



Strength. Performance. Passion

ANNUAL REVIEW

1 January 2023 – 31 December 2023

Cooma Road Quarry

TABLE OF CONTENTS

Contents

| | | |
|----------|--|-----------|
| 1 | STATEMENT OF COMPLIANCE | 7 |
| 2 | INTRODUCTION | 10 |
| 2.1 | Name and Contact Details | 13 |
| 3 | APPROVALS | 14 |
| 4 | OPERATIONS SUMMARY | 15 |
| 4.1 | Exploration | 15 |
| 4.2 | Land Preparation | 15 |
| 4.3 | Construction Activities | 15 |
| 4.4 | Quarry Operations | 15 |
| 4.5 | Next Reporting Period | 17 |
| 5 | ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW | 18 |
| 5.1 | DPHI Actions from Previous Annual Review | 18 |
| 5.2 | Update on Proposed Actions from the Previous Annual Review | 18 |
| 6 | ENVIRONMENTAL PERFORMANCE | 19 |
| 6.1 | Meteorological Monitoring | 19 |
| 6.2 | Noise | 19 |
| 6.2.1 | EIS Predictions | 19 |
| 6.2.2 | Approved Criteria..... | 19 |
| 6.2.3 | Key Environmental Performance..... | 20 |
| 6.2.4 | Management Measures..... | 22 |
| 6.2.5 | Proposed Improvements | 22 |
| 6.3 | Air Quality | 23 |
| 6.3.1 | EIS Predictions | 23 |
| 6.3.2 | Approved Criteria..... | 23 |
| 6.3.2.1 | Depositional Dust Monitoring | 24 |
| 6.3.2.2 | PM ₁₀ Monitoring | 26 |
| 6.3.2.3 | Long term Trends: | 28 |
| 6.3.2.4 | Comparison to EIS Predictions: | 29 |
| 6.3.3 | Management Measures..... | 29 |
| 6.3.4 | Proposed Improvements | 29 |
| 6.4 | Blasting | 29 |
| 6.4.1 | EIS Predictions | 29 |
| 6.4.2 | Approved Criteria..... | 29 |

| | | |
|----------|---|-----------|
| 6.4.3 | Key Environmental Performance..... | 29 |
| 6.4.4 | Management Measures..... | 32 |
| 6.4.5 | Proposed Improvements | 32 |
| 6.5 | Traffic Management | 32 |
| 6.5.1 | EIS Predictions | 32 |
| 6.5.2 | Approved Criteria..... | 32 |
| 6.5.3 | Key Environmental Performance..... | 32 |
| 6.5.4 | Management Measures..... | 33 |
| 6.5.5 | Proposed Improvements | 33 |
| 6.6 | Biodiversity | 33 |
| 6.6.1 | EIS Predictions | 33 |
| 6.6.2 | Approved Criteria..... | 33 |
| 6.6.3 | Key Environmental Performance..... | 34 |
| 6.6.4 | Management Measures..... | 34 |
| 6.6.5 | Proposed Improvements | 34 |
| 6.7 | Heritage (Aboriginal Archaeology and Historic Heritage) | 35 |
| 6.7.1 | EIS Predictions | 35 |
| 6.7.1.1 | Aboriginal Archaeology | 35 |
| 6.7.1.2 | Historic Heritage | 35 |
| 6.7.2 | Approved Criteria..... | 35 |
| 6.7.3 | Key Environmental Performance..... | 35 |
| 6.7.4 | Management Measures..... | 35 |
| 6.7.5 | Proposed Improvements | 35 |
| 7 | WATER MANAGEMENT | 36 |
| 7.1 | EIS Predictions | 36 |
| 7.2 | Approved Criteria | 36 |
| 7.3 | Water Usage and Storage | 36 |
| 7.4 | Surface Water Results | 36 |
| 7.5 | Groundwater | 38 |
| 7.5.1 | Groundwater Performance | 39 |
| 7.6 | Water Take | 40 |
| 8 | REHABILITATION AND LANDSCAPE MANAGEMENT | 41 |
| 8.1 | Rehabilitation Performance during the Reporting Period | 42 |
| 8.2 | Summary of Current Rehabilitation and Performance | 43 |
| 8.3 | Actions for the Next Reporting Period | 44 |
| 9 | WASTE MANAGEMENT | 48 |

| | | |
|-----------|--|-----------|
| 10 | COMMUNITY | 49 |
| 10.1 | Community Engagement Activities | 49 |
| 10.2 | Community Contributions | 49 |
| 10.3 | Complaints | 49 |
| 11 | INDEPENDENT AUDIT | 51 |
| 12 | INCIDENTS AND NON-COMPLIANCE | 52 |
| 13 | ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD | 53 |

Tables

| | | |
|------------------|---|-----------|
| Table 1 | Statement of Commitments | 7 |
| Table 2 | DPHI Compliance Status Key | 7 |
| Table 3 | Non-Compliances of SSD 5109 for 2023 | 8 |
| Table 4 | Annual Review Requirements | 12 |
| Table 5 | Approvals for the Cooma Road Quarry Operations | 14 |
| Table 6 | EPL Fee-Based Activity at the Cooma Road Quarry | 14 |
| Table 7 | Cooma Road Operating Hours | 16 |
| Table 8 | Total Product Distributed (Tonnes) | 16 |
| Table 9 | Extractive production data 2022-2023 reporting period | 16 |
| Table 10 | Holcim Proposed Actions from 2022 Annual Review for the 2023 Reporting Period | 18 |
| Table 11 | 2023 Rainfall Observations | 19 |
| Table 12 | Cooma Road Quarry Noise Criteria (SSD 5109) | 20 |
| Table 13 | Cooma Road Quarry Noise Results 2023 | 21 |
| Table 14 | : Long-term impact assessment criteria for Deposited Dust | 23 |
| Table 15 | : TSP and PM₁₀ Dust Criteria | 23 |
| Table 16: | 2023 Dust Monitoring (Depositional Dust) | 24 |
| Table 17: | Depositional Dust Trends | 25 |
| Table 18: | 2023 Dust Monitoring (PM₁₀) | 26 |
| Table 19: | PM ₁₀ Monitoring Trends since 2017 | 28 |
| Table 20: | 2023 Blast Monitoring Results | 29 |
| Table 21: | Long-term Blasting Trends | 31 |
| Table 22: | Transport Tonnages 2023 | 32 |
| Table 23: | Water Quality Criteria for the Cooma Road Quarry (EPL 1453) POINT 1 | 36 |
| Table 24: | 2023 Water Monitoring Results (Barracks Creek) | 37 |
| Table 25: | Long-term Water Monitoring Barracks Creek | 38 |
| Table 26: | Interim Groundwater Quality Trigger Values (Water Management Plan) | 39 |
| Table 27: | Groundwater Monitoring Results 2023 | 40 |

| | |
|---|----|
| Table 28: 2023 Water Take..... | 40 |
| Table 29: Rehabilitation Performance in 2023..... | 42 |
| Table 30: Rehabilitation and Disturbance Status..... | 43 |
| Table 31 : Rehabilitation and Closure Actions for the 2024 Reporting Period | 44 |
| Table 32 Environmental Performance at Cooma Road Quarry in 2023 | 45 |
| Table 33: Complaint Summary | 50 |
| Table 34: Incidents and Non-Compliance at the Cooma Road Quarry During 2023..... | 52 |
| Table 35: Improvement Actions for 2024 | 53 |


Figures

| | |
|---|----|
| Figure 1: Locality Map (SLR,2023) | 11 |
| Figure 2: Aerial view of the Cooma Road Quarry (source nearmaps 2023)..... | 12 |
| Figure 3 : Current Disturbance, Rehabilitation and Monitoring Locations (SLR 2023)..... | 47 |

APPENDICES

Appendix 1 – Cooma Road Quarry Quarterly Noise Monitoring Reports 2023

SITE DETAILS

| | |
|---|--|
| Name of operation | Cooma Road Quarry |
| Name of operator | Holcim (Australia) Pty Ltd |
| Development consent / project approval # | SSD 5109 |
| Name of holder of development consent / project approval | Holcim (Australia) Pty Ltd |
| Annual review start date | 1 January 2023 |
| Annual review end date | 31 December 2023 |
| <p>I, David Manning, 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 2023 – 31 DECEMBER 2023 and that I am authorised to make this statement on behalf of HOLCIM (AUSTRALIA) PTY LTD.</p> <p>Note.</p> <p>a) <i>The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (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. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.</i></p> <p>b) <i>The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).</i></p> | |
| Name of authorised reporting officer | David Manning |
| Title of authorised reporting officer | Quarry Manager |
| Signature of authorised reporting officer |  |
| Document Date | 25/03/2024 |

1 STATEMENT OF COMPLIANCE

The statement of commitments for the 2023 reporting period for the Cooma Road Quarry is provided in **Table 1**. **Table 3** details the non-compliances at the Cooma Road Quarry identified within the 2023 reporting period, with the compliance status key provided in **Table 2**.

Table 1 Statement of Commitments

| Were all conditions of the relevant approval(s) complied with? | |
|--|------------------|
| SSD 5109 | No – See Table 3 |
| EPL 1453 | Yes |

Table 2 DPHI 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur |
| Admin NC | Non-compliant | 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) |

Table 3 Non-Compliances of SSD 5109 for 2023

| Relevant approval | Condition | Condition Description | Compliance Status | Section Addressed in Annual Review/Comment | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|----------------------|---|------------------------------------|--|-------------|-----------------------------------|--------|-----------|-----------------------------------|--------|------------|-----------|------------------|-------------|-----------------------------------|---------|------------|-----------|------------------|--|------------------------------------|------------------|--------|---------------|----------------|--------------------------|---|
| SSD 5109 | Air Quality Criteria | <p>Schedule 3 Condition 14 – Air Quality Criteria</p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging Period</th> <th>d Criterion</th> </tr> </thead> <tbody> <tr> <td>Total Suspended particulate (TSP)</td> <td>Annual</td> <td>a90 µm/m3</td> </tr> <tr> <td>Particulate matter < 10 µm (PM10)</td> <td>Annual</td> <td>a 30 µm/m3</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging Period</th> <th>d Criterion</th> </tr> </thead> <tbody> <tr> <td>Particulate matter < 10 µm (PM10)</td> <td>24 hour</td> <td>a 50 µm/m3</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging Period</th> <th>Maximum increase in deposited dust level</th> <th>Maximum total deposited dust level</th> </tr> </thead> <tbody> <tr> <td>C Deposited dust</td> <td>Annual</td> <td>b2 g/m2/month</td> <td>a 4 g/m2/month</td> </tr> </tbody> </table> <p>Notes to Tables 4-6: <i>a Total impact (ie incremental increase in concentrations due to the development plus background concentrations due to all other sources);</i> <i>b Incremental impact (ie incremental increase in concentration due to the development on its own);</i></p> | Pollutant | Averaging Period | d Criterion | Total Suspended particulate (TSP) | Annual | a90 µm/m3 | Particulate matter < 10 µm (PM10) | Annual | a 30 µm/m3 | Pollutant | Averaging Period | d Criterion | Particulate matter < 10 µm (PM10) | 24 hour | a 50 µm/m3 | Pollutant | Averaging Period | Maximum increase in deposited dust level | Maximum total deposited dust level | C Deposited dust | Annual | b2 g/m2/month | a 4 g/m2/month | Low Non-Compliant | <p>Section 6.3 Air Quality</p> <p>Cooma Rd recorded one missed sample due to a lost filter on 1 October 2023, resulting in a low level non-compliance.</p> |
| Pollutant | Averaging Period | d Criterion | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Suspended particulate (TSP) | Annual | a90 µm/m3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 10 µm (PM10) | Annual | a 30 µm/m3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pollutant | Averaging Period | d Criterion | | | | | | | | | | | | | | | | | | | | | | | | | |
| Particulate matter < 10 µm (PM10) | 24 hour | a 50 µm/m3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pollutant | Averaging Period | Maximum increase in deposited dust level | Maximum total deposited dust level | | | | | | | | | | | | | | | | | | | | | | | | |
| C Deposited dust | Annual | b2 g/m2/month | a 4 g/m2/month | | | | | | | | | | | | | | | | | | | | | | | | |

| Relevant approval | Condition | Condition Description | Compliance Status | Section Addressed in Annual Review/Comment |
|-------------------|-----------------------------|---|------------------------------|---|
| | | <p>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</p> <p>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.</p> | | |
| SSD 5109 | Air Quality Management Plan | <p>Within 3 months of determination of Modification 2, the Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;</p> <p>(b) be prepared in consultation with the EPA;</p> <p>(c) describe the measures to be implemented to ensure:</p> <p>(i) compliance with the air quality criteria and operating conditions in this consent;</p> <p>(ii) best practice management is being employed; and</p> <p>(iii) air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;</p> <p>(d) describe the air quality management system; and</p> <p>(e) include an air quality monitoring program that:</p> <p>(i) is capable of evaluating the performance of the development against the air quality criteria;</p> <p>(ii) adequately supports the air quality management system; and</p> <p>(iii) includes a protocol for identifying any air quality-related exceedance, incident, or noncompliance and for notifying the Department and relevant stakeholders of these events.</p> | Administrative Non-Compliant | <p>Section 6.3 Air Quality</p> <p>F iii)</p> <p>Holcim failed to notify the Department of a missed sample on 1 October 2023, resulting in an administrative non-compliance</p> |
| SSD 5109 | Non-Compliance Notification | <p>Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to tocomplianc@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this consent that the development is noncompliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p> <p>Note: A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.</p> | Administrative Non-Compliant | <p>Holcim failed to notify the Department of a missed sample on 1 October 2023, resulting in an administrative non-compliance</p> |

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. A regional locality figure and aerial view of the site are outlined in **Figure 1** and **Figure 2** below.

