

Annual Environmental Monitoring Report

Blakebrook Quarry: January 2022 to December 2022



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Executive Summary

Blakebrook Quarry is a basalt quarry located off Nimbin Road, approximately six kilometres north-west of Lismore. The Quarry is operated by Northern Rivers Quarry, which is a commercial entity operated by Lismore City Council. The Quarry is identified as a state significant development and provides a range of quarry products to northern NSW. Materials provided include aggregates, drainage rock, road base, basalt, metal dust, fill material and select fill (overburden).

Pursuant to the conditions of approval, the Department of Planning and Environment requires an annual review of the environmental performance of the Quarry. This Annual Environmental Monitoring Report (AEMR) has been prepared to comply with this requirement. The reporting period for this AEMR is 1 January 2022 to 31 December 2022.

In this AEMR, each condition of approval is reproduced in full and followed by a compliance statement addressing the findings.

Overall, this AEMR has found a high level of compliance with the conditions of approval.

Seven non-compliances were identified:

- Asphalt production: The Quarry transported 50,063 tonnes of asphalt in the monitoring period. This exceeds the permitted mass of 50,000 tonnes per calendar year.
- Blasting hours: On the morning of Friday 23 December 2022, blasting was conducted at 9:10 am. This blasting event was not compliant with the permissible blasting hours of 10am to 3pm.
- Ground vibration: On 26 September 2022, at monitoring location 8, ground vibration peak particle velocity was measured at 7.71 mm/s. This exceeds the ground vibration limit of 5 mm/s.
- Sediment basin testing prior to discharge: On 9 May 2022, water was discharged from the sediment basin via the use of a gravity hose. No measurement of water quality within the sediment basin was undertaken prior to discharge.
- Off-site surface water monitoring prior to discharge: On 9 May 2022, water was discharged from the sediment basin via the use of a gravity hose. No measurement of water quality within the off-site receiving surface waters was undertaken prior to or during discharge.
- Elevated levels of lead in groundwater: Sampling from two groundwater bores indicated exceedances of interim trigger levels for lead in in 50% of monitoring rounds.
- Property inspections: A property investigation report was not delivered to a complainant within the required 3-month timeframe.

Each non-compliance was appropriately reported and investigated. It is recommended that:

- A concrete footing be installed at blast monitoring location 8 to enable more accurate measurements of blasting parameters.
- Any reasonable remediation measures be implemented, following the investigation into the sources of lead within the groundwater.



1. Introduction

1.1 Background

Blakebrook Quarry (the Quarry) is a basalt quarry located at 550 Nimbin Road, Blakebrook, approximately 7 kilometres north-west of Lismore. The location of the Quarry is depicted within **Illustration 1.1**.

The Quarry is operated by Northern Rivers Quarry, which is a commercial entity within Lismore City Council (LCC). The Quarry is identified as state significant development and provides a range of quarry products to northern NSW. Materials provided include aggregates, drainage rock, road base, basalt, metal dust, fill material and select fill (overburden).

The Quarry initially started operations in 1979 with development consent formally granted by Lismore City Council in 1995. Approval was granted for the expansion of the Quarry in November 2009 via a new Project Approval (MP 07_0020) under Part 3A (since repealed) of the Environmental Planning and Assessment Act 1979, and subsequently modified (Mod 1) in September 2017. In May 2021, approval was issued for Modification 3 to the consent. The Approval (as modified) is provided at **Appendix A**.

Pursuant to the conditions of approval, the Department of Planning and Environment (DPE) requires an annual review of the environmental performance of the Quarry. This Annual Environmental Monitoring Report (AEMR) has been prepared to comply with this requirement.

1.1.1 Objectives and Scope

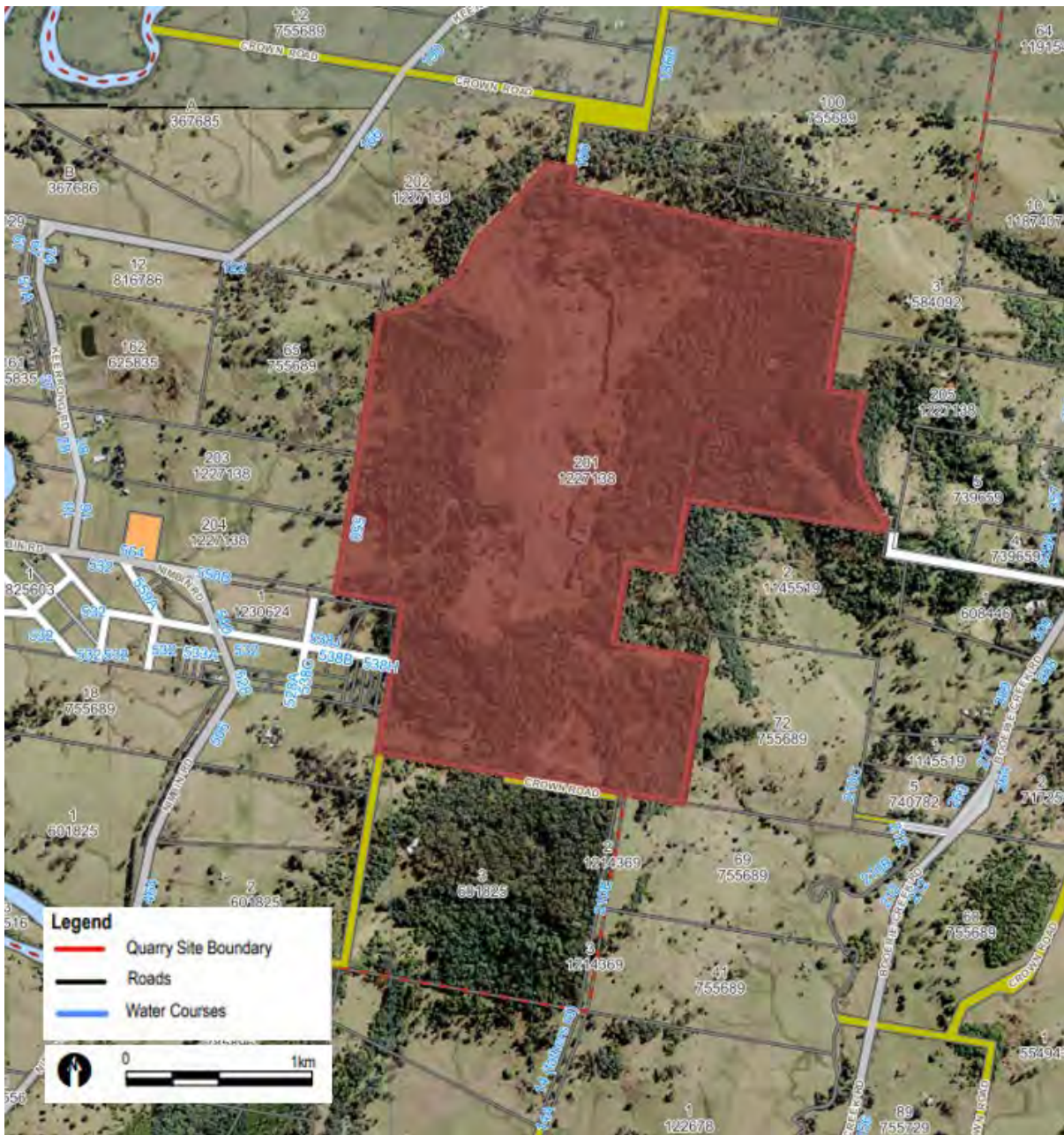
This AEMR is prepared in response to Schedule 5 Condition 11 of the Blakebrook Quarry Approval No. 07_0020 (Mod 3) (the Approval). As per Schedule 1 of the Approval, this AEMR will review the environmental performance of the Quarry within the extraction areas (Lot 53 DP1254990), asphalt plant (Lot 54 DP1254990), and access road (Lot 53 DP1254990).

1.1.2 Reporting Period

The reporting period for this AEMR is 1 January 2022 to 31 December 2022.



Illustration 1.1 Site Location



Source: ERM 2018

1.2 Relevant Approvals

Section 75J Approval (Modification 3) to Project Approval 07_0020 was approved in May 2021. A copy of the Notice of Modification is provided at **Appendix A**. The approval was issued by the Minister for Planning and expires on 31 December 2039.

The Quarry is also subject to Environmental Protection Licence (EPL) 3384 which is issued by the NSW Environment Protection Authority (EPA) pursuant to the Protection of the Environment Operations Act 1997. The licence provides details with respect to a range of environmental thresholds to be complied with during the operation of the Quarry. The EPL is reviewed annually, and a copy of the current licence is provided at **Appendix B**.



1.3 DPE's Response to 2021 AEMR

The 2021 AEMR was submitted to the DPE on 30 June 2022. On 28 July 2022, the DPE advised that the 2021 AEMR had been reviewed. A copy of this response is provided within **Appendix C**. The DPE commented that the 2021 AEMR was lacking in detail with regard to several conditions of approval, however exercised its discretion and did not request a revision. A summary of recommendations provided by the DPE is detailed within **Table 1.1**.

Table 1.1 Summary of the DPE's Response to 2021 AEMR

DPE Comment	Response
<u>Schedule 2, Condition 14</u> Please ensure that all future reports include an 'Operational Summary' section in the report that clearly identifies what production occurred at the project by calendar year. Preferably including a table that shows production for the current and previous calendar years.	Noted. Refer to Section 2.3.15
<u>Schedule 3, Condition 28</u> It would be a valuable improvement to have a section in the report named 'Vegetation Management' (or similar) providing important information from any Bush Regeneration Reports.	Noted. Refer to Section 2.4.30 .
<u>Schedule 5, Condition 11</u> Future Annual Reviews will be required to demonstrate a more comprehensive review of the project to satisfy Schedule 5, Condition 11 adequately, namely (e), (f) and (g)	Noted. Refer to Sections 2.4.4; 2.4.7; 2.4.11; and 2.4.20



2. Statement of Compliance

2.1 Introduction

This section provides a comprehensive compliance assessment relating to each condition of consent applicable to MP07_0020. Each condition is reproduced in full and followed by a compliance statement addressing the findings of this AEMR.

2.2 Schedule 1 – Description of Approval

Schedule 1 describes the development, approval dates and delegations. No compliance statement is required.

2.3 Schedule 2 – Administrative Conditions

2.3.1 Schedule 2 – Condition 1 (Obligation to Minimise Harm to the Environment)

Condition

In addition to meeting the specific performance measures and criteria established under this approval, the Proponent must implement all reasonable and feasible measures to prevent or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

Compliance Statement

Noted.

2.3.2 Schedule 2 – Condition 2 (Terms of Approval)

Condition

The Proponent must carry out the project:

- (a) generally in accordance with the EA and EA (Mod 1) and MR (Mod 3); and*
- (b) in accordance with the conditions of this approval, Project Layout Plan and the Statement of Commitments.*

Compliance Statement

Noted.

2.3.3 Schedule 2 – Condition 3 (Terms of Approval)

Condition

If there is any inconsistency between the documents in condition 2(a), the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.



Compliance Statement

Noted.

2.3.4 Schedule 2 – Condition 4 (Terms of Approval)

Condition

The Proponent must comply with any written requirement/s of the Secretary arising from the Department's assessment of:

- (a) *any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this approval (including any stages of these documents);*
- (b) *any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with this approval;*
- (c) *and the implementation of any actions or measures contained in these documents.*

Compliance Statement

Section 1.3 provides a summary of comments arising from a review of the 2021 AEMR and outlines the how these comments were addressed by LCC in the reporting period.

2.3.5 Schedule 2 – Condition 5 (Terms of Approval)

Condition

By 30 June 2010, the Proponent shall surrender development consent DA 95/239 to the relevant consent authority to the satisfaction of the Secretary.

Compliance Statement

Completed prior to reporting period.

2.3.6 Schedule 2 – Condition 5A (Terms of Approval)

Condition

Within 12 months of the date of commencement of development under this consent, or other timeframe agreed by the Secretary, the Proponent must surrender development consent DA90/341 to the satisfaction of the Secretary, in accordance with the EP&A Regulation.

Compliance Statement

Formal surrender of DA90/341 was submitted on July 20 2022, and confirmation was received on December 23 2022. A copy of this confirmation is provided in **Appendix D**.

2.3.7 Schedule 2 – Condition 6 (Limits on Approval)

Condition

The Proponent may carry out quarrying operations and Asphalt plant operations on the site until 31 December 2039.



Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional requirements and undertakings to the satisfaction of the Secretary. Consequently, this approval will continue to apply in all respects other than the right to conduct quarrying operations until the rehabilitation of the site and those requirements and undertakings have been carried out to the standard required by the applicable conditions.

Compliance Statement

Noted. The requirement for rehabilitation is not applicable to the current stage of development.

2.3.8 Schedule 2 – Condition 7 (Limits on Approval)

Condition

The Proponent must not undertake quarrying operations below 55 m AHD in the northern pit or 105 m AHD in the southern pit.

Note: Drainage sumps may be constructed below this level with the agreement of the Secretary.

Compliance Statement

Noted. LCC advises that quarry operations did not extend below the nominated levels in 2022.

2.3.9 Schedule 2 – Condition 8 (Limits on Approval)

Condition

The Proponent must not:

- (a) *transport more than 600,000 tonnes of quarry materials from the site per calendar year; or*
- (b) *transport more than 50,000 tonnes of asphalt from the site per calendar year;*
- (c) *dispatch more than 120 laden trucks from the site on any calendar day prior to the completion of intersection upgrade required by Condition 21(f) of Schedule 3 to the satisfaction of TfNSW; and*
- (d) *dispatch more than 150 laden trucks from the site on any calendar day following completion of the intersection upgrade required by Condition 21(f) of Schedule 3 to the satisfaction of TfNSW.*

Note: Dispatch of laden trucks is also controlled under condition 1 of Schedule 3.

Compliance Statement

- (a) Sale production tonnages have been provided in the Extractive Materials Return for the 2021/2022 financial year at **Appendix E** and in the Quarry Production Summary for the 2022 calendar year at **Appendix F**. The total annual quantities reported are 185,339.15 tonnes and 178,420.54 tonnes respectively. Both quantities are lower than the 600,000 tonnes per calendar year permitted by Schedule 2 Condition 8.
- (b) Asphalt tonnages are provided in the Asphalt Production Report at **Appendix G**. 50,063.21 tonnes of asphalt was transported from the site in the monitoring period. This exceeds the permitted mass of 50,000 tonnes as stated in Schedule 2 Condition 8 by 63.21 tonnes. LCC advises that this non-compliance was self-reported on February 27 2023 (refer to **Appendix H**).



(c) **Appendix I** contains a schedule of daily laden truck movements from the Quarry. Yellow cells in the schedule represent weekly totals. A summary of the laden truck movements is provided in **Table 2.1**. Less than 120 trucks were dispatched per day throughout the monitoring period.

Table 2.1 2022 Laden Truck Movements

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Highest number of trucks/ day	86	81	112	119	110	118	119	115	107	114	118	107
Average number of trucks/ day	18	27	34	39	50	62	51	63	49	41	49	28
Total number of trucks/ month	556	760	1054	1179	1564	1848	1587	1946	1472	1260	1463	877

2.3.10 Schedule 2 – Condition 9 (Structural Adequacy)

Condition

The Proponent must ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:

- *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for any proposed building works;*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

Compliance Statement

Noted. LCC advises that no structures were constructed or altered during the monitoring period.

2.3.11 Schedule 2 – Condition 10 (Demolition)

Condition

The Proponent must ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.

Compliance Statement

Noted. LCC advises that demolition of an 18,000 litre diesel tank was completed on 30 June 2022. Demolition was carried out in accordance with AS 2601:2001 & the Australian Dangerous Goods Code.

2.3.12 Schedule 2 – Condition 11 (Protection of Public Infrastructure)

Condition



Protection of Public Infrastructure

Unless the Proponent and the applicable authority agree otherwise the Proponent must:

- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and*
- (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.*

Note: This condition does not apply to damage to roads caused as a result of general road usage or otherwise addressed by contributions required by condition 13 of Schedule 2.

Compliance Statement

Noted. LCC advises that there was no damage to public infrastructure as a result of the operation.

2.3.13 Schedule 2 – Condition 12 (Operation of Plant and Equipment)

Condition

The Proponent must ensure that all the plant and equipment used at the site, or to monitor the performance of the project is:

- (a) maintained in a proper and efficient condition; and*
- (b) operated in a proper and efficient manner.*

Compliance Statement

Maintenance of the Quarry fleet is undertaken by LCC contracted fleet suppliers, who must have adequate operation, maintenance, and safety procedures in place. Environmental monitoring is generally completed by contractors. A condition of engagement requires that a regular maintenance program is completed for all monitoring equipment.

2.3.14 Schedule 2 – Condition 13 (Section 94 Contributions)

Condition

The Proponent must pay Council an annual financial contribution toward the maintenance of local roads used for haulage of quarry products. The contribution must be determined in accordance with the Lismore City Council Section 94 Contribution Plan, 2004, or any subsequent relevant contributions plan adopted by Council.

Compliance Statement

Section 94 contributions are paid to Lismore City Council monthly. **Appendix J** provides a report of the monthly payments made during the reporting period.

2.3.15 Schedule 2 – Condition 14 (Production Data)

Condition

The Proponent must:



- (a) from the commencement of quarrying operations provide calendar year annual quarry production data to MEG using the standard form for that purpose; and
- (b) include a copy of this data in the Annual Review.

Compliance Statement

Annual quarry production data for the 2021/2022 financial year was provided to Mining, Exploration and Geoscience within the Department of Regional NSW using standard Form S1 on 31 October 2022. A copy of the Extractive Materials Return is provided at **Appendix E**. While this provides some indication of quarry production data throughout the 2021/2022 financial year, Schedule 2 Condition 14 requires that annual quarry production data must be provided for the calendar year. Due to the nature and volume of the material being extracted, standard Form S1 is required for submission for every financial year. Noting this, **Table 2.2** presents annual quarry production by both calendar year and financial year for the current and previous three reporting periods, as recorded by Quarry Production Summaries and Extractive Minerals Returns. Quarry Production Summary for the 2022 calendar year is presented at **Appendix F**.

Operational Summary

Table 2.2 Annual Quarry Production Data Q2 2018 - Q4 2022

	2018	2019	2020	2021	2022
Calendar Year (tonnes)	201,999.6	121,983.32	52,711.05	149,999	178,420.54
Financial Year (tonnes)	182,766	126,096.49	174,977.13	185,339.15	

2.3.16 Schedule 2 – Condition 15 (Compliance)

Condition

The Proponent must ensure that all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.

Compliance Statement

LCC advises that the induction process for employees, contractors, subcontractors and visitors includes, among other environmental performance related matters, the identification of relevant Conditions of Approval as they apply to specific work elements.

2.3.17 Schedule 2 – Condition 16 (Identification of Boundaries)

Condition

The Proponent must ensure that the boundaries of the approved limits of extraction are clearly marked at all times in a permanent manner that allows operating staff and inspecting officers to clearly identify those limits.

Compliance Statement

LCC advises that boundaries are marked physically with large white pegs and digitally using GIS mapping.



2.4 Schedule 3 – Specific Environmental Conditions

2.4.1 Schedule 3 – Condition 1 (Hours of Operation)

Condition

The Proponent must comply with the operating hours set out in Table 1.

Table 1: Operating hours

Activity	Permissible Hours
Quarrying operations, Asphalt plant operations and loading and dispatch of laden trucks	7 am to 6 pm Monday to Friday
	7 am to 3 pm Saturday
	At no time on Sundays or public holidays
Blasting	10 am to 3 pm Monday to Friday (except public holidays)
	At no time on Sundays or public holidays
Maintenance	May be conducted at any time, provided that these activities are not audible at any privately-owned residence

Compliance Statement

The following observations are made with respect to hours of operation of the Quarry:

- (a) The Quarry opening hours are advertised on the LCC website as follows:
- 7am - 4pm Monday to Thursday
 - 7am - 3.30pm Friday

The opening hours are compliant with the permissible operating hours for the premises.

- (b) Blasting occurred on five days during the reporting period. Four of the five blasting events were compliant with the permissible blasting hours for the premises.

On the morning of Friday 23 December 2022, blasting was conducted at 9:10 am. This blasting event was not compliant with the permissible blasting hours. LCC advises that this non-compliance was self-reported to the DPE on 23 December 2022 (refer to **Appendix K**). This incident of non-compliance has resulted in the issuing of an official caution to LCC from the DPE.

LCC advised that maintenance was not known to be audible at any privately-owned residence during the monitoring period.

2.4.2 Schedule 3 – Condition 2 (Hours of Operation)

Condition

The following activities may be carried out outside the hours specified in condition 1 above:

- (a) *delivery or dispatch of materials as requested by Police or other public authorities; and*
- (b) *emergency work to avoid the loss of lives, property or to prevent environmental harm.*



In such circumstances, the Proponent must notify the Secretary and affected residents prior to undertaking the activities, or as soon as is practical thereafter.

Compliance Statement

LCC advises that the dispatch of asphalt was requested by various public authorities at several times throughout the monitoring period, and at all times complied with the conditions of the existing Out of Hours Work Protocol (OHWP) (refer to **Section 2.4.3**).

2.4.3 Schedule 3 – Condition 2A (Hours of Operation)

Condition

With the prior written agreement of the Secretary, the Proponent may undertake limited campaign asphalt plant operations (within the limits imposed under condition 8 of Schedule 2) outside of the operating hours prescribed in condition 1 of this Schedule, as requested by public authorities.

In such circumstances, the applicant must prepare an Out of Work Hours Work Protocol. This protocol must:

- (a) *be prepared in consultation with the EPA and any residents who may be affected by the noise generated by these works; and*
- (b) *be approved by the Secretary prior to the commencement of any out of hours Asphalt plant operations.*

Compliance Statement

- (a) An Out of Hours Work Protocol (OHWP) was prepared in February 2021 by Ardill Payne & Partners in consultation with the EPA and nearby residents.
- (b) Initial approval was given in writing by the Planning Secretary on 15 February 2022 to allow Blakebrook Quarry to operate its asphalt plant and dispatch laden trucks outside of the operating hours in Schedule 3 Condition 1 under an OHWP, pending approval of a Noise and Blast Management Plan (NBMP). The updated NBMP was approved by the Planning Secretary on 20 October 2022.

The hours of operation covered by the OHWP are 6pm – 7 am Monday to Sunday. This is anticipated to occur approximately five nights per month.

