ANNUAL REVIEW
1 January 2019 – 31 December 2019

Jandra Quarry

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

Appendix 1 – Transport Summary

Appendix 2 – Quarterly Noise Monitoring

Appendix 3 – IEA Action Plan

SITE DETAILS

Name of operation	Jandra Quarry
Name of operator	Holcim (Australia) Pty Ltd
Development consent / project approval #	DA 213-10-99 (Modification 5)
Name of holder of development consent / project approval	Holcim (Australia) Pty Ltd
Annual Review start date	January 1, 2019
Annual Review end date	December 31, 2019
I, Matt Neil certify that this audit report is a true and accurate record of the compliance status of Jandra Quarry for the period of January 1, 2019- December 31, 2019 and that I am authorised to make this statement on behalf of Holcim (Australia) Pty Ltd. *Note.* *a) The Annual Review is an 'environmental audit' for the purposes of section 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.* *b) 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).*	
Name of authorised reporting officer	Matt Neil
Title of authorised reporting officer	Quarry Manager
Signature of authorised reporting officer	
Date	30 March 2020

1 STATEMENT OF COMPLIANCE

See **Table 1** for statement of commitments for the 2019 reporting period for Jandra Quarry. **Table 3** details the non-compliances identified within the reporting period.

Table 1: Statement of Commitments

Were all conditions of the relevant approval(s) complied with?	
DA 213-10-99 (Mod 5)	NO - see table below for further details.
EPL No. 2796	YES

Table 2: DPIE Compliance Status Key

Risk level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
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 – Jandra Quarry

Relevant approval	Condition #	Condition description (summary)	Compliance status	Section addressed in Annual Review/Comment
DA 213-10-99 (Mod 5)	Schedule 3 Condition 25	*Biodiversity and Rehabilitation Management Plan* *(f) include a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;*	**Low Risk** **Non - Compliant**	Non - compliance for the implementation of biodiversity monitoring.
DA 213-10-99 (Mod 5)	Schedule 3 Condition 27	*Rehabilitation and Conservation Bond* *Within 12 months of the approval of the Biodiversity and Rehabilitation Management Plan, the Applicant shall lodge a Rehabilitation and Conservation bond with the Department to ensure that the biodiversity offset strategy and rehabilitation of the site s implemented in accordance with the performance and completion critera set out in the Biodiversity and Rehabilitation Management Plan.* *(a) Calculating the cost of implementing the biodiversity offset strategy and rehabilitating the site, and* *(b) Employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.*	**Low Risk** **Non - Compliant**	Non-compliance for the completion of Rehabilitation and Conservation bond

2 INTRODUCTION

Holcim (Australia) Pty Ltd (Holcim) operates Jandra Quarry, a hard rock quarry located on the Pacific Highway, Possum Brush in the Greater Taree Local Government Area. The site operates under Development Consent (DA -213-10-99 Modification 5) approved by the then New South Wales (NSW) Department of Planning and Environment (DPE) (now Department of Planning, Industry and Environment (DPIE)) on 13 March 2015.

The site also operates in accordance with Environment Protection Licence (EPL) No. 2796 issued by the Environmental Protection Authority (EPA). A regional locality figure and aerial view of the site are outlined in **Figure 1** and **Figure 2** below.

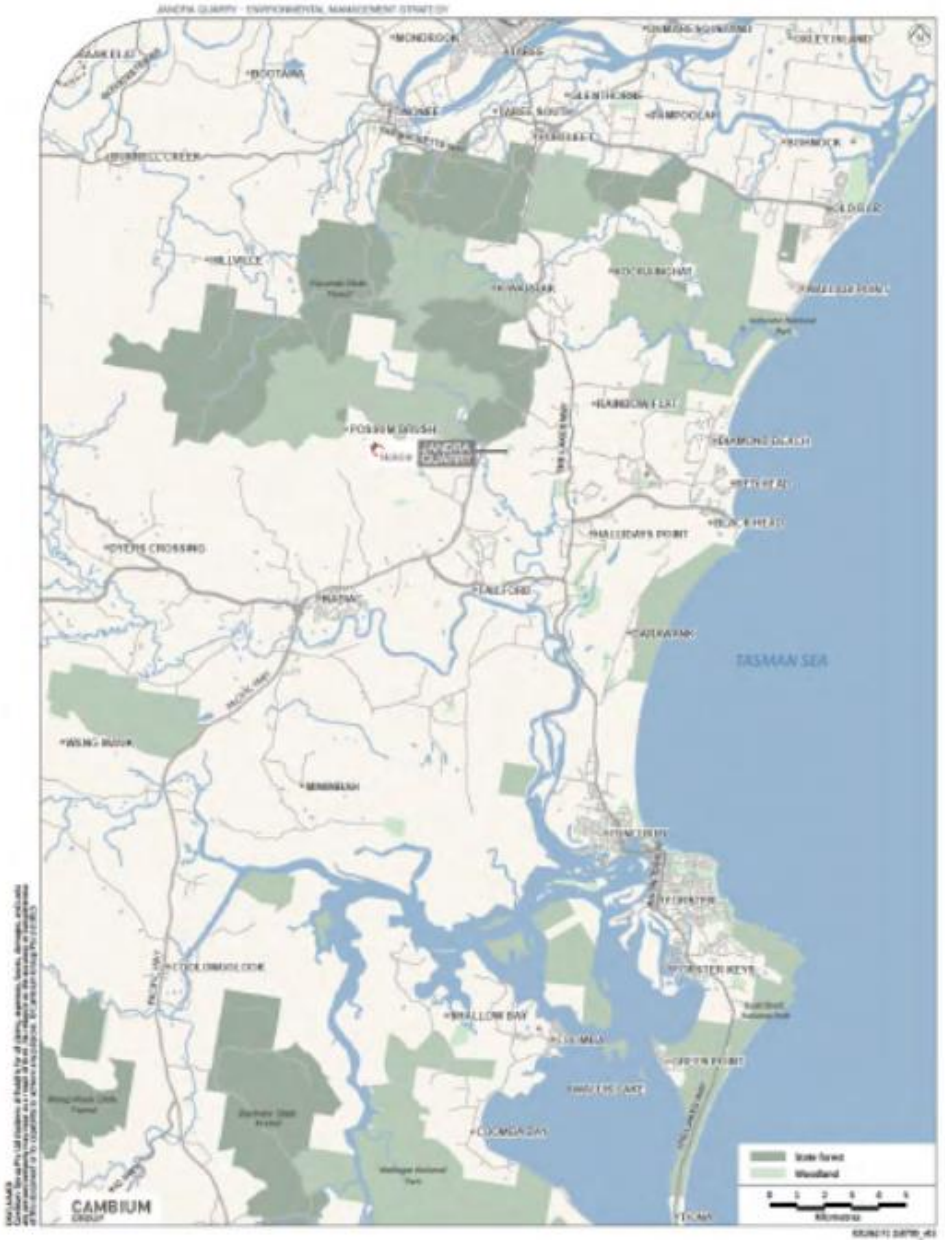

Figure 1: Regional Locality

Figure 2: Jandra Quarry Operations (Including Offset Area) – Source: Umwelt August 2018

In accordance with Schedule 5, Condition 4 of the modified Development Consent the site is required to undertake an Annual Review of the site. This Annual Review has been prepared in accordance with Schedule 5 Condition 4 (Annual Performance Monitoring) of the Development Consent and in accordance with the *Annual Review Guideline: post approvals requirements for state significance mining developments* (October 2015). The Annual Review requirements and the section where they have been addressed in this document have been provided in **Table 4**.

Table 4: Annual Review Requirement

Condition	Section in Annual Review
4. Annual Review Annual Review By the end of March each year, the Applicant shall review 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 4 and 6
(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against: - the relevant statutory requirements, limits or performance measures/criteria;. - the monitoring results of previous years, and - the relevant predictions in the documents listed in condition 2 of Schedule 2;	Section 6 and 7
(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;	Section 1 and 11
(d) identify any trends in the monitoring data over the life of the development;	Section 6 and 7
(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 12

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3 APPROVALS

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

Table 5: Approvals for Jandra Operations

Approval	Regulatory Authority
DA 213-10-99 (Modification No. 5)	NSW Department of Planning Industry & Environment
EPL No. 2796	NSW Environmental Protection Authority

Holcim holds EPL 2796 which covers its activities at Jandra Quarry. **Table 6** outlines the EPL licensing limits.

Table 6: EPL Fee-Based Activity at Jandra Quarry

Scheduled Activity	Fee Based Activity	Scale
Crushing, grinding or separating	Crushing, grinding or separating	> 100,000 – 500,000 T processed
Extractive activities	Land-based extractive activity	>100,000 – 500,000 T extracted, processed or stored
Resource recovery	Recovery of general waste	Any waste recovered
Waste storage	Waste storage – other types of waste	Any other types of waste stored

Schedule 2 Condition 8 outlines the approved extraction limit is 490,000 tonnes of quarry products from the site in any calendar year.

4 OPERATIONS SUMMARY

4.1 Exploration

No exploration activities were completed during the Annual Review period.

4.2 Land Preparation

Land preparation (clearing) of 3.3 ha took place within the project boundary during the Annual Review period.

4.3 Construction Activities

There was no construction undertaken during the Annual Review period.

4.4 Quarry Operations

Development activities undertaken at Jandra Quarry in 2019 included:

- Stripping of topsoil and overburden within the existing extraction limit boundary;
- Drill, blast, load and haul activities; and
- Crushing, screening and stockpiling of product.

During the report period the Jandra Quarry was expanded towards the eastern boundary with the removal of 30,000 tonnes of overburden within the extraction footprint. Extraction and processing operations in 2019 were undertaken between 6am and 10pm, Monday to Friday and between 6am and 6pm on Saturdays. Transportation operations in 2019 were undertaken between 6am and 10pm, Monday to Saturday. These timeframes are in accordance with the permissible hours outlined in Schedule 2, Condition 10 of the Development Consent DA 213-10-99 (Modification No. 5) dated 13 March 2015. .

Table 7 include a summary of the operations undertaken during the reporting period against the development consent conditions regarding product transported from Jandra Quarry.

Table 7: Total Product Distributed (Jandra Quarry)

Material	Approved limit (Sch 2, Condition 8 & 9)	Previous reporting period (2018)	This reporting period (2019)	Next Reporting Period (2020)
Product Extracted Total	490 000 T	252,165 T	323,930	315,000
Product Sales Total	475 000 T	257,016 T	403,317	315,000

Schedule 2 Condition 7 outlines the applicant shall not extract more than 16.5 million tonnes of quarry product per year under this consent. This consent was granted on 13 March 2015. From the start of 2015 to the end of 2019 the site has extracted approximately 1,459,033 tonnes which is well within the limits of the Development Consent.

The cumulative production is outlined in the table below:

Table 8: Cumulative Production for Development Consent

Year	Extraction Tonnage
2015	232,028
2016	315,205
2017	335,705
2018	252,165
2019	323,930

4.5 Next Reporting Period

Operational activities proposed to be carried out at Jandra Quarry in 2020, include:

- Upgrade of existing wash plant;
- Stripping of topsoil and overburden within the existing extraction limit boundary;
- Drill, blast, load and haul activities;
- Crushing, screening and stockpiling of product;
- Small area of clearance (0.5 ha) required for continued operations;
- Establishment of mobile conveyors in the stockpile area; and
- Progressive maintenance of rehabilitation in the completed bench at RL 50 on the northern face.

5 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

5.1 Actions from 2018 Annual Review

The actions listed in **Table 9** were required as part of the findings of the 2018 Annual Review. These items have been closed out in accordance with the conditions of the Development Consent. They were based on comments from DPIE on the 2018 Annual Review in the letter dated 24 May 2019. Note, some of the section references have now changed based on the restructured 2019 Annual Review.

Table 9: Actions required from the 2018 Annual Review – DPIE

Section	Requirement	Comment
Section 4.4 Quarry Operations	Remove incorrect references to 2017;	Removed in 2018 Annual Review
	Table 7, include additional column, 'Next reporting period (forecast)' with forecast figures for the upcoming reporting period;	Included in Table 7 of 2018 Annual Review
	Report cumulative (for life of project) extraction figures to show compliance with Schedule 2 Condition 7 of the consent;	Included in Table 8 of 2018 Annual Review
Section 6.1.3 Key Environmental Performance (Noise)	Amend Table 12 to show results of noise monitoring, not 'ticks';	Updated in 2018 Annual Review
	Remove incorrect references to 2017;	Updated in 2018 Annual Review
Section 6.2 Air Quality	Table 21 is missing PM_{10} 24-hour data for 13 July 2018, 31 July 2018 and 6 August 2018, please amend or explain;	Updated. These appear to be critical failures of the PM_{10} unit. Section 11 has also been updated in 2018 Annual Review.
Section 6.3.3 Key Environmental Performance (Blasting)	Remove incorrect references to 2017;	Removed in 2018 Annual Review
	Table 24 has three blasting notes below it without any corresponding reference in the table, please amend;	Removed in 2018 Annual Review
Section 6.7 Waste Minimisation	Provide tabulated data showing volumes of recycled waste and general waste sent to landfill;	This information was not yet available for the 2018 Annual Review. Holcim liaised with the waste contractor and has obtained a more detailed breakdown for 2019.
Section 11 Incidents and Non-Compliance	Table 33 is missing PM_{10} sampling non-compliances for 13 July 2018, 31 July 2018 and 6 August 2018, please amend;	Added. This is Table 35 of 2018 Annual Review.
	Table 33 is missing summaries of a Penalty Infringement Notice, Official Caution and Warning Letter issued to Holcim Australia Pty Ltd by the Department on 28 February 2018, please amend.	These letters were provided to a Holcim employee who is no longer at the company, hence we did not receive the letter until contacting the DPIE on 17 June 2019.
Notes from DPIE	**Noise Monitoring** The Department also notes the following	Holcim have liaised with Muller Acoustics regarding this

Section	Requirement	Comment
	• Appendix 2, Quarter 4 noise monitoring report, details night period LAeq(15min) noise levels of 35 dB for R2, R6 and R7 while also showing an LA1(1min) level (peak instantaneous noise level) of <30 dB. This is not technically possible. The Department requests that Muller Acoustic Consulting be made aware of this;	comment.
	The Jandra Quarry website (https://www.holcim.com.au/about-us/community-link/jandra-quarry-possum-brush-taree-nsw) is not up to date with truck movement data and complaint registers as per Schedule 3, Condition 33 and Schedule 5, Condition 10 respectively. In accordance with Schedule 2, Condition 4, please update the Jandra Quarry website with all 2018 truck movement and complaint data, and Quarter 1, 2019 truck movement and complaint data by 24 June 2019; and	Information has been updated.
	Independent Environmental Audit In accordance with Schedule 5, Condition 8, Jandra Quarry is due for an Independent Environmental Audit (IEA). As the 2016 IEA site visit was carried out on 20 May 2016, the 2019 IEA site visit should have occurred no later than 19 May 2019. The Department has not received any communication from Jandra Quarry relating to consultation or requests for endorsement of an independent audit team by the Secretary, as required under Schedule 5, Condition 8, and notes that this IEA now appears overdue.	IEA undertaken in September 2019

Table 10 outlines an update on the proposed Holcim actions from the previous Annual Review.

Table 10: Status Updated on Proposed Holcim Actions

Improvement Measure	Activities	Comment
Independent Environmental Audit	There is a requirement to commission an Independent Environmental Audit, with this due in May 2019.	IEA undertaken in September 2019
Progressive Rehabilitation	The site will continue to progressively rehabilitate available areas.	Progressive rehabilitation was continued in 2019, however, rehabilitation has been burnt out by bushfires.
Desilting of the sites main process pond/sediment Basin	The site will continue to manage sediment control structures through inspections and desilting.	Continued during 2019.
Biodiversity	Weed spraying will continue at the site during the next reporting period. Quarterly inspections of the nest boxes by Holcim staff will continue to occur during next reporting period. Ecological pre-clearance surveys will be required in the next reporting period for vegetation clearing required to extend the eastern end of the approved extraction boundary. A feral animal assessment will be undertaken in the next reporting period to determine if there is a need for managing feral animals in the rehabilitation area and Biodiversity Offset Area. A feral animal control program will be completed if required. To date, Holcim employees	Eight weeks of weed spraying was undertaken during 2019, see **Section 6.5**. No biodiversity monitoring was undertaken during 2019. A number of the nest boxes were destroyed during bushfires at the site. No feral animal assessment was completed in 2019, however, there was no reported sightings of feral animals.

	have not reported any sightings of feral animals within these areas.	

6 ENVIRONMENTAL PERFORMANCE

6.1 Noise

6.1.1 EIS Predictions

The noise and blasting impact assessment in the Environmental Assessment (2014) considered the potential impacts of the proposed modification on nearby sensitive residential receivers.

Noise levels (without asphalt production) below the early morning shoulder project criteria, are predicted at all private residential receiver locations and for all stages of the quarry life, provided that operations are restricted during this time including:

- No works in the approved overburden emplacement area;
- No works above RL50; and
- No operation of the mobile processing plant.

Noise levels (without asphalt production) above the day / evening criteria are predicted at three private residential receivers and range from a marginal 2 dBA to 5 dBA above the criteria. Holcim is confident that these noise levels will not be perceived as a nuisance and has negotiated agreements with the potentially affected property owners.

Predicted noise levels from the Environmental Assessment (2014) from asphalt production were up to 7 dBA above the criteria at one private residential receiver R1 during all periods and all stages of the quarry development, as this receiver has a line of sight to the asphalt plant. Holcim has a negotiated agreement with the property holder of R1

Jandra Quarry is currently only in Stage 1 of its development plan as described in the Noise and Blasting Impact Assessment detailed within the Environmental Assessment (2014). **Table 11** details the noise modelling for this stage. When compared with the data in **Table 13** all results have been below that modelled within the Environmental Assessment (2014).

Table 11: Stage 1 Assessment without asphalt plant operating (exceedances in bold)

Receptor	Day / Evening (dBA Leq) 7 am to 10 pm		Early morning shoulder (dBA Leq) 6 am to 7 am		
	Project Criteria	Predicted level Neutral	Project criteria	Predicted level Neutral	Worst case
R1	41	41	40	**41**	**46**
R2	38	30	38	30	35
R3	51	<30	50	<30	30
R4	41	34	40	33	38
R5	41	40	40	38	**43**
R6	38	32	38	32	37
R7	38	<30	38	<30	<30
R8 (Holcim)	41	33	40	32	36
R9 (Holcim)	41	38	40	36	40
R10 (Holcim)	38	**44**	38	**43**	**47**

6.1.2 Approved Criteria

Criteria for each of the receivers R1 – R10, as outlined in the Conditions of Consent, for both quarry operation and combined quarry and asphalt production operations are provided in **Table 12**.

Table 12: Noise Criteria

Location	Quarry Operations		Quarry Operations and Asphalt Plant Production	
	6am – 10pm	6am – 10pm	10pm – 6am	10pm – 6am
	LAeq(15min)	LAeq(15min)	LAeq(15min)	LA1(1min)
R1[1, 2]	*46*	*48*	*46*	*51*
R2	36	40	35	48
R3[1, 2]	*N/A*	*N/A*	*N/A*	*N/A*
R4	36	40	39	51
R5	40	41	39	51
R6	36	40	35	48
R7	35	36	35	48
R8[1, 2]	*N/A*	*N/A*	*N/A*	*N/A*
R9[1, 2]	*N/A*	*N/A*	*N/A*	*N/A*
R10[1, 2]	*N/A*	*N/A*	*N/A*	*N/A*

Note 1: Noise criteria are not applicable to these receivers as per Section 4 of the NBMP.

Note 2: Either quarry owned or excluded from the assessment as per Section 4 of the NBMP.

6.1.3 Key Environmental Performance

Noise monitoring was undertaken by Muller Acoustic Consulting quarterly in 2019. The assessments identified that noise emissions generated by Jandra Quarry were in compliance with relevant statutory noise criteria specified in the Conditions of Consent on all occasions at all assessed locations. As the quarry was not operational during the evening period of quarter 3 and 4 monitoring, no measurements were conducted for this period. The compliance assessments for each residential receiver (R2, R4, R5, R6 and R7) are presented in **Table 13**.