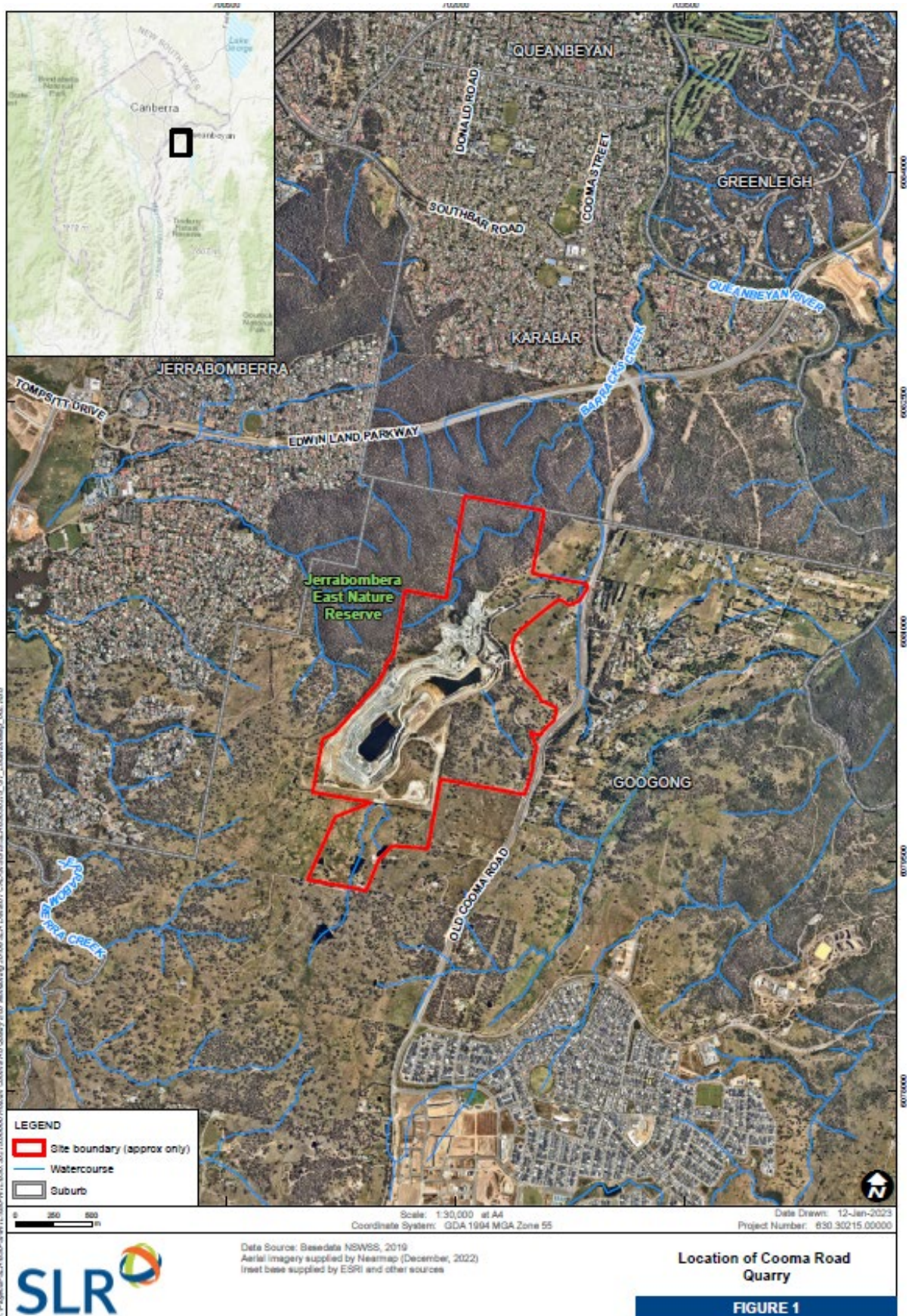


Figure 1: Locality Map (SLR,2023)



Figure 2: Aerial view of the Cooma Road Quarry (source nearmaps 2023)

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 4**.

Table 4 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 5 |
| 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: <ul style="list-style-type: none"> • 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, 7 and 10.3 |

| Condition | Section addressed in Annual Review |
|--|------------------------------------|
| c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; | Section 1 |
| 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 13 |

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 2023.

2.1 Name and Contact Details

The key contact details for the site are outlined below:

Quarry Manager

David Manning

+61 429 791 390

Email: david.manning@holcim.com

Environment Manager – NSW

Dozie Egeonu

Tel: 0429557493

Email: Dozie.Egeonu@holcim.com

3 APPROVALS

The site operates under the following approvals listed in **Table 5**

Table 5 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 6** 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 DPHI.

Table 6 EPL Fee-Based Activity at the Cooma Road Quarry

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

4 OPERATIONS SUMMARY

4.1 Exploration

No exploration occurred at the Cooma Road Quarry in the 2023 reporting period. There is proposed planning for 2024.

4.2 Land Preparation

During the 2023 reporting period, 10,000m² was stripped from the Granite Pit area, with an additional 2,000m² from the Dacite Pit area.

Additional land preparation is expected to occur in the Granite Pit and Dacite Pit area in 2024.

4.3 Construction Activities

Construction of the new workshop was completed in 2023. The old workshop was demolished, with all waste taken to an approved facility. There is proposed planning to extend the granite pit in the 2024 reporting period.

4.4 Quarry Operations

Development activities undertaken at the Cooma Road Quarry in 2023 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
- Increasing the size of the Granite Pit; 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. These 6am-6pm timeframes applied to all operational activities where no crushing, screening or vehicle movements occurred after 6pm and before 6am.

Operating hours relating to Cooma Road are outlined in **Table 7**.

Table 7 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 8 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 8 Total Product Distributed (Tonnes)

| Material | Approval Limit | 2020 | 2021 | 2022 | 2023 | 2024 Forecast (Tonnes) |
|-----------------------------|----------------|-----------|-----------|---------|-----------|------------------------|
| Product Distributed - Total | 1,500,000 | 1,105,376 | 1,066,320 | 899,442 | 1,042,190 | 1,020,000 |

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 9** details the extractive data for the 2022-2023 period.

Table 9 Extractive production data 2022-2023 reporting period

| Product | Mining Type | Tonnes ¹ |
|-----------------------------------|--|---------------------|
| Fill & Crusher Fines (under 5mm) | Construction sand | 99.8 |
| Manufactured Sand | Construction sand | 20.4 |
| Over 30mm-70mm (Railway Ballast) | Virgin materials - Crushed coarse aggregates | 15.1 |
| Over 5mm-30mm Concrete Aggregates | Virgin materials - Crushed coarse aggregates | 294 |
| Over 75mm (Rock broken) | Virgin materials - Crushed coarse aggregates | 6.2 |

| Product | Mining Type | Tonnes ¹ |
|---|--|---------------------|
| Prepared Road Base & Sub-base & Drainage Filter | Virgin materials - Crushed coarse aggregates | 491 |
| | Total | 926.5 |

Note 1 – Production data has been rounded

4.5 Next Reporting Period

- 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 material 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 2022 Annual Review to the Major Projects Portal by 31st March 2023. Holcim did not receive a response from DPHI.

5.2 Update on Proposed Actions from the Previous Annual Review

Table 10 outlines the actions proposed in the previous Annual Review (2022) for completion or commencement in 2023

Table 10 Holcim Proposed Actions from 2022 Annual Review for the 2023 Reporting Period

| Improvement Measure | Activities | Update for this Annual Review |
|-------------------------------|---|---|
| Progressive Rehabilitation | The site will continue to progressively rehabilitate available areas. | There was no new rehabilitation during the 2023 reporting period. |
| Maintenance of rehabilitation | Continued maintenance of rehabilitation in the completed overburden dump in the south-western disturbance area including weed control as well as nest box monitoring. | Holcim engaged ecology to complete nest box monitoring. Weed control spraying was continued in the completed overburden dump rehabilitation. |
| IEA Action Plan | The site will continue to close out recommendations from the 2022 IEA. | All audit actions have been closed out. |
| Biodiversity | Weed spraying will continue at site during the next Annual Review period. Implementation of the Rehabilitation Management Plan. | 5,000m ² of weed spraying on target weed species occurred in 2023. Holcim continued implementation of the Rehabilitation Management Plan. |

6 ENVIRONMENTAL PERFORMANCE

6.1 Meteorological Monitoring

A summary of monthly rainfall was retrieved from the Tuggeranong Bureau of Meteorology (BOM) Station 070339, approximately 18km from Holcim. 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 2023 Rainfall Observations

| Monthly Rainfall (mm) | | | | | | | | | | | | Total 2023 |
|-----------------------|------|------|------|------|------|------|------|------|------|-------|-------|---------------|
| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | |
| 82.4 | 32.8 | 68.4 | 89.4 | 45.6 | 12.2 | 10.6 | 15.2 | 14.8 | 35.2 | 139.2 | 108.6 | 654.4 |

During the 2023 reporting period, Tuggeranong BOM station recorded 654mm of rain, which is lower than the 2022 period where 1186mm was recorded. Average rainfall since 1996 is 664mm.

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 2023 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 | Day | Evening |
|--|------------------|---------------|---------------|
| | 6 – 7 am | 7 am – 6 pm | 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:

- 7 March 2023;
- 2 May 2023;
- 2 August 2023; and
- 6 November 2023.

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 2023 and therefore satisfied 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 2023

| Assessment Period | Receiver No. | Quarrying Noise Criteria | Q1 | | Q2 | | Q3 | | Q4 | |
|-------------------|--------------|--------------------------|---------------------------|------------|---------------------------|------------|---------------------------|------------|---------------------------|------------|
| | | L _{Aeq} (15min) | Quarry Noise Contribution | Compliance | Quarry Noise Contribution | Compliance | Quarry Noise Contribution | Compliance | Quarry Noise Contribution | Compliance |
| Morning Shoulder | N3 | 35 | <35 | ✓ | <35 | ✓ | <35 | ✓ | <35 | ✓ |
| | N8 | 40 | <40 | ✓ | <40 | ✓ | <40 | ✓ | <40 | ✓ |
| | N38 | 36 | <36 | ✓ | <36 | ✓ | <36 | ✓ | <36 | ✓ |
| | N60 | 36 | <36 | ✓ | <36 | ✓ | <36 | ✓ | <36 | ✓ |
| | N67 | 36 | <36 | ✓ | <36 | ✓ | <36 | ✓ | <36 | ✓ |
| Daytime | N3 | 35 | <35 | ✓ | <35 | ✓ | <35 | ✓ | <35 | ✓ |
| | N8 | 44 | <44 | ✓ | <44 | ✓ | <44 | ✓ | <44 | ✓ |
| | N38 | 38 | <38 | ✓ | <38 | ✓ | <38 | ✓ | <38 | ✓ |
| | N60 | 38 | <38 | ✓ | <38 | ✓ | <38 | ✓ | <38 | ✓ |
| | N67 | 41 | <41 | ✓ | <41 | ✓ | <41 | ✓ | <41 | ✓ |
| Evening | N3 | 35 | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ |
| | N8 | 39 | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ |
| | N38 | 35 | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ |
| | N60 | 35 | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ |
| | N67 | 35 | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ | Quarry not operating | ✓ |

Note – Quarry was deemed inaudible for all noise monitoring locations in Q1, Q2, Q3 and Q4.