2.4.4 Schedule 3 – Condition 3 (Noise)

Condition

The Proponent must ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 2: Noise criteria dB(A)

Receiver	Day <i>L_{Aeq} (15 minute)</i>
Location 2 and Location 7	36
All other locations	35



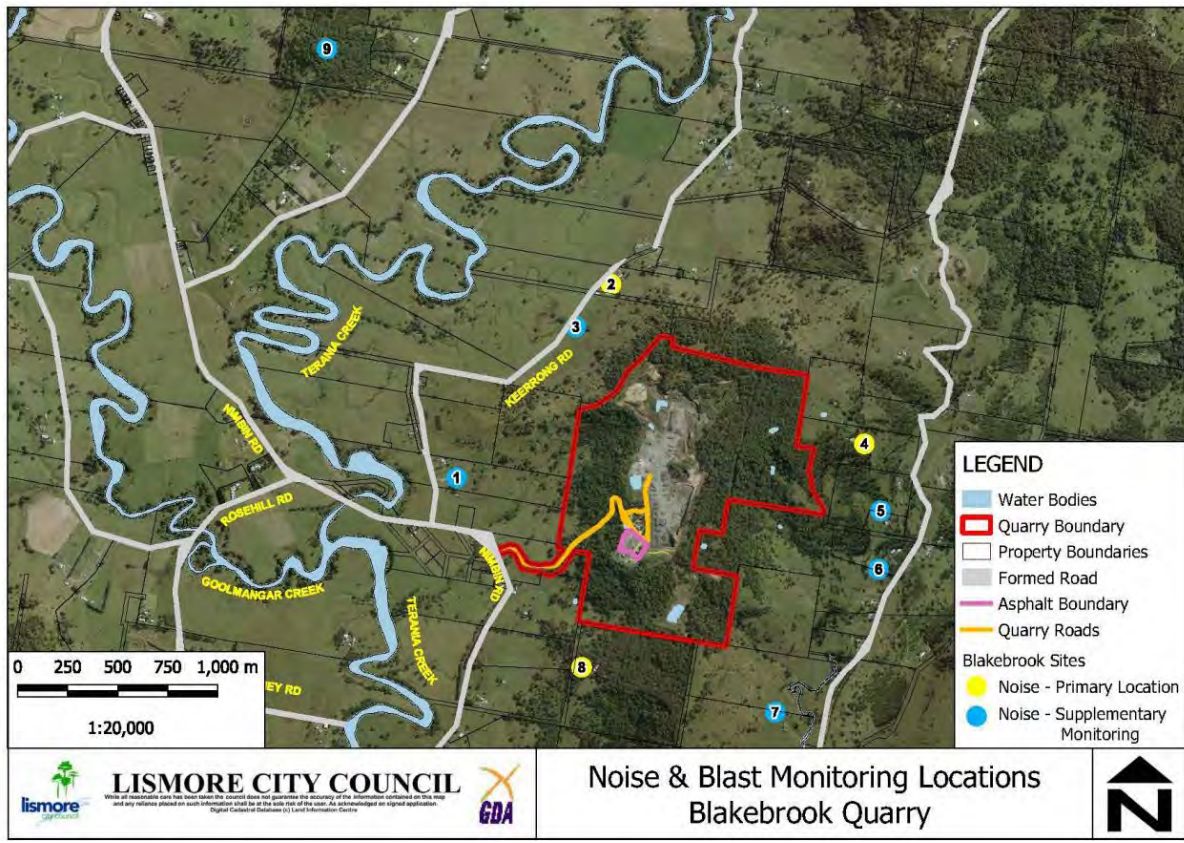
Noise generated by the project is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. Appendix 5 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, the noise criteria in Table 2 do not apply if the Proponent has an agreement with the relevant landowner to exceed the noise criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Compliance Statement

On 19 December 2022, Ambience Audio Services conducted an annual noise monitoring assessment for the quarry and asphalt plant. This assessment is provided within **Appendix L**. Monitoring was undertaken at the three primary receiver locations (Receivers 2, 4, 8). **Illustration 2.1** provides the locations at which noise was monitored, indicated in yellow. As per the NBMP, the utilisation of primary monitoring locations during noise compliance monitoring is considered representative in determining compliance with Schedule 3 Condition 3.

Illustration 2.1 Noise Monitoring Locations



Source: LCC 2022

Noise monitoring was undertaken in the daytime during the operational hours of the Quarry and asphalt plant, as well as in the evening and night-time during cold mix production. Low frequency noise from the quarry and asphalt plant was barely audible or just audible at the primary receiver locations at all monitoring times. Ambient noise prevented an accurate assessment of quarry operational noise levels ($L_{Aeq,15min}$), and at these locations quarry noise was barely audible. A summary of these results, as well as from the previous three years, along with levels predicted in the 2019 Noise Impact Assessment (NIA) are presented in **Table 2.3**.



Table 2.3 Summary of Noise Monitoring Results 2019-2022

Receiver	2019 ¹ L _{Aeq} (15 minute)	2020 ¹ L _{Aeq} (15 minute)	2021 ¹ L _{Aeq} (15 minute)	2022 ¹ L _{Aeq} (15 minute)	Site specific criteria	² Predicted level
2	<30 dB(A)	<30 dB(A)	<35 dB(A)	<30 dB(A)	<36 dB(A)	36
4	<30 dB(A)	<25 dB(A)	<33 dB(A)	<35 dB(A)	<35 dB(A)	34
8	31-33 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	36

Notes to Table 2.3

1. Ambient noise prevented an accurate assessment of quarry noise. The figure is an estimate based on site measurements and observations.
2. Predicted level as outlined in 2019 NIA

The assessment provides a summary of noise monitoring results:

“It is estimated from the recorded L_{A90,15 min} levels, listening to the sound recordings, analysing the spectrum data, and observations during the attended noise monitoring, that the combined quarry and asphalt plant noise levels are below the NBMP daytime noise criteria of 35 dB(A) L_{eq,15min} at receiver locations 4 and 8, and below 36 dB(A) L_{eq,15min} at receiver location 2. It is estimated that evening and night-time noise levels of the asphalt plant are below the NBMP criteria of 35 dB(A) L_{eq,15min}.”

In addition, the assessment provided the following recommendation:

“It is recommended for future evening and night-time noise monitoring of the asphalt plant, that the noise monitoring be coordinated with truck movements to assess the combined noise levels of asphalt production and truck movements on the internal haul roads.”

Identified Trends

While ambient noise has prevented an accurate measurement of quarry noise, a review of the results of the four most recent monitoring periods suggests that there has been no significant variance in noise levels in 2022.

Comparison with Predicted Impact

The 2019 NIA modelled predicted noise impacts for the expanded quarry operation that were compliant with the site-specific criteria at all locations, except monitoring location 8 (referred to as Receptor 7 in the NIA). The NBMP states, however, that:

“For this receptor, the results of the noise modelling indicate that an exceedance of up to 1 dB is possible for the expanded operations. In practical terms, this level of exceedance is considered to be insignificant with most people unable to discern a difference in noise levels of less than 1 dB. Furthermore, the predicted noise levels are noted to be well below existing baseline noise levels measured in the area.”

Noting this, an assessment of noise monitoring results from the 2022 reporting period suggest that quarry noise was either below or undiscernibly above the predicted levels as described in the 2019 NIA.

2.4.5 Schedule 3 – Condition 4 (Operating Conditions)

Condition

The Proponent must:

- (a) implement best practice management to minimise the construction, operational and road transportation noise of the project;



- (b) *minimise the noise impacts of the project during meteorological conditions when the noise criteria in this approval do not apply (see Appendix 5);*
- (c) *carry out noise monitoring (at least every 3 months or as otherwise agreed with the Secretary) to determine whether the project is complying with the relevant conditions of this approval; and*
- (d) *regularly assess noise monitoring data and modify and/or stop operations on site to ensure compliance with the relevant conditions of this approval, to the satisfaction of the Secretary.*

Note: Required frequency of noise monitoring may be reduced if approved by the Secretary.

Compliance Statement

As per the NBMP, the following monitoring and mitigation measures are in place:

- (a) All significant noise generating plant and equipment is to be procured, maintained and managed to reduce, with mitigation to be applied where feasible, reasonable and necessary. Details of proposed mitigation measures are detailed in Section 6.3 of the NBMP.
- (b) Meteorological parameters will be evaluated prior to undertaking works on site to gain an understanding of the weather conditions and the potential for variations in noise levels.
- (c) Noise monitoring shall be conducted every six months to represent winter and summer conditions. This monitoring will be reported against criteria in Schedule 3 Condition 3 of the Conditions of Approval. Upon receipt of each round of monitoring results a suitably qualified person will review results and report any identified exceedances where required.
- (d) Noise monitoring data will be used to guide the daily planning of quarrying operations. Additionally, upon receipt of a complaint regarding noise or vibration, the Quarry Manager will stop works that have the potential to impact further.

2.4.6 Schedule 3 – Condition 5 (Noise Management Plan)

Condition

The Proponent must prepare a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) *be prepared in consultation with the EPA;*
- (b) *be submitted to the Secretary within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;*
- (c) *describe the measures to be implemented to ensure:*
 - *compliance with the noise criteria and operating conditions of this approval;*
 - *best practice management is being employed; and*
 - *the noise impacts of the project are minimised during meteorological conditions under which the noise criteria in this approval do not apply (see Appendix 5);*
- (d) *describe the proposed noise management system; and*
- (e) *include a monitoring program to be implemented to measure noise from the project against the noise criteria in Table 2.*



The Proponent must implement the Noise Management Plan as approved from time to time by the Secretary.

Compliance Statement

The NBMP (Rev 4.1) was updated and approved by the Planning Secretary on 20 October 2022.

2.4.7 Schedule 3 – Condition 6 (Blasting Impact Assessment Criteria)

Condition

The Proponent must ensure that blasting on site does not cause any exceedance of the criteria in Table 3.

Table 3: Blasting Criteria

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

However, these criteria do not apply if the Proponent has a written agreement with the relevant owner to exceed the limits in Table 3, and the Proponent has advised the Department in writing of the terms of this agreement.

Compliance Statement

Blasting occurred on five occasions during the reporting period, with formal blast monitoring occurring at the following primary locations (refer to **Illustration 2.1**):

- Location 2: [REDACTED] Keerong Road, Blakebrook.
- Location 4: [REDACTED] Booerie Creek Road, Booerie Creek.
- Location 8: [REDACTED] Nimbin Road, Blakebrook.

During some blast events, supplementary monitoring was undertaken to assess compliance at the following locations:

- [REDACTED]
- [REDACTED] Nimbin Road and Keerong Road, Blakebrook.
- [REDACTED] Keerong Road, Keerong.

A summary of the blast monitoring results is provided in **Table 2.4**, and the complete blast reports are provided at **Appendix M**.

Table 2.4 Blast Monitoring Results

Date	Monitoring location	Airblast Overpressure (dB(Lin Peak))		Ground Vibration (mm/s)	
		Result	Limit	Result	Limit
March 18	Location 2	112.0	115	4.953	5
	Location 4	Not Triggered ¹	115	Not Triggered ¹	5
	Location 8	105.3	115	3.145	5
May 31	Location 2	106.0	115	0.7	5
	Location 4	Not Triggered ¹	115	Not Triggered ¹	5



Date	Monitoring location	Airblast Overpressure (dB(Lin Peak))		Ground Vibration (mm/s)	
		Result	Limit	Result	Limit
August 16	Location 8	105.5	115	1.1	5
	[REDACTED]	93.8	115	0.36	5
	Nimbin Road and Keerong Road	104.2	115	1.02	5
	Location 2	101	115	1.016	5
	Location 4	95.9	115	0.841	5
	Location 8	Not Triggered ¹	115	Not Triggered ¹	5
	[REDACTED]	Not Triggered ¹	115	Not Triggered ¹	5
September 26	Location 2	104.7	115	0.45	5
	Location 4	108.3	115	0.69	5
	Location 8	110.6	115	7.71	5
	[REDACTED]	105.4	115	0.08	5
December 23	Location 2	Not Triggered ¹	115	Not Triggered ¹	5
	Location 4	Not Triggered ¹	115	Not Triggered ¹	5
	Location 8	98.5	115	1.092	5
	[REDACTED]	Not Triggered ¹	115	Not Triggered ¹	5
	Keerong Road	Not Triggered ¹	115	Not Triggered ¹	5

Note to Table 2.4:

1 Below trigger set for monitor (airblast overpressure: 110 dB; ground vibration : 0.1 - 1.0 mm/s)

As indicated in **Table 2.4**, blasting exceeded the limits for ground vibration as described in Schedule 3 Condition 6 on one occasion. On 26 September 2022, measurements of ground vibrations (peak particle velocity) of 7.71 mm/s were recorded at 484 Nimbin Road. LCC advises that this non-compliance was self-reported to the DPE on 30 September 2022 (refer to **Appendix N**). A review of the report and site investigation by the DPE concluded that the exceedance was due to the incorrect installation of monitoring equipment. No complaints were received regarding this incident (a register of environmental complaints is presented at **Appendix O**).

Identified Trends

Yearly maximums of measured airblast overpressure between 2016-2022 are presented in **Table 2.5**. An analysis of the previous years' results suggest that there is no noticeable trend with regards to airblast overpressure at Locations 4 and 8.

Table 2.5 Yearly Maximum Airblast Overpressure 2016-2022

Location ²	Yearly Maximum Airblast Overpressure (dB(Lin Peak)) ¹					
	2016	2017	2018	2020	2021	2022
Location 4	108.4	109.5	104.9	103	N/A ³	108.3
Location 8	114.8	109.9	98.8	109	113.3	110.6

Notes to Table 2.5:

1. No blasting occurred in 2019.
2. Location 2 was not monitored prior to 2022.
3. Location 4 was not monitored in this reporting period.
4. Location 8 was not monitored prior to 2016.



Yearly maximums of measured ground vibration between 2016-2022 are presented in **Table 2.6**. An analysis of the previous years' results, suggest that despite an incident of non-compliance during the reporting period, there is no noticeable trend with regards to ground vibration at Locations 4 and 8.

Table 2.6 Yearly Maximum Ground Vibration 2016-2022

Yearly Maximum Ground Vibration (PPV(mm/s)) ¹						
Location ²	2016	2017	2018	2020	2021	2022
Location 4	1.73	2.04	2.5	2	N/A ³	<1
Location 8	1.86	1.18	0.51	4.0	2.72	7.71 ⁴

Notes to Table 2.6:

5. No blasting occurred in 2019.
6. Location 2 was not monitored prior to 2022.
7. Location 4 was not monitored in this reporting period.
8. Monitoring equipment was found to be incorrectly installed for this monitoring event

Comparison with Predicted Impact

An indicative assessment of the impacts of blasting was undertaken by ERM in 2009. Vibration and overpressure levels for the Quarry were found to be within the accepted guidelines for nearby residences, provided that blasting operations were carefully designed and monitored.

2.4.8 Schedule 3 – Condition 7 (Blasting Frequency)

Condition

The Proponent may carry out a maximum of 2 blasts per month, unless an additional blast is required following a blast misfire. This condition does not apply to blasts required to ensure the safety of the quarry or workers on site.

Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the quarry.

Compliance Statement

Five blasts occurred during the reporting period:

- 18 March 2022;
- 31 May 2022;
- 16 August 2022;
- 26 September 2022; and
- 23 December 2022.

All blasts occurred within the frequency specified in Schedule 3 Condition 7.

2.4.9 Schedule 3 – Condition 8 (Operating Conditions)

Condition

During blasting operations, the Proponent must:

- (a) *implement best practice management to: protect the safety of people and livestock; protect public or private infrastructure and property from damage; and minimise the dust and fume emissions;*



- (b) *operate a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site; and*
- (c) *carry out regular monitoring to determine whether the project is complying with the relevant conditions of this approval, to the satisfaction of the Secretary.*

Compliance Statement

- (a) The Explosive Control Plan (ECP) was updated in December 2022. As per the ECP:
“All plans are to be developed by the Drill and Blast team in consultation with the Quarry Operations Coordinator and Shotfirer and are to include measures to manage fly rock to ensure the safety of people and livestock and to protect property.”
- (b) As per the NBMP:
“All sensitive receivers will be given at least 24 hours’ notice by phone when blasting is to be undertaken, unless otherwise stipulated by the EPL. Any Asphalt Out of Hours campaign work will be notified in writing to LCC, EPA and local residents at least 7 working days prior to works being undertaken.”
- (c) As per the NBMP:
“Air blast overpressure and ground vibration monitoring will be undertaken during each blast event.”

2.4.10 Schedule 3 – Condition 9 (Blast Management Plan)

Condition

The Proponent must prepare a Blast Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) *be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;*
- (b) *describe the measures to be implemented to ensure compliance with the blast criteria and operating conditions of this approval;*
- (c) *include measures to manage flyrock to ensure the safety of people and livestock and to protect property;*
- (d) *include a monitoring program for evaluating and reporting on compliance with the blasting criteria in this approval;*
- (e) *include local community notification procedures for the blasting schedule, in particular to nearby residences; and*
- (f) *include a protocol for investigating and responding to complaints related to blasting operations.*

The Proponent must implement the Blast Management Plan as approved from time to time by the Secretary.

Compliance Statement

The NBMP (Rev 4.1) was updated and approved by the Planning Secretary in October 2022.



2.4.11 Schedule 3 – Condition 10 (Air Quality Impact Assessment Criteria)

Condition

The Proponent must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not cause exceedances of the criteria in Table 4 at any residence on privately-owned land.

Table 4: Air quality criteria

<i>Pollutant</i>	<i>Averaging Period</i>	<i>Criterion</i>	
Particulate matter < 10 µm (PM ₁₀)	Annual	a,d 25 µg/m ³	
Particulate matter < 10 µm (PM ₁₀)	24 hour	b 50 µg/m ³	
Total suspended particulates (TSP)	Annual	a,d 90 µg/m ³	
^c Deposited dust	Annual	^b 2 g/m ² /month	^{a,d} 4 g/m ² /month

Notes to Table 4:

- a. *Cumulative impact (i.e. increase in concentrations due to the project plus background concentrations due to all other sources).*
- b. *Incremental impact (i.e. increase in concentrations due to the project alone, with zero allowable exceedances of the criteria over the life of the project).*
- c. *Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter - Deposited Matter - Gravimetric Method.*
- d. *Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.*
- e. *“Reasonable and feasible avoidance measures” includes, but is not limited to, the operational requirements in conditions 11, 12 and 13 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.*

It is noted that AS/NZS 3580.10.1:2003 has been superseded by AS/NZS 3580.10.1:2016.

Compliance Statement

Deposited Dust Monitoring Results:

Dust deposition gauges are established at three sites around the Quarry to the north-west (D1), south-west (D2) and south-east (D3), refer to **Illustration 2.2**.

Illustration 2.2 Dust Monitoring Locations



Source: ERM 2018

As per the Air Quality Management Plan: Revision 3.1 (AQMP), deposition gauges are to be replaced on a 30 ± 2 day cycle. Dust deposition gauge results from the monitoring period are provided at **Appendix P**. A review of this documentation indicates that monitoring was undertaken at the required frequency.

As per guidance within the AQMP, the deposit rate of ash is used as an indicator of quarry dust contribution. This is to help differentiate the inorganic dust emanating from the quarry operation from other insoluble solids of organic origin (i.e., bird droppings, vegetation, etc.). Using ash as an indicator of quarry dust, there were no instances of an exceedance of deposition rate criteria as stipulated by Schedule 3 Condition 10 (ash $> 4 \text{ g/m}^2/\text{month}$) for the reporting period.

Figure 2.1 to **Figure 2.3** present monthly ash deposition results for 2017 to 2022 with reference to the deposited dust limit. To provide an indication of dust deposition levels over a longer period of time, **Figure 2.4** to **Figure 2.6** present monthly total suspended solids deposition results for 2012 to 2022. Over the duration of the monitoring period, monthly results have varied. Higher dust deposition levels have typically been recorded at D2 and D3 compared with D1.

