard & seen
Survey 3		
Platycercus elegans	Crimson Rosella	Heard & seen
Manorina melanophrys	Bell Miner	Heard
Gymnorhina tibicen	Australian Magpie	Heard & seen
Manorina melanocephala	Noisy Miner	Heard & seen
Grallina cyanoleuca	Magpie-lark	Heard
Eolophus roseicapilla	Galah	Heard & seen
Cracticus nigrogularis	Pied Butcherbird	Heard & seen
Coracina novaehollandiae	Black-faced Cuckooshrike	Heard & seen
Survey 4		
Gymnorhina tibicen	Australian Magpie	Heard & seen
Manorina melanocephala	Noisy Miner	Heard & seen
Coracina novaehollandiae	Black-faced Cuckooshrike	Heard & seen

Scientific Name	Common Name	Observation Type
Grallina cyanoleuca	Magpie-lark	Heard
Platycercus elegans	Crimson Rosella	Heard & seen
Platycercus eximius	Eastern Rosella	Heard & seen
Incidental Observations		
Acanthiza nana	Yellow Thornbill	Heard & seen
Falco cenchroides	Nankeen Kestrel	Seen
Malurus cyaneus	Superb Fairywren	Heard & seen

Job No.	12569
A4 Scale	1:5,500

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0 100 200 m

Map Projection GDA2020 MGA Zone 56
Data Sources: LPI (2025), NearMap (07/02/2021)

Figure 2

Avifauna Survey Locations

Cooma Quarry
Queanbeyan, NSW

5 September 2025

WILDTHING Environmental Consultants
(a Division of Tattersall Lander Pty Ltd)
ABN 41 003 509 215

It is believed that the winter surveys were carried out consistently with previous surveys. If you have any queries or require any further information, please don't hesitate to contact me.

Yours faithfully,

Nicola Mohr
Ecologist
BAM Accredited Assessor No. 23007
Wildthing Environmental Consultants

Bibliography

SLR Consulting Australia (2024). Cooma Road Quarry. Ecological Monitoring Program 2024. Winter Survey Results