All monitoring results for quarterly noise assessments have been undertaken in accordance with the conditions of consent. Extraneous noise sources measured during this time included traffic, aircraft, and wildlife. During the noise monitoring, Cooma Road Quarry was inaudible. As such, these results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance and were not responsible for the exceedance.

On 20 September 2023, a member of the public made a complaint on the Holcim website about an alarm that could be heard when machinery started up. The Quarry Manager determined that the alarm was from the Pug Mill when starting up. The alarm speaker was moved, and the tone adjusted to that it could only be heard within the plant. No additional actions were required, and the complaint closed out.

On 20 October 2023, a member of the public made a complaint on the Holcim website about suspected noise emissions believed to be emanating from the quarry. The Quarry Manager contacted the resident to enquire about some times and a description of the noises believed to be emanating from site. No issues were identified, however Holcim changed some of the heavy machinery reverse beepers to squawkers to see if this resolved the problem. No additional actions were required, and the complaint was closed.

On 24 October 2023, a member of the public made a complaint on the Holcim website about suspected noise emissions believed to be emanating from the quarry. On investigation, the noise source was confirmed to be from a bird, and not the quarry. No additional actions were taken.

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 monitoring conducted at Cooma Road Quarry is compared with the monitoring criteria stipulated in Schedule 3, Condition 14 of SSD 5109 and reproduced in **Table 14**.

Table 14 : 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 |

Notes to Tables 4-6:

- ^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 site installed a High Volume Sampling Unit (HVAS) in late 2016 to monitor PM₁₀ in accordance with the criteria stipulated in Schedule 3, Condition 14 of SSD 5109 and listed in **Table 15**. HVAS air quality monitoring at the site has been undertaken throughout 2023.

Table 15 : TSP and PM₁₀ Dust Criteria

Table 4: Long-term impact assessment criteria for Particulate Matter (from Development Consent)

| Pollutant | Averaging Period | ^d Criterion |
|--|------------------|-----------------------------------|
| Total Suspended particulate (TSP) | Annual | ^a 90 µm/m ³ |
| Particulate matter < 10 µm (PM ₁₀) | Annual | ^a 30 µm/m ³ |

Table 5: Short-term impact assessment criteria for Particulate Matter (from Development Consent)

| Pollutant | Averaging Period | ^d Criterion |
|--|------------------|-----------------------------------|
| Particulate matter < 10 µm (PM ₁₀) | 24 hour | ^a 50 µm/m ³ |

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.

6.3.2.1 Depositional Dust Monitoring

Depositional dust monitoring was undertaken at five depositional dust gauges at Cooma Road Quarry in 2023. Results for this monitoring are provided in **Table 16**.

Table 16: 2023 Dust Monitoring (Depositional Dust)

| Sample Date | Insoluble Solids (g/m ² /month) | | | | |
|-----------------------|--|------------|------------|------------|------------|
| | DDG1 | DDG2 | DDG3 | DDG4 | DDG5 |
| 5 January 2023 | 1.1 | 0.8 | 0.8 | 0.6 | 0.5 |
| 6 February 2023 | 1.1 | 0.8 | 0.5 | 0.4 | 0.3 |
| 8 March 2023 | 2.8 | 0.4 | 0.5 | 0.3 | 2.4 |
| 5 April 2023 | 3.5 | 0.2 | 0.9 | 11 | 0.3 |
| 3 May 2023 | 1.9 | 0.9 | 2.8 | 1.7 | 0.2 |
| 5 June 2023 | 2.4 | 2.1 | 2.7 | 0.1 | 0.3 |
| 5 July 2023 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 |
| 6 August 2023 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 |
| 4 September 2023 | 2.3 | 2.9 | 1.6 | 3.4 | 0.4 |
| 4 October 2023 | 1 | 1.5 | 0.3 | 0.6 | 0.4 |
| 6 November 2023 | 2.7 | 1 | 0.9 | 2.1 | 1.2 |
| 6 December 2023 | 2 | 1.4 | 1.3 | 1.5 | 0.8 |
| Annual Average | 1.7 | 1.0 | 1.0 | 1.8 | 0.5 |

It should be noted that the results for DDG4 in April was impacted by organic matter from nearby flowering vegetation. A notification was sent to the EPA.

For the 2023 reporting period, all monitoring locations were well below the criteria levels, with DD4 recording the highest annual average of 1.8 g/m²/month

A summary of depositional dust trends between 2017 and 2023 are outlined in **Table 17**.

Table 17: Depositional Dust Trends

| Dust Depositional Gauge | Monitoring Summary for Annual Review Period | Monitoring Results (Contamination Removed) (g/m ² /month) | | | | | | |
|-------------------------|---|--|------------|------------|------|------|------------|------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| DDG1 | Insoluble Solids Reporting Period Average | 3.1 | 3.8 | 4.9 | 3.6 | 2.6 | 2.2 | 1.75 |
| | Max. Insoluble Solids | 3.7 | 5.4 | 7.7 | 6.2 | 6.4 | 5.4 | 3.5 |
| | Min. Insoluble Solids | 2.1 | 1.9 | 2.8 | 0.5 | 2.5 | 0.3 | 0.1 |
| DDG2 | Insoluble Solids Reporting Period Average | 1.8 | 1.7 | 2.2 | 1.9 | 2.1 | 1.1 | 1.0 |
| | Max. Insoluble Solids | 2.6 | 3.0 | 4.1 | 8.2 | 3.5 | 2.4 | 2.9 |
| | Min. Insoluble Solids | 0.9 | 0.7 | 1 | 0.9 | 1.2 | 0.2 | 0.1 |
| DDG3 | Insoluble Solids Reporting Period Average | 0.8 | 1.5 | 2.1 | 1.9 | 1.3 | 1.1 | 1.0 |
| | Max. Insoluble Solids | 1.6 | 3.9 | 5 | 6.7 | 2.7 | 3.5 | 2.8 |
| | Min. Insoluble Solids | 0.4 | 0.5 | 0.3 | 0.6 | 0.5 | 0.4 | 0.1 |
| DDG4 | Insoluble Solids Reporting Period Average | 2.1 | 4.2 | 3.6 | 2.1 | 3.7 | 4.5 | 1.8 |
| | Max. Insoluble Solids | 4.3 | 13.1 | 7.1 | 11.2 | 11.0 | 10 | 11 |
| | Min. Insoluble Solids | 0.8 | 0.3 | 1.7 | 0.2 | 0.4 | 0.4 | 0.1 |
| DDG5 | Insoluble Solids Reporting Period Average | 2.0 | 2.2 | 2.0 | 1.5 | 2.0 | 0.9 | 0.5 |
| | Max. Insoluble Solids | 3.8 | 6.1 | 4.1 | 8.4 | 5.4 | 1.8 | 2.4 |
| | Min. Insoluble Solids | 0.1 | 0.3 | 0.5 | 0.2 | 0.6 | 0.5 | 0.7 |

6.3.2.2 PM₁₀ Monitoring

Results for 2023 PM₁₀ monitoring are provided in **Table 18**

Table 18: 2023 Dust Monitoring (PM₁₀)

| Sample Date | PM ₁₀ (µg/m ³) | TSP (calculated) | PM ₁₀ 24-hour Compliance Status |
|-------------|--|---------------------|--|
| 4/01/2023 | 6.9 | 17.4 | Compliant |
| 10/01/2023 | 11.9 | 29.8 | Compliant |
| 16/01/2023 | 9.3 | 23.2 | Compliant |
| 22/01/2023 | 6.3 | 15.8 | Compliant |
| 28/01/2023 | 15.9 | 39.8 | Compliant |
| 03/02/2023 | 13.2 | 33 | Compliant |
| 09/02/2023 | 7.4 | 18.6 | Compliant |
| 15/02/2023 | 13.3 | 33.2 | Compliant |
| 21/02/2023 | 14.5 | 36.3 | Compliant |
| 27/02/2023 | 16.7 | 41.8 | Compliant |
| 05/03/2023 | 14.9 | 37.2 | Compliant |
| 11/03/2023 | 18.6 | 46.4 | Compliant |
| 17/03/2023 | 17.6 | 44.1 | Compliant |
| 23/03/2023 | 7.7 | 19.2 | Compliant |
| 29/03/2023 | 7.2 | 18 | Compliant |
| 04/04/2023 | 9.9 | 24.7 | Compliant |
| 10/04/2023 | 6 | 15.1 | Compliant |
| 16/04/2023 | 7.2 | 18 | Compliant |
| 22/04/2023 | 12.4 | 31 | Compliant |
| 28/04/2023 | 15.9 | 39.6 | Compliant |
| 04/05/2023 | 11.1 | 27.7 | Compliant |
| 10/05/2023 | 9.5 | 23.7 | Compliant |
| 16/05/2023 | 19.2 | 47.9 | Compliant |
| 22/05/2023 | 17.3 | 43.3 | Compliant |
| 28/05/2023 | 3.4 | 8.5 | Compliant |
| 03/06/2023 | 9 | 22.4 | Compliant |
| 09/06/2023 | 5.7 | 14.3 | Compliant |
| 15/06/2023 | 4.9 | 12.3 | Compliant |
| 21/06/2023 | 7.3 | 18.3 | Compliant |
| 27/06/2023 | 5.8 | 14.4 | Compliant |
| 03/07/2023 | 8.1 | 20.1 | Compliant |
| 9/07/2023 | 3.7 | 9.2 | Compliant |

| Sample Date | PM ₁₀ (µg/m ³) | TSP (calculated) | PM ₁₀ 24-hour Compliance Status |
|-----------------------|--|---------------------|--|
| 15/07/2023 | 7.9 | 19.8 | Compliant |
| 21/07/2023 | 6.7 | 16.7 | Compliant |
| 27/07/2023 | 13.7 | 34.3 | Compliant |
| 02/08/2023 | 10.6 | 26.6 | Compliant |
| 08/08/2023 | 13.8 | 34.4 | Compliant |
| 14/08/2023 | 2 | 4.9 | Compliant |
| 20/08/2023 | 2.8 | 7.1 | Compliant |
| 26/08/2023 | 6 | 14.9 | Compliant |
| 01/09/2023 | 5.5 | 13.7 | Compliant |
| 07/09/2023 | 10.4 | 26.1 | Compliant |
| 13/09/2023 | 8.7 | 21.7 | Compliant |
| 19/09/2023 | 23.8 | 59.6 | Compliant |
| 25/09/2023 | 12.3 | 30.7 | Compliant |
| 1/10/2023 | - | - | Filter Lost – Non Compliant |
| 7/10/2023 | 5.4 | 13.5 | Compliant |
| 13/10/2023 | 5.1 | 12.8 | Compliant |
| 19/10/2023 | 7.6 | 18.9 | Compliant |
| 25/10/2023 | 16.3 | 40.7 | Compliant |
| 31/10/2023 | 10.4 | 26 | Compliant |
| 06/11/2023 | 9.2 | 22.9 | Compliant |
| 12/11/2023 | 12.4 | 31 | Compliant |
| 18/11/2023 | 11.2 | 28 | Compliant |
| 24/11/2023 | 5.3 | 13.2 | Compliant |
| 30/11/2023 | 5 | 12.4 | Compliant |
| 06/12/2023 | 14.8 | 37 | Compliant |
| 12/12/2023 | 5.4 | 13.5 | Compliant |
| 18/12/2023 | 17 | 42.6 | Compliant |
| 24/12/2023 | 4.2 | 10.4 | Compliant |
| 30/12/2023 | 11.1 | 27.8 | Compliant |
| Annual Average | 10.04 | 25.1 | Compliant |

There were 61 sampling events recorded in the 2023 report period. There was no exceedance in the short term (24 hour) PM₁₀ criterion of 50 µg/m³, however on 1 October, a filter was lost, resulting in a low non-compliance for Schedule 3, Condition 14.

Total Suspended Particulates (TSP) is 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 per the approved Cooma Road Air Quality Management Plan and consistent with the region. There are no long-term records to compare these results.

The 2023 annual average for PM₁₀ was 10.04 µg/m³, compared to 11.6 µg/m³ for 2022. A summary of average, minimum and maximum results from 2023 compared to results from previous years are outlined in **Table 19**.

Table 19: PM₁₀ Monitoring Trends since 2017

| Monitoring Summary for Annual Review Period | 2017 Results (µg/m ³) | 2018 Results (µg/m ³) | 2019 Results (µg/m ³) | 2020 Results (µg/m ³) | 2021 Results (µg/m ³) | 2022 Results (µg/m ³) | 2023 Results (µg/m ³) |
|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| PM ₁₀ Average | 10.97 | 13.1 | 10.7 | 12.2 | 11.6 | 8.5 | 10.04 |
| Max. PM ₁₀ | 35.9 | 80.3 | 37 | 35.1 | 37.3 | 29.8 | 23.8 |
| Min. PM ₁₀ | 1.2 | 1 | 1.8 | 2.8 | 1.0 | 3.3 | 2.3 |

6.3.2.3 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/m²/month, and that average levels at all gauges have decreased in 2023 compared to the 2022 average. Monitoring results for 2023 remain consistent with long-term dust trends at Cooma Road Quarry.