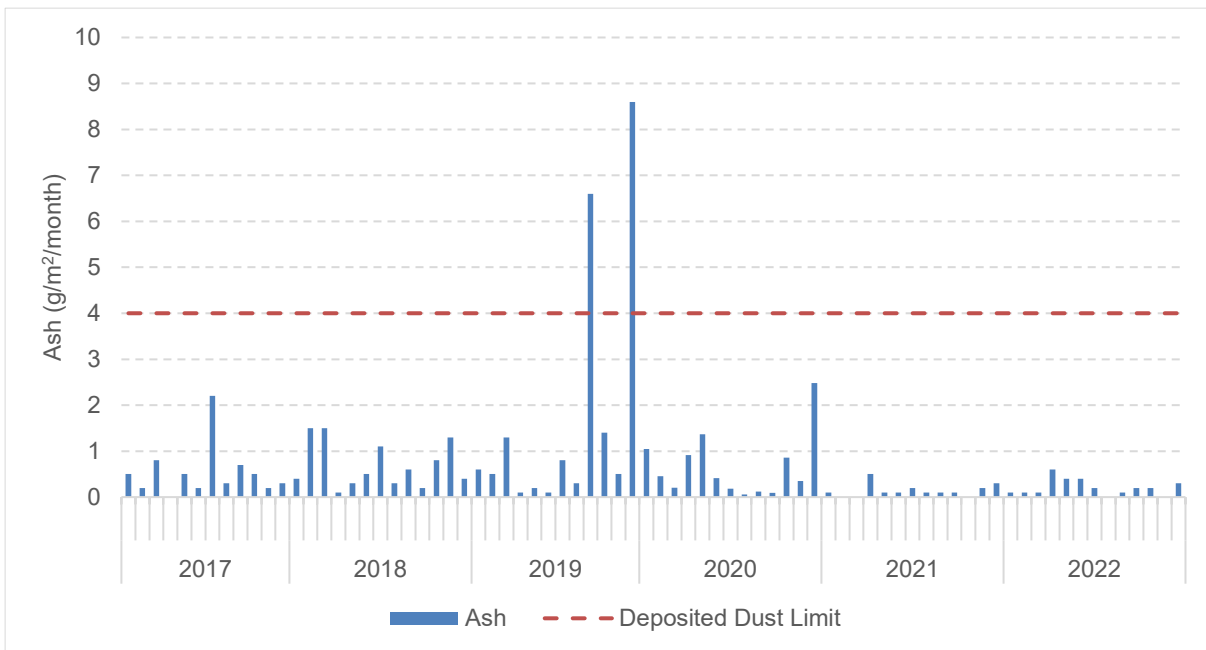


Figure 2.1 Monthly ash deposition results 2017-2022 for site D1

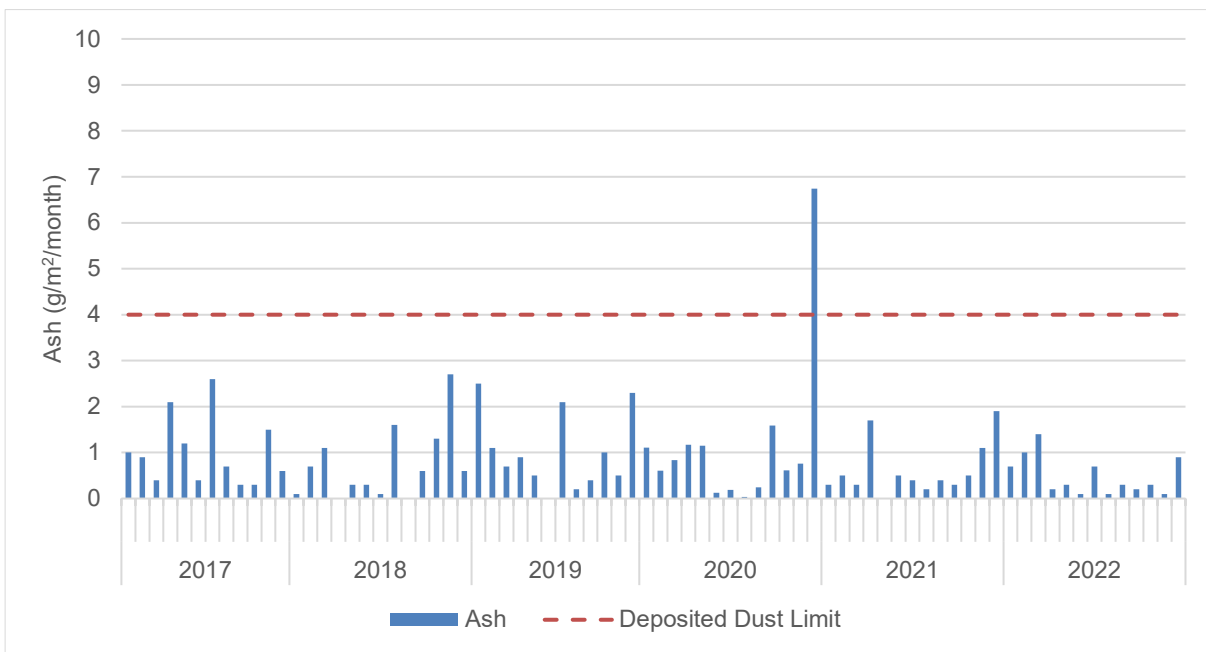


Figure 2.2 Monthly ash deposition results 2017-2022 for site D2

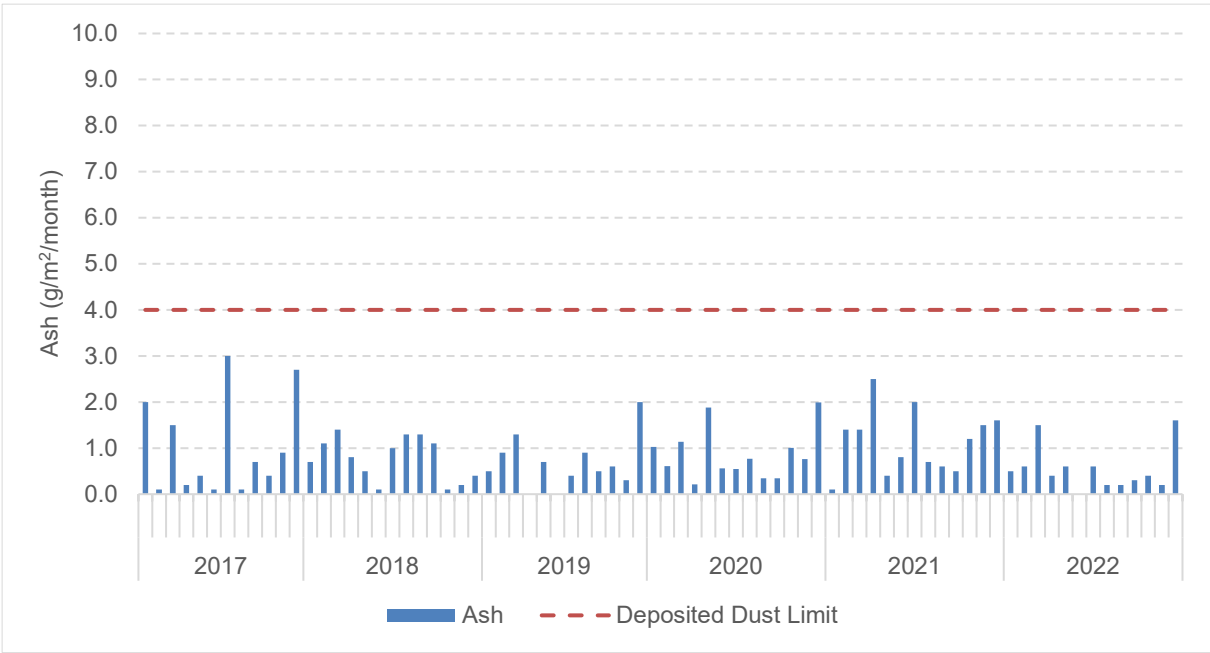


Figure 2.3 Monthly ash deposition results 2017-2022 for site D3

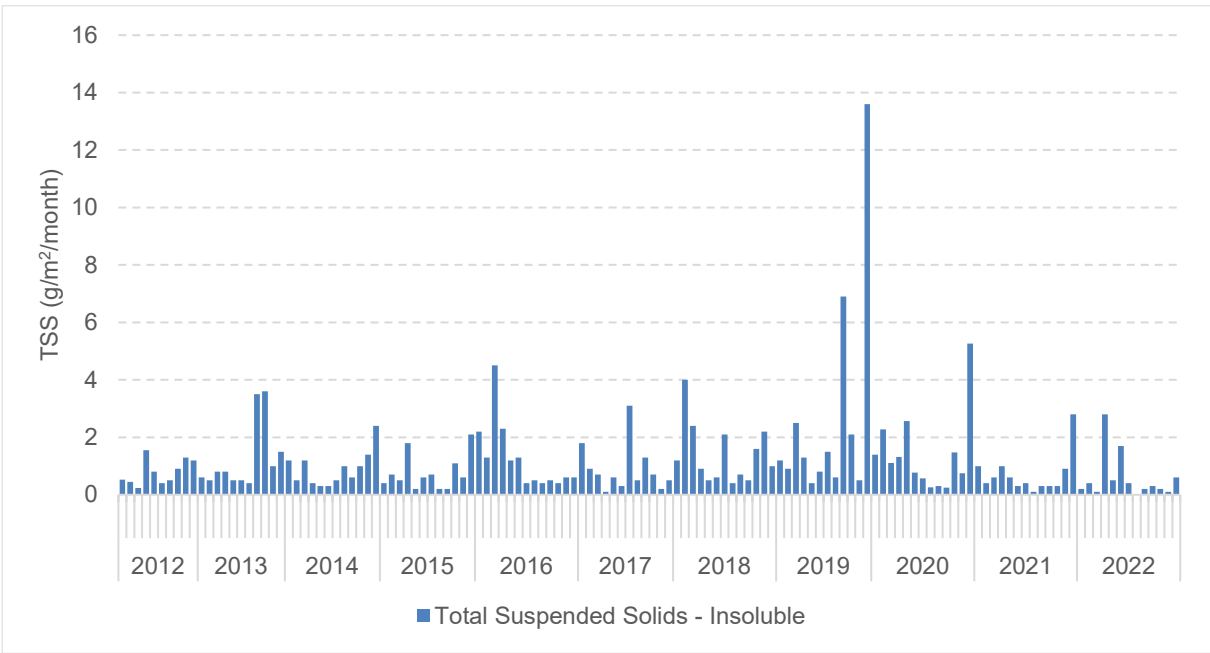


Figure 2.4 Monthly total suspended solids deposition results 2012-2022 for site D1

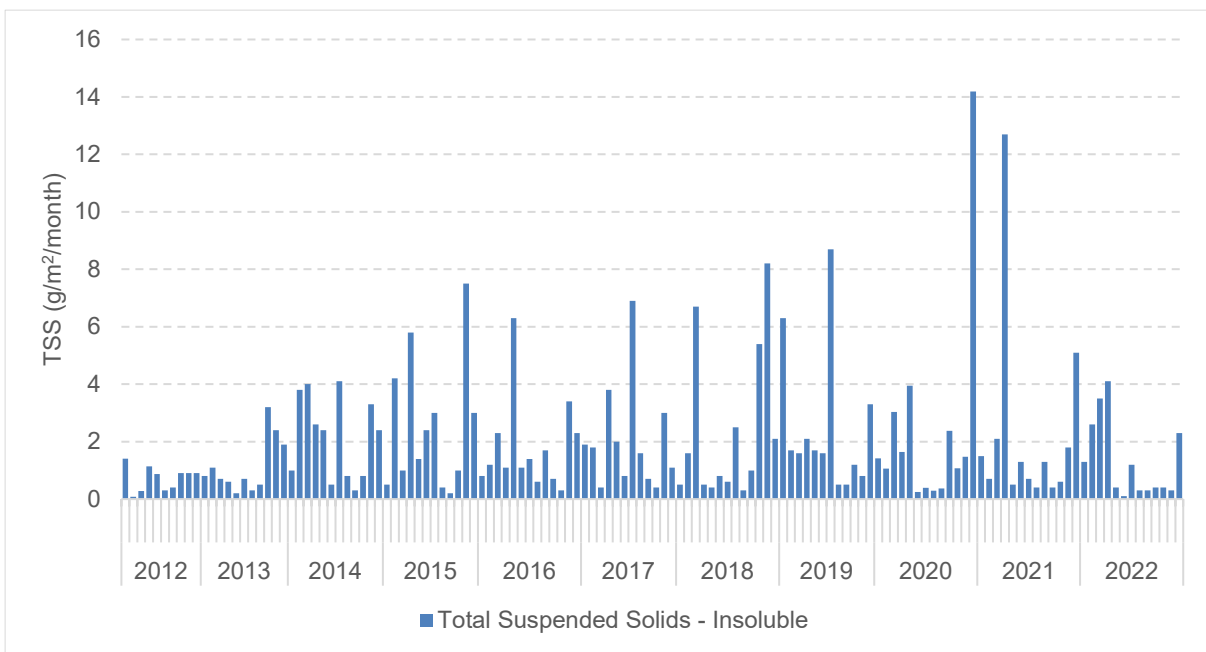


Figure 2.5 Monthly total suspended solids deposition results 2012-2022 for site D2

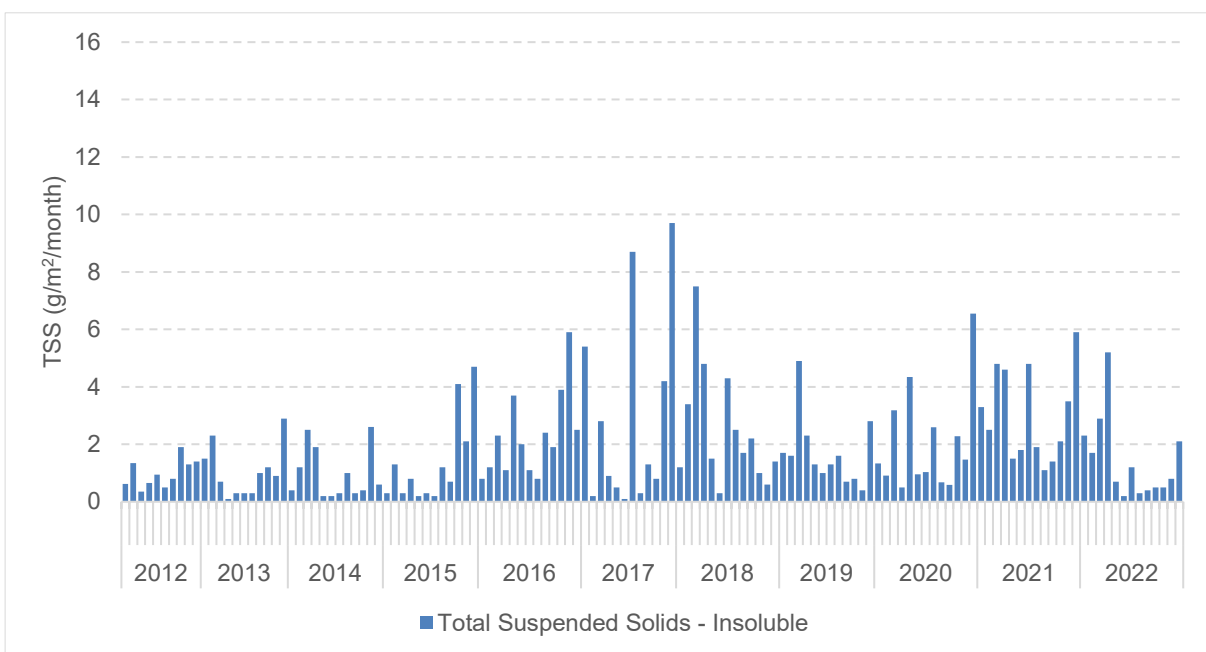


Figure 2.6 Monthly total suspended solids deposition results 2012-2022 for site D3



Particulate Matter Monitoring Results

The air quality criteria relevant to particulate matter and the results for the monitoring period are presented in **Table 2.7**.

Due to the nature of the material being extracted, primary emissions from the Quarry are understood to have an aerodynamic diameter greater than 10 µm. Additionally, an air quality assessment was undertaken in 2008 which demonstrated compliance with the particulate matter criteria as described in Schedule 3 Condition 10. This was considered sufficient to prove the low risk of the operations with regard to ambient PM₁₀ concentrations. Additional monitoring for PM₁₀ and TSP are required only in the event of sustained exceedances of deposited dust criteria. If sustained annual average dust deposition > 4 g/m²/month is identified, the Quarry is to establish an additional monitoring site for testing particulate matter concentrations (PM₁₀ and TSP).

As indicated in **Table 2.7**, the average deposited dust result for 2022 was 1.2 g/m²/month. This is lower than the applicable annual average dust deposition threshold, therefore there is no requirement for the establishment of an additional monitoring site for testing particulate matter concentrations.

Table 2.7 Air Quality Criteria for Particulate Matter and Average Results

Pollutant	Averaging Period	Criteria	2022 Results (Average)
Particulate Matter < 10 µm (PM10)	Annual	25 µg/m ³	NA ¹
Particulate Matter < 10 µm (PM10)	24 Hour	50 µg/m ³	NA ¹
Total Suspended Particulates (TSP)	Annual	90 µg/m ³	NA ¹
Deposited Dust (measured as ash)	Annual	4 g/m ² /month	1.2 g/m ² /month

Note to Table 2.7:

1. Monitoring not required during 2022 monitoring period

Identified Trends

An analysis of the data from the previous monitoring periods suggests that the mass of dust deposited at each gauge is, among other factors, subject to seasonal variation. This trend is particularly noticeable at site D2, with higher dust volumes generally being recorded throughout the summer months. Dust levels were generally lower in 2022 than in previous monitoring periods.

Comparison with Predicted Impact

An Air Quality Assessment (AQA) was completed by ERM in 2009 and included modelled incremental dust deposition rates at eight sites – three of which are within close proximity to the current locations of dust deposition gauges. Due to a lack of available background levels for dust deposition, a cumulative assessment was not undertaken, however the AQA noted that dust deposition levels would be anticipated to exceed the cumulative criterion of 4 g/m²/month if background levels were included in this assessment. A summary of the annual average deposited dust from the previous monitoring periods are presented in **Table 2.8**. An analysis of the data from the previous monitoring periods suggests that the rates of deposited dust are below the maximum predicted levels as discussed in the AQA.



Table 2.8 Annual Average Dust Deposition Rates 2017-2022

Gauge	Annual Average Deposited Dust (g/m ² /month)						
	Predicted	2017	2018	2019	2020	2021	2022
D1	<4	0.533	0.692	1.750	0.657	0.138	0.208
D2	<4	1.000	0.723	1.017	1.166	0.623	0.485
D3	<4	1.008	0.769	0.675	0.860	1.131	0.546

2.4.12 Schedule 3 – Condition 11 (Operating Conditions)

Condition

The Proponent must:

- (a) *implement best practice management to minimise the dust emissions of the project;*
- (b) *regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in this approval;*
- (c) *minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see note d under Table 4);*
- (d) *monitor and report on compliance with the relevant air quality conditions in this approval; and*
- (e) *minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary.*

Compliance Statement

The updated AQMP (Rev. 3.1) incorporates suitable management measures relating to the above matters.

2.4.13 Schedule 3 – Condition 12 (Air Quality Management Plan)

Condition

The Proponent must prepare an Air Quality Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) *be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;*
- (b) *describe the measures to be implemented to ensure: compliance with the air quality criteria and operating conditions of this approval; best practice management is being employed; and the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events;*
- (c) *describe the proposed air quality management system;*
- (d) *include an air quality monitoring program that: is capable of evaluating the performance of the project; includes a protocol for determining any exceedances of the relevant conditions of approval; and effectively supports the air quality management system.*

The Proponent must implement the approved Air Quality Management Plan as approved from time to time by the Secretary.



Compliance Statement

An updated AQMP for the quarry was submitted and endorsed by DPIE in 2018.

2.4.14 Schedule 3 – Condition 13 (Meteorological Monitoring)

Condition

For the life of the project, the Proponent must ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales guidelines.

Compliance Statement

A meteorological weather station was installed on site in 2018 and upgraded in July 2022. Daily weather data from the monitoring period is provided at **Appendix Q**.

2.4.15 Schedule 3 – Condition 14 (Greenhouse Gas Emissions)

Condition

The Proponent must implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.

Compliance Statement

As per the AQMP, all engines used on-site are required to be fuel efficient rated, maintained to the manufacturer's recommendations, and only powered with the recommended fuels.

2.4.16 Schedule 3 – Condition 15 (Water Supply)

Condition

The Proponent must ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of operations under the approval to match its available water supply, to the satisfaction of the Secretary.

Compliance Statement

LCC advises that no water was required to be imported to the site during the reporting period.

2.4.17 Schedule 3 – Condition 16 (Water Discharges)

Condition

The Proponent must comply with the discharge limits in any EPL, or with section 120 of the POEO Act.

Compliance Statement

On 9 May 2022, water was actively discharged from sediment basin SW1 via the use of a gravity release hose. No sampling of sediment basin surface waters was undertaken by Quarry staff prior to release. No ongoing sampling was undertaken throughout the discharge. The pre-release sampling of discharge waters is required as per condition M2.3 of EPL 3384 (refer to **Appendix B**). Notification of this discharge event was reported to the EPA in compliance with conditions R2.1 and R2.2 of EPL



3384. LCC advises that this non-compliance was self-reported to the DPE on 16 May 2022 (refer to **Appendix R**) Internal investigations made by LCC and Quarry staff determined that the release was caused by human error.

2.4.18 Schedule 3 – Condition 17 (Groundwater Assessment)

Condition

The Proponent must undertake a detailed groundwater assessment to the satisfaction of the Secretary. This assessment must be:

- (a) prepared by a suitably qualified expert in consultation with DPI Water;*
- (b) submitted to the Secretary for approval by 30 December 2018;*
- (c) approved by the Secretary before any extraction below 105 m AHD in the northern pit or below 118.5 m AHD in the southern pit;*
- (d) adequately assess groundwater resources affected by the northern and southern pits, to the proposed full extraction depths of those pits;*
- (e) adequately assess all groundwater impacts associated with proposed extraction;*
- (f) provide data for predicted groundwater pit inflows during and following extraction; and*
- (g) propose management measures to address pit inflows and impacts to groundwater resources.*

The Proponent must implement the management measures proposed in the groundwater assessment to the satisfaction of the Secretary.

Compliance Statement

The Groundwater Assessment Report was submitted and approved by DPIE in June/July 2019. Following consideration of the report, the Department of Industry (Lands and Water) and the DPIE required LCC to obtain:

“the necessary Water Access Licences (WALs) for the extraction of groundwater up to the predicted maximum annual take of 70ML per annum from the North Coast Volcanics Ground Water Source and the North Coast Fractured and Porous Rock Groundwater Sources. The Department requests that this process commence no later than 9 July 2019 and to be notified once the required WALs have been obtained”.

The initial application for a Water Access Licence was made on 9 July 2019. On 12 November 2019, a formal application was made via the Controlled Allocation Order, 3rd period ROI process for 70 Unit Shares from the North Coast Volcanics Groundwater Source at the rate of \$550 per share.

LCC was notified of a successful outcome on 7 January 2020. Shares were paid in full on 2 March 2020. A Notice of Decision for the Water Access Licence was issued in June 2020 and the licence was registered on 19 January 2021.

2.4.19 Schedule 3 – Condition 18 (Soil and Water Management)

Condition

If groundwater is encountered during quarrying operations in the South Pit under EA (Mod 1), the Proponent must cease quarrying operations until authorised to recommence by the Secretary.



Compliance Statement

LCC advises that groundwater was not encountered during the operation of the quarry during the reporting period.

2.4.20 Schedule 3 – Condition 19 (Soil and Water Management)

Condition

The Proponent must prepare a Soil and Water Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) *be prepared by suitably qualified and experienced person/s approved by the Secretary;*
- (b) *be prepared in consultation with the EPA and DPI Water;*
- (c) *be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary; and*
- (d) *include a:*

(i) Site Water Balance that includes:

details of:

- *sources and security of water supply;*
- *water use and management onsite;*
- *any off-site water transfers; and*
- *reporting procedures; and*
- *measures to be implemented to minimise clean water use on site;*

(ii) Surface Water Management Plan, that includes:

a program for obtaining detailed baseline data on surface water flows and quality in water bodies that could potentially be affected by the project;

- *a detailed description of the surface water management system on site including the:*
 - *clean water diversion system;*
 - *erosion and sediment controls;*
 - *dirty water management system; and*
 - *water storages; and*
- *a program to monitor and report on:*
 - *any surface water discharges;*
 - *the effectiveness of the water management system,*
 - *the quality of water discharged from the site to the environment;*
 - *surface water flows and quality in local watercourses;*

(iii) Groundwater Management Plan that includes:

- *a provision that requires the Proponent to obtain appropriate water licence(s) to cover the volume of any unforeseen groundwater inflows into the quarry from the quarry face or floor; and*



- a monitoring program to manage potential impacts, if any, on any alluvium and associated surface water source near the proposed extraction area that includes:
 - identification of a methodology for determining threshold water level criteria;
 - contingency measures in the event of a breach of thresholds; and
 - a program to regularly report on monitoring.

The Proponent must implement the approved Soil and Water Management Plan as approved from time to time by the Secretary.

Compliance Statement

Soil and Water Management Plan: The updated Soil and Water Management Plan (Rev. 4) (SWMP) was submitted on 5 March 2019 and approved by DPIE on 25 June 2019.

Site Water Balance: Embedded within the SWMP is a Site Water Balance. The Site Water Balance details the inputs, outputs, storage, monitoring and management of water resources within the Quarry.

Surface Water Management Plan: A plan for the management of surface water is included within the SWMP. Relevant details regarding the management of erosion, sediment, water storages, and surface waters are contained within this plan. The SWMP also details a surface water monitoring and reporting program. Monitoring of waters within the sediment basin as well as offsite waters are to be conducted before and during discharges. In addition to this, off site surface waters will be monitored quarterly for the following parameters:

- pH.
- EC.
- DO.
- Temperature.
- Turbidity.
- TSS.
- Nutrients.
- A visual inspection for oil and grease.

Illustration 2.3 provides an extract from the SWMP which identifies the locations of the off-site surface water monitoring points, SW1, SW2, SW3 and SW5.



Illustration 2.3 Surface Water Monitoring Locations



Source: Gilbert & Sutherland 2019

A summary of the surface water monitoring results for the reporting period is provided in **Table 2.9**. Laboratory analysis reports are provided at **Appendix S**.



Table 2.9 Summary of Surface Water Monitoring of Receiving Waterways

Site	Date	Field Comments	pH	EC ($\mu\text{S/cm}$)	DO (mg/L)	DO (%)	Temperature ($^{\circ}\text{C}$)	Turbidity (NTU)	TSS (mg/L)	Phosphate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Ammonia (mg/L)	Oil & Grease Present? (Visual Inspection)
SW1	21/03/2022	Moderate flow, slightly turbid	7.87	279.88	8.32	98.40	23.74	57.4	35	0.026	0.054	<0.005	0.077	None
SW1	02/06/2022	Moderate flow, slightly turbid. Flow from dam behind fence.	8.09	215.1	10.2	101.5	15.2	12	21	0.031	0.223	<0.005	0.042	None
SW1	02/09/2022	Moderate flow, very turbid.	8.97	686.1	8.63	100.0	22.7	125	73	0.015	0.020	<0.005	0.071	None
SW1	02/12/2022	Moderate flow, moderately turbid.	7.71	424.72	6.87	80.01	22.97	15.2	15	0.021	0.013	<0.005	<0.005	None
SW2	21/03/2022	Moderate flow, very turbid. Disturbance from high flows.	7.52	112.35	8.18	96.42	23.59	63.7	65	0.022	0.121	0.005	0.072	None
SW2	02/06/2022	Moderate to high flow. Very turbid.	7.61	92.1	10.33	102.4	15.0	34.1	53	0.023	0.282	<0.005	0.030	None
SW2	02/09/2022	Moderate to high flow. Slightly turbid.	8.89	201.8	10.31	108.9	18.0	17.2	13	0.022	0.067	<0.005	0.034	None
SW2	02/12/2022	Moderate flow, highly turbid.	7.39	146.26	7.75	88.57	21.94	167.0	238	0.027	0.054	0.008	<0.005	None
SW3	21/03/2022	Moderate flow, very turbid. Disturbance from high flows.	8.31	120.97	8.24	96.30	23.13	67.0	45	0.025	0.116	0.006	0.070	None
SW3	02/06/2022	Moderate flow, very turbid.	8.02	97.7	11.47	114.2	15.2	28.9	45	0.031	0.267	<0.005	0.034	None
SW3	02/09/2022	Moderate flow, slightly turbid.	8.48	221.1	9.36	100.5	18.8	20.6	12	0.023	0.076	0.006	0.037	None
SW3	02/12/2022	Moderate flow, highly turbid.	7.01	434.00	5.95	68.94	22.72	146.0	184	0.025	0.052	<0.005	<0.005	None
SW5	21/03/2022	Low flow. Very deep water body present.	7.50	451.33	7.11	83	23.06	4.0	5	0.054	0.039	0.016	0.164	None
SW5	02/06/2022	Low flow, clear with white biological film.	7.57	329.3	0.1	1.0	15.6	1.88	2	0.042	0.013	<0.005	0.029	None
SW5	02/09/2022	Low flow, moderately turbid.	8.21	760.4	9.76	102.4	17.7	92.3	40	0.045	<0.005	<0.005	0.025	None
SW5	02/12/2022	Low flow, slightly turbid.	7.35	155.38	7.74	88.45	21.97	4.6	5	0.107	0.022	<0.005	<0.005	None



Background monitoring results for 2013 to 2022 for TSS and pH are presented in **Figure 2.7** and **Figure 2.8**, respectively.