Table 13: Noise Compliance Assessment (Muller Acoustic Consultants, 2019)

Assessment Period	Receiver No.	Quarrying Noise Criteria	Compliance (Quarry Noise Contribution)				Quarrying and Asphalt Production Criteria	Compliance (Asphalt Plant Noise Contribution)			
		$LAeq_{(15min)}$	Q1	Q2	Q3	Q4	Day/evening $LAeq_{(15min)}$ Night $LA1_{(1min)}$	Q1	Q2	Q3	Q4
Day	R2	36	<35	<35	<35	<35	40	<35	<35	<35	<35
	R4	36	<30	<35	<35	35	40	<30	<35	<35	35
	R5	40	<30	<35	<35	<35	41	<30	<35	<35	<35
	R6	36	<35	<35	<35	<35	40	<35	<35	<35	<35
	R7	35	<35	<35	<35	<35	36	<35	<35	<35	<35
Evening	R2	36	<35	<35	Quarry Not Operating	Quarry Not Operating	40	<35	<35	Quarry Not Operating	Quarry Not Operating
	R4	36	<30	<35	Quarry Not Operating	Quarry Not Operating	40	<30	<35	Quarry Not Operating	Quarry Not Operating
	R5	40	<30	<35	Quarry Not Operating	Quarry Not Operating	41	<30	<35	Quarry Not Operating	Quarry Not Operating
	R6	36	<35	<35	Quarry Not Operating	Quarry Not Operating	40	<35	<35	Quarry Not Operating	Quarry Not Operating

Assessment Period	Receiver No.	Quarrying Noise Criteria	Compliance (Quarry Noise Contribution)				Quarrying and Asphalt Production Criteria	Compliance (Asphalt Plant Noise Contribution)			
		$LAeq_{(15min)}$	**Q1**	**Q2**	**Q3**	**Q4**	**Day/evening $LAeq_{(15min)}$ Night $LA1_{(1min)}$**	**Q1**	**Q2**	**Q3**	**Q4**
	R7	35	<35	<35	Quarry Not Operating	Quarry Not Operating	36	<35	<35	Quarry Not Operating	Quarry Not Operating
Night	R2	35	<35	<35	<35	<35	48	<45	<45	<45	<45
	R4	39	<30	<35	<35	<35	51	<45	<45	<45	<45
	R5	39	<30	<35	<35	<35	51	<45	<45	<45	<45
	R6	35	<35	<35	<35	<35	48	<45	<45	<45	<45
	R7	35	<35	<35	<35	<35	48	<45	<45	<45	<45

Longterm Trends:

2019 was the third full year of quarterly noise monitoring undertaken at Jandra Quarry. During 2016 noise monitoring at Jandra Quarry was undertaken only in Quarter 4. Noise has contuniually been within criteria. There were no noise complaints received during 2019.

Comparison to EIS Predictions:

2019 noise results at Jandra Quarry remained consistent with EIS predictions. The well-established vegetative buffer and distance between the operations and the sensitive receivers assists the Quarry in meeting these predictions.

6.1.4 Management Measures

Management measures relating to noise are outlined within the *Jandra Quarry Noise and Blast Management Plan*. These include:

- Defined operating hours as per Schedule 2 Condition 10 of the Development Consent;
- Work restrictions during the early morning shoulder period;
- Monitoring for noise and meteorological conditions;
- Broadband reversing beepers;
- Staff and contractors have been inducted; and
- Controlled blasting activities.

6.1.5 Proposed Improvements

The *Jandra Quarry Noise and Blast Management Plan* will be revised and updated in 2020.

6.2 Air Quality

6.2.1 Environmental Assessment Predictions

Jandra Quarry is currently in Stage 1 of its development plan as described in the Air Quality Impact Assessment detailed within the Environmental Assessment (2014). **Table 14** to **16** are the modelled dust contributions expected from Jandra Quarry. The air quality impact assessment concluded that with the implementation of existing and additional feasible management measures, all relevant air quality criteria could be met at all identified sensitive residential receivers for all stages of the quarry development.

Table 14: Summary of Contemporaneous Impact and Background – R1

Date	Highest Background (µg/m³)	Predicted Increment (µg/m³)	Total (µg/m³)	Date	Background (µg/m³)	Highest Increment (µg/m³)	Total (µg/m³)
			Stage 1				
22-11-2012	45.8	0.6	46.4	03-06-2013	10.8	34.3	45.1
09-01-2013	42.7	0.0	42.7	22-06-2013	11.6	30.2	41.8
29-06-2013	41.3	0.3	41.6	30-07-2013	13.7	25.0	38.7
07-11-2012	40.7	0.0	40.7	08-07-2013	14.2	24.9	39.1
06-10-2012	40.6	0.3	40.9	07-06-2013	9.2	22.9	32.1
			Stage 2				
22-11-2012	45.8	0.3	46.1	03-06-2013	10.8	28.3	39.1
09-01-2013	42.7	0.0	42.7	22-06-2013	11.6	20.7	32.3
29-06-2013	41.3	0.3	41.6	17-05-2013	10.2	19.0	29.2
07-11-2012	40.7	0.0	40.7	30-07-2013	13.7	18.9	32.6
06-10-2012	40.6	0.1	40.7	08-07-2013	14.2	16.3	30.5
			Stage 2				
06-10-2012	40.6	0.2	40.8	03-06-2013	10.8	33.0	43.8
07-11-2012	40.7	0.0	40.7	22-06-2013	11.6	25.3	36.9
22-11-2012	45.8	0.9	46.7	25-06-2013	8.7	21.1	29.8
09-01-2013	42.7	0.0	42.7	08-07-2013	14.2	22.8	37.0
29-06-2013	41.3	0.3	41.6	30-07-2013	13.7	22.9	36.6
Criteria			**50**				**50**

Note: Top 5 shown for each Stage of operation

Table 15: Predicted Incremental & Cumulative Annual Average TSP Concentrations (µg/m³)

Receptor ID	Increment			Cumulative		
	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3
			Privately Owned Receptors			
R1	2.5	2.6	2.8	48.5	48.6	48.8
R2	0.3	0.3	0.4	46.3	46.3	46.4
R3	0.8	0.7	0.6	46.8	46.7	46.6
R4	0.9	0.8	0.7	46.9	46.8	46.7
R5	0.6	0.5	0.5	46.6	46.5	46.5
R6	0.4	0.4	0.5	46.4	46.4	46.5
R7	0.1	0.1	0.2	46.1	46.1	46.2
R11	0.4	0.4	0.3	46.4	46.4	46.3
R12	0.3	0.3	0.3	46.3	46.3	46.3
R13	0.3	0.3	0.3	46.3	46.3	46.3
R14	0.3	0.3	0.3	46.3	46.3	46.3
R15	0.2	0.2	0.2	46.2	46.2	46.2
R16	0.3	0.2	0.2	46.3	46.2	46.2
R17	<0.1	<0.1	0.1	<46.1	<46.1	46.1
R18	<0.1	<0.1	<0.1	<46.1	<46.1	<46.1
R19	0.4	0.4	0.5	46.4	46.4	46.5
			Quarry Owned Receptors			
R8	1.3	1.1	1.0	47.3	47.1	47.0
R9	1.7	1.7	1.7	47.7	47.7	47.7
R10	1.5	1.5	4.6	47.5	47.5	50.6
Criteria					**90**	

Table 16: Predicted Incremental Annual Average Dust Deposition Rate (g/m^2/month)

Receptor ID	Stage 1	Stage 2	Stage 3
Privately Owned Receptors			
R1	<0.1	<0.1	<0.1
R2	<0.1	<0.1	<0.1
R3	<0.1	<0.1	<0.1
R4	<0.1	<0.1	<0.1
R5	<0.1	<0.1	<0.1
R6	<0.1	<0.1	<0.1
R7	<0.1	<0.1	<0.1
R11	<0.1	<0.1	<0.1
R12	<0.1	<0.1	<0.1
R13	<0.1	<0.1	<0.1
R14	<0.1	<0.1	<0.1
R15	<0.1	<0.1	<0.1
R16	<0.1	<0.1	<0.1
R17	<0.1	<0.1	<0.1
R18	<0.1	<0.1	<0.1
R19	<0.1	<0.1	<0.1
Quarry Owned Receptors			
R8	<0.1	<0.1	<0.1

6.2.2 Approved Criteria

Air Quality monitoring is required to be undertaken in accordance with the following development consent conditions:

Table 17: Long – term impact assessment criteria for particulate matter

Pollutant	Averaging Period	[d] Criterion
Total suspended particulate (TSP) matter	Annual	[a] 90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a] 30 µg/m^3

Table 18: Short – term impact assessment criteria for particulate matter

Pollutant	Averaging Period	[d] Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	[a] 50 µg/m^3

Table 19: 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

6.2.3 Key Environmental Performance

6.2.3.1 Depositional Dust

Dust deposition monitoring has been undertaken at the Jandra Quarry throughout the 2019 reporting period with all results within the expected levels of criteria at each monitoring point. Results are shown in **Table 20**.

Table 20: Dust Monitoring (Dust Deposition) - 2019

Date Sampled	Insoluble Solids DDG1	Insoluble Solids DDG2	Insoluble Solids DDG3	Insoluble Solids DDG4
15-01-2019	1.3	2	1.8	0.6
12-02-2019	1.2	1.8	1.2	0.7
13-03-2019	4.4	4	4.6	3.3
10-04-2019	0.7	1.9	1	1.1
09-05-2019	0.2	0.9	0.7	0.9
06-06-2019	0.6	0.4	0.4	0.4
08-07-2019	0.2	0.2	0.2	0.3
05-08-2019	0.2	0.8	0.7	0.6
05-09-2019	0.2	1	1	0.9
03-10-2019	1	1	1.3	0.8
04-11-2019	1.6	1.3	1.8	1.4
December	No Access	No Access	No Access	No Access
Average	**1.1**	**1.4**	**1.4**	**1.0**
Min	0.2	0.2	0.2	0.3
Max	4.4	4.0	4.6	3.3

The annual average of all gauges was below the development consent criteria for depositional dust gauges. This was also the case in the previous Annual Review period indicating effective dust management. However, no depostional dust monitoring was undertaken in December 2019 due to limited access as a result of major bushfires in the region. This has been notified with the DPIE.

Depositional dust monitoring was not completed at DDG 5 from July 2018 onwards. Holcim stopped monitoring at this location as it is not an EPL monitoring location.

Table 21: Depositional Dust Monitoring Summary (2016-2019)

Dust Depositional Gauge	Monitoring Summary for Annual Review Period	Monitoring Results 2019 Period	Monitoring Results 2018 Period	Monitoring Results 2017 Period	Monitoring Results 2016 Period
		(g/m²/month)			
DDG1	Insoluble Solids Reporting Period Average	1.1	0.6	0.6	0.4
	Max. Insoluble Solids	4.4	1.8	1.2	0.8
	Min. Insoluble Solids	0.2	0.3	0.2	<0.1
DDG2	Insoluble Solids Reporting Period Average	1.4	0.8	0.8	0.9
	Max. Insoluble Solids	4.0	2.2	1.5	2.9
	Min. Insoluble Solids	0.2	0.1	0.3	<0.1
DDG3	Insoluble Solids Reporting Period Average	1.4	0.5	0.7	0.5
	Max. Insoluble Solids	4.6	1.4	1.3	0.7
	Min. Insoluble Solids	0.2	0.1	0.2	<0.2
DDG4	Insoluble Solids Reporting Period Average	1.0	0.5	0.6	0.7
	Max. Insoluble Solids	3.3	1.5	1.3	1.8
	Min. Insoluble Solids	0.3	0.1	0.2	0.4
DDG5	Insoluble Solids Reporting Period Average	NS	2.9	2.9	1.2
	Max. Insoluble Solids	NS	10.8	9.8	1.9
	Min. Insoluble Solids	NS	1.5	0.9	0.2

6.2.3.2 PM_{10} Monitoring

PM_{10} monitoring is required to be undertaken in accordance with the criteria provided in **Table 17** and **Table 18**.

Monitoring for PM_{10} first commenced in May 2017 and continued in 2018 and 2019. Results are provided in **Table 22**.

Table 22: PM_{10} Monitoring – 2019

Sample	Particulate Matter (ug/m3)	Compliance Status
2/1/2019	28.2	Within criteria
8/1/2019	20.4	Within criteria
14/1/2019	11.7	Within criteria
20/1/2019	28	Within criteria
26/1/2019	30.2	Within criteria
1/2/2019	16.3	Within criteria
7/2/2019	9.8	Within criteria
13/2/2019	46.5	Within criteria
19/2/2019	14.3	Within criteria
25/2/2019	8	Within criteria
3/3/2019	3.6	Within criteria
9/3/2019	19	Within criteria
15/3/2019	22.2	Within criteria
21/3/2019	22.5	Within criteria
27/3/2019	38.9	Within criteria
2/4/2019	11.3	Within criteria
8/4/2019	42	Within criteria
14/4/2019	10	Within criteria
20/4/2019	4	Within criteria
26/4/2019	18	Within criteria
2/5/2019	11.3	Within criteria
8/5/2019	28.0	Within criteria
14/5/2019	19.8	Within criteria
20/5/2019	27.7	Within criteria
26/5/2019	6.6	Within criteria
1/6/2019	6.8	Within criteria
3/6/2019	18.1	Within criteria
19/6/2019	15.6	Within criteria
24/6/2019	5.6	Within criteria
25/6/2019	5.4	Within criteria
1/7/2019	4.3	Within criteria
7/7/2019	6.9	Within criteria
13/7/2019	11.6	Within criteria
19/7/2019	15.5	Within criteria
25/7/2019	5.1	Within criteria
31/7/2019	11.4	Within criteria
5/8/2019	11.4	Within criteria
8/8/2019	26.5	Within criteria
14/8/2019	24.2	Within criteria
18/8/2019	15.5	Within criteria
24/8/2019	26.4	Within criteria

Sample	Particulate Matter (ug/m3)	Compliance Status
30/8/2019	0.5	Within criteria
5/9/2019	16.9	Within criteria
11/9/2019	14.4	Within criteria
17/9/2019	19.8	Within criteria
23/9/2019	20.2	Within criteria
29/9/2019	4.2	Within criteria
5/10/2019	7	Within criteria
10/10/2019	0.1	Within criteria
17/10/2019	9.9	Within criteria
23/10/2019	4.6	Within criteria
29/10/2019	24.2	Within criteria
4/11/2019	7.1	Within criteria
10/11/2019	93.2	Exceeds 24hr criteria
16/11/2019	59	Exceeds 24hr criteria
22/11/2019	94	Exceeds 24hr criteria
28/11/2019	41.2	Within criteria
4/12/2019	17.8	Within criteria
10/12/2019	50.9	Exceeds 24hr criteria
16/12/2019	21.4	Within criteria
22/12/2019	6.4	Within criteria

Dust levels for 2019 were generally within the short term and long term impact assessment criteria for particulate matter. However exceedances of short term criteria occurred on the following dates:

- 10 November 2019;
- 16 November 2019;
- 22 November 2019; and
- 10 December 2019.

These exceedences are attributed to bushfires that came within the Jandra Quarry site. Therefore, Hoclim does not believe this is a non-compliance during these months, the DPIE and EPA were notified of these exceedences.

During 2017 and 2018 all results where within the impact assessment criteria. **Table 23** compares PM_{10} results between 2017 and 2019.

Table 23: PM_{10} Monitoring Trends

Monitoring Summary for Annual Review Period	Monitoring Results 2019 Period (µg/m^3)	Monitoring Results 2018 Period (µg/m^3)	Monitoring Results May – December 2017 Period (µg/m^3)
PM_{10} Reporting Period Average	20.0	14.2	14.4
Max. PM_{10}	94	42	40
Min. PM_{10}	0.1	2	2

Long term Trends:

Depositional dust monitoring commenced in 2016, once management plans were approved by the DPIE. From 2016 – 2019 the annual depositional dust levels have been within the criteria.

Results for 2018 were very similar to the 2017 PM_{10} results. Results in 2019 are higher than those of 2017 and 2018, however the longterm average remains within the criteria. Four short term exceedences occurred during 2019. These results were affected by the bushires and continued dry conditions.

Comparison to EIS Predictions:

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

6.2.4 Management Measures

Dust minimisation and control measures implemented on site include:

- The use of a watercart that follows specified procedures to achieve the most optimal dust control measures;
- Sprays throughout the plant;
- Speed limits across the site;
- Dust covers in place across the screening building;
- Inspections;
- Defined operating hours;
- Monitoring for air quality and meteorological conditions; and
- Training of staff and contractors.

6.2.5 Proposed Improvements

The *Jandra Quarry Air Quality Management Plan* will be revised and updated in 2020 incorporating actions of the IEA .

6.3 Blasting

6.3.1 Environmental Assessment Predictions

The Noise and Blasting Impact Assessment (SLR, 2014) identified the MIC that allows the ANZEC Guidelines for human comfort to be met, at the closest private (non-Holcim owned) residences, during all stages of the quarry development.

The design of blasts will then be optimised to limit the possibility of EPA criteria exceedances, when blast locations are closer to residences and preferred blast designs can be used for blast locations with adequate distances to residences.

6.3.2 Approved Criteria

The site undertook blasts in 2019 in accordance with the criteria listed in **Table 24**.

Table 24: Blasting Criteria for Jandra Quarry

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Any residence on privately owned land, or any public infrastructure	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months

6.3.3 Key Environmental Performance

Results of blasting undertaken in 2019 are shown in **Table 25.**

Table 25: 2019 Blast Monitoring Results for Jandra Quarry

Blast Number	Date	Result	
		Vibration(mm/s) (Criteria Limit 5 mm/s)	Overpressure (dBL) (Criteria Limit 115 dBL)
1	11-01-2019	0	0
2	21-01-2019	0.8	109.9
3	06-03-2019	0.7	80.8
4	06-03-2019	0.7	80.8
5	10-04-2019	DNT	DNT
6	06-05-2019	2	108.3
7	25-07-2019	4.3	99.9
8	08-08-2019	1	103.5
9	11-09-2019	1.1	106
10	01-11-2019	DNT	DNT

DNT – Did not trigger

All blasts in 2019 were within the Development Consent criteria.

Sensitive receivers near the quarry are notified prior to blasting as per the *Jandra Quarry Noise and Blast Management Plan.* This process is managed by the weighbridge staff who send a text message to the tenants the day before a planned blast is undertaken.

Longterm Trends:

From 2015 – 2019 the blasting levels have been within the Development Consent criteria.

Table 26: Longterm Blasting Trends

Year	Number of Blasts	Max. Overpressure (dBL)	Average Overpressure (dBL)	Max Vibration (mm/s)	Average Vibration (mm/s)
2015	10	114.9	109.8	2.48	1.58
2016	9	116	107.8	1.3	0.84
2017	16	113.2	105.7	3.1	1.02
2018	11	111.0	99.8	1.52	0.85
2019	10	109.9	86.2	4.3	1.3

Comparison to EIS Predictions:

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

6.3.4 Management Measures

Management measures relating to blasting are outlined within the *Jandra Quarry Noise and Blast Management Plan*, which includes a Drill and Blast Procedure. This procedure outlines the key steps of the blasting process including design, drilling, loading and firing.

6.3.5 Proposed Improvement

No improvements to blasting practices are required. The *Jandra Quarry Noise and Blast Management Plan* will be revised and updated in 2020.

6.4 Traffic Management

6.4.1 Environmental Assessment Predictions

Section 3.5.6 of the Environmental Assessment (2014) stated that at peak demand, the maximum number of heavy vehicles leaving the site to deliver product to customers would reach approximately 12 (24 truck movements) per hour. This has been calculated based on a minimum loading time of approximately 5 minutes per truck. It is unlikely that, on a typical day, these peaks in demand will occur for more than a few hours at a time. A detailed assessment of traffic and transport is outlined within Section 6.2 of the Environmental Assessment (2014).

6.4.2 Approved Criteria

The site is required to operate traffic and manage transport through compliance with the requirements of the conditions listed below:

Pacific Highway Intersection

31. The Applicant shall maintain the intersection of the Pacific Highway and the Jandra Quarry Access Road, for the duration of product transport from the site, to the satisfaction of the RMS.

32. The Applicant shall install and subsequently maintain street lighting at the intersection of the Pacific Highway and the Jandra Quarry Access Road, to the satisfaction of the RMS, prior to transporting quarry products from the site outside of the hours 7 am to 6 pm. Any works affecting the Pacific Highway must not take place without the prior approval of the RMS.

Monitoring of Product Transport

33. The Applicant shall keep accurate records of:
    (a) the amount of quarry products, including asphalt, transported from the site (calendar month and year);
    (b) the number of laden vehicle movements to and from the site (day, calendar month and year); and
    (c) publish these records on its website at the end of each calendar quarter.

6.4.3 Key Environmental Performance

The site has maintained the intersection at the Pacific Highway and Quarry Access Road in accordance with the conditions in **Section 6.4.2**. No impacts to the intersection have been identified during the reporting period.

The site has not operated outside the hours of 7am and 6pm. Holcim has installed solar lighting at the intersection during 2019 in accordance with Schedule 3, Condition 32 of the consent, see **Photo 1**. Solar lighting is awaiting sign off by RMS with correspondence sent on the 18 February 2020, no operations outside the approved hours will occur until the solar lights are signed off by RMS.

Photo 1 Solar lighting installed at intersection in accordance wiuth Schedule 3 Condition 32

All truck movements and quarry product volumes are published on the Holcim (Jandra Quarry) webpage in accordance with Schedule 3, Condition 33 of the consent. A summary of transport data for 2019 is appended to this Annual Review as **Appendix 1**.

In summary:

- There was 13,554 truck movements; and
- There was 403,317 tonnes of material taken offsite as product.

Management Measures

Management measures relating to traffic include:

- Defined haulage times;
- Covered loads leaving site;
- Defined haulage limits; and
- Trained transport operators.

6.4.4 Proposed Improvements

There are no proposed improvements relating to transport.