PM₁₀

PM₁₀ results for 2023 are mostly consistent with previous years. There were no exceedances recorded in 2023.

The maximum PM₁₀ result, was 23.8 µg/m³ has decreased when compared to previous years. The PM₁₀ annual average for 2023 was below the criteria and consistent with previous years.

On 1 October, a sample not taken due to a lost filter, resulting in a low non-compliance for Schedule 3, Condition 14 (Air Quality Criteria). As Holcim failed to notify the Department of this missed sample, this is an administrative non-compliance for Schedule 3, Condition 16 (Air Quality Management Plan).

As Holcim failed to notify the Department, this is also an administrative non-compliance for Schedule 5, Condition 7A (Non-Compliance) which states:

“Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this consent that the development is noncompliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.”

6.3.2.4 Comparison to EIS Predictions:

The results for annual average for depositional dust and PM₁₀ were generally within the predicted limits of the EIS predictions.

6.3.3 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.

6.3.4 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 20 outlines the blast monitoring results at the Cooma Road Quarry during the Annual Review period.

Table 20: 2023 Blast Monitoring Results

| Date | Heffernans House | | Jerrabomberra | | Compliance Status |
|-----------|----------------------|------------------|----------------------|------------------|-------------------|
| | Overpressure (dB(L)) | Vibration (mm/s) | Overpressure (dB(L)) | Vibration (mm/s) | |
| 10/2/2023 | 106.9 | 1.01 | 92 | 0.71 | Compliant |
| 14/2/2023 | DNT | DNT | DNT | DNT | Compliant |

| Date | Heffernans House | | Jerrabomberra | | Compliance Status |
|------------|--------------------|------------------|--------------------|------------------|-------------------|
| | Overpressure (dBL) | Vibration (mm/s) | Overpressure (dBL) | Vibration (mm/s) | |
| 24/2/2023 | 114.2 | 0.55 | 108 | 1.29 | Compliant |
| 14/3/2023 | 105.2 | 1.88 | 105.9 | 0.88 | Compliant |
| 21/3/2023 | 110 | 0.68 | 109.9 | 0.68 | Compliant |
| 29/3/2023 | 101 | 1.78 | 109.9 | 0.53 | Compliant |
| 19/4/2023 | 96.4 | 0.78 | 98 | 0.6 | Compliant |
| 18/5/2023 | 98.5 | 1.78 | 98.5 | 0.89 | Compliant |
| 23/5/2023 | 110.5 | 0.64 | 91.1 | 0.67 | Compliant |
| 8/6/2023 | DNT | DNT | DNT | DNT | Compliant |
| 19/6/2023 | DNT | DNT | DNT | DNT | Compliant |
| 22/6/2023 | DNT | DNT | DNT | DNT | Compliant |
| 30/6/2023 | DNT | DNT | DNT | DNT | Compliant |
| 7/7/2023 | DNT | DNT | 87 | 0.47 | Compliant |
| 14/7/2023 | 93 | 1.15 | 90.9 | 0.31 | Compliant |
| 28/7/2023 | DNT | DNT | 94.6 | 0.69 | Compliant |
| 31/7/2023 | 103.8 | 0.95 | DNT | DNT | Compliant |
| 15/8/2023 | DNT | DNT | DNT | DNT | Compliant |
| 25/8/2023 | DNT | DNT | 96.9 | 0.38 | Compliant |
| 4/9/2023 | DNT | DNT | DNT | DNT | Compliant |
| 11/9/2023 | DNT | DNT | DNT | DNT | Compliant |
| 18/9/2023 | DNT | DNT | DNT | DNT | Compliant |
| 25/9/2023 | DNT | DNT | DNT | DNT | Compliant |
| 26/9/2023 | DNT | DNT | 109.1 | 0.32 | Compliant |
| 9/10/2023 | DNT | DNT | DNT | DNT | Compliant |
| 30/10/2023 | DNT | DNT | 94.9 | 0.87 | Compliant |
| 27/11/2023 | DNT | DNT | DNT | DNT | Compliant |

| Date | Heffernans House | | Jerrabomberra | | Compliance Status |
|------------|--------------------|------------------|--------------------|------------------|-------------------|
| | Overpressure (dBL) | Vibration (mm/s) | Overpressure (dBL) | Vibration (mm/s) | |
| 15/12/2023 | DNT | DNT | DNT | DNT | Compliant |
| 18/12/2023 | DNT | DNT | DNT | DNT | Compliant |
| Average | 103.95 | 1.12 | 99.05 | 0.66 | |

In summary:

- There were 29 blasts during 2023; 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.

On 22 June, a resident complained after a blast went off that he had felt it at his residence. The resident also notified the Environment Protection Authority (EPA). The blast that occurred on this date did not trigger any blast monitors. Holcim contacted the residence and informed them that blasting was being undertaken in a different area of the pit, closer to their residence. On the 30 June, EPA contacted Holcim, however no further actions were required.

Long-term Trends:

Blasting levels from 2016 to 2023 measured at Heffernans House are compared in **Table 21**.

In 2016 there was a non-compliance relating to a blast result of 119.8 dBL Zero non-compliances for blasting occurred in the subsequent years including this report period.

Table 21: 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 |

Comparison to EIS Predictions:

The results for blasting in 2023 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 Improvements

No proposed improvements. Blast monitoring will continue in 2024 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 2023. The site maintained compliance with the conditions for truck movements throughout 2023. A copy of the truck movements and transported quarry product recorded throughout 2023 are outlined in **Table 22**. A total of 1,042,190 tonnes of product was transported on and offsite during 2023.

Table 22: Transport Tonnages 2023

| Month | Transport Tonnages | Truck Movements |
|----------|--------------------|-----------------|
| JANUARY | 73,196 | 2,200 |
| FEBRUARY | 112,447 | 3,686 |

| Month | Transport Tonnages | Truck Movements |
|-----------|--------------------|-----------------|
| MARCH | 102,598 | 3,855 |
| APRIL | 87,435 | 2,982 |
| MAY | 115,534 | 3,819 |
| JUNE | 82,504 | 2,752 |
| JULY | 93,272 | 3,222 |
| AUGUST | 79,458 | 2,948 |
| SEPTEMBER | 82,900 | 3,109 |
| OCTOBER | 73,462 | 2,767 |
| NOVEMBER | 82,294 | 2,813 |
| DECEMBER | 57,090 | 2,027 |
| Total | 1,042,190 | 36,180 |

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

During the reporting period, an additional 12,000m² of land was stripped, with 10,000m² from the Granite Pit area, and 2,000m² was from the Dacite area.

Weed spraying continued during the 2023 reporting period and total area sprayed in approximately (1.156km²). 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, with following nestboxes installed:

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

The 2023 winter survey demonstrates that since the 2022 winter survey, the nest boxes have shown a slight decrease in usage, with 28 nest boxes showing signs of use, a decrease of 31 boxes in the 2022 period. Six nest boxes contained fauna, with three containing gliders species, Although current occupancy rates are low across the entire set of nest boxes, the use observed during the current survey represents a relatively strong occupancy result only two years after installation.

Ten nest boxes require maintenance, eight contained active beehives, and box #51 needs its lid resecured.

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 2024 reporting period Holcim will:

- Continue to manage weed species on the site.
- Continue to monitor nest 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

6.7.1.1 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 as 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.

6.7.1.2 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 23**). These criteria only apply to water quality results when the site is discharging.

Table 23: 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 | 10 |
| pH | pH | 6.5-8.5 |
| Total Suspended solids | milligrams per litre | 50 |

7.3 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.

7.4 Surface Water Results

Holcim monitors surface water quality in Barracks Creek monthly.

All water monitoring results listed in **Table 24** are recorded from monitoring undertaken within the creek line, with there being no direct discharge to Barracks Creek in 2023.

Table 24: 2023 Water Monitoring Results (Barracks Creek)

| Sample Date | Total Suspended Solids (mg/L) | pH | Oil and Grease (mg/L) |
|----------------|-------------------------------|-------------|-----------------------|
| January | 5.6 | 8.6 | 24 |
| February | 8.7 | 8.4 | 10 |
| March | 18 | 8.6 | 31 |
| April | 5 | 8.5 | 10 |
| May | 10 | 8.6 | 12 |
| June | 5.3 | 8.6 | 28 |
| July | 6.1 | 8.9 | 5 |
| August | 5 | 9.4 | 10 |
| September | 11 | 8.4 | 10 |
| October | 7.8 | 8.4 | 16 |
| November | 5 | 8.7 | 10 |
| December | 5.4 | 11.7 | 10 |
| Annual Average | 7.74 | 8.9 | 14.67 |

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

The annual average for Total suspended solids (TSS) in 2023 was 7.74mg/L, which is lower than the annual average in 2022 which recorded 30.25mg/L.

pH had increased alkalinity when compared to the annual average from the 2022 reporting period and is outside the criteria range in 2023 with an average of pH 8.9, above the criteria level of pH 8.5.

pH values exceeded the criteria level of 8.5 in January, March, May, June, July, August, November, and December, which recorded the highest reading of pH 11.7.

Oil and grease were higher than the EPL criteria in January, March, May, June, and October of 2023, with March recording 31mg/L, above the criteria limit of 10 mg/L. The annual average for oil and grease was 14.67 mg/L, which is greater than 2022, where 7.5 mg/L was recorded. As there were no discharges from site during the reporting period, Cooma Road Quarry believe that these exceedances originate offsite and upstream of Barracks Creek sampling area.

There were no discharges into Barrack’s Creek in 2023, therefore no non-compliances with Condition L2.4.

Long-term Trends:

Table 25 shows a comparison of data between 2016 to 2023 and indicates that results for pH and oil and grease have increased compared to previous years and is outside of criteria levels TSS levels in 2023 have been lower than previous years and are within the EPL criteria

It is proposed that during the 2024 reporting period, a surface water specialist will be engaged by Holcim to undertake preliminary investigations of Barracks Creek due to the increased trends detailed in **Table 25**. Holcim is unsure the causes of these elevated results, and it is expected that multiple locations will be sampled. Details of this report will be included in the 2024 Annual Review.

There were no discharge events in 2016-2023, therefore the EPL criteria have not been triggered.

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 |

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.

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

A total of four bores were installed in early 2021. Quarterly groundwater monitoring commenced in June 2021 and continued throughout 2023 as per the groundwater monitoring program.

7.5.1 Groundwater Performance

Groundwater results for 2023 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)

Ground water monitoring continued at bores (GW400534 and GW416130) along with monitoring at the newly installed bores (MB01 and MB02) The monitoring results for 2023 are presented in **Table 27**.

Table 27: Groundwater Monitoring Results 2023

| Sampling Period | Monitoring Location | pH | Total Dissolved Solids (TDS) | Electrical Conductivity (µS/cm) |
|---------------------------|---------------------|------------|------------------------------|---------------------------------|
| Trigger | | 6.5 – 8.5 | 600 | 125-2200 |
| Quarter 1 (6/2/2023) | MB01 | 7.5 | 381 | 595 |
| | MB02 | 7.1 | 37 | 579 |
| | GW400534 | 7.1 | 372 | 581 |
| | GW416130 | 6.8 | 565 | 883 |
| Quarter 2 (03/04/2023) | MB01 | 9.4 | 453 | 707 |
| | MB02 | 7.9 | 4000 | 6250 |
| | GW400534 | 7.2 | 375 | 602 |
| | GW416130 | 7.6 | 6420 | 1000 |
| Quarter 3 (02/08/2023) | MB01 | 7.8 | 9.9 | 1570 |
| | MB02 | 8.0 | 2.9 | 1460 |
| | GW400534 | 7.4 | 1.2 | 733 |
| | GW416130 | 6.9 | 2.2 | 2540 |
| Quarter 4 (04/10/2023) | MB01 | 7.4 | 1020 | 1590 |
| | MB02 | 7.4 | 922 | 1440 |
| | GW400534 | 7.2 | 456 | 713 |
| | GW416130 | 6.8 | 1550 | 2410 |

Generally, all groundwater monitoring results for pH in 2023 were within the trigger levels. MB01 recorded a pH reading of 9.4 during Q2, this is outside of the trigger level.