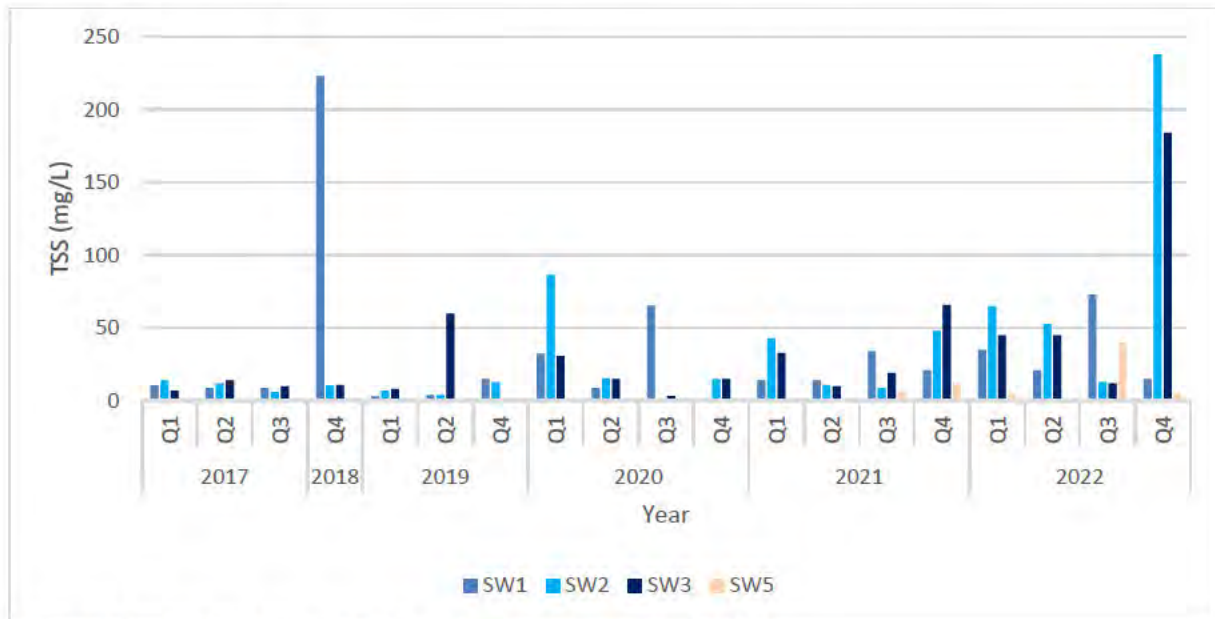


Figure 2.7 Surface water TSS monitoring results 2017-2022

Notes:

SW5 was not monitored prior to Q3 2021.

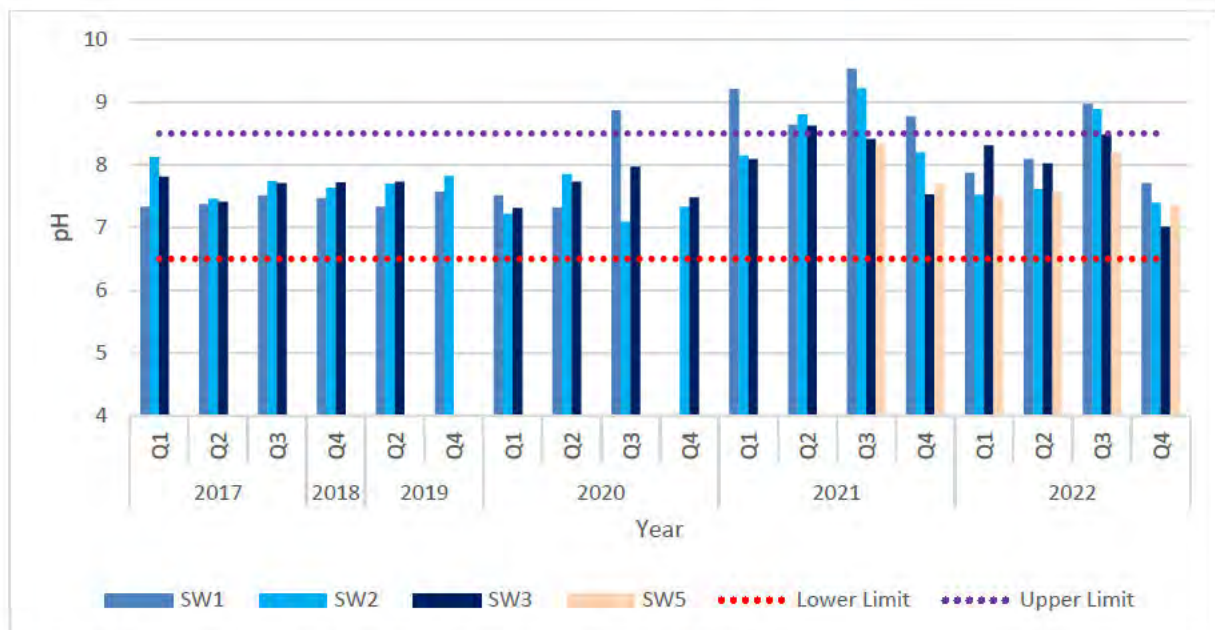


Figure 2.8 Surface water pH monitoring results 2017-2022

Notes:

SW5 was not monitored prior to Q3 2021.

pH limits derived from ANZECC (2000) guidelines for lowland rivers in SE Australia.

Monitoring of surface waters at sites SW1 and SW5 (refer to **Illustration 2.3**) provides an indication of the qualities of surface waters flowing from the sub catchments affected by the Quarry's operation. Flow of Terania Creek at the monitoring location is in a generally southerly direction, with SW2 and SW3 providing an indication of surface water quality both upstream (SW2) and downstream (SW3) of the introduction of surface water flows from the Quarry. In the event of an increase of measured



values between SW2 and SW3, this may suggest that the Quarry's operation is impacting the surface quality of Terania Creek.

Monitoring results from 2 December 2022 indicate abnormally high values of TSS at monitoring sites SW2 and SW3. These values are the result of external factors further upstream of SW2, and it is highly unlikely that the Quarry had any negative impact on TSS during the monitoring period.

Discrepancies in concentrations of phosphate and ammonia between SW2 and SW3, paired with elevated concentrations of these nutrients within sites SW1 and SW5, suggest that surface waters from within the sub catchment of the Quarry may be contributing to a measured increase of nutrients downstream. However, the sub catchment of the Quarry also contains agricultural operations that may potentially be contributing phosphate and ammonia to the tributaries during rain events. Additionally, the increase in concentrations of these nutrients is not of a scale for it to be of concern.

Water quality monitoring of sediment basins is required prior to water discharge. A discharge event occurred on 9 May 2022 in which no water quality monitoring of the sediment basin was undertaken by Quarry staff. **Section 2.4.17** explores this event in further detail. In addition to requirements set out in EPL 3384, Commitment 8 within the SWMP states that monitoring of offsite surface waters is to be undertaken prior to and during discharge operations, and water in the sediment basin is to be tested prior to discharge. No monitoring of on-site or off-site surface waters was undertaken by Quarry staff prior to or during the active discharge. LCC advises that this was due to human error and confusion regarding the conditions of approval and conditions set out within the SWMP.

Additionally, LCC experienced difficulty in engaging external consultants to monitor off-site surface waters in a timeframe that would ensure compliance with conditions within EPL 3384, namely condition O4.5, which requires the design storage capacity of the sediment basins to be reinstated within 5 days of the cessation of rainfall. LCC advises that this non-compliance was self-reported to the DPE on 16 May 2022 (refer to **Appendix R**).

Identified Trends

No discernible trends in water surface quality have been identified. It is likely that the variances in water quality are the result of external factors and not due to the operation of the Quarry.

Comparison with Predicted Impact

An assessment of potential impacts on surface water was undertaken as part of the original Environmental Assessment Report (ERM 2009). While acknowledging that the exposed surfaces within the Quarry footprint may experience erosion and an associated increase in TSS within stormwater, the report outlines several mitigation measures that are intended to prevent the discharge of dirty water into surrounding waterways. An analysis of the data from previous monitoring periods suggests that the Quarry is not having a significant impact on surrounding surface water quality.

Groundwater Monitoring Results:

Quarterly groundwater quality monitoring was undertaken at nine groundwater monitoring bores in March, June, September and December 2022.

As per the SWMP, groundwater is to be measured against the following parameters:

- pH¹.
- EC¹.
- TPH¹.
- BTEX¹.
- Total iron¹.



- total lead¹.
- dissolved iron².
- Dissolved lead².
- total oils and grease (to be monitored as a surrogate for TPH and BTEX until sufficient data is available)².
- Major ions and cations².

¹ Site specific interim groundwater quality triggers have been established for these parameters in the Soil and Water Management Plan.

² There are no site-specific trigger values for these parameters in the Soil and Water Management Plan. These additional parameters are monitored to assist with the characterisation of groundwater.

As discussed in the SWMP, interim trigger values were derived from a two-year data set, with the intention for these values to be updated following the collection of sufficient data (12 data points for each bore). Sufficient data to update these interim trigger values has been collected across the current and previous three monitoring rounds and has informed the updated SWMP (currently under review).

A summary of the 2022 groundwater quality monitoring results and interim trigger values is provided at **Appendix T**. Where a groundwater quality result is higher than the interim trigger value, this has been indicated in bold red font. An analysis of results from the monitoring period suggest that groundwater quality parameter values were generally below, or only slightly exceeding, interim trigger values outlined in the SWMP, with one notable exception. The levels of lead within the groundwater sampled from BQS1-S, BQN2-D, BQN2-I and BQN2-S collectively exceeded the interim trigger values six times. Results of sampling on the 3 June 2022 showed exceedances at boreholes BQS1-S, BQN2-D, and BQN2-S, with lead measured at BQN2-D (0.026 mg/L) more than five times the interim trigger value (0.005 mg/L).

In considering these exceedances of lead within the groundwater, it is worth noting that:

- Interim trigger values were derived from a 2-year data set, and are to be updated in the future SWMP (currently under review); and
- Interim trigger values represent the 80th percentile values, with non-parametric maximums used for interim lead trigger values due to the small sample size and distribution.

LCC advises that a consultant has been engaged to investigate and report on identified exceedances, potential causes and remediation if required. LCC advises that this non-compliance was self-reported to the DPE on 8 March 2023 (refer to **Appendix U**).

Identified Trends

An analysis of data from previous monitoring periods indicates that there are no discernible trends with regards to groundwater quality. Although in previous monitoring periods there have been recorded instances of elevated lead levels with respect to the interim trigger values, it should be noted that each bore has a 20% chance of exceedance of any parameter per monitoring round, meaning that one exceedance of criteria per year does not necessarily demonstrate non-compliance.

Comparison with Predicted Impact

A 2008 groundwater and geological investigation by Groundwork Environmental Management Services determined that the effect on groundwater as a result of the Quarry's operation would be minimal due to the favourable site setting, the relatively low yield nature of the aquifers, and the management practices, which effectively mitigate any potential groundwater contamination. In addition to this, a 2017 groundwater impact assessment by Gilbert & Sutherland concluded that, due to extraction depths within the Quarry's operation, the water bearing zones will not be interfered with. An



analysis of groundwater quality data for the monitoring period suggests that the Quarry's operation is not having a significant impact on groundwater quality, although further investigation is needed to determine the cause of elevated levels of lead.

2.4.21 Schedule 3 – Condition 20 (Monitoring of Product Transport)

Condition

The Proponent must keep accurate records of all laden truck movements to and from the site (including time of arrival and dispatch) and publish a summary of records on its website every 6 months.

Compliance Statement

Records on laden truck movements are kept which detail the date, time and registration plate details of trucks exiting the quarry. A review of the LCC website on 2 February 2023 indicates that these records and a summary table with daily, weekly, and monthly total laden truck movements are provided for the 2022 calendar year.

2.4.22 Schedule 3 – Condition 21 (Road Upgrades)

Condition

The Proponent must undertake the following road upgrade works generally in accordance with the recommendations in the EA, and to the satisfaction of the RMS:

- a) *upgrade the intersection of the Quarry Access and Nimbin Road to a 'Type AUR Intersection Treatment', prior to 31 December 2010;*
- b) *upgrade the guard rails on the approaches to Booerie Creek Bridge prior to 31 December 2010;*
- c) *upgrade the Booerie Creek Road and Nimbin Road intersection to a 'Type BAR Right Turn Treatment on the Through Road' prior to 31 December 2010;*
- d) *upgrade the Wilson Street and Nimbin Road intersection to a 'Type CHR Right Turn Bay Treatment' prior to 31 December 2010; and*
- e) *re-align Nimbin Road and the Quarry Access intersection to meet the AUSTROADS sight distance requirements for vehicles travelling in both directions through the intersection prior to 31 December 2011; and*
- f) *upgrade the intersection at Nimbin Road and the Quarry Access from the current Type AUR intersection to a Type CHR-S (Shortened Channelised Right Hand Turn) to the satisfaction of TfNSW.*

Note: The road works must be constructed in accordance with the relevant RMS or AUSTROADS standards, and signposted and lit in accordance with AS:1742 – Manual of Uniform Traffic Control Devices and AS/NZ 1158:2005 – Lighting for Roads and Public Spaces.

Compliance Statement

LCC advises that the road upgrade works referred to in Schedule 3 Condition 21 (a)-(e) were completed prior to the monitoring period. Truck movements are currently limited to 120 per day until the upgrade of the intersection. Designs for the intersection upgrade at Nimbin Road and the Quarry



Access referred to in (f) have been completed, and planning has been approved. LCC will assess budget requirements in respect to work schedules in the coming financial year.

2.4.23 Schedule 3 – Condition 22 (Operating Conditions)

Condition

The Proponent must:

- (a) *restrict truck movements from the quarry to an average of 50 laden trucks a day until all road upgrades works required by condition 21 (a) – (e) of Schedule 3, are met or unless otherwise approved by the Secretary;*
- (b) *ensure that all laden trucks entering or exiting the site have their loads covered, with the exception of loads consisting solely of boulders greater than one tonne in weight;*
- (c) *ensure that all laden trucks exiting the site are cleaned of material that may fall from vehicles, before leaving the site; and*
- (d) *use its best endeavours to ensure that appropriate signage is displayed on all trucks used to transport product from the project so they can be easily identified by road users.*

Compliance Statement

All roadworks referenced in Item (a) are complete.

The Operational Traffic Management Plan (refer to Schedule 3 Condition 23 in **Section 2.4.24**) includes measures to address Items (b), (c) and (d).

2.4.24 Schedule 3 – Condition 23 (Traffic Management Plan)

Condition

The Proponent must prepare a Traffic Management Plan for the project to the satisfaction of the Secretary. This plan must:

- a) *be prepared in consultation with the TfNSW and Council;*
- b) *be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;*
- c) *describe the processes in place for the control of truck movements entering and exiting the site;*
- d) *include a Drivers' Code of Conduct that details the safe and quiet driving practices that must be used by drivers transporting products to and from the quarry;*
- e) *describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; and*
- f) *propose measures to minimise the transmission of dust and tracking of material onto the surface of the public road from vehicles leaving the quarry.*

The Proponent must implement the approved Traffic Management Plan as approved from time to time by the Secretary.



Compliance Statement

The updated Operational Traffic Management Plan (Rev 3.1) for the quarry was submitted by LCC and endorsed by the Secretary in 2018.

2.4.25 Schedule 3 – Condition 24 (Aboriginal Heritage Management Plan)

Condition

The Proponent must prepare an Aboriginal Heritage Management Plan for the project to the satisfaction of the Secretary. The plan must:

- (a) *be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;*
- (b) *be prepared in consultation with Heritage NSW and the Registered Aboriginal Parties;*
- (c) *be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary; and*
- (d) *include a description of the measures that would be implemented to:*
 - *protect, monitor and manage known sites of archaeological significance;*
 - *manage any new Aboriginal objects or relics that are discovered;*
 - *store Aboriginal heritage items salvaged on site; and*
 - *ensure ongoing consultation and involvement of the Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site.*

The Proponent must implement the approved Aboriginal Heritage Management Plan as approved from time to time by the Secretary.

Compliance Statement

The updated Aboriginal Heritage Management Plan (Rev 3.1) for the quarry was submitted by LCC and endorsed by the DPE in 2018.

2.4.26 Schedule 3 – Condition 25 (Aboriginal Heritage Management Plan)

Condition

If any item or object of Aboriginal heritage significance is identified on site, the Proponent must ensure that:

- (a) *all work in the immediate vicinity of the suspected Aboriginal item or object ceases immediately;*
- (b) *a 10 m buffer area around the suspected item or object is cordoned off; and*
- (c) *the Heritage NSW is contacted immediately.*

Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the National Parks and Wildlife Act 1974.



Compliance Statement

LCC advises that no items or objects of Aboriginal Cultural Heritage significance were identified during the reporting period.

2.4.27 Schedule 3 – Condition 25A (Biodiversity Offset Strategy)

Condition

The Proponent must:

- (a) *implement the Biodiversity Offset Strategy (see Table 5);*
- (b) *ensure that adequate resources are dedicated towards the implementation of this strategy;*
- (c) *provide appropriate long-term security for the offset area; and*
- (d) *provide a timetable for the implementation of the offset strategy prior to 30 June 2010, or as otherwise agreed by the Secretary, to the satisfaction of the Secretary.*

Table 5: Biodiversity Offset Strategy

Offset Areas	Minimum Size
On-site offset (Protection Zone in Appendix 4)	17.6 hectares
Off-site offset (within Lismore local government area, and not already within a conservation area)	45 hectares
Total	62.6 hectares

Note: Mechanisms to provide appropriate long-term security to the land within the Biodiversity Offset Strategy in accordance with the NSW Biodiversity Offset Policy for Major Projects 2014, include a BioBanking Agreement, Voluntary Conservation Agreement or an alternative mechanism that provides for a similar conservation outcome.

Compliance Statement

The Biodiversity Offset Strategy (BOS) for the quarry was submitted by LCC and endorsed by the Secretary in March 2019.

2.4.28 Schedule 3 – Condition 26 (Rehabilitation Objectives)

Condition

The Proponent must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the rehabilitation strategy in the EIS and must comply with the objectives in Table 6.

Table 6: Rehabilitation Objectives

Feature	Objective
<i>All areas of the site affected by the project</i>	<ul style="list-style-type: none"> • Safe • Hydraulically and geotechnically stable • Non-polluting • Fit for the intended post mining land uses(s) • Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land
<i>Surface Infrastructure</i>	<ul style="list-style-type: none"> • Decommissioned and removed, unless otherwise agreed by the Secretary



<i>Quarry benches and pit floor</i>	<ul style="list-style-type: none"> • Landscaped and vegetated using native tree and understorey species
<i>Final Void</i>	<ul style="list-style-type: none"> • Minimise the size, depth and slope of the batters of the final void • Minimise the drainage catchment of the final void

Compliance Statement

LCC advises that no site rehabilitation was required, or occurred, during the reporting period.

2.4.29 Schedule 3 – Condition 27 (Progressive Rehabilitation)

Condition

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

Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to future re-disturbance

Compliance Statement

LCC advises that no site rehabilitation was required, or occurred, during the reporting period.

2.4.30 Schedule 3 – Condition 28 (Biodiversity and Rehabilitation Management Plan)

Condition

The Proponent must prepare a Biodiversity and Rehabilitation Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) *be prepared by a suitably qualified expert;*
- (b) *be prepared in consultation with BCD and Council;*
- (c) *be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;*
- (d) *provide details of the conceptual final landform and associated land uses for the site;*
- (e) *describe how the implementation of the Biodiversity Offset Strategy will be integrated with the overall rehabilitation of the site;*
- (f) *include a Koala Management Plan prepared in accordance with SEPP 44;*
- (g) *include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and rehabilitation of the site (including progressive rehabilitation), including triggers for any necessary remedial action;*
- (h) *describe the short, medium and long term measures to be implemented to:*
 - *manage remnant vegetation and habitat on site, including within the Biodiversity Offset Strategy area; and*



- *ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;*
- (i) *include a detailed description of the measures described in paragraph (h) to be implemented over the next 3 years (to be updated for each 3 year period following initial approval of the plan) including the procedures to be implemented for:*
- *maximising the salvage of environmental resources within the approved disturbance area, including tree hollows, vegetative and soil resources, for beneficial reuse in the enhancement of the offset area or site rehabilitation;*
 - *restoring and enhancing the quality of native vegetation and fauna habitat in the biodiversity offset and rehabilitation areas through assisted natural regeneration, targeted vegetation establishment and the introduction of fauna habitat features;*
 - *protecting vegetation and fauna habitat outside the approved disturbance area on-site, including core Koala habitat;*
 - *minimising the impacts on native fauna, including undertaking pre-clearance surveys;*
 - *establishing vegetation screening to minimise the visual impacts of the site on surrounding receivers;*
 - *ensuring minimal environmental consequences for threatened species, populations and habitats;*
 - *collecting and propagating seed;*
 - *controlling weeds and feral pests*
 - *controlling erosion; and*
 - *managing bushfire risk;*
- (j) *include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;*
- (k) *identify the potential risks to the successful implementation of the Biodiversity Offset Strategy, and include a description of the contingency measures to be implemented to mitigate these risks; and*
- (l) *include details of who is responsible for monitoring, reviewing, and implementing the plan.*

The Proponent must implement the Biodiversity and Rehabilitation Management Plan as approved from time to time by the Secretary.

Compliance Statement

The Biodiversity and Rehabilitation Management Plan (BRMP) was submitted to DPIE in August 2018. In 2019, following the approval of the Biodiversity Offset Strategy (BOS), the BRMP was again amended and submitted to DPIE for approval. This was subsequently approved on 14 March 2019. An updated BRMP has been completed and is currently under review)

Vegetation Management

Section 5.2 of the BOS requires that a suitably qualified professional be engaged to carry out ongoing monitoring to detail the effectiveness of measures and progress against performance indicators contained within the BRMP and BOS. The 2022 Bush Regeneration Plan Monitoring Report (BRPMR) undertaken in accordance with this requirement is presented in **Appendix V**.

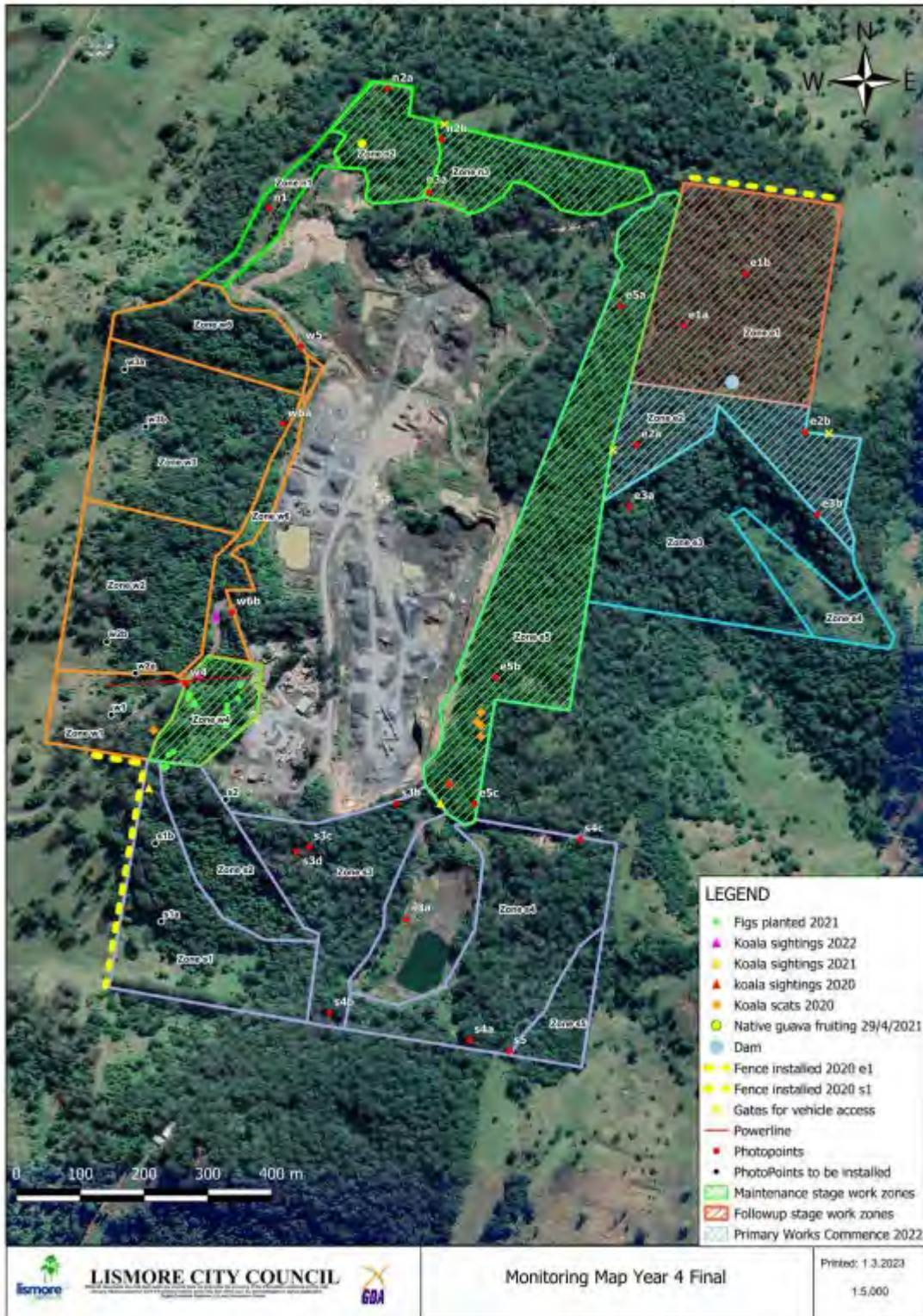
During the monitoring period, significant rainfall made access to many of the bush regeneration sites difficult, with access to Zones e1 and e2 (refer to **Illustration 2.4**) impassable from February until close to the end of the year. Despite this, all key performance indicators were assessed as being satisfied, and regeneration work was assessed to be progressing as planned.