6.5 Biodiversity and Bushfires

6.5.1 Environmental Assessment Predictions

The Environmental Assessment (2014) assessed the biodiversity impacts associated with clearing an additional 1.284 hectares of native vegetation. The Flora and Fauna Assessment accompanying the EIS stated: *"With the implementation of flora and fauna management measures included in the Flora and Fauna Management Plan and this* Environmental Assessment (2014)*, (depending on the outcome of the targeted surveys for the Eastern Underground Orchid) the proposed modification would not result in any significant impacts on biodiversity on site and in surrounding bushland".*

6.5.2 Approved Criteria

There are no specific criteria relating to biodiversity within the Development Consent. Schedule 3 Condition 25 outlines the requirement to complete a *Biodiversity and Rehabilitation Plan* with this document being revised in 2020.

6.5.3 Key Environmental Performance

Jandra cleared approximately 3.3 ha as part operations.

Major bushfires also occurred in the area during the 2019 report period. Areas of land within the buffer lands, rehabilitation areas on overburden emplacement and the pit, nest boxes located to the northwest and a Jandra Quarry shed were burnt during this event.

Photo 2 Major bushfire across Jandra Quarry Site

Eight weeks of weed spraying targeting Lantana (*Lantana* sp.) and Tobacco weed (*Solanum mauritianum*) were completed during the reporting period.

No next box monitoring was completed.

6.5.4 Comparison to EIS Predictions

There were limited impacts to biodiversity within the Annual Review period. This is consistent with the EIS predictions.

6.5.5 Management Measures

Management measures relating to biodiversity are outlined within the *Jandra Quarry Biodiversity Management Plan*. These include:

- Weed and feral animal management;
- Pre clearance surveys and tree felling procedures;
- Salvaging of habitat resources;
- Nest box installation;
- Bushfire management; and
- Rehabilitation and biodiversity offset area monitoring.

6.5.6 Proposed Improvements

Weed spraying will continue at the site during the next reporting period as weeds are regenerating following bushfires in the area.

Annual inspections of the nest boxes by Holcim staff will be undertaken during next reporting period. A preclearance survey will also be completed prior to the the small vegetation strip in the eastern boundary planned for 2020.

No feral animal sightings have been reported at Jandra Quarry, feral animal control programs will be initiated on a as-needs basis in 2020.

The *Jandra Quarry Biodiversity and Rehabilitation Management Plan* will be revised and updated in 2020.

6.6 Heritage

6.6.1 Environmental Assessment Predictions

An extensive AHIMS search was conducted on 5 February 2014 for the purposes of an Aboriginal Heritage Due Diligence Assessment for the Environmental Assessment (2014). The search covered an area of approximately 10 square kilometres, which encompassed the disturbance area of the new heavy vehicle access road and expansion of the existing finished product stockpile area. Seven recorded sites are within the Jandra Quarry Development Consent boundary. All seven of these sites were determined to be of low or medium significance. No Aboriginal archaeological sites registered on AHIMS are located within the disturbance area of the new heavy vehicle access road and expansion of the existing finished product stockpile area. There are no predicted detrimental impacts to Aboriginal and cultural heritage.

6.6.2 Approved Criteria

There are no specific criteria relating to Aboriginal and Cultural Heritage within the Development Consent. Schedule 3 Condition 29 outlines the requirement to prepare an *Aboriginal Cultural Heritage Management Plan.* The *Aboriginal Cultural Heritage Management Plan* was revised in 2020, with this sent to DPIE for comment and approval.

6.6.3 Key Environmental Performance

There were no issues relating to Aboriginal and Cultural Heritage in 2019. There was 3.3 ha cleared during the report period, however this clearing did not impact any Aboriginal or Cultural Heritage sites.

6.6.4 Management Measures

Management measures relating to heritage are outlined within the *Jandra Quarry Aboriginal Cultural Heritage Management Plan*. These include:

- Consultation with Aboriginal stakeholders during the preparation of the *Jandra Quarry Aboriginal Cultural Heritage Management Plan;*
- Records of known sites of Aboriginal heritage significance;
- The Quarry Manager or delegate will undertake monthly inspections of the known Aboriginal and cultural heritage sites;
- Training of staff and contractors; and
- Procedure for impacts of unexpected finds.

6.6.5 Proposed Improvements

The *Jandra Quarry Aboriginal Cultural Heritage Management Plan* will be revised and updated in 2020.

6.7 Waste Minimisation

6.7.1 Key Environmental Performance

A summary of waste management at Jandra is outlined in the table below:

Table 27: 2019 Waste Management – Jandra

Date	General Waste Bin Capacity - 1.2m^3	Recycled Waste Bin Capacity - 1.5m^3	Scrap Steel
Number of vistis to site	23	23	-
Total Waste	27.6 m^3	34.5 m^3	13.2 T

Total general waste for 2019 of 27.6 m^3 has increased from 25.2 m^3 in 2018. Recysled waste has also increased from 33 m^3 in 2018 to 34.5 m^3 in 2019.

6.7.2 Management Measures

Wherever possible, Jandra Quarry implements initiatives to minimise the waste generated from our operations. General waste is minimised and all oil, cardboard, paper and steel is sorted on site and sent to recycling facilities in the region. This is significantly reducing the amount of waste going to landfill.

Tyres from machines are used for traffic management, garden edging and signage stabilisers. This reduces the use of raw materials as well as diverting rubber from landfill.

General waste and recycling is stored in separated into different streams and stored in a separate $3m^3$ bulky bin. These bins are collected fortnightly.

6.7.3 Proposed Improvements

There are no proposed improvements to waste management during the Annual Review period.

6.8 Summary of Environmental Performance

A summary of the performance of environmental management measures and sampling results are detailed in **Table 28**.

Table 28: Summary of Performance

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.	Quarterly monitoring has met the Development Consent Criteria.	Meets criteria.	None required.
Air quality	EIS predictions are all below development consent criteria.	Dust deposition results are within criteria of EPL, EIS and Development Consent, however December monitoring at all gauges was not undertake resulting in a non-compliance. PM_{10} monitoring in 2019 were within the Development Consent criteria.	Dust deposition has been consistent with EIS and previous Annual Review reporting. PM_{10} monitoring meets criteria.	Ensure there are no sampling collection errors for PM_{10} monitoring or depositional dust.
Blasting	EIS predictions are all below development consent criteria.	All blasts in 2019 were within the Development Consent criteria.	Blast results continue to remain within approved criteria and EIS predictions.	None required.
Water Management	EIS predictions are all below development consent criteria.	No discharge during 2019	No discharge during 2019.	None required.
Biodiversity	2014 EA Mod – The proposed modification would not result in any significant impacts on biodiversity on site and in surrounding bushland.	3.3 ha clearing in 2019 - no additional impacts	No biodiversity or rehabilitation monitoring was completed in 2019. Bushfires burnt all rehabilitation areas.	Completion of monitoring in 2020 as per the Biodiversity Management Plan.
Heritage	No predictions	No impacts	Continued to be no impacts	None required.

7 WATER MANAGEMENT

7.1 EIS Predictions

The predictive modelling within the Environmental Assessment (July 2014) pertains to the water balance for Jandra Quarry (**Table 29**). During the reporting period, the water available on site was all that was required for operations providing Holcim with the confidence in the water balance figures. There are no other predictive figures for surface water management.

Table 29: Water Balance Modelling from Surface Water Management Plan

	Current			Stage 1		
Summary Results	**Dry Year**	**Mean Year**	**Wet Year**	**Dry Year**	**Mean Year**	**Wet Year**
Total Runoff (ML/yr)	35	98	165	34	97	164
Total Demands (ML/yr)[1]	25.60	24.88	24.11	36.60	35.64	34.63
Stormwater Supplied (ML/yr)[2]	25.46	24.88	24.11	32.13	35.45	34.63
Total Storage Top Up (ML/yr)	0.13	0.00	0.00	4.46	0.19	0.00
% Demand Met	99%	100%	100%	88%	99%	100%
Spill Volume (ML/yr)	4	68	131	3	57	112

	Stage 2			Stage 3		
Summary Results	**Dry Year**	**Mean Year**	**Wet Year**	**Dry Year**	**Mean Year**	**Wet Year**
Total Runoff (ML/yr)	39	110	186	45	129	219
Total Demands (ML/yr)	36.42	35.47	34.46	34.60	33.74	32.82
Stormwater Supplied (ML/yr)	32.32	35.34	34.46	31.85	33.74	32.82
Total Storage Top Up (ML/yr)	4.09	0.13	0.00	2.75	0.00	0.00
% Demand Met	89%	100%	100%	92%	100%	100%
Spill Volume (ML/yr)	4	70	139	9	90	174

The Environmental Assessment (2014) stated with the implementation of surface water management measures included in the *Soil and Water Management Plan*, the EPL and this EA, the proposed modification would not result in any significant impacts on the downstream environments.

7.2 Approved Criteria

The site is required to monitor and record discharge events from the Main Dam offsite in accordance with the requirements listed in **Table 30** taken from the EPL.

Table 30: EPL Discharge Monitoring Requirements

POINT 1

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
pH	pH				6.5-8.5
Total suspended solids	milligrams per litre				50

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge quality monitoring	Discharge quality monitoring	Discharge from final sediment dam as shown in the CSR Readymix Site Photo - Jandra Quarry Water Monitoring Location Figure 1 provided to the EPA 13 May 2002

7.3 Water Use and Storage

Effective control of erosion and sediment movement at the site is currently achieved via the following measures:

- Sedimentation basins;
- Wash off water collection and primary treatment systems;
- Minimisation of disturbed areas;
- Diversion of clean water from undisturbed areas around working areas;
- Temporary erosion and sediment controls prior to commencement of topsoil and overburden removal;
- Sequential clearing and rehabilitation of the quarry as extraction of material proceeds; and
- Twice yearly maintenance of erosion and sediment control structures to ensure their efficiency.

During the 2019 Annual Review period a kerbside drain and guttering was installed to harvest water into the wheel wash sump from the main Jandra Quarry driveway, shown in **Photo 3.**

Photo 3 Kerbside drain and gutter installed at the main Jandra Quarry driveway

7.4 Surface Water Results

The *Soil and Water Management Plan* is being revised in 2020 and will be sent to DPIE for comment and approval. This SWMP outlines the requirements to complete monitoring of discharge events. The monthly water monitoring was discontinued in July 2018 and will only be completed if there is a discharge event. As there was no discharge at site during 2019 no surface water monitoring was undertaken.

Longterm Trends:

The results from 2015 to 2018 were reviewed for surface water in the 2018 Annual Review. Results were similar over a long period with slightly alkaline pH and a large variability in TSS results. Although there was no discharge in 2019, there is a system in place at the site where samples are obtained prior to a discharge event, with the goal of containing water onsite if the water quality parameters are not within the EPL requirements.

Comparison to EIS Predictions:

The Environmental Assessment (2014) stated the increase in scale of the operations not result in any significant impacts on the downstream environments. With there being no discharge events during the Annual Review period and the site operating as per the *Soil and Water Management Plan*, Holcim consider this prediction has been met.

7.5 Groundwater Results

No groundwater monitoring was completed at Jandra during the Annual Review period.

7.5.1 Water Take

There is no groundwater extraction licences at Jandra Quarry, therefore there has been no water take.

8 REHABILITATION AND LANDSCAPE MANAGEMENT

8.1 Rehabilitation Performance during the Reporting Period

A summary of rehabilitation at Jandra Quarry is outlined in **Table 31**.

Table 31: Rehabilitation Performance

Guideline Requirement	Site Comment
Extent of the operations and rehabilitation at completion of the reporting period	Rehabilitation of benches continued during the Annual Review period as per the *Biodiversity and Rehabilitation Management Plan*. There was approximately 0.82 ha of rehabilitation completed during the Annual Review period. Quarry benches are landscaped and vegetated using native tree and understorey species, to minimise the visual impact of the quarry. The rehabilitation process includes placing approximately 1 metre of overburden on benches, followed by 300mm of topsoil. Tubestocking is the preferred rehabilitation method on benches.
Agreed post- rehabilitation land use	The *Biodiversity and Rehabilitation Management Plan* outlines the proposed rehabilitation at the site. The proposed final land use is native woodland.
Key rehabilitation performance indicators	Key performance indicators are outlined within the *Biodiversity and Rehabilitation Management Plan*. Rehabilitation inspections are completed by Holcim.
Renovation or removal of buildings	None during reporting period. However, one shed burnt during bushfires.
Any other Rehabilitation including: Exploration activities; Infrastructure; Dams; and The installation or maintenance of fences, bunds and any other works.	No rehabilitation of exploration, infrastructure or dams undertaken during the Annual Review period.
Any rehabilitation areas which have received formal sign off from the Resources Regulator	None.
Variations to activities undertaken to those proposed (including why there were variations and whether Resource Regulator was notified)	Rehabilitation completed as per the *Biodiversity and Rehabilitation Management Plan*.
Outcomes of trials, research projects and other initiatives	No trials.
Key issues that may affect successful rehabilitation	There are several potential issues including availability of material, seed stock, climatic events and rehabilitation methodology. As mentioned in **Section 6.5.3** a major bushfire event occurred during the report period which resulted in all rehabilitation areas being burnt. Access is limited due to safety, however drones are currently being used to determine damage and future remediation. Additional rehabilitation may be required if burnt out rehabilitation areas are not showing signs of recovery.

8.2 Summary of Current Rehabilitation and Disturbance

A summary of the rehabilitation and disturbance status is outlined in **Table 32**.

Table 32: Rehabilitation and Disturbance Status

Quarry Area Type	Previous Annual Review Period	2019 Annual Review Period (ha)	Predicted 2020 Annual Review Period (ha)
A. Total Quarry Footprint[1]	21	25.7	27.1
B. Total Active Disturbance[2]	19.1	22.9	24.3
C. Land Being Prepared for Rehabilitation[3]	0	0	0
D. Land Under Active Rehabilitation[4]	1.9	2.8	2.8
E. Completed Rehabilitation[5]	0	0	0

1 Total disturbance and rehabilitation.
2 Total disturbance within the Development Consent 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 Resources Regulator.

During 2019 there was 3.3 ha of additional disturbance in 2019. Approximately 1.4 ha is proposed to be disturbed during 2020 for continued operations. During 2019 there was approximately 0.82 ha of additional rehabilitation over inactive quarry benches. Proposed rehabilitation for 2020 will be dependent on rainfall and access in burnt out areas.

8.3 Actions for the next Reporting Period

The DPIE 2015 Annual Review Guidelines require the Annual Review to outline the rehabilitation actions proposed during the next reporting period. These actions are detailed in **Table 33.**

Table 33: Rehabilitation and Closure Actions for the Next 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	Rehabilitation to continue as per the *Biodiversity and Rehabilitation Management Plan*.
Outline proposed rehabilitation trials, research projects and other initiatives to be undertaken during next reporting period	No proposed rehabilitation trials.
Summary of rehabilitation activities proposed for next report period	Possible hydromulching of areas burnt out by bushfires (weather dependent).

The rehabilitation and disturbance areas at Jandra Quarry are outlined in **Figure 3.**

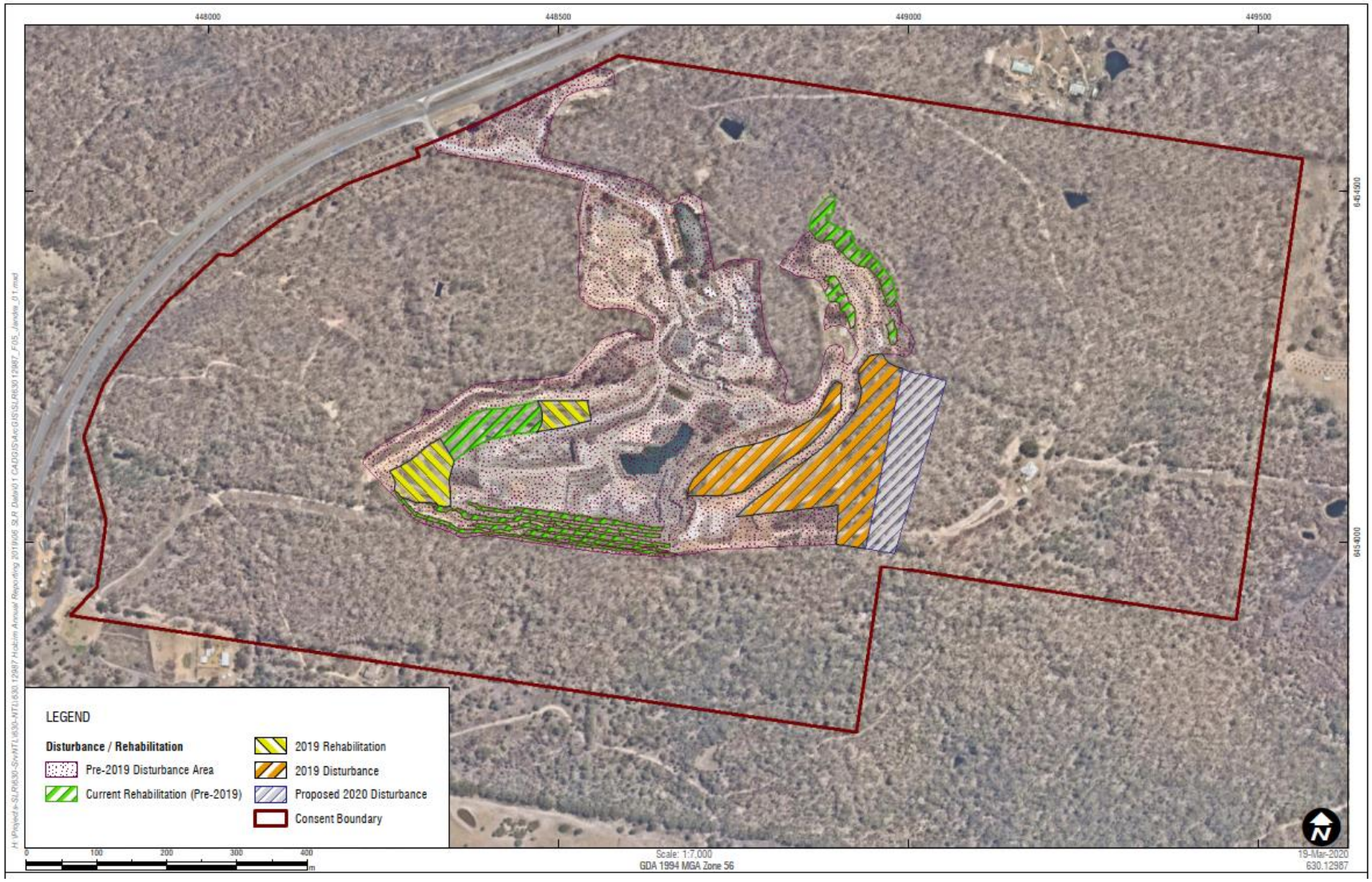

Figure 3: Jandra Quarry Rehabilitation and Disturbance (2019 and 2020)

9 COMMUNITY

9.1 Community Engagement Activities

Holcim has maintained community engagement measures during the reporting period by undertaking the following activities in accordance with Schedule 5, Condition 7 and 10 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.

9.2 Community Contributions

During 2019 a contribution of sponsorship was provided to the Wingham Campdraft Association. Jandra provided money and the use of a watercart for campdraft.

9.3 Complaints

A review of the Holcim Safety, Health & Environment (SHE) reporting database (INX) did not identify any complaints from external stakeholders during the 2019 reporting period. This was also the case in 2018.

A link to all publicly listed information including complaints registers and contacts for locals in the community is attached below showing compliance with this condition.

http://www.holcim.com.au/about-us/community-link/jandra-quarry-possum-brush-taree-nsw.html

10 INDEPENDENT AUDIT

The site undertook an Independent Environmental Audit (IEA) in 2016 in accordance with the timeframes of the Development Consent. All actions raised in IEA have been undertaken in accordance with the recommendations made by GHD Consultants. All actions were closed out in 2016.

In accordance with the Development Consent, an IEA was also undertaken in September 2019. The final report was provided to DPIE in December 2019. A copy of the IEA Action Plan is attached as **Appendix 3.**

11 INCIDENTS AND NON-COMPLIANCE

Table 34 summarises the incidents and non - compliances at Jandra in 2019.

Table 34: Summary of Incidents and Non Compliances

Date	Incident/Non Compliance	Action/Comment
During reporting period	Non-compliance. (No biodiversity or rehabilitation monitoring)	**Biodiversity and Rehabilitation Plan – DA 213-10-99 (Mod 5)Shedule 3 Condition 25** The monitoring requirements within the Biodiversity and Rehabilitation Management Plan were not completed. To be completed in 2020.
During reporting period	Non-compliance (No Rehabilitation and Conservation Bond)	**Biodiversity and Rehabilitation Plan – DA 213-10-99 (Mod 5)Shedule 3 Condition 27** Rehabilitation and Conservation bonds have not been undertaken. This is currently being undertaken and will be completed in 2020.

12 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

Holcim staff will undertake the following works and improvement measures and projects in 2020 to ensure compliance with the consent and to ensure that effective environmental management controls are in place and operating in accordance with the requirements of the Consent.