GW400534 was the only location that recorded TDS levels below the trigger level for all monitoring events in 2023. MB01 recorded a TDS of 1020 mg/L in quarter 4, and both MB02 and GW416130 recorded TDS greater than trigger levels in the quarter 2 and quarter 4 periods.

Electrical conductivity levels were within the trigger values for all sampling events at bores MB01 and GW100534 during the 2023 reporting period. MB02 exceeded trigger levels in quarter 2, and GW416130 exceeded trigger levels in quarter 3 and quarter 4.

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.

Holcim will continue to perform groundwater monitoring in 2024.

7.6 Water Take

Table 28 outlines the water take at the Cooma Road Quarry in 2023. No water was taken during the period; therefore the water take was within the limits of the water access licence (WAL) requirement.

Table 28: 2023 Water Take

| WAL | Entitlement | 2023 | 2022 | 2021 | 2020 | 2019 | 2018 |
|-----------|-------------|---------|----------|------|------|------|------|
| 40SL27690 | 98 ML | No take | 16.49 ML | 31ML | 36ML | 70ML | 60ML |

8 REHABILITATION AND LANDSCAPE MANAGEMENT

The site is required to undertake biodiversity and rehabilitation in accordance with their Project Approval.

Schedule 3, Condition 22 states

“Rehabilitation Objectives

The Applicant must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the proposed rehabilitation strategy in the EIS and Appendix 7 and comply with the objectives in Table 7.”

Table 7: Rehabilitation Objectives for Cooma Road Quarry (SSD 5109)

| Feature | Objectives |
|--|--|
| Site (as a whole) | Safe, stable, and non-polluting |
| Surface Infrastructure | To be decommissioned and removed (unless otherwise agreed with the Secretary) |
| Benched Quarry Walls | Landscaped and revegetated utilising native tree and understory species, ensuring that the tree canopy is restored and integrated with the surrounding canopy to minimise visual impacts |
| Quarry Pit Floors | Landscaped and revegetated utilising native flora species, above the anticipated final void water level |
| Other land affected by the development | Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of: <ul style="list-style-type: none"> - Native endemic species: ad - A landform consistent with Appendix 7 and the surrounding environment |
| Community | <ul style="list-style-type: none"> • Ensure public safety • Minimise the adverse socio-economic effects associated with the closure of the development |

Note: Revegetation of existing and proposed industrial areas is not required

Schedule 3, Condition 23 states

“Progressive Rehabilitation

The Applicant must rehabilitation the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active, and which are not ready to final rehabilitation.”

Rehabilitation and biodiversity management strategies, procedures, controls, and monitoring programs at the Cooma Road Quarry are undertaken in accordance with the *Rehabilitation Management Plan* (2019)(RMP). The RMP is available on the Holcim Community Link website.

8.1 Rehabilitation Performance during the Reporting Period

During the 2023 reporting period, topsoil was placed on 12,000m² of land of the south eastern side of the project area (previous overburden area) and allowed to self-seed. Rehabilitation is expected to continue into 2024 and consist of planting tubestock or hydromulching. Existing rehabilitation areas continue to be inspected and maintained. See **Table 29** for details of rehabilitation performance.

Table 29: Rehabilitation Performance in 2023

| Guideline Requirement | Response |
|---|---|
| Extent of the operations and rehabilitation at completion of the reporting period | Progressive rehabilitation undertaken. Topsoil was placed on 12000m ² on previous overburden area on the south eastern side of quarry. This area was allowed to self-seed. Inspections were completed of the rehabilitation areas. |
| 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 | Construction activities undertaken in 2023 include the relocation of the existing workshop. The old workshop was removed to an approved facility. There is proposed planning to extend the granite pit in the 2024 reporting period. |
| Any other Rehabilitation taken including: <ul style="list-style-type: none"> • Exploration activities; • Infrastructure; • Dams; and • The installation or maintenance of fences, bunds, and any other works. | No rehabilitation completed in 2023 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 3**

Table 30: Rehabilitation and Disturbance Status

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

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.

At the end of 2023 there was approximately 88.9 Ha of active disturbance and 8.1 Ha of active rehabilitation. 1.2 ha of land is currently being prepared for rehabilitation, and this is expected to remain the same during 2024. There is no further disturbance or rehabilitation preparation activities planned for 2024. Rehabilitation maintenance will be continued into 2024.

Rehabilitation monitoring continued in Winter in 2023.

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 2024 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 | 1.2ha was prepared in 2023, with monitoring to continue through 2024. 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 and new rehabilitation will continue in 2024. Rehabilitation monitoring is to continue into 2024 in order to meet Condition 24 of Schedule 3 of the Development Consent. |
| Undertake Surface Water Monitoring for increase in elevated trends | Holcim will engage a water specialist to undertake surface water monitoring due to pH and oil and grease being recorded above criteria levels. Since 2016, data has shown an increased trend. |

A summary of the performance of environmental management measures and sampling results for 2023 are detailed in **Table 32** and **Figure 3**.

Table 32 Environmental Performance at Cooma Road Quarry in 2023

| 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. | <p>Quarter monitoring has met the Development Consent Criteria.</p> <p>Minor community complaints regarding noise emissions leaving site. These have been addressed, and no additional complaints received.</p> | Consistently meets criteria. | None Required. |
| Blasting | EIS predictions are all below development consent criteria. | All blasts reported during 2023 were below criteria. No exceedances. | Below criteria from 2017 to 2023. | None required. |
| Air Quality | EIS predictions are all below development consent criteria. | <p>Dust deposition results within criteria of EPL, EIS and Development Consent.</p> <p>PM₁₀ results has met the Development Consent Criteria.</p> <p>One short term exceedance at DDG4 recorded in April.</p> | <p>Dust deposition was consistent with EIS and previous Annual Reviews.</p> <p>PM₁₀ data was generally consistent with the previous period.</p> | <p>A notification was sent to the EPA for exceedance at gauge DDG4.</p> <p>Holcim will continue to refine the implementation of the air quality monitoring program and air quality management measures.</p> |
| Traffic Management | EIS predictions are all below development consent criteria. | Met the Development Consent Criteria. | Consistently meets criteria. | None required. |
| Water Management | EIS predictions are all below development consent criteria. | <p>No discharge.</p> <p>Groundwater monitoring continued in 2023.</p> | Surface water generally meets criteria. There were no discharge events during 2023. | Continued implementation of Water Management Plan. |

| Aspect | Approval Criteria / EIS Prediction | Performance during the reporting period | Trend / key management implications | Implemented / proposed management actions |
|--------------|---|--|--|---|
| | | | Groundwater quality was generally compliant with trigger values. TDS levels were higher than trigger levels in 2023. | |
| 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 2023. | Biodiversity monitoring has been consistent with the Rehabilitation Management Plan. | Continue implement the Rehabilitation Management Plan |
| Heritage | No predictions. | No impacts to Aboriginal Cultural Heritage or European Heritage. | Continued to be no impacts. | None Required. |

9 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 2m³ general waste bins and one 1.5m³ 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 continues to demonstrate a commitment to improving 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 tonnes per calendar year. The site is compliant with this condition, receiving 7.4 tonnes of recycled concrete in 2023.

10 COMMUNITY

10.1 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 April 2023 and August 2023.

Past community engagement activities have included open days, attendance at resident's association meetings and provision of materials for local projects. Whilst there were no community engagement days held in the reporting period, residents or groups are welcome to contact the Quarry to arrange tours.

In addition to the CCC, 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.

10.2 Community Contributions

During the 2023 reporting period, Cooma Road Quarry sponsored the Queanbeyan Rodeo and the Rotary Circus Quirkus.

10.3 Complaints

A complaint register is updated and published on the Holcim website quarterly. There were a total of five complaints received during the 2023 reporting period as detailed in **Table 33**

Table 33: Complaint Summary

| Date | Complaint Summary | Holcim Comment |
|-------------------|--|---|
| 24 May 2023 | <p>Noise/Blast:</p> <p>Resident in the neighbouring subdivision contacted the hotline to report a loud noise and her windows shook. Resident noted it was not a complaint but was concerned as she had never heard a noise so loud.</p> | <p>Holcim reviewed all monitoring data for 24 May. No blasts or other issues were identified across site. Holcim believe the noise occurred offsite, and not related to Holcim operations.</p> |
| 22 June 2023 | <p>Blast:</p> <p>A resident complained after a blast went off that he had felt at his residence. Resident also contacted EPA.</p> | <p>Holcim reviewed the Blast monitoring data for the day in question. No issues identified. Holcim contacted resident to explain that blasting was occurring in a different area of the pit, closer to their residence.</p> |
| 20 September 2023 | <p>Noise:</p> <p>A member of the public notified the website of an alarm that could be heard when the plant started up.</p> | <p>Holcim reviewed the time the complaint was made and determined that the noise was occurring from the Pug Mill alarm. Alarm was moved and speaker tone adjusted. No further actions</p> |
| 20 October 2023 | <p>Noise:</p> <p>A resident contacted the Holcim complaints web site and complained about a noise believed to emanating from the site.</p> | <p>Holcim staff did a walk around site and could not identify source of noise emissions. Holcim agreed to change Heavy Machinery reverse beepers to squawkers to see if this helps. No additional actions required</p> |
| 24 October 2023 | <p>Noise:</p> <p>Member of the public has put in a complaint on the website about noise believed to be emanating from the quarry.</p> | <p>Holcim contacted resident to get additional information provided. The resident since contacted Holcim and confirmed the noise is a bird and that there is no audible noise from the quarry.</p> |

All publicly listed information including this 2023 complaints register, incidents and contacts for locals in the community is available at <http://www.holcim.com.au/cooma-road.html>. Holcim continue to operate a community contact line.

11 INDEPENDENT AUDIT

The most recent Independent Environmental Audit (IEA) was undertaken by EMM Consulting Pty Ltd on behalf of Holcim in July 2021 as required in accordance with Schedule 5, Condition 10 of the Development Consent (SSD_5109) – MOD 1 for the quarry. This was the third IEA, with the previous IEA completed in 2017.

The next IEA is due to be conducted in February 2024.

12 INCIDENTS AND NON-COMPLIANCE

Incidents and non-compliances at Cooma Road Quarry in 2023 are summarised in **Table 33**.

Table 34: Incidents and Non-Compliance at the Cooma Road Quarry During 2023

| Date | Incident/Non-Compliance | Action/Comment |
|--------------|-----------------------------|--|
| April 2023 | Air Quality Monitoring | DDG4 April 2023 result exceeded assessment criteria This has been recorded as an exceedance; however, the site did not cause this exceedance. Refer to Section 6.3 for details. |
| October 2023 | Air Quality Criteria | On 1 October, a sample not taken due to a lost filter, resulting in a low non-compliance for Schedule 3, Condition 14. |
| October 2023 | Air Quality Management Plan | Holcim failed to notify the Department of this missed sample, resulting in an administrative non-compliance for Schedule 3, Condition 16. |
| October 2023 | Non-Compliance Reporting | As Holcim failed to notify the Department of the missed sample in October, this is an administrative non-compliance for Schedule 5, Condition 7A. |

13 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

Proposed improvement actions for 2024 are noted in **Table 34**

Table 35: Improvement Actions for 2024

| Improvement Measure | Activities | Timeframe |
|-------------------------------|---|-----------|
| Progressive Rehabilitation | The site will continue to progressively rehabilitate if any areas are available. | Ongoing |
| Maintenance of rehabilitation | Continued maintenance of rehabilitation in the completed overburden dump in the south-western disturbance area including weed control as well as nest box monitoring. | Ongoing. |
| Biodiversity | Weed spraying will continue at site during the next Annual Review period. Implementation of the Rehabilitation Management Plan. | Annually. |

APPENDIX 1

COOMA ROAD QUARRY QUARTERLY NOISE MONITORING REPORTS 2023

Intended for
Holcim (Australia) Pty Ltd

Document type
Report

Date
May 2023

Project number
318000911

QUARTERLY NOISE MONITORING ASSESSMENT – QUARTER 1 2023 COOMA ROAD QUARRY, GOOGONG, NSW

**QUARTERLY NOISE MONITORING ASSESSMENT –
QUARTER 1 2023
COOMA ROAD QUARRY, GOOGONG, NSW**

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Project name **Quarterly Noise Monitoring Assessment for Cooma Road Quarry – Quarter 1 2023**
Project no. **318000911**
Recipient **David Manning**
Document type **Report**
Version **1**
Date **11/05/2023**
Prepared by **Jake Bourke, Matilda Englert**
Checked by **Greer Laing**
Approved by **Greer Laing**
Description **Data collected on 7 and 8 March 2023 for the quarterly period ending March 2023 at Googong, NSW, as part of the noise monitoring program**

CONTENTS

| | |
|---|-----------|
| Abbreviations and Definitions | 2 |
| 1. Overview | 3 |
| 1.1 Project Driver | 3 |
| 1.2 Site Location and Sensitive Receptors | 3 |
| 2. Noise Criteria | 5 |
| 3. Methodology | 6 |
| 4. Results and Discussion | 7 |
| 4.1 Location N3 | 7 |
| 4.2 Location N8 | 8 |
| 4.3 Location N38 | 9 |
| 4.4 Location N60 | 10 |
| 4.5 Location N67 | 11 |
| 5. Conclusion | 12 |
| 6. References | 13 |

Tables

| | |
|---|----|
| Table 1-1: Monitoring locations locality and sensitive receptors | 3 |
| Table 2-1: Monitoring locations and noise criteria | 5 |
| Table 4-1: Noise survey results and observations for Location N3 | 7 |
| Table 4-2: Noise survey results and observations for Location N8 | 8 |
| Table 4-3: Noise survey results and observations for Location N38 | 9 |
| Table 4-4: Noise survey results and observations for Location N60 | 10 |
| Table 4-5: Noise survey results and observations for Location N67 | 11 |

ABBREVIATIONS AND DEFINITIONS

| | |
|-------------------------|--|
| 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). |
| 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. |
| 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. |
| 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). |
| LAm_{ax} | The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured. |
| NMA | Noise Monitoring Assessment |
| NMP | Noise Management Plan |

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

1. OVERVIEW

1.1 Project Driver

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

This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPI) (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).
- IEC 60942 Ed. 3.0 b:2003 Electroacoustics - Sound calibrators (Standards Australia, 2003).