Primary works in Core Koala Habitat Zone e1 were completed at the end of December 2022, with ongoing follow ups being conducted. Primary works within Core Koala Habitat Zone e2 are 80% complete. Regular spot sprays of weed species were conducted within Zones n2, n3, e5 and w4. The removal of rainforest pioneer species was undertaken to promote eucalypt recruitment.

Regeneration of both primary and secondary koala food species were noted to be evident within Core Koala Habitat Zones n2, n3 e5 and e1. There were two koala sightings during the monitoring period, although the BRPMR recommends that a koala survey to monitor the population is undertaken, as the number of incidental sightings is not considered to be a reliable measure of whether koalas are still utilising the site in some way.

Illustration 2.4 Bush Regeneration Monitoring Map



2.4.31 Schedule 3 – Condition 29 (Biodiversity and Rehabilitation Bond)

Condition

Within 6 months of the approval of the Biodiversity and Rehabilitation Management Plan, the Proponent must lodge a Biodiversity and Rehabilitation Bond with the Department to ensure that the



Biodiversity Offset Strategy and rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the plan and the relevant conditions of this approval. The sum of the bond must be determined by:

- (a) *calculating the full cost of implementing the Biodiversity Offset Strategy;*
- (b) *calculating the cost of rehabilitating all disturbed areas of the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and*
- (c) *employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.*

Notes:

Alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by BCD as part of a BioBanking Agreement, or transfer to conservation reserve estate can be used to reduce the liability of the Biodiversity and Rehabilitation Bond.

If capital and other expenditure required by the Biodiversity and Rehabilitation Management Plan is largely complete, the Secretary may waive the requirement for lodgement of a bond in respect of the remaining expenditure.

If the Biodiversity Offset Strategy and/or rehabilitation of the site area are completed (or partially completed) to the satisfaction of the Secretary, then the Secretary will release the bond (or relevant part of the bond). If the Biodiversity Offset Strategy and rehabilitation of the site are not completed to the satisfaction of the Secretary, then the Secretary will call in all or part of the bond, and arrange for the completion of the relevant work.

Compliance Statement

This condition was complied with prior to the reporting period.

2.4.32 Schedule 3 – Condition 30 (Biodiversity and Rehabilitation Bond)

Condition

Within 3 months of each Independent Environmental Audit (see Condition 12 of Schedule 5), the Proponent must review, and if necessary revise, the sum of the Biodiversity and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:

- (a) *effects of inflation;*
- (b) *likely cost of implementing the Biodiversity Offset Strategy and rehabilitating all disturbed areas of the site (taking into account the likely surface disturbance over the next 3 years of the project); and*
- (c) *performance of the implementation of the Biodiversity Offset Strategy and rehabilitation of the site to date.*

Compliance Statement

An Independent Environmental Audit (IEA) was completed in July 2022 as per Schedule 5 Condition 12. Following the completion of the IEA, LCC conducted a review of the Biodiversity and Rehabilitation Bond. The DPE advised that they had accepted the amount calculated. Payment of the outstanding amount has not yet been made by LCC.



2.4.33 Schedule 3 – Condition 31 (Visual)

Condition

The Proponent must implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the project to the satisfaction of the Secretary.

Compliance Statement

Quarry operations are located below the tree line and do not intrude on the landscape of visual character of the locality. LCC advises that they are not aware of any complaints with respect to visual impacts associated with the quarry.

2.4.34 Schedule 3 – Condition 32 (Waste)

Condition

The Proponent must:

- (a) manage on-site sewage treatment and disposal in accordance with the requirements of its EPL, and to the satisfaction of the EPA and Council;*
- (b) minimise the waste generated by the project;*
- (c) ensure that the waste generated by the project is appropriately stored, handled, and disposed of; and*
- (d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.*

Compliance Statement

LCC advises that, during the reporting period, waste management practices at the quarry involved the following:

- Waste generated by staff is separated into general waste and recyclables.
- Lismore City Council 'standard' waste collection service, supplemented by waste delivery to the Wyrallah Road Waste Management Facility by quarry staff as required.
- Used oil and chemicals (when applicable) drums / containers are transported to the Wyrallah Road Waste Management Facility by quarry staff on an 'as needs' basis.
- On-site wastewater is treated and disposed in accordance with EPL 3384

2.4.35 Schedule 3 – Condition 33 (Waste)

Condition

Except as expressly permitted in an EPL, the Proponent must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.

Compliance Statement

LCC advises that between October and December 2021, approximately 4,249.12 tonnes of excavated public road material was brought onto site. This incident of non-compliance was self-reported by LCC in 2021. Throughout 2022, approximately 79.8% (3390.68 tonnes) was removed from the site. Removal will continue until no material remains.



2.4.36 Schedule 3 – Condition 34 (Liquid Storage)

Condition

The Proponent must ensure that all tanks and similar storage facilities (other than for water) are protected by appropriate bunding or other containment, in accordance with the relevant Australian Standards.

Compliance Statement

Liquids within the chemical storage shed (i.e., oils, greases lubricants) are stored on pallet bunds or other containment. Fuel tanks include a 10,000L self-bunded diesel tank (installed February 2022) and an 18000L diesel tank within a concrete block bund.

2.4.37 Schedule 3 – Condition 35 (Dangerous Goods)

Condition

The Proponent must ensure that the storage, handling, and transport of dangerous goods is done in accordance with the relevant Australian Standards, particularly AS1940 and AS1596, and the Dangerous Goods Code.

Compliance Statement

Dangerous goods are stored as outlined in **Section 2.4.36**, and are stored in accordance with the relevant standards.

2.4.38 Schedule 3 – Condition 36 (Bushfire)

Condition

The Proponent must:

- (a) *ensure that the project is suitably equipped to respond to any fires on site; and*
- (b) *assist the Rural Fire Service and emergency services to the extent practicable if there is a fire in the vicinity of the site.*

Compliance Statement

- (a) As per the Emergency Response Plan (2022), ongoing training in fire and emergency response is provided to Quarry staff, and emergency drills are held every 6 months. Dry powder, water and foam extinguishers are available for on-site fires.
- (b) Water carts are on site and can be used to assist RFS and emergency services in the event of a fire.



2.5 Schedule 4 – Additional Procedures

2.5.1 Schedule 4 – Condition 1 (Notification of Landowners)

Condition

As soon as practicable, and no longer than 7 days, after obtaining monitoring results showing:

- *an exceedance of any criteria in Schedule 3, the Proponent must notify the affected landowners in writing of the exceedance, and provide regular monitoring results, at least every 3 months, to each affected landowner until the project is again complying with the relevant criteria; and*
- *an exceedance of any air quality criteria in Schedule 3, the Proponent must send a copy of the NSW Health fact sheet entitled “Mine Dust and You” (as may be updated from time to time) to the affected landowners and current tenants of the land (including the tenants of land which is not privately-owned).*

Compliance Statement

There were two recorded instances of an exceedance of criteria contained within Schedule 3 within the reporting period:

- On 26 September 2022, ground vibrations from blasting events exceeded the permissible velocity as defined in Schedule 3 Condition 6. Additional monitoring was not required as monitoring of blasting is undertaken during all blasting events, with these results made publicly available through the LCC website in accordance with Schedule 5 Condition 14.
- On 23 December 2022, blasting occurred outside of permissible blasting hours as defined in Schedule 3 Condition 1. Additional monitoring was not required as monitoring of blasting is undertaken during all blasting events, with these results made publicly available through the LCC website in accordance with Schedule 5 Condition 14.

2.5.2 Schedule 4 – Condition 2 (Independent Review)

Condition

If an owner of privately-owned land considers the project to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the project on his/her land. If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary’s decision, the Proponent must:

- (a) *commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:*
 - *consult with the landowner to determine his/her concerns;*
 - *conduct monitoring to determine whether the project is complying with the relevant criteria in Schedule 3; and*
 - *if the project is not complying with these criteria, then identify measures that could be implemented to ensure compliance with the relevant criteria; and*
- (b) *give the Secretary and landowner a copy of the independent review; and*
- (c) *comply with any written requests made by the Secretary to implement any findings of the review.*



Compliance Statement

LCC advises that the Secretary did not request an independent review of the impacts of the project.

2.5.3 Schedule 4 – Condition 3 (Property Inspections)

Condition

Prior to 30 June 2010, the Proponent must advise all owners of privately-owned land within 2 kilometres of proposed blasting activities, and any other landowner nominated by the Secretary, that they are entitled to a property inspection to establish the baseline condition of the property.

Compliance Statement

LCC advises that this condition was complied with prior to the 2022 monitoring period.

2.5.4 Schedule 4 – Condition 4 (Property Inspections)

Condition

If the Proponent receives a written request for a property inspection from any such landowner, the Proponent must:

- (a) commission a suitably qualified person, whose appointment has been approved by Secretary, to inspect and report on the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and*
- (b) give the landowner a copy of this property inspection report.*

Note: It is preferable for the property inspection to be carried out prior to the commencement of blasting activities on the site, and the Proponent should facilitate this occurring wherever possible.

Compliance Statement

As required by Schedule 4 Condition 3, Council afforded neighbours an opportunity for property inspections. Subsequently Council received several written requests for property inspections, this was completed in 2012.

2.5.5 Schedule 4 – Condition 5 (Property Investigations)

Condition

If any owner of privately-owned land within 2 kilometres of proposed blasting activities, or any other landowner nominated by the Secretary, claims that his/her property, including vibration-sensitive infrastructure such as water supply or underground irrigation mains, has been damaged as a result of blasting at the project, the Proponent shall within 3 months of receiving this request:

- (a) commission a suitably qualified person whose appointment has been approved by the Secretary to investigate the claim and prepare a property investigation report; and*
- (b) give the landowner a copy of the report.*

If this independent investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damage to the satisfaction of the Secretary.



If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.

Compliance Statement

LCC received a complaint on 13 December 2021 following a production blast, from the occupant of [REDACTED] with allegations of structural damage to their residence. Monitoring reports provided (refer to **Appendix M**) show that no exceedances of the criteria stipulated within Schedule 3 Condition 6 occurred during the blasting event. LCC advises that no additional complaints from other nearby landholders were received regarding this blast event. LCC measured the distance to the complainant's property residence from the blast and, as it was measured to be more than 2km, was therefore of the understanding that it did not trigger the reporting requirements as stipulated by Schedule 4, Condition 5. A written request relevant to this condition was not received from the complainant relating to this blast. LCC engaged a dilapidation report for the resident as an act of good faith on 20 January 2022, with a report due by 13 March 2022. Due to severe regional flooding and damages suffered to the consultant's office and electronic records, the information was lost. The complainant was understanding of the flooding situation and accepting that the original report would be outside the 3-month timeframe.

On 18 March 2022, the complainant made another complaint following a production blast at the Quarry. Monitoring reports provided (refer to **Appendix M**) show that no exceedances of the criteria stipulated within Schedule 3 Condition 6 occurred during the blasting event. LCC advises that no additional complaints from other nearby landholders were received regarding this blast event. The consultant revisited the complainant's residence to conduct the inspection again. This report was provided at the first available opportunity to the complainant on 27 April 2022. LCC further investigated the complaints from the resident. After clarification of the condition with the DPE, the distance from the Quarry to the complainant's property boundary was measured and found to be within 2km (thus triggering the reporting requirements as stipulated by Schedule 4, Condition 5). LCC self-reported to the DPE immediately on 16 May 2022 (refer to **Appendix W**) and sought endorsement of a suitably qualified person, who undertook monitoring on 31 May 2022 at the next production blast. Endorsement was obtained on 21 June 2022 from the DPE and a report was provided to the complainant on 28 July 2022. The complainant disagreed with the endorsed experts report. The DPE requested a further Property Investigation Addendum Report from LCC which was submitted to DPE on 28 February 2023. LCC was advised that the complainant has contested this report which has now referred the matter to the DPE for resolution.

2.6 Schedule 5 – Environmental Management, Reporting & Auditing

2.6.1 Schedule 5 – Condition 1 (Environmental Management Strategy)

Condition

The Proponent must prepare an Environmental Management Strategy for the project to the satisfaction of the Secretary. This strategy must:

- (a) be submitted to the Secretary for approval within 6 months of the Secretary requiring preparation of the strategy by notice to the Proponent;*
- (b) provide the strategic framework for environmental management of the project;*
- (c) identify the statutory approvals that apply to the project;*



- (d) *describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;*
- (e) *describe the procedures to be implemented to:*
- *keep the local community and relevant agencies informed about the operation and environmental performance of the project;*
 - *receive, record, handle and respond to complaints;*
 - *resolve any disputes that may arise during the course of the project;*
 - *respond to any non-compliance;*
 - *respond to emergencies; and*
- (f) *include:*
- *copies of any strategies, plans and programs approved under the conditions of this approval; and*
 - *a clear plan depicting all the monitoring to be carried out under the conditions of this approval.*

The Proponent must implement any Environmental Management Strategy as approved from time to time by the Secretary.

Compliance Statement

The Environmental Management Strategy (EMS) for the quarry was updated and endorsed by the Secretary in 2018. A copy of the updated strategy (Rev 3.1) is available on the LCC's website.

2.6.2 Schedule 5 – Condition 2 (Evidence of Consultation)

Condition

Where consultation with any State or local agency is required by the conditions of this approval, the Proponent must:

- (a) *consult with the relevant agency prior to submitting the required document to the Secretary for approval;*
- (b) *submit evidence of this consultation as part of the relevant document;*
- (c) *describe how matters raised by the agency have been addressed and any matters not resolved; and*
- (d) *include details of any outstanding issues raised by the agency and an explanation of disagreement between any agency and the Proponent.*

Compliance Statement

Noted. During the lifetime of the Quarry, several management plans requiring consultation with various state or local agencies have been developed and endorsed by the Secretary prior to the 2022 monitoring period.

2.6.3 Schedule 5 – Condition 3 (Management Plan Requirements)

Condition



The Proponent must ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:

- (a) *detailed baseline data;*
- (b) *a description of:*
 - *the relevant statutory requirements (including any relevant approval, licence or lease conditions);*
 - *any relevant limits or performance measures/criteria; and*
 - *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;*
- (c) *a description of the measures that to be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;*
- (d) *a program to monitor and report on the:*
 - *impacts and environmental performance of the project; and*
 - *effectiveness of any management measures (see (c) above);*
- (e) *a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;*
- (f) *a program to investigate and implement ways to improve the environmental performance of the project over time;*
- (g) *a protocol for managing and reporting any:*
 - *incidents;*
 - *complaints;*
 - *non-compliances with statutory requirements; and*
 - *exceedances of the impact assessment criteria and/or performance criteria; and*
- (h) *a protocol for periodic review of the plan.*

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Compliance Statement

A review of the management plans implemented during the reporting period indicates that they have been prepared in accordance with the relevant guidelines.

2.6.4 Schedule 5 – Condition 4 (Application of Existing Management Plans)

Condition

The Proponent must continue to apply existing approved management plans, strategies or monitoring programs that have most recently been approved under this approval, until the approval of a similar plan, strategy or program under this approval.

Compliance Statement



LCC advises that the most recently approved versions of management plans, strategies and monitoring programs are being applied.

2.6.5 Schedule 5 – Condition 4A (Revision of Strategies, Plans & Programs)

Condition

Within 3 months of the submission of an:

- (a) incident report under condition 9 below;*
- (b) Annual Review under condition 11 below;*
- (c) audit report under condition 12 below; and*
- (d) any modifications to this approval,*

The Proponent must review the strategies, plans and programs required under this approval, to the satisfaction of the Secretary. The proponent must notify the Department in writing of any such review being undertaken. Where this review leads to revisions in any such document, then within 6 weeks of the review the revised document must be submitted for the approval of the Secretary.

Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.

Compliance Statement

LCC advises that all management plans were reviewed and submitted to the DPE by September 2022. The updated Noise and Blast Management Plan (Rev4.1) was approved by the Secretary on 10 October 2022, with all other plans currently in the review stage with the DPE.

2.6.6 Schedule 5 – Condition 5 (Update to Strategies, Plans or Programs)

Condition

To ensure that strategies, plans or programs required under this approval are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the project, the Proponent may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Proponent may also submit any strategy, plan or program required by this approval on a staged basis. The Secretary may approve a revised strategy, plan or program required under this approval, or the staged submission of any of these documents, at any time. With the agreement of the Secretary, the Proponent may prepare the revised or staged strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this approval. While any strategy, plan or program may be submitted on a staged basis, the proponent will need to ensure that the operations associated with the project are covered by suitable strategies, plans or programs at all times.

If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the project to which the strategy, plan or program applies; the relationship of this stage/s to any future stages; and the trigger for updating the strategy, plan or program.



Compliance Statement

Noted.

2.6.7 Schedule 5 – Condition 6 (Adaptive Management)

Condition

The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and performance measures in this consent. Any exceedance of these criteria or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria or performance measures has occurred, the Applicant must, at the earliest opportunity:

- (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;*
- (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and*
- (c) implement reasonable remediation measures as directed by the Planning Secretary.*

Compliance Statement

Exceedances occurred on four occasions during the reporting period:

- On 26 September 2022, ground vibrations from blasting events exceeded the permissible velocity as defined in Schedule 3 Condition 6. Additional monitoring was not required as monitoring of blasting is undertaken during all blasting events, with these results made publicly available through the LCC website in accordance with Schedule 5 Condition 14. All other monitoring locations recorded ground vibrations below the permissible velocity. Operations and Compliance staff reviewed the relevant blast documentation and no discrepancies or issues with the blast execution were identified. An assessment of the monitoring location was undertaken by an external consultant, and a recommendation was made to install a concrete foundation, as the monitoring equipment may have given uncharacteristic measurements as a result of insertion into the soil. LCC advises that this was reported to the DPE on 30 September 2022.
- On 23 December 2022, blasting occurred outside of permissible blasting hours as defined in Schedule 3 Condition 1. An investigation was undertaken and determined that this was caused by human error. LCC advises that this was reported to the DPE on 23 December 2022.
- During the monitoring period, 50,063.21 tonnes of asphalt was transported from the site. This exceeds the permitted mass of 50,000 tonnes as stated in Schedule 2 Condition 8 by 63.21 tonnes. LCC advises that this was reported to the DPE on 27 February 2023.
- During the monitoring period, sampling from two groundwater bores indicated elevated levels of lead in 50% of monitoring rounds. The levels of lead exceeded interim trigger level criteria as detailed in the SWMP. LCC advises that an external consultant has been engaged to determine the cause of this exceedance and to make recommendations of possible remediation. LCC advises that this was reported to the DPE on 8 March 2023.

2.6.8 Schedule 5 – Condition 7 (Community Consultative Committee)

Condition



The Proponent must establish and operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Secretary. The CCC must be operated in general accordance with the Department's Community Consultative Committee Guidelines, November 2016 (or later version).

Notes:

- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.*
- *In accordance with the guidelines, the Committee should comprise an independent chair and appropriate representation from the Proponent, Council and the local community.*

Compliance Statement

During the monitoring period, LCC operated a CCC in accordance with the Community Consultative Committee Guideline for State Significant Projects (2019). The meeting minutes are publicly available on the LCC website. The minutes from the 2022 CCC meeting are presented in **Appendix X**.

2.6.9 Schedule 5 – Condition 8 (Incident Notification)

Condition

The Proponent must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.

Compliance Statement

Under the Approval, an incident is defined as:

An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.

Several incidents are described in **Section 2.6.7**. Additionally, there was one incident within the monitoring period. On 9 May 2022, water was actively discharged from sediment basin SW1 via the use of a gravity release hose. No sampling of sediment basin surface waters was undertaken by Quarry staff prior to release. No ongoing sampling was undertaken throughout the discharge. The pre-release sampling of discharge waters is required as per condition M2.3 of EPL 3384. No sampling of off-site surface waters prior to and during discharge events was undertaken as required under the SWMP. LCC advises that this was reported to the DPE on 16 May 2022.

2.6.10 Schedule 5 – Condition 9 (Non-Compliance Notification)

Condition

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



Compliance Statement

There were seven identified instances of non-compliance within the reporting period. These are detailed in **2.5.5**, **2.6.7**, and **2.6.9**. All non-compliances were self-reported to the DPE in writing via the Major Projects Website.

2.6.11 Schedule 5 – Condition 10 (Regular Reporting)

Condition

The Proponent must provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.

Compliance Statement

The LCC website contains comprehensive information regarding the environmental performance of the project, including the Annual Environmental Monitoring Reports and past Environmental Audits.

2.6.12 Schedule 5 – Condition 11 (Annual Review)

Condition

By the end of March each year, or other timing as may be agreed by the Secretary, the Proponent must submit a review to the Department reviewing the environmental performance of the project to the satisfaction of the Secretary. This review must:

- (a) describe the project (including any progressive rehabilitation) that was carried out in the previous calendar year, and the project that is proposed to be carried out over the current calendar year;*
- (b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against the:
 - relevant statutory requirements, limits or performance measures/criteria;
 - requirements of any plan or program required under this approval;
 - monitoring results of previous years; and
 - relevant predictions in the documents listed in condition 2(a) of Schedule 2;*
- (c) evaluate and report on:
 - the effectiveness of the air quality and noise management systems; and
 - compliance with the performance measures, criteria and operating conditions in this approval.*
- (d) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance;*
- (e) identify any trends in the monitoring data over the life of the project;*
- (f) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies;*



- (g) *describe what measures will be implemented over the current calendar year to improve the environmental performance of the project.*

The Proponent must ensure that copies of the Annual Review are submitted to Council and are available to the Community Consultative Committee (see condition 7 of Schedule 5) and any interested person upon request.

Compliance Statement

Due to extensive flooding in the region, LCC was granted an extension for submission of the AEMR for 2021, which was compiled and submitted to the DPE in June 2022. The DPE commented that the 2021 AEMR was lacking in detail with regard to several conditions of approval, however exercised its discretion and did not request a revision. The AEMR 2022 is due for submission to the DPE by 31 March 2023.

2.6.13 Schedule 5 – Condition 12 (Independent Environmental Audit)

Condition

Within three years of the date of grant of this project approval, and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent must commission, commence and pay the full cost of an Independent Environmental Audit of the project. This audit must:

- (a) *be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;*
- (b) *include consultation with the relevant agencies and the CCC;*
- (c) *assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL or necessary water licences for the project (including any assessment, strategy, plan or program required under these approvals);*
- (d) *review the adequacy of strategies, plans or programs required under the abovementioned approvals;*
- (e) *recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, strategy, plan or program required under the abovementioned approvals; and*
- (f) *be conducted and reported to the satisfaction of the Secretary.*

Compliance Statement

An Independent Environmental Audit (IEA) of the Quarry was undertaken and submitted to the DPE in July 2022. LCC advises that the DPE have written to Council on 12 September 2022, confirming that the report satisfies the requirements of the conditions of approval.