Table 35: Proposed Improvement Measures - 2020

Improvement Measure	Activities
Progressive Rehabilitation/	The site will continue to progressively rehabilitate available areas.
Management of bushfire areas	Continue inspections and assess impacts from the bushfire. Additional rehabilitation may be required if burnt out rehabilitation areas are not showing signs of recovery.
Desilting of the sites main process pond/sediment Basin	The site will continue to manage sediment control structures through inspections and desilting.
Biodiversity	Weed spraying will continue at the site during the next reporting period. Annual inspections of the nest boxes by Holcim staff be undertaken during next reporting period. Ecological pre-clearance surveys will be required in the next reporting period for vegetation clearing required to extend the eastern end of the approved extraction boundary. A feral animal assessment will be undertaken in the next reporting period to determine if there is a need for managing feral animals in the rehabilitation area and Biodiversity Offset Area. A feral animal control program will be completed if required. To date, Holcim employees have not reported any sightings of feral animals within these areas.

13 REFERENCES

Department of Planning and Environment (2015) Jandra Quarry Development Consent (DA 213-10-99) – Notice of Modification

Holcim (2018) Jandra Quarry Annual Review 2017;

Holcim (2015) Environmental Management Plans

Holcim (2014) Jandra Quarry Environmental Assessment – Intensification in Production

Office of Environment and Heritage – Environment Protection Licence 2796

14 APPENDICES

APPENDIX 1
TRANSPORT SUMMARY

Holcim

JANDRA QUARRY TRANSPORT 2019

2019	January		February		March		April		May		June		July		August		September		October		November		December	
	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)	Truck Movements	Volume (T)
Day 1		0	76	1920.52	111	3382.28	31	930.78	100	3130.2		0	70	2156.38	32	1110.82		0	45	1401.86	91	2859.86		0
Day 2		0		0		0	17	484.18	87	2727.5		0	66	1953.16	56	1773.96	27	768.14	106	3311.6		0	59	1974.8
Day 3		0		0		0	21	633.96	97	2920.42	69	2113.48	39	1166.48		0	25	749.96	86	2730.98		0	76	2250.72
Day 4		0	46	1233.44	136	4103.8	37	970.16		0	31	912.2	42	1119.02		0	33	1051.8	70	2156.5	49	1534.52	36	1206.86
Day 5		0	89	2489.76	180	5033.68	71	2064.5		0	14	389.18	26	670.54	28	920.28	65	1730.24		0	69	2135.5	61	1989.6
Day 6		0	68	2075.48	91	2674.28		0	61	1800.1	26	641.06		0	60	1835.4	46	1336.4		0	94	2902.06	45	1370.48
Day 7	39	905.92	80	2207.66	74	2251.92		0	59	1635.51	22	622.76		0	53	1739.22		0		0	45	1376.1		0
Day 8	15	427.4	45	1320.76	132	3851.62	33	1003.46	77	2334.22		0	40	1157.2	40	1341.22		0	106	3324.52	24	698.64		0
Day 9	30	884.76	5	164.74		0	63	2023.1	82	2514.16		0	31	954.5	31	1093.54	39	1118.54	114	3478.54		0	36	1168.18
Day 10	26	679.74		0		0	69	2157.92	65	1815.16		0	41	1281.74		0	29	683.78	116	3740.76		0	36	1038.96
Day 11	50	1390.5	65	2013.13	27	840.88	112	3077.1		0	23	587.2	55	1451.48		0	49	1153.8	101	3226.36		0	29	907.46
Day 12		0	40	1231.4	99	2950.3	73	1996.8		0	58	1392	35	1012.86	52	1787.22	57	1487.1		0		0	41	1339.72
Day 13		0	39	1137.06	60	1817.8		0	38	1031.16	38	879.51		0	110	2101.43	39	899.76		0	7	236.6	45	1463.62
Day 14	56	1510.9	35	959.05	24	613.86		0	45	1237.56	43	1098.94		0	82	1851.02		0	127	3968.16	19	664.44		0
Day 15	47	1461.66	30	829.54	33	1062.68	53	1413.08	35	936.52	10	226.44	38	1315.56	50	1309.92		0	124	3910.54	23	823.04		0
Day 16	32	938.72		0		0	35	977.04	26	789.78		0	30	928.54	20	621.58	39	1204.08	132	4071.86		0	62	1698.26
Day 17	43	1290.86		0		0	26	696.84	30	939.28	43	1076.54	51	1502.74	5	165.38	27	971.6	109	3321.94		0	29	930.86
Day 18	30	930.62	35	1053.9	53	1454.5	54	1602.36		0	80	2211.7	37	1189.36		0	31	842.86	81	2668.88	64	2162	49	1552.7
Day 19	8	270.8	69	2033.58	53	1533.6		0		0	87	2511.64	31	976.36	56	1830.4	36	1090.76	9	233.42	38	1244.88	39	1305.46
Day 20		0	77	2336.17	65	2037.96		0	18	559.02	66	1803.72		0	54	1722.44	45	1390.62		0	32	1049.96	20	587.58
Day 21	70	2103.42	38	1203.44	42	1212		0	37	1232.32	79	2088.6		0	78	2261.96		0	96	3038.58	39	1213.02		0
Day 22	48	1402.42	24	698.82	29	967.4		0	33	992.4	20	236.74	68	1848.63	63	1467.82		0	116	3438.28	29	849.42		0
Day 23	58	1703.12	1	33.12		0	35	1102.28	39	1207.1		0	68	1898.88	34	1042	37	1100.96	112	3581.46		0		0
Day 24	57	1645.88		0		0	52	1631.54	27	887.92	18	504.3	80	2240.34		0	60	1833.48	109	3509.16		0		0
Day 25	47	1373.38	99	3084.62	50	1514.3		0	4	158.38	31	803.08	83	2537.74		0	72	1879.44	89	2769.6	24	773.03		0
Day 26		0	130	3929.88	32	1056.81	26	783.16		0	58	1685.48	57	1796.48	58	1730.84	62	1947.62		0	37	1138.58		0
Day 27		0	145	4286.3	44	1441.42		0	30	948.24	63	1701.42		0	26	637.26	66	1899.94		0	40	1329.89		0
Day 28		0	133	4018.44	41	1281.48		0	20	546.84	102	2618.1		0	47	1382.02		0	94	2816.34	42	1511.68		0
Day 29	33	1007.2			33	1107.52	58	1702.16	46	1341.5		0	62	2107.52	34	1074.5		0	109	3447.3	29	1007.8		0
Day 30	62	1689.5				0	90	2573.64	45	1371.82		0	47	1444.72	25	835.34	42	1236.3	121	3765.18		0		0
Day 31	73	2214.48				0			41	1236.2			32	844.96		0			94	3036.97				0
TOTAL	**824**	**23831.28**	**1369**	**40260.81**	**1409**	**42190.09**	**956**	**27824.06**	**1142**	**34293.31**	**981**	**26104.09**	**1129**	**33555.19**	**1094**	**31635.57**	**926**	**26377.18**	**2266**	**70948.79**	**795**	**25511.02**	**663**	**20785.26**
TOTAL VOLUME	**403,317 T**	**(Q1 = 106,283 T Q2 = 88,221 T Q3 = 91,568 T Q4 = 117,245 T)**																						
TOTAL TRUCK MOVEMENTS	**13,554**																							

APPENDIX 2
QUARTERLY NOISE MONITORING

Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW
Quarter 1 Ending March 2019.

Prepared for: Holcim (Australia) Pty Ltd
March 2019
MAC180611-04RP3

Muller Acoustic Consulting

Document Information

Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW

Quarter 1 Ending March 2019

Prepared for: Holcim (Australia) Pty Ltd

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Document ID	Status	Date	Prepared By	Signed	Reviewed By	Signed
MAC180611-04RP3	Final	21 March 2019	Liam Beeton		Rod Linnett	

CONTENTS

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by Holcim (Australia) Pty Ltd (Holcim) to complete a Noise Monitoring Assessment (NMA) for the quarterly period ending March 2019 for Jandra Quarry (the 'quarry'), Possum Brush, NSW.

The monitoring has been conducted in accordance with the Jandra Noise and Blast Management Plan and in general accordance with Conditions L4.2 to L4.8 of the EPL2796 (EPL); at three representative monitoring locations. This assessment has been undertaken during Quarter 1 ending March 2019 and forms part of the annual noise monitoring program to address conditions of the EPL.

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- Environment Protection Licence (EPL), 2796;
- Jandra Quarry Conditions of Consent (CoC), 2015;
- Jandra Quarry Noise and Blast Management Plan (NBMP), 2015; and
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

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2 Noise Criteria

Schedule 3, Section 1 of the Jandra Quarry Conditions of Consent, first approved on 30 March 2000 and modified on 13 March 2015, outlines the applicable noise criteria for residential receivers surrounding the quarry site. Schedule 3 presents noise criteria which are applicable for two different operational activities undertaken onsite, being when the site undertakes quarrying operations during the hours of 6am to 10pm and for 24 hour operations when quarrying operations and asphalt production occur simultaneously.

Furthermore, Section 5 of the Jandra Noise and Blast Management Plan (NBMP) outlines that noise criteria do not apply at R1, R3, R8, R9, R10. Section 5 of the NBMP states:

- *'Holcim has executed a negotiated agreement with the property owner of R1 which excludes this receptor from the approved noise criteria';*
- *'R3 is not included in the approved noise criteria as this receiver represented road noise and the EA concluded that road noise impacts as a consequence of the development were below guideline thresholds and didn't warrant further assessment'; and*
- *'Receivers R8, R9 & R10 are Holcim owned residences and the approved criteria only apply to privately owned land'.*

Table 1 presents the criteria for the receivers R1 – R10 where compliance is required for both quarry operation and combined quarry and asphalt production operations.

Table 1 Noise Criteria

Location	Quarry Operations	Quarry Operations and Asphalt Plant Production		
	6am – 10pm	6am – 10pm	10pm – 6am	10pm – 6am
	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{A1(1min)}$
R1[1]	46	48	46	51
R2	36	40	35	48
R3[1]	N/A	N/A	N/A	N/A
R4	36	40	39	51
R5	40	41	39	51
R6	36	40	35	48
R7	35	36	35	48
R8[1]	N/A	N/A	N/A	N/A
R9[1]	N/A	N/A	N/A	N/A
R10[1]	N/A	N/A	N/A	N/A

Note 1: Noise criteria are not applicable to these receivers as per Section 5 of the NBMP.

3 Methodology

3.1 Locality

The quarry is located at Possum Brush, NSW approximately 16km south of Taree, NSW. Receivers in the locality surrounding the quarry are primarily rural/residential. The Pacific Highway is situated to the west of the site, with highway traffic a dominant noise source at all assessed receivers. To the east, the quarry is bounded by rural properties with noise from Tuncurry Road dominating the acoustic environment. The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1.**

3.2 Noise Monitoring Locations

Three monitoring locations have been selected as part of the NMA and in accordance with the NBMP. Location M1 is located adjacent to R1 to the north of the quarry and is used as a reference location for the northern catchment. It is noted that this assessment location has a negotiated agreement with Holcim, hence noise criteria are not mandatory. Location M2 is representative of receivers R2, R6 and R7, to the east of the quarry. Location M3 is situated to the west of the quarry and is representative of receivers R4 and R5.

3.3 Assessment Methodology

Attended noise surveys were conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the EPL. The measurements were carried out using a Svantek Type 1, 971 noise analyser on Tuesday 12 March 2019 and Wednesday 13 March 2019. The acoustic instrumentation used carries current NATA calibration and complies with AS IEC 61672.1-2004-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA.

Noise measurements were of 15 minutes in duration and where possible, throughout each survey the operator quantified the contribution of each significant noise source. One measurement was conducted at each of the monitoring locations during the daytime period. An additional round of noise measurements was completed during the morning shoulder period.

Extraneous noise sources were excluded from the analysis to determine the $LA_{eq(15min)}$ noise contribution for comparison against the relevant criteria. Where the quarry was inaudible, the contribution is estimated to be at least 10dB below the ambient noise level.

FIGURE 1

LOCALITY PLAN

REF: MAC180611-04

0 300m

KEY	
R7	RECEIVER / MONITORING LOCATION
	PROJECT SITE

MAC
Muller Acoustic Consulting

*Imagery Source : nearmap

4 Results

4.1 Assessment Results - Location M1

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M1 are presented in **Table 2**.

Table 2 Operator-Attended Noise Survey Results – Location M1

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
12/03/2019	16:33 (Day)	63	44	38	WD: E/NE WS: 2m/s Rain: Nil	Distant Traffic 36-41 Birds 43-47 Insects 36-56 Wind in Trees 41-43 Quarry Inaudible
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<35
12/03/2019	18:18 (Evening)	60	43	36	WD: E/NE WS: 2m/s Rain: Nil	Insects 34-40 Distant Traffic 40-50 Birds 40-53 Quarry Inaudible
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<35
13/03/2019	07:12 (Morning shoulder)	60	41	37	WD: S/SE WS: 3.5m/s Rain: Nil	Distant Traffic 47-52 Birds 40-45 Quarry 36-41 Dog 40-43
Jandra Quarry $L_{Aeq(15min)}$ Contribution						33

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note: Morning Shoulder measurements on 13 March 2019 were delayed due to rain and were conducted as soon as practicable for completeness.

4.2 Assessment Results - Location M2

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M2 for are presented in **Table 3**.

Table 3 Operator-Attended Noise Survey Results – Location M2

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
12/02/2019	17:27 (Day)	60	42	36	WD: E/NE WS: 2.5m/s Rain: Nil	Distant Traffic 36-38 Birds 40-53 Wind 42-43 Wind In Trees 44-51 Insects 35-40 Quarry inaudible
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<35
12/03/2019	19:13 (Evening)	57	49	40	WD: E/NE WS: 2m/s Rain: Nil	Distant Traffic 39-44 Insects 36-49 Birds 38-46 Quarry inaudible
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<35
13/03/2019	07:44 (Morning shoulder)	70	43	38	WD: S/SE WS: 3.5m/s Rain: Nil	Birds 36-50 Distant Traffic 37-43 Wind In Trees 37-40 Insects 36-39 Quarry inaudible
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<35

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note: Morning Shoulder measurements on 13 March 2019 were delayed due to rain and were conducted as soon as practicable for completeness.

4.3 Assessment Results - Location M3

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M3 are presented in **Table 4**.

Table 4 Operator-Attended Noise Survey Results – Location M3

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
12/03/2019	17:56 (Day)	67	56	51	WD: E/NE WS: 2m/s Rain: Nil	Traffic 47-55 Birds 42-44 Wind In Trees 39-41 Distant Traffic 40-50 Quarry inaudible
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<30
12/03/2019	18:46 (Evening)	64	54	48	WD: E/NE WS: 2m/s Rain: Nil	Distant Traffic 32-41 Birds 33-46 Insects 28-33 Dog 34-37 Quarry inaudible
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<30
13/03/2019	08:08 (Morning shoulder)	76	60	51	WD: S/SE WS: 3.5m/s Rain: Nil	Traffic 40-47 Birds 35-52 Wind In Trees 38-43
Jandra Quarry $L_{Aeq(15min)}$ Contribution						<30

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note: Morning Shoulder measurements on 13 March 2019 were delayed due to rain and were conducted as soon as practicable for completeness.

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5 Noise Compliance Assessment

The compliance assessment for each residential receiver R2, R4, R5, R6 and R7 are presented in **Table 5** to **Table 7** for day, evening and morning shoulder/night assessment periods.

Table 5 Daytime Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria		Quarrying & Asphalt Production Criteria	
	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	Compliant	dB $LA_{eq(15min)}$	Compliant
R2	<35	36	✓	40	✓
R4	<30	36	✓	40	✓
R5	<30	40	✓	41	✓
R6	<35	36	✓	40	✓
R7	<35	35	✓	36	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 6 Evening Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria		Quarrying & Asphalt Production Criteria	
	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	Compliant	dB $LA_{eq(15min)}$	Compliant
R2	<35	36	✓	40	✓
R4	<30	36	✓	40	✓
R5	<30	40	✓	41	✓
R6	<35	36	✓	40	✓
R7	<35	35	✓	36	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 7 Morning Shoulder/Night Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying & Asphalt Production Criteria		Quarry Noise Contribution	Quarrying & Asphalt Production Criteria	
	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	Compliant	dB $LA_{1(1min)}$	dB $LA_{1(1min)}$	Compliant
R2	<35	35	✓	<45	48	✓
R4	<30	39	✓	<45	51	✓
R5	<30	39	✓	<45	51	✓
R6	<35	35	✓	<45	48	✓
R7	<35	35	✓	<45	48	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

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6 Discussion

6.1 Discussion of Results - Location M1

It is noted that M1 is a reference location only, and criteria is not applicable under the EPL for this receiver. Monitoring during the March 2019 quarter identified that quarry noise was audible during the morning shoulder period, however, was inaudible during the day and evening periods.

The monitored noise levels demonstrate compliance with the EPL at R1 and receivers situated to the north of this location.

Extraneous sources audible during the three attended surveys included insects, birds, highway traffic and wind in trees.

6.2 Discussion of Results - Location M2

Quarry noise emissions were not audible during all three measurements conducted on Tuesday 12 March 2019 and Wednesday 13 March 2019, and satisfy the relevant daytime, evening and morning shoulder noise limits.

Extraneous noise sources included dogs barking, birds, traffic in the distance and leaves rustling.

6.3 Discussion of Results - Location M3

Quarry noise emissions were inaudible during all three measurements conducted on Tuesday 12 March 2019 and Wednesday 13 March 2019, satisfying the morning shoulder, daytime and evening criteria.

Non-quarry noise sources included highway traffic, insects and birds.

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7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) for Holcim (Australia) Pty Ltd at the Jandra Quarry, Possum Brush, NSW. The assessment was completed to assess compliance with the relevant noise criteria during Quarter 1, period ending March 2019.

Attended noise monitoring was completed on Tuesday 12 March 2019 and Wednesday 13 March 2019 at representative monitoring locations with quarry noise contributions compared against the relevant criteria. The assessment has identified that noise emissions generated by Jandra Quarry comply with relevant noise criteria specified in the Conditions of Consent at all assessed locations.

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Appendix A - Glossary of Terms

Table A1 provides a number of technical terms have been used in this report.

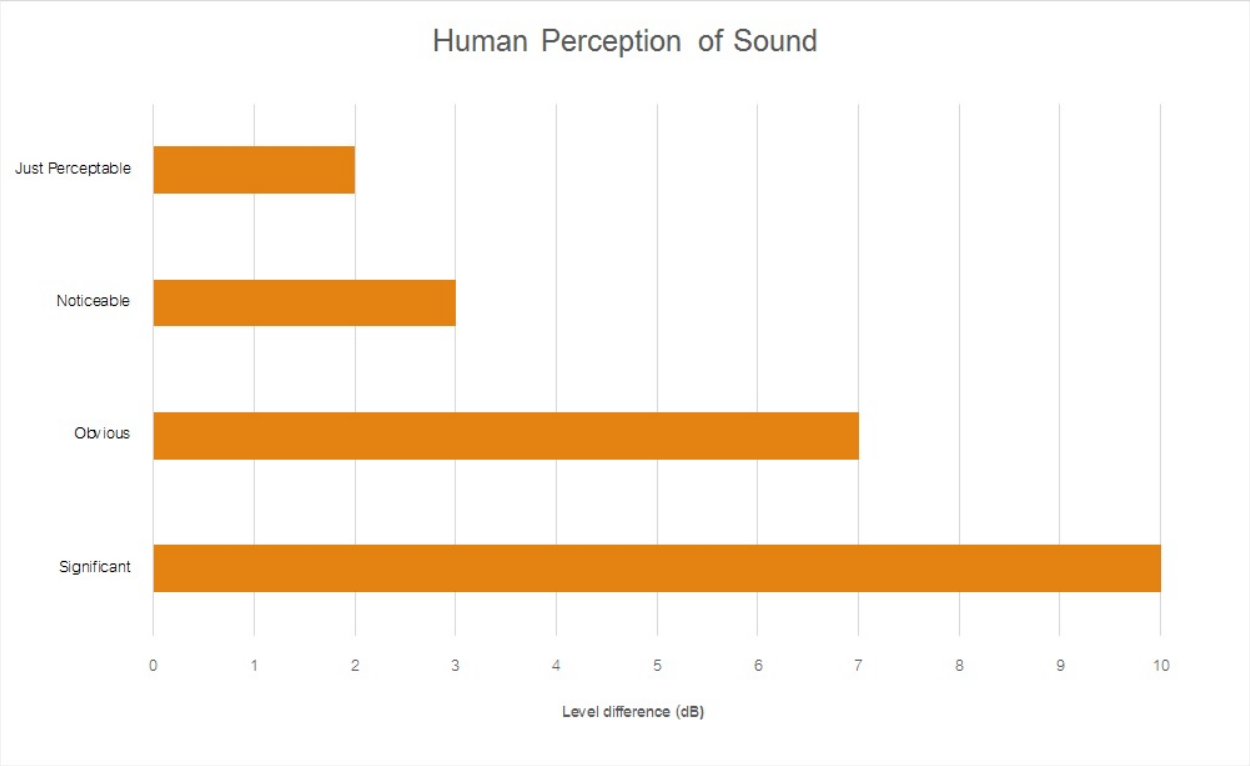
Table A1 Glossary of Terms

Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAmax	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : = 10.log10 (W/Wo) Where : W is the sound power in watts and Wo is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW
Quarter 2 Ending June 2019.