This NMA has been undertaken for the quarterly period January to March 2023, and forms part of the monitoring program to determine compliance with conditions of the Development Consent.

1.2 Site Location and Sensitive Receptors

The quarry is in Googong, approximately 6 kilometres south of Queanbeyan, NSW.

Sensitive receptors 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 as part of the NMA and in accordance with the Development Consent and are shown in **Table 1-1**.

Table 1-1: Monitoring locations locality and sensitive receptors

| Monitoring Locations | Locality and Sensitive Receptors |
|----------------------|---|
| 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**.



Legend

- Noise monitoring location

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 the Development Consent and/or the NMP for receiver locations on the map ² 6 am–7 am Monday to Saturday 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 created in accordance with the procedures described in Australian Standard AS 1055:2018 and the Approval Documents referenced in Section 1. The measurements were carried out using a RION Sound Level Meter NL-52 on Tuesday 7 and Wednesday 8 March 2023. The acoustic instrumentation implemented carries current NATA calibration and complies with AS/NZS IEC 61672-1:2013/2002 class 1. Calibration of all instrumentation was checked prior to and following measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2003. Drift in calibration did not exceed ± 0.3 dBA.

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

4. RESULTS AND DISCUSSION

4.1 Location N3

Noise monitoring at location N3 conducted on Tuesday 7 March 2023 and Wednesday 8 March 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N3 are presented in **Table 4-1**.

Noise sources measured included wind/rustling leaves, birds, and pedestrians.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry Contribution (LA1sec) (dBA) | LAeq(15min) Criteria |
|----------|----------------------------|-------------------|------------------|------------------|--------------------------------------|---|---|----------------------|
| | | LAm _{ax} | LA _{eq} | LA ₉₀ | | | | |
| 07-03-23 | 6:01 (Morning Shoulder) | 60.9 | 41.8 | 38.4 | WD: 150° WS: 0.6 m/s Rain: Nil | Wind/rustling leaves 40-46 Quarry inaudible | Inaudible | 35 |
| 08-03-23 | 17:40 (Day) | 66.0 | 52.8 | 49.1 | WD: 110° WS: 2.9 m/s Rain: Nil | Wind/rustling leaves 48-56 Birds 52-58 Quarry inaudible | Inaudible | 35 |
| 07-03-23 | 18:01 (Evening) | 69.8 | 52.1 | 47.3 | WD: 110° WS: 2.7 m/s Rain: Nil | Wind/rustling leaves 48-56 Birds 52-58 Pedestrian with dog 56 Quarry inaudible | Inaudible | 35 |

4.2 Location N8

Noise monitoring at location N8 conducted on Tuesday 7 March 2023 and 8 March 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N8 are presented in **Table 4-2**.

Noise sources measured included motorway traffic, passing cars, wind and barking dogs.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry Contribution (LA1sec) (dBA) | LAeq(15min) Criteria |
|----------|----------------------------|-------------------|------------------|------------------|--------------------------------------|--|---|----------------------|
| | | L _{Amax} | L _{Aeq} | L _{A90} | | | | |
| 07-03-23 | 6:00 (Morning Shoulder) | 69.5 | 54.1 | 45.4 | WD: n/a WS: 0 Rain: Nil | Motorway traffic 54-61 Passing car 69 Barking dogs 55-60 Quarry inaudible | Inaudible | 40 |
| 08-03-23 | 7:58 (Day) | 72.4 | 59.1 | 55.5 | WD: 100° WS: 2.4 m/s Rain: Nil | Motorway traffic 54-69 Passing car 69-73 Quarry inaudible | Inaudible | 44 |
| 07-12-22 | 18:26 (Evening) | 72.7 | 55.7 | 51.2 | WD: 100° WS: 2.8 m/s Rain: Nil | Motorway traffic 52-59 Wind 49-53 Passing cars 67-72 Quarry inaudible | Inaudible | 39 |

4.3 Location N38

Noise monitoring at location N38 conducted on Tuesday 7 March 2023 and Wednesday 8 March 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N38 are presented in **Table 4-3**.

Noise sources measured included motorway traffic, a truck, and a passing car.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry Contribution (LA1sec) (dBA) | LAeq(15min) Criteria |
|----------|----------------------------|-------------------|------------------|------------------|-------------------------------------|--|---|----------------------|
| | | L _{Amax} | L _{Aeq} | L _{A90} | | | | |
| 07-03-23 | 6:23 (Morning Shoulder) | 68.8 | 52.9 | 48.8 | WD: n/a WS: 0 Rain: Nil | Motorway traffic 52-57 Truck 68 Passing car 66 Quarry inaudible | Inaudible | 36 |
| 08-03-23 | 7:40 (Day) | 74.4 | 55.7 | 52.9 | WD: 35° WS: 0.9 m/s Rain: Nil | Motorway traffic 47-75 Quarry inaudible | Inaudible | 38 |
| 07-03-23 | 18:45 (Evening) | 71.8 | 52.6 | 47.9 | - | Motorway traffic Quarry inaudible | Inaudible | 35 |

4.4 Location N60

Noise monitoring at location N60 conducted on Tuesday 7 March 2023 and Wednesday 8 March 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N60 are presented in **Table 4-4**.

Noise sources measured included motorway traffic and birds.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry Contribution (LA1sec) (dBA) | LAeq(15min) Criteria |
|----------|----------------------------|------------------|------|------|--------------------------------------|--|---|----------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 08-03-23 | 6:33 (Morning Shoulder) | 84.5 | 67.3 | 54.0 | WD: 150° WS: 2.8 m/s Rain: Nil | Motorway traffic 44-82 Birds 52 Quarry inaudible | Inaudible | 36 |
| 08-03-23 | 7:00 (Day) | 76.5 | 66.1 | 50.6 | WD: 130° WS: 2.3 m/s Rain: Nil | Motorway traffic 48-76 Quarry inaudible | Inaudible | 38 |
| 07-03-23 | 19:31 (Evening) | 70.4 | 58.1 | 45.8 | WD: 120° WS: 2.9 m/s Rain: Nil | Motorway traffic 47-66 Quarry inaudible | Inaudible | 35 |

4.5 Location N67

Noise monitoring at location N67 conducted on Tuesday 7 March 2023 and Wednesday 8 March 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N67 are presented in **Table 4-5**.

Noise sources measured included motorway traffic.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry Contribution (LA1sec) (dBA) | LAeq(15min) Criteria |
|----------|----------------------------|------------------|------|------|--------------------------------------|---|---|----------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 07-03-23 | 6:44 (Morning Shoulder) | 68.3 | 57.6 | 52.5 | WD: 140° WS: 1.8 m/s Rain: Nil | Motorway traffic 55-64 Quarry inaudible | Inaudible | 36 |
| 08-03-23 | 7:20 (Day) | 67.4 | 53.1 | 48.5 | WD: 150° WS: 2.9 m/s Rain: Nil | Motorway traffic 49-64 Quarry inaudible | Inaudible | 41 |
| 07-03-23 | 19:13 (Evening) | 96.8 | 59.5 | 44.8 | WD: 120° WS: 1.6 m/s Rain: Nil | Motorway traffic 48-61 Quarry inaudible | Inaudible | 35 |

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 7 March 2023 and Wednesday 8 March 2023 at five locations selected as representative to the sensitive receptors at the surroundings to Cooma Road Quarry. No audible quarry noise was recorded at any of the selected monitoring locations during the monitoring campaign.

6. REFERENCES

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

Minister for Planning and Infrastructure (2013) 'Development Consent SSD_5109, Cooma Road Quarry Continued Operations Project'.

NSW EPA (2020) Environment Protection Licence number 1453

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

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

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

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

Intended for
Holcim (Australia) Pty Ltd

Document type
Report

Date
July 2023

Project number
318000911

QUARTERLY NOISE MONITORING ASSESSMENT – QUARTER 2 2023 COOMA ROAD QUARRY, GOOGONG, NSW

**QUARTERLY NOISE MONITORING ASSESSMENT –
QUARTER 2 2023
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Project name **Quarterly Noise Monitoring Assessment for Cooma Road Quarry – Quarter 2
2023**
Project no. **318000911**
Recipient **David Manning**
Document type **Report**
Version **1**
Date **25/07/2023**
Prepared by **Jake Bourke, Matilda Englert**
Checked by **Andrew Bell, Rachel Condon**
Approved by **Belinda Sinclair**
Description **Data collected on 2 and 3 May 2023 for the quarterly period ending June
2023 at Googong, NSW, as part of the noise monitoring program**

CONTENTS

| | |
|---|-----------|
| Abbreviations and Definitions | 2 |
| 1. Overview | 3 |
| 1.1 Project Driver | 3 |
| 1.2 Site Location and Sensitive Receptors | 3 |
| 2. Noise Criteria | 5 |
| 3. Methodology | 6 |
| 4. Results and Discussion | 7 |
| 4.1 Location N3 | 7 |
| 4.2 Location N8 | 8 |
| 4.3 Location N38 | 9 |
| 4.4 Location N60 | 10 |
| 4.5 Location N67 | 11 |
| 5. Conclusion | 12 |
| 6. References | 13 |

Tables

| | |
|---|----|
| Table 1-1: Monitoring locations locality and sensitive receptors | 3 |
| Table 2-1: Monitoring locations and noise criteria | 5 |
| Table 4-1: Noise survey results and observations for Location N3 | 7 |
| Table 4-2: Noise survey results and observations for Location N8 | 8 |
| Table 4-3: Noise survey results and observations for Location N38 | 9 |
| Table 4-4: Noise survey results and observations for Location N60 | 10 |
| Table 4-5: Noise survey results and observations for Location N67 | 11 |

ABBREVIATIONS AND DEFINITIONS

| | |
|-------------------------|--|
| 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). |
| 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. |
| 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. |
| 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). |
| LAm_{ax} | The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured. |
| NMA | Noise Monitoring Assessment |
| NMP | Noise Management Plan |

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

1. OVERVIEW

1.1 Project Driver

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

This NMA was done in accordance with the following documents:

- Noise Policy for Industry (NPI) (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).
- IEC 60942 Ed. 3.0 b:2003 Electroacoustics - Sound calibrators (Standards Australia, 2003).

This NMA has been undertaken for the quarterly period April to June 2023, and forms part of the monitoring program to determine compliance with conditions of the Development Consent.

1.2 Site Location and Sensitive Receptors

The quarry is in Googong, approximately 6 kilometres south of Queanbeyan, NSW.

Sensitive receptors 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 as part of the NMA and in accordance with the Development Consent and are shown in **Table 1-1**.

Table 1-1: Monitoring locations locality and sensitive receptors

| Monitoring Locations | Locality and Sensitive Receptors |
|----------------------|---|
| 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**.