2.6.14 Schedule 5 – Condition 13 (Implementation of Audit Recommendations)

Condition

Within 12 weeks of commencing this audit, or as otherwise agreed by the Secretary, the Proponent must submit a copy of the audit report to the Secretary and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for



the implementation of these recommendations as required. The Proponent must implement these recommendations, to the satisfaction of the Secretary.

Compliance Statement

Two recommended actions were identified within the IEA to remedy instances of non-compliance or opportunities for improvement:

- The driver and visitor induction document should be amended to include references to requirements listed within Schedule 3 Condition 22, namely:
 - c) ensure that all laden trucks exiting the site are cleaned of material that may fall from vehicles, before leaving the site; and*
 - d) use its best endeavours to ensure that appropriate signage is displayed on all trucks used to transport product from the project so they can be easily identified by road users*

Implementation

LCC advises that wording within the driver and visitor induction document has been updated.

- Required records of compliance with all conditions of approval should be kept and maintained. This recommendation was in response to the absence of evidence of the BDMP being prepared by a suitably qualified person.

Implementation

Noted.

2.6.15 Schedule 5 – Condition 14 (Access to Information)

Condition

Within 3 months of the determination of Modification 1, until the completion of all works, including rehabilitation and remediation the Proponent must:

- (a) *make the following information publicly available on its website:*
 - *the documents listed in condition 2(a) of Schedule 2;*
 - *current statutory approvals for the project;*
 - *all approved strategies, plans and programs required under the conditions of this approval;*
 - *a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs;*
 - *a complaints register, updated monthly;*
 - *the annual reviews of the project;*
any independent environmental audit as described in condition 12 above, and the Proponent's response to the recommendations in any audit; and
 - *any other matter required by the Secretary; and*
- (b) *keep this information up-to-date, to the satisfaction of the Secretary.*

Compliance Statement

Appendix Y provides a schedule confirming that the information listed above is available on the LCC website, with one exception. Results of water quality during the discharge incident (refer to **Section 2.4.17**) are not available, as no measurements of water quality were undertaken.



Appendix O provides a copy of the Complaint Register for the reporting period. The register is available on the LCC website and has been updated monthly as required.

2.7 Appendix 5 – Noise Compliance Assessment

2.7.1 Appendix 5 – Condition 1 (Applicable Meteorological Conditions)

Condition

The noise criteria in Table 2 are to apply under all meteorological conditions except the following:

- (a) wind speeds greater than 3 m/s at 10 m above ground level; or
- (b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speed greater than 2 m/s at 10 m above ground level; or
- (c) temperature inversion conditions greater than 3°C/100 m.

Table 2: Noise criteria dB(A)

Receiver	Day <i>L_{Aeq} (15 minute)</i>
Location 2 and Location 7	36
All other locations	35

Compliance Statement

Noted.

2.7.2 Appendix 5 – Condition 2 (Determination of Meteorological Conditions)

Condition

Except for wind speed at microphone height, the data to be used for determining meteorological conditions must be that recorded by the meteorological station required under Condition 13 of Schedule 3.

Compliance Statement

The meteorological station was installed onsite in early 2018. The 2022 Noise Monitoring Report (refer to Appendix L) includes reference to the on-site weather data as well as available external meteorological data.

2.7.3 Appendix 5 – Condition 3 (Compliance Monitoring)

Condition

A noise compliance assessment must be undertaken within two months of commencing mining operations under EA (Mod 1). The assessment must be conducted by a suitably qualified and experienced acoustical practitioner and must assess compliance with the noise criteria in Table 2. A report must be provided to the Secretary and EPA within 1 month of the assessment.



Compliance Statement

Mod 1 was approved in September 2017. The required noise compliance assessment was completed in November 2017 in accordance with this requirement.

2.7.4 Appendix 5 – Condition 4 (Compliance Monitoring)

Condition

Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:

- (a) monitoring locations for the collection of representative noise data;*
- (b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment;*
- (c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration; and*
- (d) the use of an appropriate modifying factor for low frequency noise to be applied during compliance testing. This should be undertaken in accordance with Fact Sheet C of the NSW Noise Policy for Industry (EPA, 2017).*

Compliance Statement

The 2022 Noise Assessment has been completed in accordance with the NSW Industrial Noise Policy. The Noise monitoring report is provided at **Appendix L**.



3. Summary of Findings and Actions

3.1 Summary of Non-Compliances

This AEMR has reported on non-compliances, as summarised below.

3.1.1 Non-compliance 1 – Asphalt production

The relevant condition (Schedule 2 Condition 8) is reproduced in **Section 2.3.9**, and additional details are also provided in the same section.

Findings

The Quarry transported 50,063 tonnes of asphalt in the monitoring period. This exceeds the permitted mass of 50,000 tonnes per calendar year. Council has discussed the oversight with the asphalt plant operator, who has agreed to implement additional reporting checks with the weighbridge to prevent any reoccurrences.

Recommendation

LCC has investigated the matter and implemented appropriate actions. No further action is recommended.

3.1.2 Non-compliance 2 – Blasting hours

The relevant condition (Schedule 3 Condition 1) is reproduced in **Section 2.4.1**, and additional details are also provided in the same section.

Findings

On the morning of Friday 23 December 2022, blasting was conducted at 9:10 am. This blasting event was not compliant with the permissible blasting hours of 10am to 3pm. Notification of this non-compliance was reported by LCC to the DPE and EPA. LCC advises that an internal investigation was undertaken and determined that this was due to human error. All relevant staff have been notified and briefed on the findings of Council's internal investigation, and staff have been re-educated about the conditions of approval.

Recommendation

LCC has investigated the matter and implemented appropriate actions. No further action is recommended.

3.1.3 Non-compliance 3 – Ground vibration

The relevant condition (Schedule 3 Condition 6) is reproduced in **Section 2.4.7**, and additional details are also provided in the same section.

Findings

On 26 September 2022 at monitoring location 8, ground vibration peak particle velocity was measured at 7.71 mm/s. This exceeds the ground vibration limit of 5 mm/s as outlined in Schedule 3 Condition 6.



No complaints were received regarding this incident. A review of the report and site investigation by the DPE concluded that the exceedance was due to the incorrect installation of monitoring equipment.

Recommendation

It is recommended that LCC installs a concrete footing at monitoring location 8 to enable more accurate measurements of blasting parameters.

3.1.4 Non-compliance 4 – Pre-release testing of sediment basin

The relevant condition (Schedule 3 Condition 16) is reproduced in **Section 2.4.17**, and additional details are also provided in the same section.

Findings

On 9 May 2022, water was discharged from the sediment basin via the use of a gravity hose. No measurement of water quality within the sediment basin was undertaken prior to discharge, as is required under condition M2.3 of EPL 3384. An internal investigation determined that this was due to a misinterpretation by quarry staff of the conditions to EPL 3384. Re-education of relevant quarry staff regarding obligations under both the Conditions of Approval and EPL 3384 has been undertaken. Clarification of the conditions to EPL 3384 has been sought with the EPA.

Recommendation

LCC has investigated the matter and implemented appropriate actions. No further action is recommended.

3.1.5 Non-compliance 5 – Pre-release testing of off-site surface waters

The relevant condition (Schedule 3 Condition 19) is reproduced in **Section 2.4.20**, and additional details are also provided in the same section.

Findings

On 9 May 2022, water was discharged from the sediment basin via the use of a gravity hose. Monitoring of off-site surface waters prior to and during discharge operations was not undertaken, as is required under Commitment 9 of the SWMP. LCC advises that the SWMP has been reviewed, removing monitoring conditions that are not operationally viable. Re-education of relevant quarry staff regarding obligations under both the Conditions of Approval and the revised SWMP has been undertaken.

Recommendation

LCC has investigated the matter and implemented appropriate actions. No further action is recommended.

3.1.6 Non-compliance 6 – Elevated lead levels within groundwater

The relevant condition (Schedule 3 Condition 19) is reproduced in **Section 2.4.20**, and additional details are also provided in the same section.

Findings

During the monitoring period, sampling from two groundwater bores indicated elevated levels of lead in 50% of monitoring rounds. The levels of lead exceeded interim trigger level criteria as detailed in the



SWMP. LCC advises that this was reported to the DPE on 8 March 2023. LCC advises that an external consultant has been engaged to determine the cause of this exceedance and to make recommendations of possible remediation.

Recommendation

It is recommended that LCC and Quarry management await the results of the investigation and implement any recommended remediation measures to prevent reoccurrence.

3.1.7 Non-compliance 7 – Property Inspections

The relevant condition (Schedule 4 Condition 5) is reproduced in **Section 2.5.5**, and additional details are also provided in the same section.

Findings

LCC received a complaint on 13 December 2021 following a production blast, from the occupant of [REDACTED] with allegations of structural damage to their residence. Monitoring reports provided show that no exceedances of the criteria stipulated within Schedule 3 Condition 6 occurred during the blasting event. LCC advises that no additional complaints from other nearby landholders were received regarding this blast event. LCC measured the distance to the complainant's property residence from the blast and, as it was measured to be more than 2km, was therefore of the understanding that it did not trigger the reporting requirements as stipulated by Schedule 4, Condition 5. A written request relevant to this condition was not received from the complainant relating to this blast. LCC engaged a dilapidation report for the resident as an act of good faith on 20 January 2022, with a report due by 13 March 2022. Due to severe regional flooding and damages suffered to the consultant's office and electronic records, the information was lost. The complainant was understanding of the flooding situation and accepting that the original report would be outside the 3-month timeframe.

On 18 March 2022, the complainant made another complaint following a production blast at the Quarry. Monitoring reports provided show that no exceedances of the criteria stipulated within Schedule 3 Condition 6 occurred during the blasting event. LCC advises that no additional complaints from other nearby landholders were received regarding this blast event. The consultant revisited the complainant's residence to conduct the inspection again. This report was provided at the first available opportunity to the complainant on 27 April 2022. LCC further investigated the complaints from the resident. After clarification of the condition with the DPE, the distance from the Quarry to the complainant's property boundary was measured and found to be within 2km (thus triggering the reporting requirements as stipulated by Schedule 4, Condition 5). LCC self-reported to the DPE immediately on 16 May 2022 (refer to Appendix W) and sought endorsement of a suitably qualified person, who undertook monitoring on 31 May 2022 at the next production blast. Endorsement was obtained on 21 June 2022 from the DPE, and a report was provided to the complainant on 28 July 2022. The complainant disagreed with the endorsed experts report. The DPE requested a further Property Investigation Addendum Report from LCC which was submitted to DPE on 28 February 2023. LCC was advised that the complainant has contested this report which has now referred the matter to the DPE for resolution.

Recommendation

LCC has investigated the matter and implemented appropriate actions. No further action is recommended.



3.2 Status of Actions Identified in 2021 AEMR

Section 3.3 of the 2021 AEMR identified actions to improve environmental performance. **Table 3.1** presents the actions and the corresponding current progress status based on information provided in this AEMR and advice from LCC.

Table 3.1 Actions Planned for 2022 and Status

Action Reference	Action	Current Progress Status
2021 AEMR Section 3.3 Action a)	Continuation of groundwater data collection to establish 12 data points for each monitoring well	Collection of groundwater data is ongoing. Interim trigger values to be updated in revised SWMP.



4. Conclusion

This Annual Environmental Monitoring Report (AEMR) has been prepared in response to Schedule 5 Condition 11 of the Blakebrook Quarry Part 3A Approval No. 07_0020 (Mod 3). Each condition of approval has been reproduced in full and followed by a compliance statement addressing the findings.

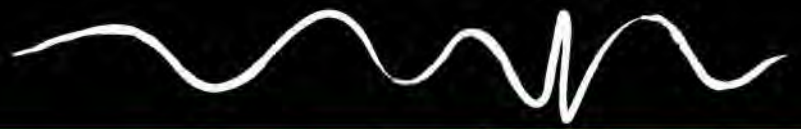
Overall, this AEMR has found a high level of compliance with the conditions of approval.

Seven non-compliances were identified:

- Asphalt production: The Quarry transported 50,063 tonnes of asphalt in the monitoring period. This exceeds the permitted mass of 50,000 tonnes per calendar year. LCC self-reported this non-compliance to the DPE.
- Blasting hours: On the morning of Friday 23 December, blasting was conducted at 9:10 am. This blasting event was not compliant with the permissible blasting hours of 10am to 3pm. LCC self-reported this non-compliance to the DPE.
- Ground vibration: On 26 September 2022 at monitoring location 8, ground vibration peak particle velocity was measured at 7.71 mm/s. This exceeds the ground vibration limit of 5 mm/s. LCC self-reported this non-compliance to the DPE.
- Sediment basin testing prior to discharge: On 9 May 2022, water was discharged from the sediment basin via the use of a gravity hose. No measurement of water quality within the sediment basin was undertaken prior to discharge. LCC self-reported this non-compliance to the DPE.
- Off-site surface water monitoring prior to discharge: On 9 May 2022, water was discharged from the sediment basin via the use of a gravity hose. No measurement of water quality within the off-site receiving surface waters was undertaken prior to or during discharge. LCC self-reported this non-compliance to the DPE and have amended the off-site testing requirements in the revised SWMP for practicality.
- Elevated levels of lead in groundwater: Sampling from two groundwater bores indicated exceedances of interim trigger levels for lead in in 50% of monitoring rounds. LCC self-reported this non-compliance to the DPE and have engaged a consultant to investigate the issue.
- Property investigation: A property investigation report was not delivered to a complainant within the required three month timeframe. LCC self-reported this non-compliance to the DPE.

Each non-compliance was appropriately reported and investigated. It is recommended that:

1. A concrete footing be installed at blast monitoring location 8 to enable more accurate measurements of blasting parameters (*where practicable and with landowner consent*)
2. Any reasonable remediation measures be implemented, following the investigation into the sources of lead within the groundwater.



References

Environmental Resources Management Australia (ERM), (2018). *Environmental Management Strategy (Rev 3.1)*. August 2018 for Lismore City Council.



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Appendix A

Project Approval 07_0020 Mod 3

Project Approval

Section 75J of the *Environmental Planning & Assessment Act 1979*

I approve the project referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the on-going environmental management of the project.

**Director-General
as delegate for the Minister for Planning**

Sydney 2009

SCHEDULE 1

Application No.: 07_0020
Proponent: Lismore City Council
Approval Authority: Minister for Planning
Land:
Extraction Areas Lot 53 DP1254990
Asphalt Plant Lot 54 DP1254990
Access Road Lot 53 DP1254990
Project: Blakebrook Quarry Project

Red type represents May 2021 Modification

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DEFINITIONS

Aboriginal item or object	Any item or object that provides evidence of the use of an area by Aboriginal people, as defined under the <i>National Parks and Wildlife Act 1974</i>
Annual Review	The review required by condition 11 of Schedule 5.
AHD	Australian Height Datum
Asphalt plant operations	The transportation, on site processing and storage of material to produce asphalt paving material
BCA	Building Code of Australia
BCD	The Biodiversity and Conservation Division within the Department
Biodiversity Offset Strategy	The conservation and enhancement program as described in the EA (see also Table 5 and Appendix 4).
CCC	Community Consultative Committee
Council	Lismore City Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning, Industry and Environment
DPIE Water	Water Group within the Department
EA	Environmental Assessment titled <i>Blakebrook Quarry Expansion, Environmental Assessment Report, Final Report</i> , January 2009, and the Proponent's response to submissions titled <i>Blakebrook Quarry Expansion, Response to Submissions, Final Report</i> , August 2009
EA (Mod 1)	Environmental Assessment titled <i>Blakebrook Quarry Modification Application August 2017</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence under the POEO Act
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
Heritage NSW	Heritage Branch of the Department of Premier and Cabinet
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
INP	NSW Industrial Noise Policy (NSW EPA, 2000)
Laden	Trucks transporting quarry products from the site and/or trucks transporting topsoil or mulch to the site
Land	As defined in the EP&A Act, except where the term is used in the noise and air quality conditions in Schedules 3 and 4 of this approval, where it is defined as the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
MEG	Mining, Exploration and Geoscience within the Department of Regional NSW
Minister	Minister for Planning, or delegate
Mitigation	Activities associated with reducing the impacts of the project
MR (Mod 3)	Modification Report titled <i>Statement of Environmental Effects dated 24 July 2019, prepared by Mitchel Hanlon Consulting Pty Ltd including the Response to Submissions dated November 2019, and additional information accompanying the Response to Submissions</i>
Negligible	Small and unimportant, such as to be not worth considering
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Privately-owned land	Land that is not owned by a public agency or the Proponent (or its subsidiary)
Project	The project as described in the documents listed in condition 2(a) of Schedule 2
Proponent	Lismore City Council, or its successors in title
Quarrying operations	The extraction, processing, stockpiling and transportation of extractive materials carried out on the site and the associated removal of vegetation, topsoil and overburden
Quarry products	Includes all saleable quarry products, but excludes tailings, other wastes and rehabilitation material
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements.
SEPP 44	<i>State Environmental Planning Policy No. 44 – Koala Habitat Protection</i>
Secretary	Planning Secretary under the EP&A Act, or nominee

Site	The land referred to in Schedule 1
TfNSW	Transport for NSW

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. In addition to meeting the specific performance measures and criteria established under this approval, the Proponent must implement all reasonable and feasible measures to prevent or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

TERMS OF APPROVAL

2. The Proponent must carry out the project:
 - (a) generally in accordance with the EA, EA (Mod 1) and MR (Mod 3); and
 - (b) in accordance with the conditions of this approval, Project Layout Plan and the Statement of Commitments.

Notes:

- The Project Layout Plan is shown in Appendix 1;
- The Statement of Commitments is reproduced in Appendix 2.

3. If there is any inconsistency between the documents in condition 2(a), the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
4. The Proponent must comply with any written requirement/s of the Secretary arising from the Department's assessment of:
 - (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this approval (including any stages of these documents);
 - (b) any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with this approval;
 - (c) and the implementation of any actions or measures contained in these documents.
5. By 30 June 2010, the Proponent shall surrender development consent DA 95/239 to the relevant consent authority to the satisfaction of the Secretary.

- 5A. Within 12 months of the date of commencement of development under this consent, or other timeframe agreed by the Secretary, the Proponent must surrender development consent DA90/341 to the satisfaction of the Secretary, in accordance with the EP&A Regulation.**

LIMITS ON APPROVAL

6. The Proponent may carry out quarrying operations and Asphalt plant operations on the site until 31 December 2039.

Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional requirements and undertakings to the satisfaction of the Secretary. Consequently, this approval will continue to apply in all respects other than the right to conduct quarrying operations until the rehabilitation of the site and those requirements and undertakings have been carried out to the standard required by the applicable conditions.

7. The Proponent must not undertake quarrying operations below 55 m AHD in the northern pit or 105 m AHD in the southern pit.

Note: Drainage sumps may be constructed below this level with the agreement of the Secretary.

8. The Proponent must not:
 - (a) transport more than 600,000 tonnes of quarry products from the site per calendar year;
 - (b) transport more than 50,000 tonnes of asphalt from the site per calendar year;
 - (c) dispatch more than 120 laden trucks from the site on any calendar day prior to the completion of intersection upgrade required by Condition 21(f) of Schedule 3 to the satisfaction of TfNSW; and
 - (d) dispatch more than 150 laden trucks from the site on any calendar day following completion of the intersection upgrade required by Condition 21(f) of Schedule 3 to the satisfaction of TfNSW.

Note: Dispatch of laden trucks is also controlled under condition 1 of Schedule 3.

STRUCTURAL ADEQUACY

9. The Proponent must ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:

- Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for any proposed building works;

- Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.

DEMOLITION

10. The Proponent must ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

PROTECTION OF PUBLIC INFRASTRUCTURE

11. Unless the Proponent and the applicable authority agree otherwise the Proponent must:
 - (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and
 - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

Note: This condition does not apply to damage to roads caused as a result of general road usage or otherwise addressed by contributions required by condition 13 of Schedule 2.

OPERATION OF PLANT AND EQUIPMENT

12. The Proponent must ensure that all the plant and equipment used at the site, or to monitor the performance of the project is:
 - (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

SECTION 94 CONTRIBUTIONS

13. The Proponent must pay Council an annual financial contribution toward the maintenance of local roads used for haulage of quarry products. The contribution must be determined in accordance with the *Lismore City Council Section 94 Contribution Plan, 2004*, or any subsequent relevant contributions plan adopted by Council.

PRODUCTION DATA

14. The Proponent must:
 - (a) from the commencement of quarrying operations provide calendar year annual quarry production data to **MEG** using the standard form for that purpose; and
 - (b) include a copy of this data in the Annual Review.

COMPLIANCE

15. The Proponent must ensure that all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.

IDENTIFICATION OF BOUNDARIES

16. The Proponent must ensure that the boundaries of the approved limits of extraction are clearly marked at all times in a permanent manner that allows operating staff and inspecting officers to clearly identify those limits.

**SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS**

NOISE

Hours of Operation

1. The Proponent must comply with the operating hours set out in Table 1.

Table 1: Operating hours

Activity	Permissible Hours
Quarrying operations, Asphalt plant operations and loading and dispatch of laden trucks	7 am to 6 pm Monday to Friday
	7 am to 3 pm Saturday
	At no time on Sundays or public holidays
Blasting	10 am to 3 pm Monday to Friday (except public holidays)
	At no time on Sundays or public holidays
Maintenance	May be conducted at any time, provided that these activities are not audible at any privately-owned residence

2. The following activities may be carried out outside the hours specified in condition 1 above:
- (a) delivery or dispatch of materials as requested by Police or other public authorities; and
 - (b) emergency work to avoid the loss of lives, property or to prevent environmental harm.

In such circumstances, the Proponent must notify the Secretary and affected residents prior to undertaking the activities, or as soon as is practical thereafter.

- 2A. With the prior written agreement of the Secretary, the Proponent may undertake limited campaign asphalt plant operations (within the limits imposed under condition 8 of Schedule 2) outside of the operating hours prescribed in condition 1 of this Schedule, as requested by public authorities.

In such circumstances, the applicant must prepare an Out of Work Hours Work Protocol. This protocol must:

- (a) be prepared in consultation with the EPA and any residents who may be affected by the noise generated by these works; and
 - (b) be approved by the Secretary prior to the commencement of any out of hours Asphalt plant operations.
3. The Proponent must ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 2: Noise criteria dB(A)

Receiver^a	Day L_{Aeq} (15 minute)
Location 2 and Location 7	36
All other locations	35

^a Receiver locations are shown in Appendix 3

Noise generated by the project is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW *Industrial Noise Policy*. Appendix 5 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, the noise criteria in Table 2 do not apply if the Proponent has an agreement with the relevant landowner to exceed the noise criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Operating Conditions

4. The Proponent must:
- (a) implement best practice management to minimise the construction, operational and road transportation noise of the project;

- (b) minimise the noise impacts of the project during meteorological conditions when the noise criteria in this approval do not apply (see Appendix 5);
- (c) carry out noise monitoring (at least every 3 months or as otherwise agreed with the Secretary) to determine whether the project is complying with the relevant conditions of this approval; and
- (d) regularly assess noise monitoring data and modify and/or stop operations on site to ensure compliance with the relevant conditions of this approval, to the satisfaction of the Secretary.

Note: Required frequency of noise monitoring may be reduced if approved by the Secretary.

Noise Management Plan

5. The Proponent must prepare a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:
 - (a) be prepared in consultation with the EPA;
 - (b) be submitted to the Secretary within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;
 - (c) describe the measures to be implemented to ensure:
 - compliance with the noise criteria and operating conditions of this approval;
 - best practice management is being employed; and
 - the noise impacts of the project are minimised during meteorological conditions under which the noise criteria in this approval do not apply (see Appendix 5);
 - (d) describe the proposed noise management system; and
 - (e) include a monitoring program to be implemented to measure noise from the project against the noise criteria in Table 2.

The Proponent must implement the Noise Management Plan as approved from time to time by the Secretary.