Prepared for: Holcim (Australia) Pty Ltd
June 2019
MAC180611-04RP4

Muller Acoustic Consulting

Document Information

Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW

Quarter 2 Ending June 2019

Prepared for: Holcim (Australia) Pty Ltd

Prepared by: Muller Acoustic Consulting Pty Ltd
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Document ID	Status	Date	Prepared By	Signed	Reviewed By	Signed
MAC180611-04RP4	Final	4 June 2019	Robin Heaton		Rod Linnett	

CONTENTS

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by Holcim (Australia) Pty Ltd (Holcim) to complete a Noise Monitoring Assessment (NMA) for the quarterly period ending June 2019 for Jandra Quarry (the 'quarry'), Possum Brush, NSW.

The monitoring has been conducted in accordance with the Jandra Noise and Blast Management Plan and in general accordance with Conditions L4.2 to L4.8 of the EPL2796 (EPL); at three representative monitoring locations. This assessment has been undertaken during Quarter 2 ending June 2019 and forms part of the annual noise monitoring program to address conditions of the EPL.

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- Environment Protection Licence (EPL), 2796;
- Jandra Quarry Conditions of Consent (CoC), 2015;
- Jandra Quarry Noise and Blast Management Plan (NBMP), 2015; and
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

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2 Noise Criteria

Schedule 3, Section 1 of the Jandra Quarry Conditions of Consent, first approved on 30 March 2000 and modified on 13 March 2015, outlines the applicable noise criteria for residential receivers surrounding the quarry site. Schedule 3 presents noise criteria which are applicable for two different operational activities undertaken onsite, being when the site undertakes quarrying operations during the hours of 6am to 10pm and for 24 hour operations when quarrying operations and asphalt production occur simultaneously.

Furthermore, Section 5 of the Jandra Noise and Blast Management Plan (NBMP) outlines that noise criteria do not apply at R1, R3, R8, R9, R10. Section 5 of the NBMP states:

- *'Holcim has executed a negotiated agreement with the property owner of R1 which excludes this receptor from the approved noise criteria';*
- *'R3 is not included in the approved noise criteria as this receiver represented road noise and the EA concluded that road noise impacts as a consequence of the development were below guideline thresholds and didn't warrant further assessment'; and*
- *'Receivers R8, R9 & R10 are Holcim owned residences and the approved criteria only apply to privately owned land'.*

Table 1 presents the criteria for the receivers R1 – R10 where compliance is required for both quarry operation and combined quarry and asphalt production operations.

Table 1 Noise Criteria

Location	Quarry Operations	Quarry Operations and Asphalt Plant Production		
	6am – 10pm	6am – 10pm	10pm – 6am	10pm – 6am
	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{A1(1min)}$
R1[1]	46	48	46	51
R2	36	40	35	48
R3[1]	N/A	N/A	N/A	N/A
R4	36	40	39	51
R5	40	41	39	51
R6	36	40	35	48
R7	35	36	35	48
R8[1]	N/A	N/A	N/A	N/A
R9[1]	N/A	N/A	N/A	N/A
R10[1]	N/A	N/A	N/A	N/A

Note 1: Noise criteria are not applicable to these receivers as per Section 5 of the NBMP.

3 Methodology

3.1 Locality

The quarry is located at Possum Brush, NSW approximately 16km south of Taree, NSW. Receivers in the locality surrounding the quarry are primarily rural/residential. The Pacific Highway is situated to the west of the site, with highway traffic a dominant noise source at all assessed receivers. To the east, the quarry is bounded by rural properties with noise from Tuncurry Road dominating the acoustic environment. The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1.**

3.2 Noise Monitoring Locations

Three monitoring locations have been selected as part of the NMA and in accordance with the NBMP. Location M1 is located adjacent to R1 to the north of the quarry and is used as a reference location for the northern catchment. It is noted that this assessment location has a negotiated agreement with Holcim, hence noise criteria are not mandatory. Location M2 is representative of receivers R2, R6 and R7, to the east of the quarry. Location M3 is situated to the west of the quarry and is representative of receivers R4 and R5.

3.3 Assessment Methodology

Attended noise surveys were conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the EPL. The measurements were carried out using a Svantek Type 1, 971 noise analyser on Wednesday 29 May 2019 and Thursday 30 May 2019. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA.

Noise measurements were of 15 minutes in duration and where possible, throughout each survey the operator quantified the contribution of each significant noise source. One measurement was conducted at each of the monitoring locations during the daytime period. An additional round of noise measurements was completed during the morning shoulder period.

Extraneous noise sources were excluded from the analysis to determine the $LA_{eq(15min)}$ noise contribution for comparison against the relevant criteria. Where the quarry was inaudible, the contribution is estimated to be at least 10dB below the ambient noise level.

FIGURE 1

LOCALITY PLAN

REF: MAC180611-04

0 300m

KEY	
R7	RECEIVER / MONITORING LOCATION
	PROJECT SITE

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*Imagery Source : nearmap

4 Results

4.1 Assessment Results - Location M1

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M1 are presented in **Table 2**.

Table 2 Operator-Attended Noise Survey Results – Location M1

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
29/05/2019	16:51 (Day)	69	49	43	WD: W WS: 0.5m/s Rain: Nil	Wind in Trees 40-44 Traffic 42-53 Birds 49-69 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
29/05/2019	18:54 (Evening)	64	48	42	WD: W WS: 0.2m/s Rain: Nil	Traffic 40-57 Wind in Tree 40-47 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
30/05/2019	06:26 (Morning shoulder)	66	49	44	WD: NE WS: 0.2m/s Rain: Nil	Traffic 40-53 Birds 50-66 Holcim Operations 30-35
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

4.2 Assessment Results - Location M2

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M2 for are presented in **Table 3**.

Table 3 Operator-Attended Noise Survey Results – Location M2

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
30/05/2019	07:14 (Day)	65	41	36	WD: E WS: 0.4m/s Rain: Nil	Traffic Hum 30-35 Birds 40-65 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
29/05/2019	18:23 (Evening)	60	38	34	WD: W WS: 1.2m/s Rain: Nil	Traffic Hum 30-36 Wind in Trees 32-37 Birds and Insects 29-60 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
30/05/2019	06:00 (Morning shoulder)	54	36	32	WD: N WS: 0.1m/s Rain: Nil	Traffic 30-38 Birds 34-54 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

4.3 Assessment Results - Location M3

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M3 are presented in **Table 4**.

Table 4 Operator-Attended Noise Survey Results – Location M3

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
29/05/2019	16:28	81	62	49	WD: W WS: 0.2m/s Rain: Nil	Traffic 50-81 Birds 45-55 Aircraft 55-60 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
29/05/2019	19:14 (Evening)	83	64	40	WD: W WS: 0.1m/s Rain: Nil	Traffic 44-83 Insects 27-36 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
30/05/2019	06:44 (Morning shoulder)	79	61	47	WD: NE WS: 0.1m/s Rain: Nil	Traffic 50-79 Birds 40-45 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

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5 Noise Compliance Assessment

The compliance assessment for each residential receiver R2, R4, R5, R6 and R7 are presented in **Table 5** to **Table 7** for day, evening and morning shoulder/night assessment periods.

Table 5 Daytime Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria		Quarrying & Asphalt Production Criteria	
	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	Compliant	dB $LA_{eq(15min)}$	Compliant
R2	<35	36	✓	40	✓
R4	<35	36	✓	40	✓
R5	<35	40	✓	41	✓
R6	<35	36	✓	40	✓
R7	<35	35	✓	36	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 6 Evening Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying Noise Criteria		Quarrying & Asphalt Production Criteria	
	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	Compliant	dB $LA_{eq(15min)}$	Compliant
R2	<35	36	✓	40	✓
R4	<35	36	✓	40	✓
R5	<35	40	✓	41	✓
R6	<35	36	✓	40	✓
R7	<35	35	✓	36	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 7 Morning Shoulder/Night Noise Compliance Assessment

Receiver No.	Quarry Noise Contribution	Quarrying & Asphalt Production Criteria		Quarry Noise Contribution	Quarrying & Asphalt Production Criteria	
	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	Compliant	dB $LA_{1(1min)}$	dB $LA_{1(1min)}$	Compliant
R2	<35	35	✓	<45	48	✓
R4	<35	39	✓	<45	51	✓
R5	<35	39	✓	<45	51	✓
R6	<35	35	✓	<45	48	✓
R7	<35	35	✓	<45	48	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

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6 Discussion

6.1 Discussion of Results - Location M1

It is noted that M1 is a reference location only, and criteria is not applicable under the EPL for this receiver. Monitoring during the June 2019 quarter identified that quarry noise was audible during the morning shoulder period, however, was inaudible during the day and evening periods.

The monitored noise levels demonstrate compliance with the EPL at R1 and receivers situated to the north of this location.

Extraneous sources audible during the three attended surveys included insects, birds, highway traffic and wind in trees.

6.2 Discussion of Results - Location M2

Quarry noise emissions were inaudible during all three measurements conducted for the quarter ending June 2019 and satisfy the relevant daytime, evening and morning shoulder noise limits.

Extraneous noise sources included birds, traffic in the distance and leaves rustling.

6.3 Discussion of Results - Location M3

Quarry noise emissions were inaudible during all three measurements conducted for the quarter ending June 2019, satisfying the morning shoulder, daytime and evening criteria.

Non-quarry noise sources included highway traffic, insects and birds.

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7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) for Holcim (Australia) Pty Ltd at the Jandra Quarry, Possum Brush, NSW. The assessment was completed to determine compliance with the relevant noise criteria during Quarter 2, period ending June 2019.

Attended noise monitoring was completed on Wednesday 29 May 2019 and Thursday 30 May 2019 at representative monitoring locations with quarry noise contributions compared against the relevant criteria. The assessment has identified that noise emissions generated by Jandra Quarry comply with relevant noise criteria specified in the Conditions of Consent at all assessed locations.

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Table A1 provides a number of technical terms have been used in this report.

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Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAmax	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : = 10.log10 (W/Wo) Where : W is the sound power in watts and Wo is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

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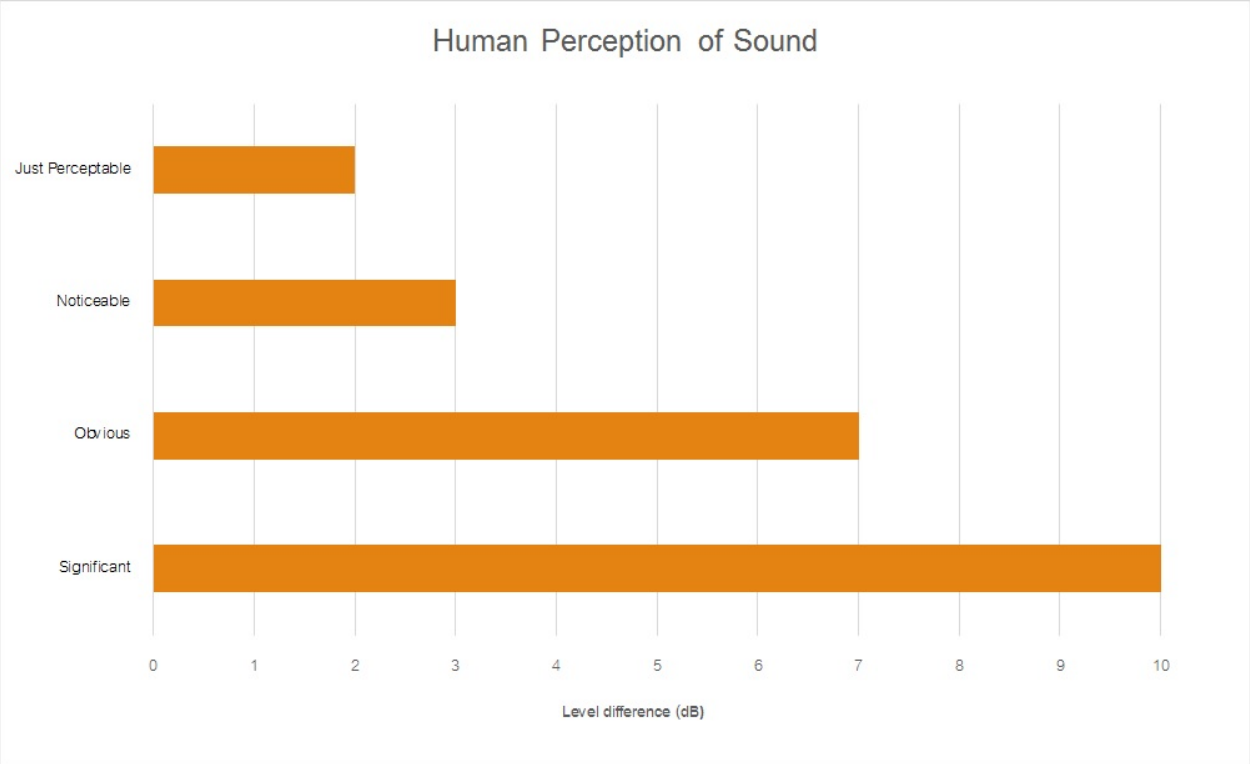
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW
Quarter 3 Ending September 2019.

Prepared for: Holcim (Australia) Pty Ltd
September 2019
MAC180611-04RP5

Muller Acoustic Consulting

Document Information

Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW

Quarter 3 Ending September 2019

Prepared for: Holcim (Australia) Pty Ltd

Prepared by: Muller Acoustic Consulting Pty Ltd
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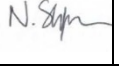
MAC180611-04RP5	Final	27 September 2019	Nicholas Shipman		Rod Linnett	

CONTENTS

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The monitoring has been conducted in accordance with the Jandra Noise and Blast Management Plan and in general accordance with Conditions L4.2 to L4.8 of the EPL2796 (EPL); at three representative monitoring locations. This assessment has been undertaken during Quarter 3 ending September 2019 and forms part of the annual noise monitoring program to address conditions of the EPL.

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- Environment Protection Licence (EPL), 2796;
- Jandra Quarry Conditions of Consent (CoC), 2015;
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A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

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2 Noise Criteria

Schedule 3, Section 1 of the Jandra Quarry Conditions of Consent, first approved on 30 March 2000 and modified on 13 March 2015, outlines the applicable noise criteria for residential receivers surrounding the quarry site. Schedule 3 presents noise criteria which are applicable for two different operational activities undertaken onsite, being when the site undertakes quarrying operations during the hours of 6am to 10pm and for 24 hour operations when quarrying operations and asphalt production occur simultaneously.

Furthermore, Section 5 of the Jandra Noise and Blast Management Plan (NBMP) outlines that noise criteria do not apply at R1, R3, R8, R9, R10. Section 5 of the NBMP states:

- *'Holcim has executed a negotiated agreement with the property owner of R1 which excludes this receptor from the approved noise criteria';*
- *'R3 is not included in the approved noise criteria as this receiver represented road noise and the EA concluded that road noise impacts as a consequence of the development were below guideline thresholds and didn't warrant further assessment'; and*
- *'Receivers R8, R9 & R10 are Holcim owned residences and the approved criteria only apply to privately owned land'.*

Table 1 presents the criteria for the receivers R1 – R10 where compliance is required for both quarry operation and combined quarry and asphalt production operations.

Table 1 Noise Criteria

Location	Quarry Operations	Quarry Operations and Asphalt Plant Production		
	6am – 10pm	6am – 10pm	10pm – 6am	10pm – 6am
	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	dB $LA_{eq(15min)}$	dB $LA_{1(1min)}$
R1[1]	46	48	46	51
R2	36	40	35	48
R3[1]	N/A	N/A	N/A	N/A
R4	36	40	39	51
R5	40	41	39	51
R6	36	40	35	48
R7	35	36	35	48
R8[1]	N/A	N/A	N/A	N/A
R9[1]	N/A	N/A	N/A	N/A
R10[1]	N/A	N/A	N/A	N/A

Note 1: Noise criteria are not applicable to these receivers as per Section 5 of the NBMP.

3 Methodology

3.1 Locality

The quarry is located at Possum Brush, NSW approximately 16km south of Taree, NSW. Receivers in the locality surrounding the quarry are primarily rural/residential. The Pacific Highway is situated to the west of the site, with highway traffic a dominant noise source at all assessed receivers. To the east, the quarry is bounded by rural properties with noise from Tuncurry Road dominating the acoustic environment. The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1.**

3.2 Noise Monitoring Locations

Three monitoring locations have been selected as part of the NMA and in accordance with the NBMP. Location M1 is located adjacent to R1 to the north of the quarry and is used as a reference location for the northern catchment and compliance with EPL limits at this location implies compliance at more distant receivers to the north. It is noted that this assessment location has a negotiated agreement with Holcim, hence noise criteria are not mandatory. Location M2 is representative of receivers R2, R6 and R7, to the east of the quarry. Location M3 is situated to the west of the quarry and is representative of receivers R4 and R5.

3.3 Assessment Methodology

Attended noise surveys were conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the EPL. The measurements were carried out using a Svantek Type 1, 971 noise analyser on Thursday 19 September 2019 and Friday 20 September 2019. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA.

Noise measurements were of 15 minutes in duration and where possible, throughout each survey the operator quantified the contribution of each significant noise source. One measurement was conducted at each of the monitoring locations during the daytime period. An additional round of noise measurements was completed during the morning shoulder period. Monitoring during the evening period was not conducted due to the quarry not being operational.

Extraneous noise sources were excluded from the analysis to determine the $LA_{eq(15min)}$ noise contribution for comparison against the relevant criteria. Where the quarry was inaudible, the contribution is estimated to be at least 10dB below the ambient noise level.

FIGURE 1

LOCALITY PLAN

REF: MAC180611-04

0 300m

KEY	
R7	RECEIVER / MONITORING LOCATION
	PROJECT SITE

MAC
Muller Acoustic Consulting

*Imagery Source : nearmap

4 Results

4.1 Assessment Results - Location M1

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M1 are presented in **Table 2**.

Table 2 Operator-Attended Noise Survey Results – Location M1

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
19/09/2019	16:39 (Day)	77	48	43	WD: E WS: 2m/s Rain: Nil	Highway Traffic 42-56 Wind in Trees <42 Birds 56-63 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
20/09/2019	06:30 (Morning shoulder)	69	51	45	WD: E WS: 0.2m/s Rain: Nil	Birds 36-69 Highway Traffic 36-49 Local Traffic 41-46 Holcim Crushing Plant <35 Holcim Reverse Alarm <35
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

4.2 Assessment Results - Location M2

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M2 for are presented in **Table 3**.

Table 3 Operator-Attended Noise Survey Results – Location M2

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
19/09/2019	17:11 (Day)	61	42	38	WD: E WS: 2.5m/s Rain: Nil	Highway Traffic 36-44 Wind in Trees <40 Birds 41-61 Aircraft 40-46 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
20/09/2019	05:58 (Morning shoulder)	65	42	36	WD: E WS: 0.1m/s Rain: Nil	Birds 41-65 Highway Traffic 36-41 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

4.3 Assessment Results - Location M3

The monitored noise level contributions and observed meteorological conditions for each assessment period at location M3 are presented in **Table 4**.

Table 4 Operator-Attended Noise Survey Results – Location M3

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
19/09/2019	16:19 (Day)	69	57	53	WD: ENE WS: 2m/s Rain: Nil	Wind in Trees <49 Birds <49 Highway Traffic 52-66 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
20/09/2019	06:57 (Morning shoulder)	71	57	50	WD: E WS: 0.1m/s Rain: Nil	Highway Traffic 49-71 Birds <49 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

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5 Noise Compliance Assessment

The compliance assessment for each residential receiver R2, R4, R5, R6 and R7 are presented in **Table 5** to **Table 6** for day and morning shoulder/night assessment periods.

Table 5 Daytime Noise Compliance Assessment

Receiver No. (Monitoring Locations)	Quarry Noise Contribution	Quarrying Noise Criteria	Compliant	Quarrying & Asphalt Production Criteria	Compliant
	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$		dB $L_{Aeq(15min)}$	
R2 (M2)	<35	36	✓	40	✓
R4 (M3)	<35	36	✓	40	✓
R5 (M3)	<35	40	✓	41	✓
R6 (M2)	<35	36	✓	40	✓
R7 (M2)	<35	35	✓	36	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 6 Morning Shoulder/Night Noise Compliance Assessment

Receiver No. (Monitoring Locations)	Quarry Noise Contribution	Quarrying & Asphalt Production Criteria	Compliant	Quarry Noise Contribution	Quarrying & Asphalt Production Criteria	Compliant
	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$		dB $L_{A1(1min)}$	dB $L_{A1(1min)}$	
R2 (M2)	<35	35	✓	<45	48	✓
R4 (M3)	<35	39	✓	<45	51	✓
R5 (M3)	<35	39	✓	<45	51	✓
R6 (M2)	<35	35	✓	<45	48	✓
R7 (M2)	<35	35	✓	<45	48	✓

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

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6 Discussion

6.1 Discussion of Results - Location M1

It is noted that M1 is a reference location only, and criteria is not applicable under the EPL for this receiver. Monitoring during the September 2019 quarter identified that quarry noise was audible during the morning shoulder period, however, was inaudible during the day periods. Evening measurements were not conducted as instructed by site, as site was not operational.