Legend
 ● Noise monitoring location

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 the Development Consent and/or the NMP for receiver locations on the map ² 6 am–7 am Monday to Saturday 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 created in accordance with the procedures described in Australian Standard AS 1055:2018 and the Approval Documents referenced in Section 1. The measurements were carried out using a RION Sound Level Meter NL-52 on Tuesday 2 and Wednesday 3 May 2023. The acoustic instrumentation implemented carries current NATA calibration and complies with AS/NZS IEC 61672-1:2013/2002 class 1. Calibration of all instrumentation was checked prior to and following measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2003. Drift in calibration did not exceed ± 0.3 dBA.

Attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over two days. 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, or estimated to be less than criteria value.

4. RESULTS AND DISCUSSION

4.1 Location N3

Noise monitoring at location N3 conducted on Tuesday 2 May 2023 and Wednesday 3 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N3 are presented in **Table 4-1**.

Measured ambient noise sources include wind/rustling leaves, birds, and road traffic.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|----------|--|-------------------|------------------|------------------|---------------------------------------|---|--|----------------------------|
| | | LAm _{ax} | LA _{eq} | LA ₉₀ | | | | |
| 02-05-23 | 6:40am to 6:55am (Morning Shoulder) | 63.9 | 43.5 | 39.4 | WD: n/a WS: 0 m/s Rain: Nil | Distant road traffic 42-43 Resident car passing 45-46 Birds 53-58 Quarry inaudible | <29 | 35 |
| 03-05-23 | 10:56am to 11:11am (Day) | 93.4 | 60.5 | 51.2 | WD: 345° WS: 15.9 m/s Rain: Nil | Wind/trees Aircraft Birds Quarry inaudible | <35 | 35 |
| 02-05-23 | 8:26pm to 8:41pm (Evening) | 53.0 | 38.1 | 35.0 | WD: n/a WS: 0 m/s Rain: Nil | Road traffic 40-53 Quarry inaudible | <25 | 35 |

4.2 Location N8

Noise monitoring at location N8 conducted on Tuesday 2 May 2023 and 3 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N8 are presented in **Table 4-2**.

Measured ambient noise sources included motorway traffic, passing cars, wind, and birds.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|----------|--|------------------|------|------|---------------------------------------|---|--|----------------------------|
| | | LAmax | LAeq | LA90 | | | | |
| 02-05-23 | 6:27am to 6:42am (Morning Shoulder) | 73.4 | 60.6 | 56.1 | WD: 319° WS: 6.7 m/s Rain: Nil | Motorway traffic 50-51 Passing cars 63-73 Wind 58-63 Quarry inaudible | <40 | 40 |
| 03-05-23 | 12:51 to 1:06pm (Day) | 67.4 | 55.4 | 50.2 | WD: 313° WS: 15.2 m/s Rain: Nil | Motorway traffic 54-57 Birds 48-49 Wind/trees 52-61 Quarry inaudible | <40 | 44 |
| 02-05-23 | 6:38pm to 6:53pm (Evening) | 74.3 | 53.4 | 46.2 | WD: 38° WS: 1.3 m/s Rain: Nil | Motorway traffic 50-51 Cars passing on Tempe Cresc. 63-71 Quarry inaudible | <36 | 39 |

4.3 Location N38

Noise monitoring at location N38 conducted on Tuesday 2 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N38 are presented in **Table 4-3**.

Measured ambient noise sources included motorway traffic, passing cars and wind.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|----------|-------------------------------------|-------------------|------------------|------------------|---------------------------------------|---|--|----------------------------|
| | | LAm _{ax} | LA _{eq} | LA ₉₀ | | | | |
| 02-05-23 | 6:44am to 6:59am (Morning Shoulder) | 71.2 | 61.5 | 56.9 | WD: 319° WS: 6.6 m/s Rain: Nil | Motorway traffic 46-49 Passing car 65-68 Wind/trees 60-63 Quarry inaudible | <36 | 36 |
| 02-05-23 | 1:27pm to 1:42pm (Day) | 63.3 | 55.9 | 52.7 | WD: 337° WS: 10.2 m/s Rain: Nil | Motorway traffic 50-56 Wind/trees 55-60 Quarry inaudible | <38 | 38 |
| 02-05-23 | 7:01pm to 7:16pm (Evening) | 70.4 | 51.0 | 41.8 | - | Motorway traffic 46-49 Passing cars 65-68 Quarry inaudible | <32 | 35 |

↖ indicates not recorded

4.4 Location N60

Noise monitoring at location N60 conducted on Tuesday 2 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N60 are presented in **Table 4-4**.

Measured ambient noise sources included motorway traffic, wind, and trees.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|----------|--|------------------|------|------|--------------------------------------|--|--|----------------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 02-05-23 | 6:14am to 6:29am (Morning Shoulder) | 78.1 | 60.2 | 38.7 | WD: n/a WS: 0 m/s Rain: Nil | Motorway traffic 51-72 Quarry inaudible | <29 | 36 |
| 02-05-23 | 1:49pm to 2:04pm (Day) | 81.5 | 64.1 | 51.0 | WD: 305° WS: 8.3 m/s Rain: Nil | Motorway traffic 51-77 Wind/trees 52-66 Quarry inaudible | <38 | 38 |
| 02-05-23 | 7:27pm to 7:49pm (Evening) | 78.1 | 60.2 | 38.7 | WD: n/a WS: 0 m/s Rain: Nil | Motorway traffic 51-72 Quarry inaudible | <29 | 35 |

4.5 Location N67

Noise monitoring at location N67 conducted on Tuesday 2 May 2023 resulted in inaudible quarry noise during morning shoulder and day. The quarry was not operational during the evening. These results meet the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N67 are presented in **Table 4-5**.

Measured ambient noise sources included motorway traffic, aircraft, wind, and a truck horn.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and LAeq (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|----------|--|------------------|------|------|-----------------------------------|---|--|----------------------------|
| | | LAmax | LAeq | LA90 | | | | |
| 02-05-23 | 6:34am to 6:49am (Morning Shoulder) | 78.9 | 61.9 | 54.7 | WD: n/a WS: 0 m/s Rain: Nil | Motorway traffic Quarry inaudible | <36 | 36 |
| 02-05-23 | 1:09pm to 1:24pm (Day) | 81.4 | 63.6 | 49.8 | WD: n/a WS: 0 m/s Rain: Nil | Motorway traffic 60-71 Aircraft 73-76 Quarry inaudible | <40 | 41 |
| 02-05-23 | 7:53pm to 8:08pm (Evening) | 74.2 | 59.0 | 39.9 | WD: n/a WS: 0 m/s Rain: Nil | Motorway traffic 50-70 Wind 50-63 Truck horn 81 Quarry inaudible | <30 | 35 |

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 2 May 2023 and Wednesday 3 May 2023 at five locations selected as representative to the sensitive receptors at the surroundings to Cooma Road Quarry. No audible quarry noise was recorded at any of the selected monitoring locations during the monitoring campaign.

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

6. REFERENCES

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

Minister for Planning and Infrastructure (2013) 'Development Consent SSD_5109, Cooma Road Quarry Continued Operations Project'.

NSW EPA (2020) Environment Protection Licence number 1453

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

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

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

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

Intended for
Holcim (Australia) Pty Ltd

Document type
Report

Date
October 2023

Project number
318001799

QUARTERLY NOISE MONITORING ASSESSMENT – QUARTER 3 2023 COOMA ROAD QUARRY, GOOGONG, NSW

**QUARTERLY NOISE MONITORING ASSESSMENT –
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Project name **Quarterly Noise Monitoring Assessment for Cooma Road Quarry – Quarter 3
2023**
Project no. **318001799**
Recipient **David Manning**
Document type **Report**
Version **1**
Date **26/10/2023**
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Description **Data collected on 1, 2 and 3 August 2023 for the quarterly period ending
September 2023 at Googong, NSW, as part of the noise monitoring program**

CONTENTS

| | |
|---|-----------|
| Abbreviations and Definitions | 2 |
| 1. Overview | 3 |
| 1.1 Project Driver | 3 |
| 1.2 Site Location and Sensitive Receivers | 3 |
| 2. Noise Criteria | 5 |
| 3. Methodology | 6 |
| 4. Results and Discussion | 7 |
| 4.1 Location N3 | 7 |
| 4.2 Location N8 | 8 |
| 4.3 Location N38 | 9 |
| 4.4 Location N60 | 10 |
| 4.5 Location N67 | 11 |
| 5. Conclusion | 12 |
| 6. References | 13 |

Tables

| | |
|---|----|
| Table 1-1: Monitoring locations locality and sensitive receivers | 3 |
| Table 2-1: Monitoring locations and noise criteria | 5 |
| Table 4-1: Noise survey results and observations for Location N3 | 7 |
| Table 4-2: Noise survey results and observations for Location N8 | 8 |
| Table 4-3: Noise survey results and observations for Location N38 | 9 |
| Table 4-4: Noise survey results and observations for Location N60 | 10 |
| Table 4-5: Noise survey results and observations for Location N67 | 11 |

ABBREVIATIONS AND DEFINITIONS

| | |
|-------------------------|--|
| 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). |
| 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. |
| 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. |
| 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). |
| LAm_{ax} | The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured. |
| NMA | Noise Monitoring Assessment |
| NMP | Noise Management Plan |
| 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. |

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).
- IEC 60942 Ed. 3.0 b:2003 Electroacoustics - Sound calibrators (Standards Australia, 2003).

This NMA has been undertaken for the quarterly period April to June 2023, 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 as part of 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**.



Legend

- Noise monitoring location

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 Monday to Saturday 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 1 August 2023 and Wednesday 2 August 2023. The acoustic instrumentation implemented carries current NATA calibration and complies with AS/NZS IEC 61672-1:2013/2002 Class 1. Calibration of all instrumentation was checked prior to and following the measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2003. Drift in calibration did not exceed ± 0.3 dBA.

The attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over two days. 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.

4. RESULTS AND DISCUSSION

4.1 Location N3

Noise monitoring at location N3 conducted on Tuesday 1 August 2023 and Wednesday 2 August 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N3 are presented in **Table 4-1**.

Measured ambient noise sources include background road traffic, birds, aircraft, car exhaust and pedestrians.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|--|-------------------|------------------|------------------|-----------------------------------|---|--|----------------------------|
| | | L _{Amax} | L _{Aeq} | L _{A90} | | | | |
| 02-08-2023 | 6:42am to 6:57am (Morning Shoulder) | 75.4 | 51.2 | 42.3 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 40-50 Birds 56-63 Aircraft 75 Quarry inaudible | <32 | 35 |
| 01-08-2023 | 2:54pm to 3:14pm (Day) | 68.3 | 41.7 | 36.4 | WD: n/a WS: 0 m/s Rain: Nil | Birds 38-43 Pedestrian 68 Quarry inaudible | <26 | 35 |
| 02-08-2023 | 6:00pm to 6:15pm (Evening) | 59.8 | 47.3 | 40.5 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 40-53 Birds 42-50 Aircraft 45-58 Car exhaust 54-59 Quarry not operational | n/a ¹ | 35 |

¹ quarry not operational.

4.2 Location N8

Noise monitoring at location N8 conducted on Tuesday 1 August 2023 and Wednesday 2 August 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N8 are presented in **Table 4-2**.

Measured ambient noise sources included motorway traffic, passing cars, chainsaws, and wildlife.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|-------------------------------------|------------------|------|------|--------------------------------------|--|--|----------------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 02-08-2023 | 6:00am to 6.15am (Morning Shoulder) | 59.6 | 48.4 | 41.5 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 34-59 Donkeys in paddock 49-53 Quarry inaudible | <32 | 40 |
| 01-08-2023 | 1:17pm to 1:32pm (Day) | 79.2 | 58.2 | 45.0 | WD: 130° WS: 0.8 m/s Rain: Nil | Background road traffic 49-52 Chainsaw 55-58 Truck 58-65 Passing cars on Tempe Crescent 51-79 Quarry inaudible | <35 | 44 |
| 02-08-2023 | 6:41pm to 6:56pm (Evening) | 72.4 | 58.4 | 51.3 | WD: n/a WS: 0 m/s Rain: Nil | Background road noise 46-72 Quarry not operational | n/a ¹ | 39 |

¹ quarry not operational.

4.3 Location N38

Noise monitoring at location N38 conducted on Tuesday 1 August 2023 and Wednesday 2 August 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N38 are presented in **Table 4-3**.

Measured ambient noise sources included motorway traffic, passing cars and birds.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|-------------------------------------|------------------|------|------|-----------------------------------|--|--|----------------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 02-08-2023 | 6:17am to 6:32am (Morning Shoulder) | 58.2 | 49.1 | 43.5 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 39-58, insects 37-38 Quarry inaudible | <34 | 36 |
| 01-08-2023 | 1:41pm to 1:54pm (Day) | 68.0 | 50.5 | 43.8 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 43-47 Birds 42-44 Passing cars 56-62 Quarry inaudible | <34 | 38 |
| 02-08-2023 | 6:34pm to 6:49pm (Evening) | 72.4 | 53.9 | 48.9 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 46-62 Quarry not operational | n/a ¹ | 35 |

¹ quarry not operational.