BLASTING

Blasting Impact Assessment Criteria

6. The Proponent must ensure that blasting on site does not cause any exceedance of the criteria in Table 3.

Table 3: Blasting Criteria

Receiver	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
	120	10	0%
<i>Any residence on privately-owned land</i>	115	5	<i>5% of the total number of blasts over a period of 12 months</i>

However, these criteria do not apply if the Proponent has a written agreement with the relevant owner to exceed the limits in Table 3, and the Proponent has advised the Department in writing of the terms of this agreement.

Blasting Frequency

7. The Proponent may carry out a maximum of 2 blasts per month, unless an additional blast is required following a blast misfire. This condition does not apply to blasts required to ensure the safety of the quarry or workers on site.

Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the quarry.

Operating Conditions

8. During blasting operations, the Proponent must:
 - (a) implement best practice management to:
 - protect the safety of people and livestock;
 - protect public or private infrastructure and property from damage; and
 - minimise the dust and fume emissions;
 - (b) operate a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site; and
 - (c) carry out regular monitoring to determine whether the project is complying with the relevant conditions of this approval, to the satisfaction of the Secretary.

Blast Management Plan

9. The Proponent must prepare a Blast Management Plan for the project to the satisfaction of the Secretary. This plan must:
- be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;
 - describe the measures to be implemented to ensure compliance with the blast criteria and operating conditions of this approval;
 - include measures to manage flyrock to ensure the safety of people and livestock and to protect property;
 - include a monitoring program for evaluating and reporting on compliance with the blasting criteria in this approval;
 - include local community notification procedures for the blasting schedule, in particular to nearby residences; and
 - include a protocol for investigating and responding to complaints related to blasting operations.

The Proponent must implement the Blast Management Plan as approved from time to time by the Secretary.

AIR QUALITY

Air Quality Impact Assessment Criteria

10. The Proponent must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not cause exceedances of the criteria in Table 4 at any residence on privately-owned land.

Table 4: Air quality criteria

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM ₁₀)	Annual	a,d 25 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	24 hour	b 50 µg/m ³
Total suspended particulates (TSP)	Annual	a,d 90 µg/m ³
^c Deposited dust	Annual	b 2 g/m ² /month a,d 4 g/m ² /month

Notes to Table 4:

a Cumulative impact (ie increase in concentrations due to the project plus background concentrations due to all other sources).

b Incremental impact (ie increase in concentrations due to the project alone, with zero allowable exceedances of the criteria over the life of the project).

c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

e "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 11, 12 and 13 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

Operating Conditions

11. The Proponent must:
- implement best practice management to minimise the dust emissions of the project;
 - regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in this approval;
 - minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see note d under Table 4);
 - monitor and report on compliance with the relevant air quality conditions in this approval; and
 - minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary.

Air Quality Management Plan

12. The Proponent must prepare an Air Quality Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;
- (b) describe the measures to be implemented to ensure:
 - compliance with the air quality criteria and operating conditions of this approval;
 - best practice management is being employed; and
 - the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events;
- (c) describe the proposed air quality management system;
- (d) include an air quality monitoring program that:
 - is capable of evaluating the performance of the project;
 - includes a protocol for determining any exceedances of the relevant conditions of approval; and
 - effectively supports the air quality management system.

The Proponent must implement the approved Air Quality Management Plan as approved from time to time by the Secretary.

Meteorological Monitoring

- 13. For the life of the project, the Proponent must ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* guideline.

Greenhouse Gas Emissions

- 14. The Proponent must implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.

SOIL AND WATER

Water Supply

- 15. The Proponent must ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of operations under the approval to match its available water supply, to the satisfaction of the Secretary.

Water Discharges

- 16. The Proponent must comply with the discharge limits in any EPL, or with section 120 of the POEO Act.

Groundwater Assessment

- 17. The Proponent must undertake a detailed groundwater assessment to the satisfaction of the Secretary. This assessment must be:
 - (a) prepared by a suitably qualified expert in consultation with DPIE Water;
 - (b) submitted to the Secretary for approval by 30 December 2018;
 - (c) approved by the Secretary before any extraction below 105 m AHD in the northern pit or below 118.5 m AHD in the southern pit;
 - (d) adequately assess groundwater resources affected by the northern and southern pits, to the proposed full extraction depths of those pits;
 - (e) adequately assess all groundwater impacts associated with proposed extraction;
 - (f) provide data for predicted groundwater pit inflows during and following extraction; and
 - (g) propose management measures to address pit inflows and impacts to groundwater resources.

The Proponent must implement the management measures proposed in the groundwater assessment to the satisfaction of the Secretary.

Soil and Water Management

- 18. If groundwater is encountered during quarrying operations in the South Pit under EA (Mod 1), the Proponent must cease quarrying operations until authorised to recommence by the Secretary.
- 19. The Proponent must prepare a Soil and Water Management Plan for the project to the satisfaction of the Secretary. This plan must:
 - (a) be prepared by suitably qualified and experienced person/s approved by the Secretary;
 - (b) be prepared in consultation with the EPA and DPIE Water;
 - (c) be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary; and
 - (d) include a:

- (i) Site Water Balance that includes:
 - details of:
 - sources and security of water supply;
 - water use and management on site;
 - any off-site water transfers; and
 - reporting procedures; and
 - measures to be implemented to minimise clean water use on site;
- (ii) Surface Water Management Plan, that includes:
 - a program for obtaining detailed baseline data on surface water flows and quality in water bodies that could potentially be affected by the project;
 - a detailed description of the surface water management system on site including the:
 - clean water diversion system;
 - erosion and sediment controls;
 - dirty water management system; and
 - water storages; and
 - a program to monitor and report on:
 - any surface water discharges;
 - the effectiveness of the water management system,
 - the quality of water discharged from the site to the environment;
 - surface water flows and quality in local watercourses;
- (iii) Groundwater Management Plan that includes:
 - a provision that requires the Proponent to obtain appropriate water licence(s) to cover the volume of any unforeseen groundwater inflows into the quarry from the quarry face or floor; and
 - a monitoring program to manage potential impacts, if any, on any alluvium and associated surface water source near the proposed extraction area that includes:
 - identification of a methodology for determining threshold water level criteria;
 - contingency measures in the event of a breach of thresholds; and
 - a program to regularly report on monitoring.

The Proponent must implement the approved Soil and Water Management Plan as approved from time to time by the Secretary.

TRANSPORT

Monitoring of Product Transport

20. The Proponent must keep accurate records of all laden truck movements to and from the site (including time of arrival and dispatch) and publish a summary of records on its website every 6 months.

Road Upgrades

21. The Proponent must undertake the following road upgrade works generally in accordance with the recommendations in the EA, and to the satisfaction of the TfNSW:
- (a) upgrade the intersection of the Quarry Access and Nimbin Road to a 'Type AUR Intersection Treatment', prior to 31 December 2010;
 - (b) upgrade the guard rails on the approaches to Booerie Creek Bridge prior to 31 December 2010;
 - (c) upgrade the Booerie Creek Road and Nimbin Road intersection to a 'Type BAR Right Turn Treatment on the Through Road' prior to 31 December 2010;
 - (d) upgrade the Wilson Street and Nimbin Road intersection to a 'Type CHR Right Turn Bay Treatment' prior to 31 December 2010;
 - (e) re-align Nimbin Road and the Quarry Access intersection to meet the AUSTRROADS sight distance requirements for vehicles travelling in both directions through the intersection prior to 31 December 2011; **and**
 - (f) **upgrade the intersection at Nimbin Road and the Quarry Access from the current Type AUR intersection to a Type CHR-S (Shortened Channelised Right Hand Turn) to the satisfaction of TfNSW.**

Note: The road works must be constructed in accordance with the relevant TfNSW or AUSTRROADS standards, and signposted and lit in accordance with AS:1742 – Manual of Uniform Traffic Control Devices and AS/NZ 1158:2005 – Lighting for Roads and Public Spaces.

Operating Conditions

22. The Proponent must:
- (a) restrict truck movements from the quarry to an average of 50 laden trucks a day until all road upgrades works required by condition **21 (a) – (e)** of Schedule 3, are met or unless otherwise approved by the Secretary;

- (b) ensure that all laden trucks entering or exiting the site have their loads covered, with the exception of loads consisting solely of boulders greater than one tonne in weight;
- (c) ensure that all laden trucks exiting the site are cleaned of material that may fall from vehicles, before leaving the site; and
- (d) use its best endeavours to ensure that appropriate signage is displayed on all trucks used to transport product from the project so they can be easily identified by road users.

Traffic Management Plan

23. The Proponent must prepare a Traffic Management Plan for the project to the satisfaction of the Secretary. This plan must:
- (a) be prepared in consultation with the **TNSW** and Council;
 - (b) be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;
 - (c) describe the processes in place for the control of truck movements entering and exiting the site;
 - (d) include a Drivers' Code of Conduct that details the safe and quiet driving practices that must be used by drivers transporting products to and from the quarry;
 - (e) describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; and
 - (f) propose measures to minimise the transmission of dust and tracking of material onto the surface of the public road from vehicles leaving the quarry.

The Proponent must implement the approved Traffic Management Plan as approved from time to time by the Secretary.

ABORIGINAL HERITAGE

Aboriginal Heritage Management Plan

24. The Proponent must prepare an Aboriginal Heritage Management Plan for the project to the satisfaction of the Secretary. The plan must:
- (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;
 - (b) be prepared in consultation with **Heritage NSW** and the Registered Aboriginal Parties;
 - (c) be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary; and
 - (d) include a description of the measures that would be implemented to:
 - protect, monitor and manage known sites of archaeological significance;
 - manage any new Aboriginal objects or relics that are discovered;
 - store Aboriginal heritage items salvaged on site; and
 - ensure ongoing consultation and involvement of the Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site.

The Proponent must implement the approved Aboriginal Heritage Management Plan as approved from time to time by the Secretary.

25. If any item or object of Aboriginal heritage significance is identified on site, the Proponent must ensure that:
- (a) all work in the immediate vicinity of the suspected Aboriginal item or object ceases immediately;
 - (b) a 10 m buffer area around the suspected item or object is cordoned off; and
 - (c) the **Heritage NSW** is contacted immediately.

Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974*.

BIODIVERSITY AND REHABILITATION

Biodiversity Offset Strategy

- 25A. The Proponent must:
- (a) implement the Biodiversity Offset Strategy (see Table 5);
 - (b) ensure that adequate resources are dedicated towards the implementation of this strategy;
 - (c) provide appropriate long term security for the offset area; and
 - (d) provide a timetable for the implementation of the offset strategy prior to 30 June 2010, or as otherwise agreed by the Secretary,
- to the satisfaction of the Secretary.

Table 5: Biodiversity Offset Strategy

Offset Areas	Minimum Size
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On-site offset (Protection Zone in Appendix 4)	17.6 hectares
Off-site offset (within Lismore local government area, and not already within a conservation area)	45 hectares
Total	62.6 hectares

Note: Mechanisms to provide appropriate long-term security to the land within the Biodiversity Offset Strategy in accordance with the NSW Biodiversity Offset Policy for Major Projects 2014, include a BioBanking Agreement, Voluntary Conservation Agreement or an alternative mechanism that provides for a similar conservation outcome.

Rehabilitation Objectives

26. The Proponent must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the rehabilitation strategy in the EIS and must comply with the objectives in Table 6.

Table 6: Rehabilitation Objectives

Feature	Objective
All areas of the site affected by the project	<ul style="list-style-type: none"> • Safe • Hydraulically and geotechnically stable • Non-polluting • Fit for the intended post-mining land use(s) • Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land
Surface Infrastructure	<ul style="list-style-type: none"> • Decommissioned and removed, unless otherwise agreed by the Secretary
Quarry benches and pit floor	<ul style="list-style-type: none"> • Landscaped and vegetated using native tree and understorey species
Final Void	<ul style="list-style-type: none"> • Minimise the size, depth and slope of the batters of the final void • Minimise the drainage catchment of the final void

Progressive Rehabilitation

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

Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to future re-disturbance.

Biodiversity and Rehabilitation Management Plan

28. The Proponent must prepare a Biodiversity and Rehabilitation Management Plan for the project to the satisfaction of the Secretary. This plan must:
- be prepared by a suitably qualified expert;
 - be prepared in consultation with BCD and Council;
 - be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary;
 - provide details of the conceptual final landform and associated land uses for the site;
 - describe how the implementation of the Biodiversity Offset Strategy will be integrated with the overall rehabilitation of the site;
 - include a Koala Management Plan prepared in accordance with SEPP 44;
 - include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and rehabilitation of the site (including progressive rehabilitation), including triggers for any necessary remedial action;
 - describe the short, medium and long term measures to be implemented to:
 - manage remnant vegetation and habitat on site, including within the Biodiversity Offset Strategy area; and
 - ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;
 - include a detailed description of the measures described in paragraph (h) to be implemented over the next 3 years (to be updated for each 3 year period following initial approval of the plan) including the procedures to be implemented for:
 - maximising the salvage of environmental resources within the approved disturbance area, including tree hollows, vegetative and soil resources, for beneficial reuse in the enhancement of the offset area or site rehabilitation;

- restoring and enhancing the quality of native vegetation and fauna habitat in the biodiversity offset and rehabilitation areas through assisted natural regeneration, targeted vegetation establishment and the introduction of fauna habitat features;
 - protecting vegetation and fauna habitat outside the approved disturbance area on-site, including core Koala habitat;
 - minimising the impacts on native fauna, including undertaking pre-clearance surveys;
 - establishing vegetation screening to minimise the visual impacts of the site on surrounding receivers;
 - ensuring minimal environmental consequences for threatened species, populations and habitats;
 - collecting and propagating seed;
 - controlling weeds and feral pests;
 - controlling erosion; and
 - managing bushfire risk;
- (j) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;
- (k) identify the potential risks to the successful implementation of the Biodiversity Offset Strategy, and include a description of the contingency measures to be implemented to mitigate these risks; and
- (l) include details of who is responsible for monitoring, reviewing, and implementing the plan.

The Proponent must implement the Biodiversity and Rehabilitation Management Plan as approved from time to time by the Secretary.

Biodiversity and Rehabilitation Bond

29. Within 6 months of the approval of the Biodiversity and Rehabilitation Management Plan, the Proponent must lodge a Biodiversity and Rehabilitation Bond with the Department to ensure that the Biodiversity Offset Strategy and rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the plan and the relevant conditions of this approval. The sum of the bond must be determined by:
- (a) calculating the full cost of implementing the Biodiversity Offset Strategy;
 - (b) calculating the cost of rehabilitating all disturbed areas of the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and
 - (c) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.

Notes:

- *Alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by BCD as part of a BioBanking Agreement, or transfer to conservation reserve estate can be used to reduce the liability of the Biodiversity and Rehabilitation Bond.*
- *If capital and other expenditure required by the Biodiversity and Rehabilitation Management Plan is largely complete, the Secretary may waive the requirement for lodgement of a bond in respect of the remaining expenditure.*
- *If the Biodiversity Offset Strategy and/or rehabilitation of the site area are completed (or partially completed) to the satisfaction of the Secretary, then the Secretary will release the bond (or relevant part of the bond). If the Biodiversity Offset Strategy and rehabilitation of the site are not completed to the satisfaction of the Secretary, then the Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.*

30. Within 3 months of each Independent Environmental Audit (see condition 12 of Schedule 5), the Proponent must review, and if necessary revise, the sum of the Biodiversity and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:
- (a) effects of inflation;
 - (b) likely cost of implementing the Biodiversity Offset Strategy and rehabilitating all disturbed areas of the site (taking into account the likely surface disturbance over the next 3 years of the project); and
 - (c) performance of the implementation of the Biodiversity Offset Strategy and rehabilitation of the site to date.

VISUAL

31. The Proponent must implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the project to the satisfaction of the Secretary.

WASTE

32. The Proponent must:
- (a) manage on-site sewage treatment and disposal in accordance with the requirements of its EPL, and to the satisfaction of the EPA and Council;

- (b) minimise the waste generated by the project;
- (c) ensure that the waste generated by the project is appropriately stored, handled, and disposed of; and
- (d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.

33. Except as expressly permitted in an EPL, the Proponent must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.

LIQUID STORAGE

34. The Proponent must ensure that all tanks and similar storage facilities (other than for water) are protected by appropriate bunding or other containment, in accordance with the relevant Australian Standards.

DANGEROUS GOODS

35. The Proponent must ensure that the storage, handling, and transport of dangerous goods is done in accordance with the relevant Australian Standards, particularly AS1940 and AS1596, and the *Dangerous Goods Code*.

BUSHFIRE

36. The Proponent must:
- (a) ensure that the project is suitably equipped to respond to any fires on site; and
 - (b) assist the Rural Fire Service and emergency services to the extent practicable if there is a fire in the vicinity of the site.

SCHEDULE 4 ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. As soon as practicable, and no longer than 7 days, after obtaining monitoring results showing:
 - (a) an exceedance of any criteria in Schedule 3, the Proponent must notify the affected landowners in writing of the exceedance, and provide regular monitoring results, at least every 3 months, to each affected landowner until the project is again complying with the relevant criteria; and
 - (b) an exceedance of any air quality criteria in Schedule 3, the Proponent must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and current tenants of the land (including the tenants of land which is not privately-owned).

INDEPENDENT REVIEW

2. If an owner of privately-owned land considers the project to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the project on his/her land.

If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision, the Proponent must:

- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:
 - consult with the landowner to determine his/her concerns;
 - conduct monitoring to determine whether the project is complying with the relevant criteria in Schedule 3; and
 - if the project is not complying with these criteria, then identify measures that could be implemented to ensure compliance with the relevant criteria; and
- (b) give the Secretary and landowner a copy of the independent review; and
- (c) comply with any written requests made by the Secretary to implement any findings of the review.

PROPERTY INSPECTIONS

3. Prior to 30 June 2010, the Proponent must advise all owners of privately-owned land within 2 kilometres of proposed blasting activities, and any other landowner nominated by the Secretary, that they are entitled to a property inspection to establish the baseline condition of the property.
4. If the Proponent receives a written request for a property inspection from any such landowner, the Proponent must:
 - (a) commission a suitably qualified person, whose appointment has been approved by Secretary, to inspect and report on the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and
 - (b) give the landowner a copy of this property inspection report.

Note: It is preferable for the property inspection to be carried out prior to the commencement of blasting activities on the site, and the Proponent should facilitate this occurring wherever possible.

PROPERTY INVESTIGATIONS

5. If any owner of privately-owned land within 2 kilometres of proposed blasting activities, or any other landowner nominated by the Secretary, claims that his/her property, including vibration-sensitive infrastructure such as water supply or underground irrigation mains, has been damaged as a result of blasting at the project, the Proponent shall within 3 months of receiving this request:
 - (a) commission a suitably qualified person whose appointment has been approved by the Secretary to investigate the claim and prepare a property investigation report; and
 - (b) give the landowner a copy of the report.

If this independent investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damage to the satisfaction of the Secretary.

If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Proponent must prepare an Environmental Management Strategy for the project to the satisfaction of the Secretary. This strategy must:
 - (a) be submitted to the Secretary for approval within 6 months of the Secretary requiring preparation of the strategy by notice to the Proponent;
 - (b) provide the strategic framework for environmental management of the project;
 - (c) identify the statutory approvals that apply to the project;
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
 - (e) describe the procedures to be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - receive, record, handle and respond to complaints;
 - resolve any disputes that may arise during the course of the project;
 - respond to any non-compliance;
 - respond to emergencies; and
 - (a) include:
 - copies of any strategies, plans and programs approved under the conditions of this approval; and
 - a clear plan depicting all the monitoring to be carried out under the conditions of this approval.

The Proponent must implement any Environmental Management Strategy as approved from time to time by the Secretary.

Evidence of Consultation

2. Where consultation with any State or local agency is required by the conditions of this approval, the Proponent must:
 - (a) consult with the relevant agency prior to submitting the required document to the Secretary for approval;
 - (b) submit evidence of this consultation as part of the relevant document;
 - (c) describe how matters raised by the agency have been addressed and any matters not resolved; and
 - (d) include details of any outstanding issues raised by the agency and an explanation of disagreement between any agency and the Proponent.

Management Plan Requirements

3. The Proponent must ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:
 - (a) detailed baseline data;
 - (b) a description of:
 - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - any relevant limits or performance measures/criteria; and
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;
 - (c) a description of the measures that to be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
 - (d) a program to monitor and report on the:
 - impacts and environmental performance of the project; and
 - effectiveness of any management measures (see (c) above);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
 - (f) a program to investigate and implement ways to improve the environmental performance of the project over time;
 - (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliances with statutory requirements; and
 - exceedances of the impact assessment criteria and/or performance criteria; and

- (h) a protocol for periodic review of the plan.

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Application of Existing Management Plans

4. The Proponent must continue to apply existing approved management plans, strategies or monitoring programs that have most recently been approved under this approval, until the approval of a similar plan, strategy or program under this approval.

Revision of Strategies, Plans & Programs

- 4A. Within 3 months of the submission of an:
- (a) incident report under condition 9 below;
 - (b) Annual Review under condition 11 below;
 - (c) audit report under condition 12 below; and
 - (d) any modifications to this approval

the Proponent must review the strategies, plans and programs required under this approval, to the satisfaction of the Secretary. The proponent must notify the Department in writing of any such review being undertaken. Where this review leads to revisions in any such document, then within 6 weeks of the review the revised document must be submitted for the approval of the Secretary.

Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.

Updating and Staging of Strategies, Plans or Programs

5. To ensure that strategies, plans or programs required under this approval are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the project, the Proponent may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Proponent may also submit any strategy, plan or program required by this approval on a staged basis.

The Secretary may approve a revised strategy, plan or program required under this approval, or the staged submission of any of these documents, at any time. With the agreement of the Secretary, the Proponent may prepare the revised or staged strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this approval.

While any strategy, plan or program may be submitted on a staged basis, the proponent will need to ensure that the operations associated with the project are covered by suitable strategies, plans or programs at all times.

If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the project to which the strategy, plan or program applies; the relationship of this stage/s to any future stages; and the trigger for updating the strategy, plan or program.

Adaptive Management

6. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and performance measures in this consent. Any exceedance of these criteria or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria or performance measures has occurred, the Applicant must, at the earliest opportunity:

- (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
- (c) implement reasonable remediation measures as directed by the Planning Secretary.

COMMUNITY CONSULTATIVE COMMITTEE

7. The Proponent must establish and operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Secretary. The CCC must be operated in general accordance with the Department's *Community Consultative Committee Guidelines, November 2016* (or later version).

Notes:

- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.*
- *In accordance with the guidelines, the Committee should comprise an independent chair and appropriate representation from the Proponent, Council and the local community.*

REPORTING AND AUDITING

Incident Notification

8. The Proponent must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.

Non-Compliance Notification

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

Regular Reporting

10. The Proponent must provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.

Annual Review

11. By the end of March each year, or other timing as may be agreed by the Secretary, the Proponent must submit a review to the Department reviewing the environmental performance of the project to the satisfaction of the Secretary. This review must:
 - (a) describe the project (including any progressive rehabilitation) that was carried out in the previous calendar year, and the project that is proposed to be carried out over the current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against the:
 - relevant statutory requirements, limits or performance measures/criteria;
 - requirements of any plan or program required under this approval;
 - monitoring results of previous years; and
 - relevant predictions in the documents listed in condition 2(a) of Schedule 2;
 - (c) evaluate and report on:
 - the effectiveness of the air quality and noise management systems; and
 - compliance with the performance measures, criteria and operating conditions in this approval.
 - (d) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance;
 - (e) identify any trends in the monitoring data over the life of the project;
 - (f) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies;
 - (g) describe what measures will be implemented over the current calendar year to improve the environmental performance of the project.

The Proponent must ensure that copies of the Annual Review are submitted to Council and are available to the Community Consultative Committee (see condition 7 of Schedule 5) and any interested person upon request.