The monitored noise levels demonstrate compliance with the EPL at R1 and receivers situated to the north of this location.

Audible quarry sources measured during the morning shoulder period included crushing plant and reverse alarms. Extraneous sources audible during the attended surveys included birds, highway traffic and wind in trees.

6.2 Discussion of Results - Location M2

Quarry noise emissions were inaudible during both measurements conducted for the quarter ending September 2019, satisfying the daytime and morning shoulder EPL noise limits. Evening measurements were not conducted as instructed by site, as site was not operational.

Extraneous noise sources included aircraft noise, birds, traffic in the distance and wind in trees.

6.3 Discussion of Results - Location M3

Quarry noise emissions were inaudible during both measurements conducted for the quarter ending September 2019, satisfying the daytime and morning shoulder EPL noise limits. Evening measurements were not conducted as instructed by site, as site was not operational.

Extraneous noise sources included highway traffic, wind in trees and birds.

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7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) for Holcim (Australia) Pty Ltd at the Jandra Quarry, Possum Brush, NSW. The assessment was completed to determine compliance with the relevant noise criteria during Quarter 3, period ending September 2019.

Attended noise monitoring was completed on Thursday 19 September 2019 and Friday 20 September 2019 at representative monitoring locations with quarry noise contributions compared against the relevant criteria. The assessment has identified that noise emissions generated by Jandra Quarry comply with relevant noise criteria specified in the Conditions of Consent at all assessed locations.

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Appendix A - Glossary of Terms

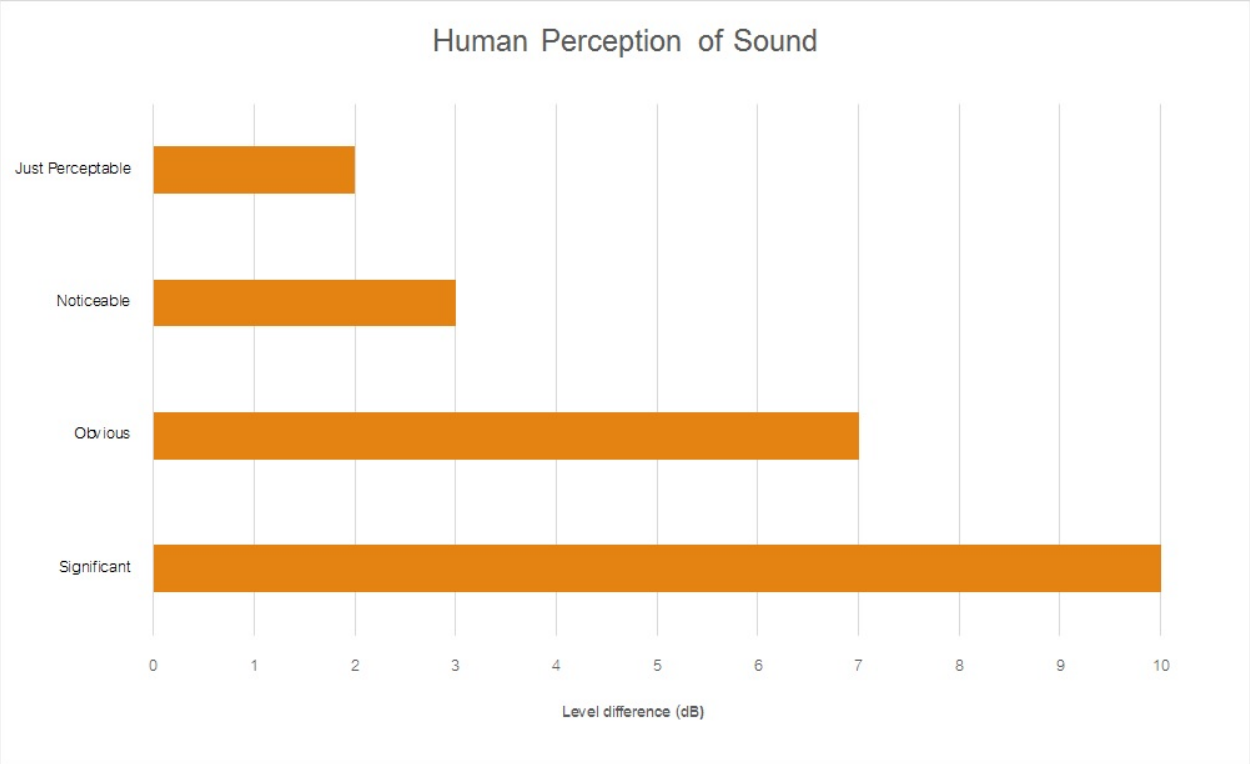
Table A1 provides a number of technical terms have been used in this report.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAmax	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : = 10.log10 (W/Wo) Where : W is the sound power in watts and Wo is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW
Quarter 4 Ending December 2019.

Prepared for: Holcim (Australia) Pty Ltd
January 2020
MAC180611-04RP6

Muller Acoustic Consulting

Document Information

Noise Monitoring Assessment

Jandra Quarry, Possum Brush, NSW

Quarter 4 Ending December 2019

Prepared for: Holcim (Australia) Pty Ltd

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MAC180611-04RP6	Final	10 January 2020	Rod Linnett		Oliver Muller	

CONTENTS

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by Holcim (Australia) Pty Ltd (Holcim) to complete a Noise Monitoring Assessment (NMA) for the quarterly period ending December 2019 for Jandra Quarry (the 'quarry'), Possum Brush, NSW.

Noise monitoring has been conducted in accordance with the Jandra Noise and Blast Management Plan and in accordance with additional clarifications and requirements specified by the EPA in the recent variation (6 November 2019) of the EPL2796 (EPL).

The following variations have been made to the licence:

- Amendment of condition M8.1 to clarify the requirement to undertake noise monitoring during quarrying operations and to update reference to the contemporary NSW Noise Policy for Industry;
- Amendment of condition M8.2 referencing the contemporary NSW Noise Policy for Industry; and
- Amendment to Condition R4.1 requires that noise monitoring reports contain details of all quarrying activities that were occurring during each of the monitoring periods.

Specifically, the amendment to M8.1 is reproduced below.

M8 Noise monitoring

M8.1 *To assess compliance with the noise limits of this licence, attend noise monitoring must be undertaken in accordance with the conditions of this licence and:*

a) *during a period of normal quarry operations;*

b) *at each one of the noise monitoring locations listed in the noise limits table of this licence;*

c) *occur quarterly in a reporting period, and*

d) *occur during the night period as defined in the NSW Industrial Noise Policy, and in conjunction with an asphalt campaign if any such campaign occurs within the quarterly monitoring period.*

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- Environment Protection Licence (EPL), 2796 and Variation 6 November 2019;
- Jandra Quarry Conditions of Consent (CoC), 2015;
- Jandra Quarry Noise and Blast Management Plan (NBMP), 2015; and
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures.

A glossary of terms, definitions and abbreviations used in this report is provided in Appendix A.

The operations log during the noise monitoring is provided in Appendix B.

A copy of the recent licence variation is provided in Appendix C.

2 Noise Criteria

Schedule 3, Section 1 of the Jandra Quarry Conditions of Consent, first approved on 30 March 2000 and modified on 13 March 2015, outlines the applicable noise criteria for residential receivers surrounding the quarry site. Schedule 3 presents noise criteria which are applicable for two different operational activities undertaken onsite, being when the site undertakes quarrying operations during the hours of 6am to 10pm and for 24 hour operations when quarrying operations and asphalt production occur simultaneously.

Furthermore, Section 5 of the Jandra Noise and Blast Management Plan (NBMP) outlines that noise criteria do not apply at R1, R3, R8, R9, R10. Section 5 of the NBMP states:

- *'Holcim has executed a negotiated agreement with the property owner of R1 which excludes this receptor from the approved noise criteria';*
- *'R3 is not included in the approved noise criteria as this receiver represented road noise and the EA concluded that road noise impacts as a consequence of the development were below guideline thresholds and didn't warrant further assessment'; and*
- *'Receivers R8, R9 & R10 are Holcim owned residences and the approved criteria only apply to privately owned land'.*

Table 1 presents the criteria for the receivers R1 – R10 where compliance is required for both quarry operation and combined quarry and asphalt production operations.

Table 1 Noise Criteria

Location	Quarry Operations	Quarry Operations and Asphalt Plant Production		
	6am – 10pm	6am – 10pm	10pm – 6am	10pm – 6am
	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{A1(1min)}$
EPA13 (R2)	36	40	35	48
EPA14 (R4)	36	40	39	51
EPA15 (R5)	40	41	39	51
EPA16 (R6)	36	40	35	48
EPA17 (R7)	35	36	35	48

Note 1: Noise criteria are not applicable to these receivers as per Section 5 of the NBMP.

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3 Methodology

3.1 Locality

The quarry is located at Possum Brush, NSW approximately 16km south of Taree, NSW. Receivers in the locality surrounding the quarry are primarily rural/residential. The Pacific Highway is situated to the west of the site, with highway traffic a dominant noise source at all assessed receivers. To the east, the quarry is bounded by rural properties with noise from Tuncurry Road dominating the acoustic environment. The monitoring locations with respect to the quarry and assessed receivers are presented in the locality plan shown in **Figure 1.**

3.2 Noise Monitoring Locations

Noise measurements were conducted at five monitoring locations specified in the EPL during Quarter 4 ending December 2019 and are presented in **Figure 1**.

3.3 Assessment Methodology

Attended noise surveys were conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the EPL. The measurements were carried out by two MAC consultants using Svantek Type 1, 971 noise analysers on Wednesday 27 November 2019. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA.

Noise measurements were of 15 minutes in duration and where possible, throughout each survey the operator quantified the contribution of each significant noise source. One measurement was conducted at each of the EPL monitoring locations during the morning shoulder and daytime periods. Monitoring during the evening period was not conducted due to the quarry not being operational.

Extraneous noise sources were excluded from the analysis to determine the $LA_{eq(15min)}$ noise contribution for comparison against the relevant criteria. Where the quarry was inaudible, the contribution is estimated to be at least 10dB below the ambient noise level.

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FIGURE 1

Jandra Quarry EPL Noise Monitoring
REF: MAC180611-04

4 Results

4.1 Assessment Results

The monitored noise level contributions and observed meteorological conditions for each assessment period at location are presented in **Table 2** to **Table 6**.

Table 2 Operator-Attended Noise Survey Results – Location EPA13

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
27/11/2019	07:29 (Day)	64	41	35	WD: SW WS: 1.5m/s Rain: Nil	Distant Traffic 34-37 Dog 37-38 Wind 37-40 Birds 58-64 Quarry Just Audible ~36
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
27/11/2019	06:00 (Morning shoulder)	55	38	34	WD: SW WS: 0.7m/s Rain: Nil	Distant Traffic 35-41 Dog 45-60 Birds 38-43 Quarry Just Audible ~36
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Morning Shoulder – the period from 6am to 7am Monday to Saturday or 6am to 8am on Sundays and public holidays, Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 3 Operator-Attended Noise Survey Results – Location EPA16

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
27/11/2019	07:44 (Day)	60	38	34	WD: SW WS: 1.5m/s Rain: Nil	Distant Traffic 36-39 Dog 37-39 Wind 36-38 Birds 58-58 Quarry Just Audible ~36
Jandra Quarry Contribution						35dB $L_{Aeq(15min)}$
27/11/2019	06:15 (Morning shoulder)	63	44	34	WD: SW WS: 0.7m/s Rain: Nil	Distant Traffic 35-38 Dog 45-61 Birds 38-53 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Morning Shoulder – the period from 6am to 7am Monday to Saturday or 6am to 8am on Sundays and public holidays, Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 4 Operator-Attended Noise Survey Results – Location EPA14

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
27/11/2019	07:23 (Day)	65	46	41	WD: SW WS: 1.5m/s Rain: Nil	Highway Traffic 37-51 Birds 41-47 Residential Noise 40-45 Aircraft 43-46 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
27/11/2019	06:03 (Morning shoulder)	60	47	41	WD: SW WS: 0.7m/s Rain: Nil	Highway Traffic 40-57 Birds 46-58 Chickens 43-46 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Morning Shoulder – the period from 6am to 7am Monday to Saturday or 6am to 8am on Sundays and public holidays, Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 5 Operator-Attended Noise Survey Results – Location EPA15

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
27/11/2019	07:38 (Day)	58	46	41	WD: SW WS: 1.5m/s Rain: Nil	Highway Traffic 39-53 Birds 42-45 Residential Noise 42-44 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
27/11/2019	06:18 (Morning shoulder)	62	45	41	WD: SW WS: 0.7m/s Rain: Nil	Highway Traffic 42-56 Birds 44-51 Chickens 45-48 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Morning Shoulder – the period from 6am to 7am Monday to Saturday or 6am to 8am on Sundays and public holidays, Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 6 Operator-Attended Noise Survey Results – Location EPA17						
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
		L_{Amax}	L_{Aeq}	L_{A90}		
27/11/2019	08:28 (Day)	63	38	34	WD: SSE WS: 1.5m/s Rain: Nil	Distant Traffic 37-40 Dog 40-46 Wind 36-40 Local Traffic 51-62 Birds 38-52 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$
27/11/2019	06:43 (Morning shoulder)	54	40	34	WD: SW WS: 0.7m/s Rain: Nil	Distant Traffic 34-37 Birds 37-51 Helicopter 40-44 Quarry Inaudible
Jandra Quarry Contribution						<35dB $L_{Aeq(15min)}$ <45dB $L_{A1(1min)}$

Note: Morning Shoulder – the period from 6am to 7am Monday to Saturday or 6am to 8am on Sundays and public holidays, Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

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5 Discussion

5.1 Discussion of Results - Location EPA13

Quarry noise emissions were just audible during the morning shoulder and daytime measurements conducted on Wednesday 27 November 2019. Quarry noise contributions were estimated to satisfy the morning shoulder and daytime noise limits. The quarry was not operational during the evening period and hence, no measurements were conducted for this period.

Non quarry noise sources observed during the measurements included distant traffic, wind in trees, birds and local residential noise.

5.2 Discussion of Results - Location EPA16

Quarry noise emissions were just audible during the daytime measurement and inaudible during the morning shoulder measurement conducted on Wednesday 27 November 2019. Quarry noise contributions were estimated to satisfy the morning shoulder and daytime noise limits. The quarry was not operational during the evening period and hence, no measurements were conducted for this period.

Non quarry noise sources observed during the measurements included distant traffic, wind in trees, birds and local residential noise.

5.3 Discussion of Results - Location EPA14

Quarry noise emissions were inaudible during the morning shoulder and daytime measurements conducted on Wednesday 27 November 2019. Quarry noise contributions were estimated to satisfy the morning shoulder and daytime noise limits. The quarry was not operational during the evening period and hence, no measurements were conducted for this period.

Non quarry noise sources observed during the measurements included highway traffic, wind in trees, birds, aircraft and local residential noise.

5.4 Discussion of Results - Location EPA15

Quarry noise emissions were inaudible during the morning shoulder and daytime measurements conducted on Wednesday 27 November 2019. Quarry noise contributions were estimated to satisfy the morning shoulder and daytime noise limits. The quarry was not operational during the evening period and hence, no measurements were conducted for this period.

Non quarry noise sources observed during the measurements included highway traffic, wind in trees, birds, aircraft and local residential noise.

5.5 Discussion of Results - Location EPA17

Quarry noise emissions were inaudible during the morning shoulder and daytime measurements conducted on Wednesday 27 November 2019. Quarry noise contributions were estimated to satisfy the morning shoulder and daytime noise limits. The quarry was not operational during the evening period and hence, no measurements were conducted for this period.

Non quarry noise sources observed during the measurements included distant traffic, wind in trees, birds, aircraft and local residential noise.

6 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) for Holcim (Australia) Pty Ltd at the Jandra Quarry, Possum Brush, NSW. The assessment was completed to determine compliance with the relevant noise criteria during Quarter 4, period ending December 2019.

Attended noise monitoring was completed on Wednesday 27 November 2019 at five nominated EPL monitoring locations with quarry noise contributions compared against the relevant criteria. The assessment has identified that noise emissions generated by Jandra Quarry comply with relevant noise criteria specified in the EPL at all assessed locations.

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Appendix A – Glossary of Terms

Table A1 provides a number of technical terms have been used in this report.

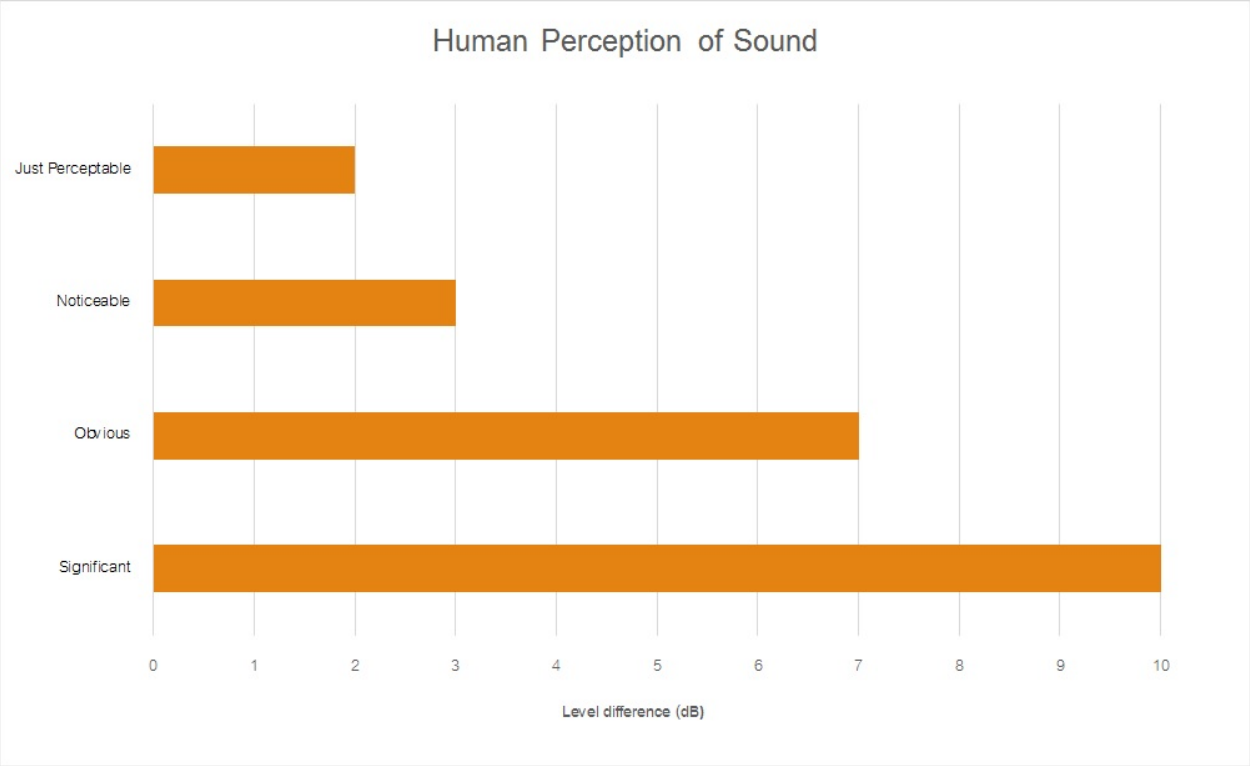
Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAmax	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : = 10.log10 (W/Wo) Where : W is the sound power in watts and Wo is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA

Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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Appendix B – Operations Log

Operations Log – Jandra Quarry Q4 December 2019

Date	Time (period ending)	Pit	Plant
27/11/19	7.00am	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	7.15	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	7.30	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	7.45	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	8.00	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	8.15	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	8.30	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	8.45	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	9.00	Load and haul – 1 excavator and 1 dump truck	Non operational-maintenance
27/11/19	9.15	Morning tea	Morning tea
27/11/19	9.30	Morning tea	Morning tea
27/11/19	9.45	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	10.00	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	10.15	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	10.30	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	10.45	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	11.00	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	11.15	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	11.30	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	11.45	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	12.00pm	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	12.15	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	12.30	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	12.45	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	1.00	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	1.15	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	1.30pm	Load and haul – 1 excavator and 1 dump truck	Non-operational-maintenance
27/11/19	1.45	Lunch break	Fixed plant started crushing rock
27/11/19	2.00	Lunch break	Fixed plant crushing rock
27/11/19	2.15	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	2.30	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	2.45	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	3.00	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	3.15	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	3.30	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	3.45	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	4.00	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	4.15	Load and haul – 1 excavator and 1 dump truck	Fixed plant crushing rock
27/11/19	4.30	Park up Machines and leave site	Shut plant down and leave site

Appendix C – EPL Variation

Section 58(5) Protection of the Environment Operations Act 1997

Licence Variation

Licence - 2796

HOLCIM (AUSTRALIA) PTY LTD
ABN 87 099 732 297 ACN 099 732 297
LOCKED BAG 5007
BAULKHAM HILLS NSW 1755

Attention: Ian Vernon & Matt Neil

Notice Number	1585343
File Number	EF13/3895
Date	06-Nov-2019

The Proper Officer

NOTICE OF VARIATION OF LICENCE NO. 2796

BACKGROUND

A. HOLCIM (AUSTRALIA) PTY LTD ("the licensee") is the holder of Environment Protection Licence No. 2796 ("the licence") issued under the *Protection of the Environment Operations Act 1997* ("the POEO Act"). The licence authorises the carrying out of activities at PACIFIC HIGHWAY, POSSUM BRUSH, NSW, 2430 ("the premises").