4.4 Location N60

Noise monitoring at location N60 conducted on Monday 1 August 2023, Tuesday 2 August 2023 and Wednesday 3 August 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N60 are presented in **Table 4-4**.

Measured ambient noise sources included motorway traffic.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|-------------------------------------|------------------|------|------|-----------------------------------|---|--|----------------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 03-08-2023 | 6:39am to 6:54am (Morning Shoulder) | 76.2 | 63.6 | 52.8 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 45-76 Quarry inaudible | <35 ² | 36 |
| 01-08-2023 | 2:20pm to 2:35pm (Day) | 78.5 | 60.9 | 41.7 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 34-78 Quarry inaudible | <32 | 38 |
| 02-08-2023 | 7:24pm to 7:39pm (Evening) | 77.7 | 59.7 | 46.1 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 49-77 Quarry not operational | n/a ¹ | 35 |

¹ quarry not operational.

² estimated based on observed background road traffic using LAeq.

4.5 Location N67

Noise monitoring at location N67 conducted on Monday 1 August 2023, Tuesday 2 August 2023 and Wednesday 3 August 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N67 are presented in **Table 4-5**.

Measured ambient noise sources included motorway traffic.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|-------------------------------------|-------------------|------------------|------------------|-----------------------------------|---|--|----------------------------|
| | | L _{Amax} | L _{Aeq} | L _{A90} | | | | |
| 03-08-2023 | 6:18am to 6:33am (Morning Shoulder) | 81.8 | 66.2 | 45.4 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 37-81 Quarry inaudible | <35 | 36 |
| 01-08-2023 | 1:59pm to 2:14pm (Day) | 82.5 | 64.0 | 41.1 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 34-82 Quarry inaudible | <31 | 41 |
| 02-08-2023 | 7:00pm to 7:15pm (Evening) | 72.4 | 61.9 | 50.6 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 56-60 Quarry not operational | n/a ¹ | 35 |

¹ 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 Monday 1 August 2023, Tuesday 2 August 2023 and Wednesday 3 August 2023 at five locations selected as representative to the sensitive receivers at the surroundings to Cooma Road Quarry. No exceedances of the noise criteria were recorded, and quarry noise was inaudible at the selected monitoring locations during the monitoring campaign. 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.

6. REFERENCES

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

Minister for Planning and Infrastructure (2013) 'Development Consent SSD_5109, Cooma Road Quarry Continued Operations Project'.

NSW EPA (2020) Environment Protection Licence number 1453

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

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

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

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

Intended for
Holcim (Australia) Pty Ltd

Document type
Report

Date
February 2024

Project number
318001799

QUARTERLY NOISE MONITORING ASSESSMENT – QUARTER 4 2023 COOMA ROAD QUARRY, GOOGONG, NSW

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Project name **Quarterly Noise Monitoring Assessment for Cooma Road Quarry – Quarter 4
2023**
Project no. **318001799**
Recipient **David Manning**
Document type **Report**
Version **1**
Date **01/02/2024**
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Checked by **Arnold Cho**
Approved by **Belinda Sinclair**
Description **Data collected on 4 and 5 October and 6 November 2023 for the quarterly
period ending December 2023 at Googong, NSW, as part of the noise
monitoring program**

CONTENTS

| | |
|---|-----------|
| Abbreviations and Definitions | 2 |
| 1. Overview | 3 |
| 1.1 Project Driver | 3 |
| 1.2 Site Location and Sensitive Receivers | 3 |
| 2. Noise Criteria | 6 |
| 3. Methodology | 7 |
| 4. Results and Discussion | 8 |
| 4.1 Location N3 | 8 |
| 4.2 Location N8 | 9 |
| 4.3 Location N38 | 10 |
| 4.4 Location N60 | 11 |
| 4.5 Location N67 | 12 |
| 5. Conclusion | 13 |
| 6. References | 14 |

Tables

| | |
|---|----|
| Table 1-1: Monitoring locations locality and sensitive receivers | 3 |
| Table 2-1: Monitoring locations and noise criteria | 6 |
| Table 4-1: Noise survey results and observations for Location N3 | 8 |
| Table 4-2: Noise survey results and observations for Location N8 | 9 |
| Table 4-3: Noise survey results and observations for Location N38 | 10 |
| Table 4-4: Noise survey results and observations for Location N60 | 11 |
| Table 4-5: Noise survey results and observations for Location N67 | 12 |

ABBREVIATIONS AND DEFINITIONS

| | |
|-------------------------|--|
| 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). |
| 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. |
| 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. |
| 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). |
| LAm_{ax} | The A-weighted sound pressure level that represents the maximum noise level measured over the time that a given sound is measured. |
| NMA | Noise Monitoring Assessment |
| NMP | Noise Management Plan |
| 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. |

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).
- IEC 60942 Ed. 3.0 b:2003 Electroacoustics - Sound calibrators (Standards Australia, 2003).

This NMA has been undertaken for the quarterly period October to December 2023, 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 as part of 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 will 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.

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Figure 1: Noise monitoring locations

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 Monday to Saturday 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 4 October 2023, Thursday 5 October 2023 and Monday 6 November 2023. The acoustic instrumentation implemented carries current NATA calibration and complies with AS/NZS IEC 61672-1:2013/2002 Class 1. Calibration of all instrumentation was checked prior to and following the measurements using a Pulsar Acoustic Calibrator 105 which also carried a current NATA calibration and complies with IEC 60942:2003. Drift in calibration did not exceed ± 0.3 dBA.

The attended noise monitoring was conducted for 15-minutes in duration during the day, evening, and night periods over three days. 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.

4. RESULTS AND DISCUSSION

4.1 Location N3

Noise monitoring at location N3 conducted on Wednesday 4 October 2023, Thursday 5 October 2023 and Monday 6 November 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N3 are presented in **Table 4-1**.

Measured ambient noise sources include background road traffic, birds, wind, rustling trees, aircraft, and a motorbike.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|--|-------------------|------------------|------------------|--------------------------------------|--|--|----------------------------|
| | | L _{Amax} | L _{Aeq} | L _{A90} | | | | |
| 05-10-2023 | 6:11am to 6:26am (Morning Shoulder) | 71.5 | 52.8 | 44.6 | WD: 340° WS: 3.7 m/s Rain: Nil | Wind/rustling trees 42-71 Birds 48-54 Quarry inaudible | <35 | 35 |
| 04-10-2023 | 9:15am to 9:30am (Day) | 80.4 | 51.7 | 41.7 | WD: n/a WS: 0 m/s Rain: Nil | Road traffic/birds 39-41 Quarry inaudible | <32 | 35 |
| 06-11-2023 | 6:00pm to 6:15pm (Evening) | 63.4 | 46.3 | 37.6 | WD: 100° WS: 1.5 m/s Rain: Nil | Background road traffic/birds/ trees rustling 35-410 Aircraft 52-58 (occurred twice for 25 seconds each) Motorbike 40-55 (occurred once for 22 seconds) Quarry not operational | n/a ¹ | 35 |

¹ quarry not operational.

4.2 Location N8

Noise monitoring at location N8 on Wednesday 4 October 2023 and Monday 6 November 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N8 are presented in **Table 4-2**.

Measured ambient noise sources included road traffic, passing cars, and birds.

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

| Date | Time (hrs) | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|--|-------------------|------------------|------------------|-----------------------------------|---|--|----------------------------|
| | | LAm _{ax} | LA _{eq} | LA ₉₀ | | | | |
| 04-10-2023 | 6:43am to 6:58am (Morning Shoulder) | 65.9 | 50.8 | 46.1 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 41-63 Birds 46-51 Cars on Tempe Cres. 60-66 Quarry inaudible | <36 | 40 |
| 04-10-2023 | 8:17am to 8:32am (Day) | 93.8 | 56.6 | 46.7 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 42-67 Birds 46-48 Cars on Tempe Cres. 53-93 Quarry inaudible | <37 | 44 |
| 06-11-2023 | 6:29pm to 6:44pm (Evening) | 77.9 | 59.5 | 49.9 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 38-77 Quarry not operational | n/a ¹ | 39 |

¹ quarry not operational.

4.3 Location N38

Noise monitoring at location N38 conducted on Wednesday 4 October 2023, Thursday 5 October 2023 and Monday 6 November 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N38 are presented in **Table 4-3**.

Measured ambient noise sources included road traffic, passing cars on Tempe Crescent, and birds.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|--|------------------|------|------|------------------------------------|--|--|----------------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 05-10-2023 | 6:36am to 6:51am (Morning Shoulder) | 72.5 | 53 | 34.4 | WD: 330° WS: 3 m/s Rain: Nil | Background road traffic 29-50 Birds 50-73 Quarry inaudible | <24 | 36 |
| 04-10-2023 | 8:34am to 8:49am (Day) | 82.1 | 46.8 | 33.3 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 32-80 Cars on Tempe Cres. 31-82 Quarry inaudible | <23 | 38 |
| 06-11-2023 | 6:48pm to 7:03pm (Evening) | 71.8 | 53.7 | 43.4 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 35-71 Birds 51-53 Quarry not operational | n/a ¹ | 35 |

¹ quarry not operational.

4.4 Location N60

Noise monitoring at location N60 conducted on Wednesday 4 October 2023 and Monday 6 November 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N60 are presented in **Table 4-4**.

Measured ambient noise sources included road traffic, birds, and insects.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|-------------------------------------|------------------|------|------|-----------------------------------|---|--|----------------------------|
| | | LAmx | LAeq | LA90 | | | | |
| 04-10-2023 | 6:20am to 6:35am (Morning Shoulder) | 74.4 | 61.8 | 48.1 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 43-74 (~ every 8 sec for 10 sec) Birds 40-50 Quarry inaudible | <33 ² | 36 |
| 04-10-2023 | 7:34am to 7:49am (Day) | 73.9 | 63.1 | 54.1 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 44-73 Quarry inaudible | <32 | 38 |
| 06-11-2023 | 7:26pm to 7:41pm (Evening) | 71.3 | 57.7 | 44 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 33-71 Insects 39-43 Quarry not operational | n/a ¹ | 35 |

¹ quarry not operational.

² estimated based on observed background road traffic using LAeq.

4.5 Location N67

Noise monitoring at location N67 conducted on Wednesday 4 October 2023 and Monday 6 November 2023 resulted in inaudible quarry noise during morning shoulder and day periods. The quarry was not operational during the evening period. These results satisfy the established noise criteria and indicate that noise emissions from Cooma Road Quarry did not contribute to noise nuisance. The results and observations taken during the monitoring events at Location N67 are presented in **Table 4-5**.

Measured ambient noise sources included road traffic, birds, and insects.

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

| Date | Time | Descriptor (dBA) | | | Meteorology | Apparent Noise Source, Description and SPL (dBA) | Cooma Road Quarry LAeq(15min) (dBA) Contribution | LAeq(15min) Criteria (dBA) |
|------------|-------------------------------------|-------------------|------------------|------------------|-----------------------------------|---|--|----------------------------|
| | | L _{Amax} | L _{Aeq} | L _{A90} | | | | |
| 04-10-2023 | 6:00am to 6:15am (Morning Shoulder) | 96 | 66.8 | 46.6 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 43-74 (~ every 6 sec for 12 sec) Birds 46-51 Quarry inaudible | <33 ² | 36 |
| 04-10-2023 | 8:08am to 8:23am (Day) | 100.8 | 68.7 | 50.6 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 42-100 Quarry inaudible | <41 | 41 |
| 06-11-2023 | 7:07pm to 7:22pm (Evening) | 78.8 | 62 | 44.4 | WD: n/a WS: 0 m/s Rain: Nil | Background road traffic 35-78 Insects 40-51 Quarry not operational | n/a ¹ | 35 |

¹ quarry not operational.

² estimated based on observed background road traffic using LAeq.

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 4 October 2023, Thursday 5 October 2023 and Monday 6 November 2023 at five locations selected as representative to the sensitive receivers at the surroundings to Cooma Road Quarry. No exceedances of the noise criteria were recorded, and quarry noise was inaudible at the selected monitoring locations during the monitoring campaign. 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.

6. REFERENCES

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

Minister for Planning and Infrastructure (2013) 'Development Consent SSD_5109, Cooma Road Quarry Continued Operations Project'.

NSW EPA (2020) Environment Protection Licence number 1453

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

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

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

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