B. On 3 September 2019, the Environment Protection Authority ("the EPA") conducted a compliance inspection of the premises. During the compliance inspection, the EPA discussed relevant noise conditions with the licensee including the location and timing of noise monitoring.

C. Condition L4.2 states "noise from the premises during quarrying operations only must not exceed the limits specified in the following table". Noise monitoring at a time when the quarry is operating is required to determine compliance with the noise limits specified at condition L4.2.

D. Condition M8.1 of the licence outlines the requirements for noise compliance monitoring and includes the requirement to undertake attended noise monitoring that "c) occur during the night period as defined in the NSW Industrial Noise Policy, and in conjunction with an asphalt campaign if any such campaign occurs within the quarterly monitoring period".

E. During the discussions with the EPA, the licensee's representative advised that the premises does not operate after 4:30pm, however noise compliance monitoring by the licensee's consultant has occurred at times when the quarry is not operating. The licensee's representative also advised that the quarry has not had an asphalt plant for some time, however development consent allows for such a plant.

F. The EPA has made an amendment to condition M8.1 to clarify the requirement to monitor during quarrying operations and update reference to contemporary noise policy. Condition M8.2 has also been amended to reference the contemporary noise policy.

Licence Variation

G. The NSW Industrial Noise Policy has been superseded by the NSW Noise Policy for Industry. Definition of the "night" period remains unchanged between the two policy documents.

H. The EPA has made an amendment to condition R4.1 to require in reports of noise monitoring that details be provided of all quarrying activities that were occurring during each of the periods of monitoring.

I. This Notice does not authorise a significant increase in the environmental impact of the activities authorised or controlled by the licence.

J. This variation has been undertaken with consideration of section 45 of the POEO Act.

VARIATION OF LICENCE NO. 2796

1. By this Notice the EPA varies the licence. The attached licence document contains all variations that are made to the licence by this notice.
2. The following variations have been made to the licence:
   - Amendment of condition M8.1 to clarify the requirement to undertake noise monitoring during quarrying operations and to update reference to the contemporary NSW Noise Policy for Industry.
   - Amendment of condition M8.2 to reference the contemporary NSW Noise Policy for Industry.
   - Amendment to Condition R4.1 to require in reports of noise monitoring that details be provided of all quarrying activities that were occurring during each of the periods of monitoring.

.....

MATTHEW CORRADIN

A/Unit Head Hunter North

Environment Protection Authority

(by Delegation)

INFORMATION ABOUT THIS NOTICE

- This Notice is issued under Section 58(5) of the POEO Act.
- Details provided in this Notice, along with an updated version of the licence, will be available on the EPA's Public Register (http://www.epa.nsw.gov.au/prpoeo/index.htm) in accordance with section 308 of the POEO Act.

Licence Variation

Appeals against this decision

- You can appeal to the Land and Environment Court against this decision. The deadline for lodging the appeal is 21 days after you were given notice of this decision.

When this notice begins to operate

- The variations to the licence specified in this Notice begin to operate immediately from the date of this Notice, unless another date is specified in this Notice.
- If an appeal is made against this decision to vary the licence and the Land and Environment Court directs that the decision is stayed the decision does not operate until the stay ceases to have effect or the Land and Environment Court confirms the decision or the appeal is withdrawn (whichever occurs first).

Licence Variation

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Environment Protection Licence

Licence - 2796

Licence Details	
Number:	2796
Anniversary Date:	01-May

Licensee

HOLCIM (AUSTRALIA) PTY LTD

LOCKED BAG 5007

BAULKHAM HILLS NSW 1755

Premises

JANDRA QUARRY

PACIFIC HIGHWAY

POSSUM BRUSH NSW 2430

Scheduled Activity

Crushing, grinding or separating

Extractive activities

Resource recovery

Waste storage

Fee Based Activity	Scale
Crushing, grinding or separating	> 100000-500000 T annual processing capacity
Extractive activities	> 100000-500000 T annual capacity to extract or process
Recovery of general waste	Any general waste recovered
Waste storage - other types of waste	Any other types of waste stored

Region

North - Hunter

Ground Floor, NSW Govt Offices, 117 Bull Street
NEWCASTLE WEST NSW 2302

Phone: (02) 4908 6800

Fax: (02) 4908 6810

PO Box 488G

NEWCASTLE NSW 2300

Environment Protection Licence

Licence - 2796

Environment Protection Licence

Licence - 2796

Environment Protection Licence

Licence - 2796

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

Licence - 2796

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

HOLCIM (AUSTRALIA) PTY LTD
LOCKED BAG 5007
BAULKHAM HILLS NSW 1755

subject to the conditions which follow.

Environment Protection Licence

Licence - 2796

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Crushing, grinding or separating	Crushing, grinding or separating	> 100000 - 500000 T annual processing capacity
Extractive activities	Extractive activities	> 100000 - 500000 T annual capacity to extract or process
Resource recovery	Recovery of general waste	Any general waste recovered
Waste storage	Waste storage - other types of waste	Any other types of waste stored

Note: The condition titled "Waste" under the Limit Conditions of this licence restricts what types of waste may be received at the Premises.

A1.2 Notwithstanding the fee scales noted above, the licensee must not:
(a) extract more than 490,000 tonnes of quarry products from the premises per calendar year; and
(b) transport more than 475,000 tonnes of quarry products from the premises per calendar year
Note: This condition has been added to be consistent with development consent DA231-10-99 MOD 5.

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
JANDRA QUARRY
PACIFIC HIGHWAY
POSSUM BRUSH
NSW 2430
LOT 2 DP 255621, LOT 11 DP 790056, LOT 12 DP 790056, LOT 13 DP 790056, LOT 14 DP 790056, LOT 15 DP 790056

Environment Protection Licence

Licence - 2796

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
11	Ambient PM10 monitoring		Receiver location R1 identified on map titled "Jandra Environmental Monitoring Locations" within the Holcim Environmental Management Strategy - Jandra Quarry. See EPA document DOC16/387391, EF13/3895.
18	Dust deposition monitoring		Dust monitoring point on the northern site boundary identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Air Quality Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391.
19	Dust deposition monitoring		Dust monitoring point on southern site boundary identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Air Quality Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391.
20	Dust deposition monitoring		Dust monitoring point on the eastern site boundary identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Air Quality Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391.

Environment Protection Licence

Licence - 2796

21	Dust deposition monitoring	Dust monitoring point on the western site boundary identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Air Quality Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391.

P1.2 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.3 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge quality monitoring	Discharge quality monitoring	Discharge from final sediment dam as shown in the CSR Readymix Site Photo - Jandra Quarry Water Monitoring Location Figure 1 provided to the EPA 13 May 2002

P1.4 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.

Noise/Weather

EPA identification no.	Type of monitoring point	Location description
2	Air blast overpressure & ground vibration peak particle velocity monitoring	Receiver location R4 in accordance with development consent 231-10-99 MOD 5 and identified on "Figure 1 Surrounding land use, residence and environmental monitoring locations" within the Holcim Noise and Blast Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.
3	Air blast overpressure & ground vibration peak particle velocity monitoring	Receiver location R2 in accordance with development consent 231-10-99 MOD 5 and identified on "Figure 1 Surrounding land use, residence and environmental monitoring locations" within the Holcim Noise and Blast Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.

Environment Protection Licence

Licence - 2796

4	Meteorological Station – to determine meteorological conditions for noise monitoring	Meteorological station adjacent to the "Main Dam" and identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Air Quality Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.
13	Noise monitoring	Monitoring location R2 in accordance with development consent 231-10-99 MOD 5 and identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Noise and Blast Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.
14	Noise monitoring	Monitoring location R4 in accordance with development consent 231-10-99 MOD 5 and identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Noise and Blast Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.
15	Noise monitoring	Monitoring location R5 in accordance with development consent 231-10-99 MOD 5 and identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Noise and Blast Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.
16	Noise monitoring	Monitoring location R6 in accordance with development consent 231-10-99 MOD 5 and identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Noise and Blast Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.
17	Noise monitoring	Monitoring location R7 in accordance with development consent 231-10-99 MOD 5 and identified on "Figure 1 Surrounding land use, residences and environmental monitoring locations" within the Holcim Noise and Blast Management Plan, Jandra Quarry 31/08/2015. See EPA document DOC16/387391, EF13/3895.

3 Limit Conditions

Environment Protection Licence

Licence - 2796

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Concentration limits

L2.1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.

L2.4 Water and/or Land Concentration Limits

POINT 1

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
pH	pH				6.5-8.5
Total suspended solids	milligrams per litre				50

L3 Waste

L3.1 The licensee must not cause, permit or allow any waste to be received at the premises, except concrete "wash-out" waste from concrete batch plants. All other wastes are not permitted on the premises, except as expressly permitted by this licence.

L3.2 The licensee must not:

- Process more than 3000 tonnes of concrete "wash-out" per annum;
- Store more than 1000 tonnes of concrete "wash-out" on the premises at any one time.

L3.3 Concrete 'wash-out' must be stockpiled on site in bunded areas and can be processed and blended with

quarry raw product to produce quarry product(s).

L4 Noise limits

L4.1 Noise generated at the premises must not exceed the noise limits in the tables below. The locations referred to in the tables below are indicated in the document titled: "Jandra Quarry Intensification of Production Environmental Assessment (DA 231-10-99 MOD 5)" Dated July 2014

L4.2 Noise from the premises during quarrying operations only must not exceed the limits specified in the following table:

EPA identification no.	Limit dB(A) LAeq(15 min) Shoulder, Day & Evening
15	40
13, 14, 16	36
17	35

L4.3 Noise from the premises during operations including asphalt plant must not exceed the limits specified in the following table:

EPA identification no.	Limit dB(A) LAeq(15 min) Shoulder, Day & Evening	Limit dB(A) LAeq(15 minute) Night	Limit dB(A) LA1(1 minute) Night
15	41	39	51
14	40	39	51
13,16	40	35	48
17	36	35	48

Note:

1. *Condition 10 of Schedule 2 of development consent DA 213 -10-99 MOD 5 prohibits quarrying operations during the hours of 10 pm-6 am;*

2. *Receiver locations are shown on the figure in Appendix 2 of development consent DA 213-10-99 a copy of which has been filed as EPA document DOC15/85830;*

3. *Noise limits are in accordance with development consent DA 231-10-99 MOD 5;*

4. *A negotiated agreement is in place for Residence R1 as referred to in development consent DA 231-10-99 MOD 5 & any noise issues from this premises will be addressed by the Department of Planning and Environment.*

L4.4 For the purpose of the conditions above:

- Shoulder, Day and Evening is defined as the period from 6am - 10pm

- Night is defined as the period from 10pm - 6am

L4.5 The noise limits set out in the above tables apply under all meteorological conditions except the following:

a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
c) Stability category G temperature inversion conditions.

L4.6 For the purpose of the conditions above:
a) Data recorded by the meteorological station identified in this licence must be used to determine meteorological conditions; and
b) Temperature inversion conditions (stability category) when determined by the sigma-theta method must be determined in accordance with Part E3 of the NSW Industrial Noise Policy. Temperature inversion conditions (determined by vertical temperature gradient in degrees C) are to be determined by direct measurement over a minimum 50m height interval as referred to in Part E2 to the NSW Industrial Noise Policy

L4.7 To determine compliance:
a) with Leq (15 minute) noise limits in this licence, the noise measurement equipment must be located:

- approximately on the property boundary, where any dwelling is situated 30 metres of less from the property boundary closest to the premises; or
- within 30 metres of a dwelling façade, but not close than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closets to the premises; or
- where applicable within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

b) With the LA1 (1 minute) noise limits in this licence, the noise measurement equipment must be located within 1 metre of a dwelling façade.

c) with the noise limits in this licence, the noise measurement equipment must be located:

- at the most affected point at a location where there is no dwelling at the location; or
- at the most affected point within an area at a location prescribed by this licence.

L4.8 A non-compliance of the noise limit conditions will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by this licence; and/or
- at a point other than the most affected point at a location

Environment Protection Licence

Licence - 2796

L5 Blasting

L5.1 Blasting in or on the premises must only be carried out between 9am and 5pm, Monday to Friday and 9am and 3pm, Saturday. Blasting in or on the premises must not take place on Sundays or Public Holidays without the prior approval of the EPA.

L5.2 The airblast overpressure level from blasting operations in or on the premises must not exceed:
115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period;
at either monitoring point 2 or 3 of this licence.

L5.3 The airblast overpressure level from blasting operations in or on the premises must not exceed:
120 dB (Lin Peak) at any time;
at either monitoring point 2 or 3 of this licence.

L5.4 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed:
5 mm/second for more than 5% of the total number of blasts during each reporting period;
at either monitoring point 2 or 3 of this licence.

L5.5 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed:
10 mm/second at any time;
at either monitoring point 2 or 3 of this licence.

L5.6 Error margins associated with any monitoring equipment used to measure blasts must not be taken into account when determining whether or not the limit has been exceeded.

L5.7 Offensive blast fume must not be emitted from the premises.

Definition:

Offensive blast fume means post-blast gases from the detonation of explosives at the premises that by reason of their nature, duration, character or quality, or the time at which they are emitted, or any other circumstances:

1. *are harmful to (or likely to be harmful to) a person that is outside the premises from which it is emitted, or*
2. *interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.*

L6 Hours of operation

L6.1 In accordance with development consent DA 231-10-99 MOD 5, hours of operation for the premises are specified in the table below:

Day	Extraction and processing operations	Transportation operations	Asphalt Plant & associated transport (campaigns)
Monday - Friday	6am to 10pm	6am to 10pm	24 hours a day
Saturday	6am to 6pm	6am to 10 pm	24 hours a day
Sunday and Public Holidays	None	None	24 hours a day

L6.2 In accordance with development consent DA 231-10-99 MOD 5, the following activities may be conducted at the premises outside the hours specified in the table above:
(a) return of trucks to the premises prior to midnight Monday to Saturday;
(b) delivery or dispatch of materials as requested by Police, Fire Brigade or other similar authorities;
(c) emergency work to avoid the loss of lives, property and/or prevent environmental harm; and
(d) maintenance activities provided it is inaudible at residential premises.
In circumstances outlines in (b) and (c), the Licensee shall notify affected residents prior to undertaking the activities, or as soon as practical thereafter

L7 Potentially offensive odour

L7.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O4 Emergency response

Note: The licensee must maintain, and implement as necessary, a current Pollution Incident Response Management Plan (PIRMP) for the premises. The PIRMP must be developed in accordance with the requirements in Part 5.7A of the POEO Act and Regulations.

The licensee must keep the PIRMP on the premises at all times. The PIRMP must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with the activities that occur at the premises and which are likely to cause harm to the environment. The PIRMP must be tested at least annually or following a pollution incident.

O5 Processes and management

O5.1 The licensee must take all reasonable measures to prevent the tracking of mud and debris onto the Pacific Highway including, but not limited to, ensuring all vehicles leaving the premises pass through the vehicular wheel wash.

O6 Waste management

O6.1 The licensee must comply with the conditions as specified in this licence or where no specific conditions outlined in this licence, this licensee must comply with the *Protection of the Environment Operations (Waste) Regulation 2014*.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

Environment Protection Licence

Licence - 2796

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 11

Pollutant	Units of measure	Frequency	Sampling Method
PM10	micrograms per cubic metre	Every 6 days	AM-18

POINT 18,19,20,21

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

M2.3 Water and/ or Land Monitoring Requirements

POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
pH	pH	Each overflow event	Grab sample
Total suspended solids	milligrams per litre	2 times daily during discharge	Grab sample
Turbidity	nephelometric turbidity units	2 times daily during discharge	Grab sample

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
c) if no such requirement is imposed by or under the Act or by a condition of this licence, any

methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M4 Weather monitoring

M4.1 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.

POINT 4

Parameter	Sampling method	Units of measure	Averaging period	Frequency
Temperature at 10 metres	AM-4	degrees Celsius	1 hour	Continuous
Wind Direction at 10 metres	AM-2 & AM-4	Degrees	15 minutes	Continuous
Wind Speed	AM-2 & AM-4	metres per second	15 minutes	Continuous
Sigma Theta	AM-2 & AM-4	Degrees	15 minutes	Continuous
Rainfall	AM-4	millimetres	15 minutes	Continuous
Relative humidity	AM-4	percent	1 hour	Continuous

M4.2 Rainfall at the premises must be measured and recorded in millimetres per 24 hour period, at the same time each day.

Note: The rainfall monitoring data collected in compliance with the above condition will assist in interpreting the effectiveness of stormwater management at the quarry.

M5 Recording of pollution complaints

M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M5.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

M7 Blasting

M7.1 To determine compliance with the blasting limits of this licence:
a) Airblast overpressure and ground vibration levels must be measured and electronically recorded for monitoring points 2 and 3 for the parameters specified in Column 1 of the table below; and
b) The licensee must use the units of measure, sampling method, and sample at the frequency specified opposite in the other columns.

Parameters	Units of Measure	Frequency	Sampling Method
Airbalst Overpressure	Decibels (Linear Peak)	All blasts	Australian Standard AS 2187.2-2006
Ground Vibration Peak Particle Velocity	millimetres/second	All blasts	Australian Standard AS 2187.2-2006

M8 Noise monitoring

M8.1 To assess compliance with the noise limits of this licence, attend noise monitoring must be undertaken in accordance with the conditions of this licence and:
a) during a period of normal quarry operations;

b) at each one of the noise monitoring locations listed in the noise limits table of this licence;
c) occur quarterly in the reporting period; and
d) occur during the night period as defined in the NSW Noise Policy for Industry, and in conjunction with an asphalt campaign if any such campaign occurs within the quarterly monitoring period.

Note: The extent and frequency of noise monitoring required by this licence will be reviewed upon request after eight quarterly monitoring campaigns.

M8.2 Noise monitoring must be carried out in accordance with Australian Standard AS 2659.1 - 1998: Guide to the use of sound measuring equipment - Portable sound level metres and in accordance with any relevant factors provided in the NSW Noise Policy for Industry.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is

given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R2 Notification of environmental harm

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;

e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Other reporting conditions

R4.1 **Noise Compliance Assessment Report**
A noise compliance assessment report(s) must be submitted to the EPA with each Annual Return. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include:
a) an assessment of compliance with noise limits detailed in the limit conditions of this licence;
b) details of all quarrying activities that were occurring during each of the periods of monitoring, and
c) an outline of any management actions taken within the monitoring period to address any exceedences of the limits detailed in the limit conditions of this licence.

R4.2 **Blast Monitoring Report**
The licensee must supply, with each Annual Return, a Blast Monitoring Report which must include the following information relating to each blast carried out within the premises during the reporting period covered by the Annual Return:
a) the date and time of the blast;
b) the location of the blast on the premises;
c) the blast monitoring results at each blast monitoring station; and
d) an explanation for any missing blast monitoring results.

R4.3 The licensee must report any exceedence of the licence blasting limits to the regional office of the EPA as soon as practicable after the exceedence becomes known to the licensee or to one of the licensee's employees or agents.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Other general conditions

Environment Protection Licence

Licence - 2796

G2.1 Completed Programs

Program	Description	Completed Date
PRP 1: Installation and Use of a Wheel Wash at the Premises	Contruction and Utilisation of a vehicular wheel wash for all vehicles exiting the premises.	28-October-2011

Environment Protection Licence

Licence - 2796

Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 2796

flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

Environment Protection Licence

Licence - 2796

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr Nigel Sargent

Environment Protection Authority

(By Delegation)

Date of this edition: 10-March-2000

Environment Protection Licence

Licence - 2796

End Notes

1	Licence varied by notice 1006152, issued on 21-Feb-2002, which came into effect on 18-Mar-2002.
2	Licence varied by notice 1016675, issued on 20-Jun-2002, which came into effect on 15-Jul-2002.
3	Licence transferred through application 141653, approved on 19-Dec-2002, which came into effect on 01-Oct-2002.
4	Licence varied by notice 1042128, issued on 14-Jan-2005, which came into effect on 08-Feb-2005.
5	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
6	Licence varied by notice 1106247, issued on 08-Sep-2009, which came into effect on 08-Sep-2009.
7	Licence varied by notice 1503538 issued on 04-Jan-2012
8	Licence varied by notice 1507470 issued on 26-Sep-2012
9	Licence varied by notice 1535107 issued on 17-Oct-2016
10	Licence varied by notice 1577456 issued on 12-Jun-2019
11	Licence format updated on 18-Jul-2019

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APPENDIX 3
IEA ACTION PLAN

Summary of DA 231-10-99 Non - Compliances

Condition	Reason for Non - Compliance	Risk Rating	Person Responsible	Mitigation Measures	Time frame
Condition 2 of Schedule 3	Holcim has demonstrated a high degree of compliance against the conditions of this development consent, as described below. Holcim was generally carrying out operations in accordance with previous approvals, the EA (Modification 5) and the Conditions of Consent, however a number of non-compliances (12 of which were administrative in nature) were identified in the audit as detailed below. These non-compliances were considered minor in nature as described in this table. Furthermore, the identified non-compliances were not considered to be ongoing and have not reoccurred. This is with the exception of a number of Administrative Non-Compliances (now identified as non-compliant) which have not been resolved since the 2016 iEA, resulting in a finding of non-compliance for the 2019 IEA. At the time of the audit, production had not increased to the production capacity approved by Modification 5.	Low	Site and P&E team	The audit findings from 2016 IEA are merged with 2019 Non - Compliance audit report. This will be completed by April 2020 and will be reflected in AEMR.	April 2020
Condition 3 of Schedule 2	During the preparation of the 2016 IEA, DPIE indicated they would like the EMS to be resubmitted following the completion of the 2016 IEA. Documentation was not available during the audit to verify if this was completed. Therefore a Non-Compliance (low risk) has been given in relation to this, and an updated recommendation provided below. It is noted this non-compliance is administrative in nature. Recommendation 01: Following completion of this IEA, ensure the EMS is reviewed and updated, as relevant, and resubmitted to the Secretary for comment and approval.	Low	Site and P&E team	Cannot find evidence of submission. This will be explored early in 2020 and submitted by April 2020.	April 2020

Condition 5 of Schedule 3	Review of monitoring data for the 2016 Annual Review indicates nine (9) blasts were undertaken during the reporting period, with the blast overpressure on 22/03/2016 exceeding 115 dB. This constitutes approximately 11% of blasts during the 2016 reporting period and is therefore a non-compliance with this condition. This non-compliance was reported in the 2016 Annual Review. A finding of non-compliance (low risk) has been assigned based on the following considerations: — As only nine (9) blast were completed during the 12 month period, any blast that exceeded the criteria automatically resulted in an exceedance in 5% of total number of blasts. Review of the subsequent blasts indicates that no further exceedances of the 115 dB(Lin Peak) occurred during the reporting period after the event on 22/03/2016. — No exceedance of the 120 dB(Lin Peak) air blast overpressure criteria has occurred — No complaints have been received in relation to blasting during the reporting period from private or public stakeholders to indicate disturbance or damage to persons or property. As review of monitoring for the 2017 and 2018 Annual Reviews indicate no further exceedances have occurred, no recommendation has been made in relation to this non-compliance, as it is not an ongoing issue.	Low	Site and P&E team	Back in 2017 the site changed its blast design in conjunction with the Blasting contractor Maxam and drilling contractor Fullbore. The site slowed down the blast with timing detonators as it progressed to the rear of the design. The result of this was less impact from the MIC reading. (Maximum instantaneous charge) or multiple holes firing at the same time increasing the possibility of an overpressure spike during monitoring. Since the implementation of the redesign the site has seen a significant reduction in the Blast overpressure readings.	Action Closed
Condition 7 of Schedule 3	Review of the 2017 Annual Review indicates a number of non-compliances with the requirements of this condition:		Site	Back in 2017 the site changed its blast design in conjunction	Action Closed

	• Three (3) blasts completed during June on 6/06, 21/06, and 27/06 • Three (3) blasts completed during July on 10/07, 24/07, and 31/07 A finding of non-compliance (low risk) has been assigned based on the following considerations: — No complaints have been received in relation to blasting during the reporting period from private or public stakeholders to indicate disturbance or damage to persons or property. — Review of the 2018 Annual Review has found the issue has not reoccurred. — No exceedance of the relevant air blast overpressure criteria has occurred during the relevant period. As no further instances have occurred since the 2017 reporting period, it is considered a recommendation is not required.			with the Blasting contractor Maxam and drilling contractor Fullbore. The site slowed down the blast with timing detonators as it progressed to the rear of the design. The result of this was less impact from the MIC reading. (Maximum instantaneous charge) or multiple holes firing at the same time increasing the possibility of an overpressure spike during monitoring. Since the implementation of the redesign the site has seen a significant reduction in the Blast overpressure readings. AEMR reflected these changes in 2017. Review of the 2018 AR has found the issue has not	

				reoccurred.	
Condition 10 of Schedule 3	The 2016 IEA found a non-compliance due to particulate matter monitoring not being undertaken in accordance with the requirements of this condition. Holcim have not complied with this condition during the period covered by this audit, as particulate matter monitoring did not commence until May 2017. Furthermore two events of non-compliance occurred during the audit period, with the PM10 unit not taking measurements on 16 and 22 September 2019 As with the 2016 IEA, the risk level associated with this non-compliance is considered low for the following reasons: — There is only one private sensitive receiver located within close proximity to the quarry operations. — All other PM10 monitoring indicates no exceedance of relevant criteria. — Depositional dust monitoring is undertaken and is within the assessment criteria. — Review of complaints data indicates no complaints have been received. No recommendation has been made in relation to this non-compliance as Holcim reported this non-compliance to DPIE in the 2017 Annual Review, which was the subject of a 'Show Cause' Notice, and particulate matter monitoring is now being undertaken on-site. Furthermore, this was also reported to the EPA. Consultation with the EPA during the completion of this audit did not identify any concerns in relation to air quality impacts from the site. However, review of the 2018 Annual Review indicates a Penalty Notice and Official caution were issued on 9 August 2018, with the letter stating: On 2 July 2018, Holcim (Australia) Pty Ltd submitted an Annual Return (AR) for the reporting period 1 May 2017 to 30 April 2018. Condition M2 requires monitoring of PM10 at Point 11 (Receiver R1) every 6 days. The AR reported a non-compliance with condition M2.2 for failing to monitor PM10 at Point 11 on 14 separate occasions between 1 May 2017 and 9 November 2017. The AR noted the reason for the non-compliance was "missed the 6-day deadline for paper change out." This represents a failure to do the required monitoring for 23 % of the time, caused by poor internal systems. In the 2016-2017 AR period Holcim (Australia) Pty Ltd also failed to monitor PM10 as per condition M2 over a 6.5-month period. On 24 May 2018 the EPA issued Holcim (Australia) Pty Ltd an Official Caution for this non-compliance. No recommendation has been made in relation to this non-compliance as this was reported in the 2018 Annual Review and subject to an existing Penalty Notice and Official caution with the EPA, with actions implemented	Low	Site	Recommendations already submitted to the EPA with recent warning letters.	Action Closed

Condition 12 of Schedule 3	As with the 2016 IEA, air quality monitoring data was initially limited to depositional dust monitoring; with particulate matter monitoring not commencing until May 2017. Furthermore, two events of non-compliance occurred during the audit period, with the PM10 unit not taking measurements on 16 and 22 September 2019. Therefore, a non-compliance (low risk) with this condition has been found for the reasons stated in Condition 10. No recommendation has been made in relation to this non-compliance as Holcim reported this non-compliance to DPIE in the 2017 Annual Review and particulate matter monitoring is now being undertaken on-site, with no exceedance of the relevant criteria identified during the audit.			Recommendations already submitted to the EPA with recent warning letters.	Action Closed
Condition 18 of Schedule 3	During the site visit, adverse rain conditions resulted in the generation of surface water runoff on-site. Dirty water was observed to be draining along the Site Access Road (along the western base of the Main Dam), past the LDP and without being captured to allow sediment to settle and water quality testing to be completed prior to re-use or discharge via the LDP. Based on review of mapped watercourses, this water is likely leaving site in the northern extent of the Project area via a culvert under the Pacific Highway, approximately 250 metres from the LDP. Therefore, a non-compliance has been identified. A low risk has been assigned for the following reasons: — While this water is not captured, the site visit identified the vast majority of on-site water is being captured within the approved storage areas. Furthermore, the distance of approximately 250 metres through dense bushland likely allows the velocity of water to reduce and assist in the settlement of suspended sediment. — The EPA is aware of the issue and have requested Holcim construct a dish drain and sump to transfer this water to the wheel wash where it would subsequently be pumped to the Main Dam. — Consultation with the EPA during completion of this audit did not indicate concerns in relation potential non-compliance with the requirements of Part 5.7 and Section 120 of the POEO Act as a relevant concern. — The Main Dam has sufficient capacity to allow this water to be captured within the approved	Low	Site	The site has submitted a design to the EPA in relation to an approved kerb and gutter storm water runoff catchment system. This was scheduled for completion in Early November. With the impact of the bushfires through site this had to be pushed back to December with construction starting on the 9.12.2019 and scheduled for	Update May 2020

	water management system (WMS), noting discharged via the LDP has not been required for the Project. Recommendation 04: Ensure the dish drain and sump are constructed in consultation with, and in accordance with the requirements of, the EPA and DPIE. Recommendation 05: Ensure the SWMP is updated as relevant, in consultation with the EPA and DPIE.			completion on the 11.12.2019. SWMP to be updated by P&E team once construction is completed and this will be added to the new plan.	
Condition 19 of Schedule 3	This condition was generally considered during the completion of the 2016 IEA. The controls specified in the SWMP were observed to be implemented and effective, based on site observations and review of relevant monitoring records. Consultation with DoI Lands & Water and MidCoast Council during completion of this audit did not identify any issues with the SWMP. However, based on the findings of Condition 18 of Schedule 3, updates to the SWMP may be required following completion of construction of the dish drain and sump along the Main Access Road (at the western base of the Main Dam) (see Condition 18 of Schedule 3 for discussion in Table 4. Review of available documentation indicates that recommendations from the 2016 IEA relating to the SWMP have not been actioned. Therefore, non-compliance has been found and these recommendations remain relevant (refer to Recommendations 06 & 07). Relevant findings of non-compliance relate to: — The SWMP does not include requirements relating to incident reporting associated with exceedances of monitoring criteria — The SWMP does not include requirements, or a plan, in relation to the investigation and reporting of exceedance of performance criteria. Recommendation 06: Update the SWMP to include details of documentation referred to in Table 8 of the SWMP, or include Attachment 4.1H as an Appendix to the SWMP. Recommendation 07: Update the SWMP to include requirements for the investigation and reporting of exceedances of water quality performance criteria in accordance with Condition 6 of Schedule 5 of DA 213-10-99.	Low	P&E team	The SWMP will be updated to reflect the findings of the non-compliances identified.	June 2020
Condition 27 of Schedule 3	During the conduct of the audit no documentation or other verification was sighted to indicate that this condition has been met, with payment of the Rehabilitation and Conservation Bond required in August 2019 (i.e. within 12 months of the approval of the BRMP). Therefore a Non-Compliance (low risk) has been given in relation to this, and an updated recommendation provided below. It is noted this non-compliance is administrative in nature. Recommendation 09: Ensure Rehabilitation and Conservation Bond is lodged with DPIE as	Low	Site and P&E team	Internal meeting scheduled for early 2020. The department will be informed in writing about an update.	April 2020

	soon as practicable following submission of the 2019 IEA Report.				
Condition 29 of Schedule 3	Review of the ACHMP indicates that recommendations from the 2016 IEA have not been adopted, with the 2016 IEA observing that 'detail of monitoring of all new surface disturbances in Section 7.0 of the ACHMP is only in relation to known archaeological sites and does not mention monitoring for unidentified Aboriginal objects.' Therefore, the associated recommendation is still applicable to the 2019 IEA. Recommendation 10: Update the ACHMP to include monitoring of all new surface disturbances on site and include an unexpected finds procedure for unidentified Aboriginal objects and submit to DP&E for approval. Review of the ACHMP indicates no revisions have been made to the ACHMP since the 2016 IEA, with the lack of comment from Forster LALC and Purfleet-Taree LALC not addressed during this time. Documentation was not available to verify if Holcim have tried to close this out. While this is not considered a contributing factor to the finding of non-compliance, it is recommended Holcim liaise with Forster LALC and Purfleet-Taree LALC to close out the ACHMP. Recommendation 11: Holcim should ensure follow-up correspondence is provided to Forster LALC and Purfleet-Taree LALC to close out Section 4.1 of the ACHMP and for any updates to the ACHMP as a result of this audit. Any comments received should be incorporated into the ACHMP and the revised ACHMP provided to the Secretary of DPIE for review and approval.	Low	P&E	P&E team will be working on the associated recommendations outlined in 10 and 11.	Ongoing 2020
Condition 33 of Schedule 3	To track extraction and production Jandra Quarry utilises the SAP database, Holcim's national database for tracking production and stock, maintenance and inventory. Production is tracked on a monthly (as part of business review) and annual basis. Transportation of material is managed through a system called Command that connect to SAP, providing a report at the end of each day detailing the total number of truck movements. The daily quarry runsheet was sighted during the site visit, detailing the locations of where deliveries are being made. The latest date recorded was 16 September 2019. Truck movement data for 2016 and 2017 is available on the Holcim Jandra Quarry website. However, data for 2018 and Quarters 1 and 2 of 2019 are not available in accordance with Condition 33(c). Recommendation 12: Ensure truck movement data is published on the Holcim website at the end of each calendar quarter in accordance with Condition 33(c).	Low	Site	Site management will give access to the Jandra sales google sheet to the Holcim NSW P&E team. This has a daily/monthly annualised total for truck movements. All Quarterly and annualised production volumes can be tracked through SAP for website uploading.	Feb 2020

				This will be uploaded in February 2020.	
Condition 34 of Schedule 3	During the conduct of the audit there was no documentation available to verify compliance with the Australian Standard, or the satisfaction of the Secretary of DPIE in relation to on-site lighting. However, it is noted that none of the agencies consulted during the preparation of the 2019 IEA identified lighting and visual impacts as a relevant concern. This is supported by no complaints being received in relation to lighting or visual impacts. Therefore, a finding of administrative non-compliance has been made. Recommendation 13: Ensure relevant details are provided to DPIE related to on-site lighting, including at the site intersection with the Pacific Hig	Low	Site	Email sent through to RMS Hunter development department. Waiting on a response from that department. Once received the response close out or actions will be submitted to the DPIE.	April 2020
Condition 1 of Schedule 5	Of the monitoring data recorded there was one exceedance of the relevant blasting criteria (see Condition 5 of Schedule 3); however, this exceedance was based on more than 5% of blasts exceeding the criteria detailed in Condition 5 of Schedule 3. Documentation was not available during the audit to verify if a notification was provided to the relevant residence. Recommendation 14: Ensure any exceedance of Project Approval criteria are notified in writing to the affected landowner/s.	Low	NA	Currently no tenants in the Holcim owned property.	NA
Condition 2 of Schedule 5	Review of available documentation indicates that all monitoring is being undertaken on-site generally in accordance with the requirements of this consent. Relevant exceedances of criteria have been discussed against respective conditions Review of relevant documentation (i.e. Annual Reviews) indicates all exceedances have been self-reported, with relevant actions undertaken to address the identified exceedance. However, a finding of non-compliance (low risk) has been made in relation to a lack of PM10 monitoring until mid-2017 (as discussed in Condition 10 of Schedule 3). No recommendation has been made in relation to this non-compliance as this was report in the 2018 Annual Review and subject to an existing Penalty Notice and Official caution with the EPA, with actions implemented to address these issues in consultation with the EPA and DPIE.	Low	P&E	Correspondence has already taken place between both Holcim and the EPA/Department around corrective action to prevent a further non-compliance to this condition.	NA
Condition 3 of Schedule 5	Review of the management plans associated with the operation of the Jandra Quarry (i.e. the BRMP, ACHMP, AQMP, NBMP and SWMP) indicate general compliance with the	Low	P&E	A site management plans are currently	June 2020

	requirements of this condition; however, review of the SWMP and ACHMP indicate recommendations from the 2016 IEA have not been addressed, with these recommendations relating to: • ACHMP – While Section 7.0 includes measures in the event of an unexpected Aboriginal cultural heritage item being found, it does not identify measures to be undertaken in the event of unpredicted impact on known Aboriginal cultural heritage items • ACHMP – Does not include reference to protocol for managing incidents, complaints and non-compliances. It is noted Section 9.1 discusses Continuous Improvement, but does not address measures to be undertaken in the event of unforeseen impacts on known and/or unknown Aboriginal cultural heritage. • SWMP – Does not include reference to protocol for managing incidents, complaints, non-compliances and exceedances. It is noted Section 10.1 discusses Continuous Improvement, but does not address measures to be undertaken in the event of unforeseen impacts. Therefore, non-compliance has been made in relation to these findings and recommendations from the 2016 IEA still apply (as detailed below). Recommendation 15: Update the SWMP and ACHMP to include a procedure for addressing non-compliances. Refer to Recommendation 10 against Schedule 3, Condition 29.			being updated and will be submitted to the department once complete.	
Condition 5 of Schedule 5	As discussed in Conditions 19 and 29 of Schedule 3, a number of recommendations from the 2016 IEA have not been addressed, while as discussed in Condition 4 of Schedule 2, the EMS was not revised and resubmitted to DPIE following completion of the 2016 IEA (as requested by DPIE during the conduct of the 2016 IEA). Recommendation 16: Ensure relevant management plans and the EMS are updated and submitted to DPIE for comment, addressing the recommendations of this audit and any subsequent comments made by DPIE as a result of review of the 2019 IEA report.	Low	P&E	A site management plans are currently being updated and will be submitted to the department once complete.	June 2020
Condition 8 of Schedule 5	This audit represents the first audit since the 2016 IEA, with the 2016 audit team approved by DPIE on 30 March 2016. It is noted that commissioning for this audit did not occur until late June 2019, which is more than three (3) years since the 2016 audit. Recommendation 17: Ensure the 2022 IEA is commissioned prior to 31 March 2022.	Low	P&E	New team was established. Now on compliance planner. Submission is due on the 17.12.2019	17th Dec 2019
Condition 10 of Schedule 5	Holcim has maintained the following information on its website: • Documents listed in condition 2 of Schedule 2 including the Environmental Assessment • Current statutory approvals for the development (EPL and Modification) • Annual review 2015 • Truck movement data • Monitoring data The following information was not available on its web-site:	Low	P&E	2018 Annual Review is queued up for publishing.	Completed.

	• The 2018 Annual Review • The most current versions of DPIE approved environmental management plans No complaints have been made to date thus a complaints register is not provided on the website. Recommendation 18: Ensure the most up-to-date versions of DPIE approved management plans and the 2018 Annual Reviews are uploaded to the Holcim website.				
Condition P 1.1	Refer to discussion for Condition 10 of Schedule 3 of DA 231-10-99	Low		Same as above	
Condition P 1.3	Refer to discussion for Condition 18 of Schedule 3 of DA 231-10-99	Low		Same as above	
Condition L 4.6	Review of quarterly noise monitoring indicates that 'prevailing meteorological conditions for the monitoring period were sourced from Taree airport's meteorological station'. With the installation of the meteorological station on-site, use of the Taree airport's meteorological station should be reconsidered in consultation with DPIE and the EPA. The risk level associated with this non-compliance is considered low for the following reasons: — There is one sensitive receiver located within close proximity to the quarry operations and the receiver has signed a noise agreement relating to the quarry operations. — Holcim advised that there have been no noise complaints associated with the operations. — Holcim has received no noise complaints to date. Recommendation 19: Ensure meteorological conditions used in noise monitoring are determined based on data recorded by the on-site meteorological station	Low	P&E	New contract established with Ramboll. The weather station data download and report is included in the scope for contract.	Feb 2020
Condition L 5.2	Refer to discussion for Condition 5 of Schedule 3 of DA 231-10-99	Low		Same as above	
Condition M2.2	Refer to discussion for Condition 10 of Schedule 3	Low		Same as above	
Summary of EPL 2796 Administrative Non - Compliances					
Condition R 1.6	An Annual Return for 2018 was sighted and identified as having been submitted by the due date; however, Annual Returns for 2016 and 2017 have not been sighted for the audit and were unavailable for review. Therefore a Non-Compliance (low risk) has been given in relation to this, and a recommendation provided below. It is noted this non-compliance is administrative in nature. Recommendation 20: Ensure Annual Returns are retained for a period of at least four years after submission to the EPA.	Low	Site and P&E	Completed	NA
Condition R4.1	Annual Returns are held centrally by the environment team for NSW. Anniversary date 1 May to 30 April An Annual Return for 2018 was sighted; however, Annual Returns for 2016 and 2017 have not been sighted for the audit. Review of the 2018 Annual Return indicated a Noise Compliance Assessment Report and Blast Monitoring Report were not submitted with the 2018 Annual Return. Therefore a Non-Compliance (low	Low	P&E	Completed	NA

	risk) has been given in relation to this and a recommendation provided below. It is noted this non-compliance is administrative in nature. Recommendation 21: Ensure Annual Returns submitted to EPA include a noise compliance assessment report and a blast monitoring report in accordance with Condition R4.1 and R4.2 of the EPL.				
Condition R4.2	See discussion for Condition R4.1	Low			