INDEPENDENT ENVIRONMENTAL AUDIT

12. Within three years of the date of grant of this project approval, and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent must commission, commence and pay the full cost of an Independent Environmental Audit of the project. This audit must:

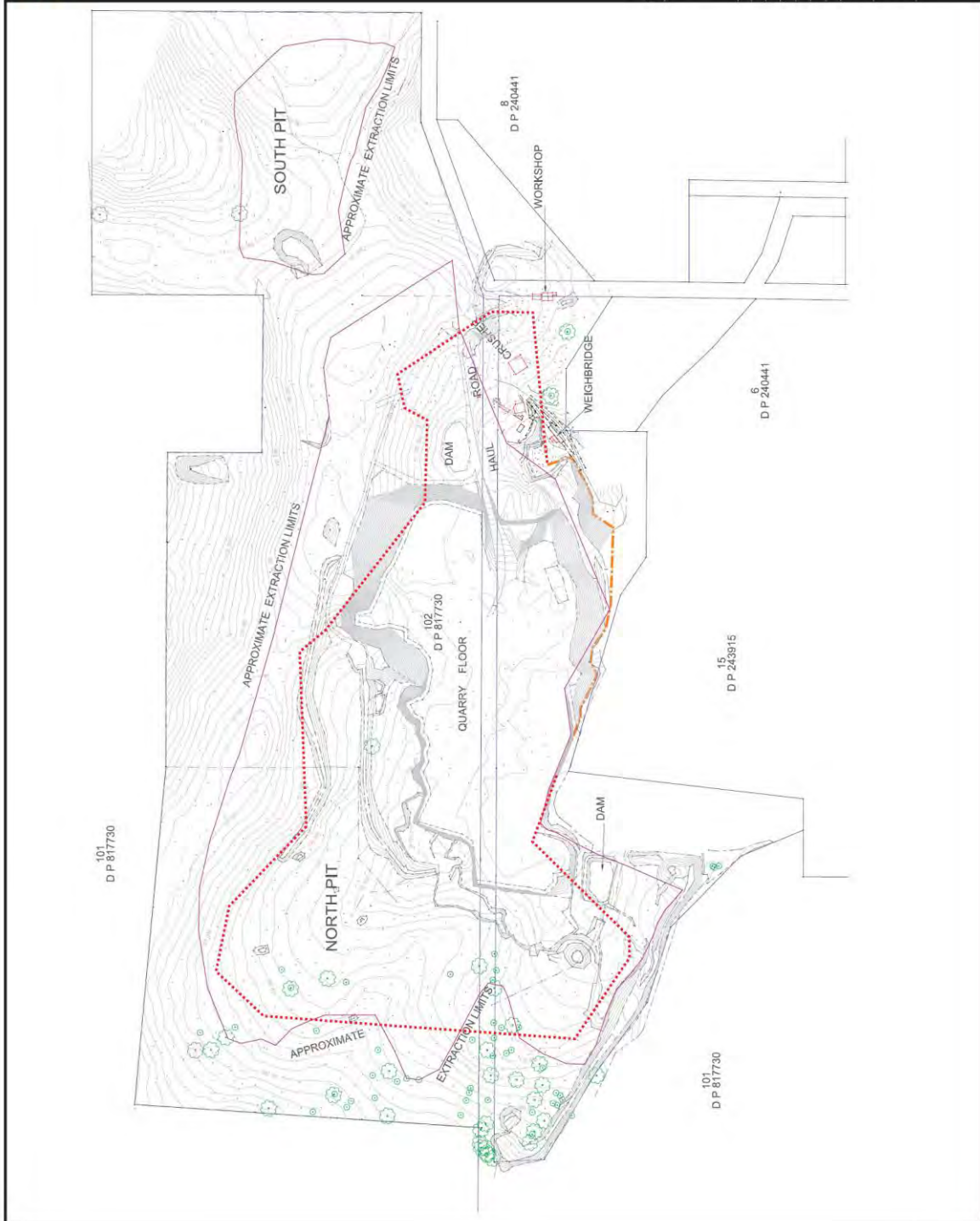
- (a) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
 - (b) include consultation with the relevant agencies and the CCC;
 - (c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL or necessary water licences for the project (including any assessment, strategy, plan or program required under these approvals);
 - (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals;
 - (e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, strategy, plan or program required under the abovementioned approvals; and
 - (f) be conducted and reported to the satisfaction of the Secretary.
13. Within 12 weeks of commencing this audit, or as otherwise agreed by the Secretary, the Proponent must submit a copy of the audit report to the Secretary and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of these recommendations as required. The Proponent must implement these recommendations, to the satisfaction of the Secretary.

ACCESS TO INFORMATION

14. Within 3 months of the determination of Modification 1, until the completion of all works, including rehabilitation and remediation the Proponent must:
- (a) make the following information publicly available on its website:
 - the documents listed in condition 2(a) of Schedule 2;
 - current statutory approvals for the project;
 - all approved strategies, plans and programs required under the conditions of this approval;
 - a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs;
 - a complaints register, updated monthly;
 - the annual reviews of the project;
 - any independent environmental audit as described in condition 12 above, and the Proponent's response to the recommendations in any audit; and
 - any other matter required by the Secretary; and
 - (b) keep this information up-to-date, to the satisfaction of the Secretary.

APPENDIX 1 PROJECT LAYOUT PLAN

- Legend:**
- Approximate Existing Extraction Limit
 - Approximate Proposed Extraction Limit
 - Inactive Quarry Face



**Figure E1.2
Existing Site Layout Plan**

Client:	Liamore City Council
Project:	Blalbrook Quarry
Drawing No:	0056641
Date:	14/07/08
Drawn by:	TH
Source:	Gealink 1995
Scale:	Datum scaled to approximately AHD

Environmental Resources Management Australia Pty Ltd
 PO Box 8711, 3rd Floor, Gordon Street
 Sydney, NSW 1585
 Telephone +61 2 6594 7155



APPENDIX 2

STATEMENT OF COMMITMENTS

Item Number	Item	Commitment	Responsibility	Timing
1.1	Scope of Development			
1.1		<p>The development will be carried out as outlined in the documentation and plans listed below, except where amended by other items of this Statement of Commitments.</p> <ul style="list-style-type: none"> • Environmental Assessments (EA), prepared by ERM, 2009 and supporting reports; and • Quarry Plans (refer Figures 2.3 to 2.5 of the EA (ERM, 2009)) 	Lismore City Council and/or its successors	Ongoing.
2	Roads			
2.1		The proponent shall provide the following roadworks with associated stormwater drainage structure that have been designed and constructed in accordance with Council's Development, Design and Construction Manual (as amended). The proponent shall be responsible for any costs, including maintenance, for a period of six months from the date of approval of completion of the work. Required roadworks include:	Lismore City Council	Prior to the operation of the expanded quarry.
2.1.1		Construction of a type CHR intersection layout at the junction of the quarry access and Nimbin Road in accordance with AUSTRROADS Pt 5 " <i>Intersections at Grade</i> " giving particular attention to sight distance. The access road will remain sealed from at least 50m back from Nimbin Road to prevent fouling of the road surface, as per existing conditions.	Lismore City Council	Prior to the operation of the expanded quarry.
2.1.2		Construction of a type CHR intersection layout at the junction of Nimbin Road and Wilson Street in accordance with AUSTRROADS Pt 5 " <i>Intersections at Grade</i> ".	Lismore City Council	Prior to the operation of the expanded quarry.
2.1.3		Construction of a 1m wide gravel shoulder and repair existing pavement of Nimbin Road for a length of 200 metres at a location 2.8 kilometres north of the intersection of Nimbin Road and Wilson Street as recommended within Appendix G, Traffic Impact Study, of the Environmental Assessment.	Lismore City Council	Prior to the operation of the expanded quarry.
2.1.4		Installation of a guard rail in accordance with the relevant standard at Boerie Creek Bridge approaches as recommended within Appendix G, Traffic Impact Study, of the Environmental Assessment.	Lismore City Council	Prior to the operation of the expanded quarry.
2.1.5		Works identified in Tables 1 and 2 of Appendix G, Traffic Impact Study, of the Environmental Assessment that have not been individually detailed within conditions of consents.	Lismore City Council	Prior to the operation of the expanded quarry.

Prior to the operation of the expanded quarry the applicant shall obtain a certificate of completion for the above works from Council. Prior to obtaining this certificate a practicing qualified surveyor or engineer shall submit to Council for approval, a “works-as-executed” set of plans, completed asset record forms and construction certification. The certification shall certify that all roads, drainage and civil works required by this development consent and the approved design plans have been completed in accordance with Council’s Development and Construction Manual (as amended).

2.2	The proponent shall provide the following roadworks with associated stormwater drainage structures that have been designed and constructed in accordance with the Council’s Development, Design and Construction Manual (as amended). The proponent shall be responsible for any costs, including maintenance, for a period of six months from the date of approval of completion of the work. Required roadworks include:		
2.2.1	Construction of a type BAR intersection layout at the junction of Nimbin Road and Boerie Creek Road in accordance with AUSTRROADS Pt 5 “ <i>Intersections at Grade</i> ”.	Lismore City Council	Once production rates reach 350,000 tonnes/annum.

Prior to exceeding an annual extraction rate of 350,000 tonnes in any one year the applicant shall obtain a certificate of completion for the above works from Council. Prior to obtaining this certificate a practicing qualified surveyor or engineer shall submit to Council for approval, a “works-as-executed” set of plans, completed asset record forms and construction certification. This certification shall certify that all roads, drainage and civil works required by this development consent and the approved design plans have been completed in accordance with Council’s Development and Construction Manual (as amended).

2.3	Prior to the operation of the expanded quarry a review of the Road Safety Audit contained within Tables 1 and 2 of Appendix G, Traffic Impact Study, of the Environmental Assessment shall be undertaken. All required works identified within the review that are not individually detailed within conditions of consents shall be completed prior to operation of the expanded quarry.	Lismore City Council	Prior to the operation of the expanded quarry.
2.4	Prior to the operation of the expanded quarry hinged “Truck Entering” warning signage, W5-22 signs, shall be erected at suitable locations, approximately 200 metres either side of the access, upon Nimbin Road advising of the traffic hazard. Signs shall be displayed during hours of haulage operations only.	Lismore City Council	Prior to the operation of the expanded quarry.
2.5	Prior to the commencement of works required by the above conditions the applicant shall obtain approval under section 138 of the Roads Act for the works upon the public road. For this approval full design plans of the proposed engineering works required upon the public road shall be submitted to and approved by Council. Plans shall include details of works required to satisfy condition(s) RD1. Such plans shall be accompanied with the fee, as adopted at the time of the relevant payment as indicated in Councils Fees and Charges.	Lismore City Council	Prior to the commencement of works required by the above conditions.
2.6	Prior to the issue of the section 138 approval for works upon the public road the proponent shall have approved by Council a plan of management for the construction of all civil works outside the real property boundaries of the proposed development. The plan shall table scheduling of works so as to be completed in the shortest possible time with minimal impact on the general community. Such plan shall include a Traffic Control Plan prepared by an RTA	Lismore City Council	Prior to the issue of the section 138 approval for works upon the public road.

accredited person. All works shall comply with the Occupational Health and Safety Act.

2.7	The plan of management for the operation of the quarry shall incorporate a code of practice for trucking operations associated with the development. This code shall include a requirement for the use of CB radios for communication with buses and garbage trucks within all haulage vehicles as recommended within Appendix G, Traffic Impact Study, of the Environmental Assessment.	Lismore City Council	Prior to the issue of the section 138 approval for works upon the public road.
2.8	The development shall provide adequate on site parking for all vehicles, plant and equipment associated with the development.	Lismore City Council	Prior to the operation of the expanded quarry.
2.9	The proposed access shall be sealed for the first 50 metre length from Nimbin Road. Driveways, access aisles and parking areas shall be provided with a suitable pavement, constructed and maintained in accordance with Council's Development, Design and Construction Manual (as amended)	Lismore City Council	Prior to the operation of the expanded quarry.
2.10	All loading and unloading shall take place within the property boundaries, as will the parking of construction and private vehicles associated with the development	Lismore City Council	Ongoing.
2.11	Vehicles using any off street loading/unloading and/or parking area must enter and leave in a forward direction in accordance with Councils Development Control Plan No.1, Part A, Chapter 7 – Off Street Parking Requirements. All driveways and turning areas shall be kept clear of obstructions that prevent compliance with this condition.	Lismore City Council	Ongoing.
2.12	The proponent shall provide MEG, on or before January 31, April 30, July 31 and October 31 in each year, with extraction figures detailing quantities of all material removed from the site for the previous quarter of operations	Lismore City Council	Ongoing.
2.13	Annual payment of contributions levied under Section 94 of the Environmental Planning and Assessment Act and Lismore City Council S94 Contributions Plan 2004 (as amended) are required. Such levies shall contribute towards the provision of public services and/or amenities identified. Such levies shall be calculated utilising dispatched tonnages with consideration to the below:	Lismore City Council	Ongoing.

Quarry Operations

The rates and amounts applying at the date of this notice for the approved extraction rate of 600,000 tonnes, totalling \$560,628 annually, have been calculated as set out below for your information.

Levies set out below shall be increased in accordance with the percentage increase as notified by the Consumer Price Index (Sydney) annually. Levies shall be paid within 30 days of the Council issuing an assessment for the preceding year.

The contributions set out in the schedule are exclusive of any GST (if any) and where the provision of any services or the construction of any infrastructure or any other thing with those contributions occurs, then in addition to the amount specified above the Applicant will pay to the Council the GST (as defined below) which is payable by the Council in respect of the provision of such services or the construction of any infrastructure or any other thing.

GST means any tax levy charge or impost under the authority of any GST law (as defined by the GST Act) and includes GST within the meaning of the GST Act.

The GST Act means A New Tax System (Goods and Services Tax) Act 1999 or any amending or succeeding legislation.

The levy shall be calculated in accordance with Councils adopted section 94 plan as at this date and be based on the following information:

- Road construction cost of \$369,000 per kilometre indexed for CPI annually from December 2003)
- Average haulage distance of 15 kilometres
- For use in calculations a conversion factor 1.7 from m³ to tonnes has been adopted
- The first 5,000m³ (8,500 tonnes) per annum shall be exempt from levies.

Levy calculation for yearly extraction will be:
 $(\$396,000/6.74 \times 10^6) \times 15\text{km} \times (\text{Annual tonnage extracted} - 8,500) \times 1.025 \times \text{CPI}$

$$= (396,000/ 6.74 \times 10^6) \times 15\text{km} \times (600,000 - 8,500) \times 1.025 \times 1.126$$

$$= \$560,628$$

Asphalt Operations

The levy shall be calculated in accordance with Councils adopted section 94 plan

e.g. 10 cents for each tonne of bituminous mix produced, and road transported from the site. This levy will be increased annually in accordance with Consumer Price Index as calculated by the

Australian Bureau of Statistics. The levy shall apply from the date of this consent and shall be paid in monthly instalments based on tonnage measured on the applicant's weighbridge.

This condition does not in any way prevent the Council from increasing the abovementioned levy at any time if this were so agreed with the operator.

2.14	A Traffic Noise Management Strategy (TNMS) be developed by the proponent to ensure that feasible and reasonable noise management strategies for vehicle movements associated with the facility are identified and applied, that include but are not necessarily limited to the following:	Lismore City Council	Prior to the operation of the expanded quarry.
2.14.1	Driver training to ensure that noisy practices such as the use of compression engine brakes are not unnecessarily used near sensitive receivers;		
2.14.2	Best noise practice in the selection and maintenance of fleet vehicles;		
2.14.3	Movement scheduling where practicable to reduce impacts during sensitive times of the day;		
2.14.4	Communication and management strategies for non licensee/proponent owned and operated vehicles to ensure the provision of the TNMS are implemented;		
2.14.5	A system of audited management practices that identified non conformances, initiates and monitors corrective and preventative action (including disciplinary action for breaches of noise minimisation procedures) and assesses the implementation and improvement of the TNMS;		
2.14.6	Specific procedures to minimise impacts to identified sensitive receivers;		
2.14.7	Clauses in conditions of employment, or in contracts, of drivers that require adherence to noise minimisation procedures and facilitate effective implementation of the disciplinary actions for breaches of the procedures.		

3 Ecological Considerations

3.1	The vegetation on the site will be cleared and managed in accordance with the approved Management Plans.	Lismore City Council	Ongoing.
3.2	The Koala Plan of Management prepared by Conacher Travers (2006) (refer to Appendix f) will be implemented including: <ul style="list-style-type: none"> Habitat protection works; Habitat restoration works; Traffic management controls; Dog/Feral Animal Management measures; and Bushfire Management. 	Lismore City Council	Ongoing
3.3	Lismore City Council will provide at least 45 hectares of mature, vegetated land to be retained to offset the 10.2 hectares to be lost as a result of the proposed development. The offset will be provided at a rate of approximately 4:1. The 45 hectares will be the same vegetation type as that to be removed (Tall Open	Lismore City Council	Prior to the removal of existing vegetation.

Forest) or a type of higher ecological significance (such as Lowland Rainforest EEC or Koala Habitat) and may be located at a single site or numerous sites that Council own in the LGA, which are suitable to be set aside for ecological preservation. Lismore City Council will undertake ecological assessments of any land proposed to be identified as a vegetation offset site and develop an offset strategy for submission to the **Secretary** and **BCD** for approval, taking into consideration **BCD's** document *Principles for the Use of Biodiversity Offsets in NSW* (*Office of Environment and Heritage, 2014*).

The provision of nest and roost boxes will only be a short term measure, that is, provided as a measure for the protection and conservation of fauna during felling of hollow-bearing trees.

4	Aboriginal Heritage			
4.1	All site employees/ contractors will undergo site induction training that includes stop work procedures if archaeological sites are discovered.	Lismore City Council	Ongoing.	
4.2	Information regarding heritage requirements will be made available on site for employees/contractors.	Lismore City Council	Ongoing.	
4.3	If an Aboriginal item is found all work will cease and the police, relevant Aboriginal community groups and a suitably qualified archaeologist contracted.	Lismore City Council	Ongoing.	
5	Noise			
5.1	The quarry will operate in accordance with the Conditions of Approval (Condition 1 of Schedule 3) .	Lismore City Council	Ongoing.	
5.2	Speed limits within the quarry site will be restricted to 40km/h and compression braking limited .	Lismore City Council	Ongoing.	
5.3	4 metre earth bunds will be constructed to the north east and south west of the new southern quarry pit and a 5 metre earth bund will be constructed to the south of the existing Jaw Crusher as illustrated in Figures C.2 and C.3 in Annex C of the revised Noise Assessment (ERM, 2009) provided as Annex B to the report. During the short construction period for these bunds, the noise limits will be relaxed. Nearby residents will be notified when this work will take place.	Lismore City Council	Prior to the operation of the expanded quarry.	
5.4	Attended noise monitoring and plant equipment audits will be undertaken.	Lismore City Council	Annually.	
5.5	Plant will be relocated to greater pit depths as the floor of the quarry gets deeper.	Lismore City Council	Ongoing.	
5.6	Noise Management Plan – the licensee must develop a Noise Management Plan for the quarry which must incorporate but not be limited to, the following: <ul style="list-style-type: none"> • noise compliance; • noise limits; 	Lismore City Council	Prior to the operation of the expanded quarry.	

- blasting noise; and
- road traffic noise.

5.7	A noise compliance assessment (including airblast overpressure and ground vibration from blasting) shall be submitted to the EPA within three (3) months of commencement of expanded operations at the premises. The assessment shall be prepared by a suitable qualified and experienced acoustical consultant and shall assess compliance with noise and blasting limits presented in conditions 5.8 and 6.1 – 6.4	Lismore City Council	Within 3 months of commencement of expanded operations.
5.8	Noise from the premises must not exceed the limits presented in condition 3 of Schedule 3.	Lismore City Council	Ongoing.
5.9	Noise from Blakebrook Quarry is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary, to determine compliance with the noise level limits in Condition 5.8 unless otherwise stated.	Lismore City Council	Ongoing.
5.10	Where it can be demonstrated that direct measurement of noise from the Blakebrook Quarry is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the <i>NSW Industrial Noise Policy</i> . The modification factors presented in Section 4 of the <i>NSW Industrial Noise Policy</i> shall also be applied to the measured noise levels where applicable.	Lismore City Council	Ongoing.
5.11	The noise emission limits identified in Condition 5.8 apply under meteorological conditions of wind speed up to 3 metres per second at 10 metres above ground level.	Lismore City Council	Ongoing.
6	Blasting Limits		
6.1	The overpressure level from blasting operations at the Blakebrook Quarry must not exceed 115dB (Lin Peak) for more than 5 per cent of the total blasts over each reporting period of 12 months. Error margins associated with any monitoring equipment used to measure this area are not to be taken into account in determining whether or not the limit has been exceeded	Lismore City Council	Ongoing.
6.2	The overpressure level from blasting operations at the Blakebrook Quarry must not exceed 120dB (Lin Peak) at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded	Lismore City Council	Ongoing.
6.3	Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than 5 per cent of the total number of blasts over each reporting period of 12 months. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded	Lismore City Council	Ongoing.
6.4	Blasting operations at the premises may only take place between 9.00am-5.00pm Monday to Friday. (Where compelling safety reasons exist, the Authority may permit a blast to occur outside the abovementioned hours. Prior	Lismore City Council	Ongoing.

written (or facsimile) notification of any such blast must be made to the Authority.

To determine compliance with Conditions 6.1-6.4:

- a) airblast overpressure and ground vibration levels must be measured and electronically recorded at the closest and potentially most exposed receiver location in L6.1 to the blast activity for all blasts carried out in or on the premises; and
- b) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.

7 Air Quality			
7.1	All unsealed haul routes on the site will be watered at a rate of 2 L/m ² /minute as required.	Lismore City Council	Ongoing.
7.2	Water sprays will be used on all mobile crushing, stockpiles and screening equipment to minimise airborne particulate matter.	Lismore City Council	Ongoing.
7.3	All road trucks must have tarpaulin covers in place prior to leaving the weighbridge	Lismore City Council	Ongoing.
7.4	A dust deposition gauge network will be developed to ensure compliance with cumulative dust deposition criteria.	Lismore City Council	At or before production rates at the quarry reach 337,500 tonnes/annum.
7.5	Stockpiles are to be seeded to minimize the potential for fugitive dust	Lismore City Council	Ongoing.
8 Groundwater Management			
8.1	A detailed groundwater assessment will be undertaken prior to the commencement of vertical extraction. This will involve the installation of nested ground water monitoring wells. The wells will be installed to at least two depths at a minimum of three separate locations around the perimeter of the quarry in order to intercept identified distinct water bearing zones.	Lismore City Council	Following approval of the quarry expansion and prior to the commencement of vertical extraction
8.2	A quarterly groundwater monitoring program will be undertaken as detailed in Section 8.4.1 of the EA (ERM, 2009) and will involve analysis by a NATA Laboratory.	Lismore City Council	Quarterly following approval of the quarry expansion and prior to the commencement of vertical extraction.
8.3	Should it be determined that environmental flows from springs are being reduced by extraction activities, investigation will commence on supplementing flows using water collected in the quarry pit. Water collected in the quarry will have to meet water quality criteria before it is discharged, with discharge to be licensed under the EPA.	Lismore City Council	Ongoing.

9	Surface Water Management		
9.1	Clean run-off from the surround small sub-catchments will be diverted away from the quarry pits to existing ephemeral water courses. Water collected within the pits will be stored in in-pit dams and used for processing and dust suppression purposes. Discharge of quarry water from the site will occur via approved surface water discharge locations only.	Lismore City Council	Ongoing.
10	Quarry Rehabilitation		
10.1	A progressive rehabilitation approach will be undertaken to make safe the site and to rehabilitate the site and benches to tie into the surrounding woodland. All on-site infrastructure will be removed.	Lismore City Council	Ongoing and on completion of quarrying.
10.2	Lismore City Council will commit to the ongoing allocation of funds for the progressive rehabilitation of the Quarry in the determination of its annual operational budget. The allocation of funds will be tied to demand and the output of the Quarry, with the allocation to be in the order of \$30 000 to \$50 000. The allocated money will be accumulated pending the availability of areas to be rehabilitated. The budget allocation may also be increased over the lifetime of the quarry to reflect inflationary changes and rehabilitation need as necessary.	Lismore City Council	Ongoing and on completion of quarrying.
10.3	A suitably qualified and experienced professional will be engaged to carry out on-going maintenance and monitoring. This will involve activities such as bushland rehabilitation, weed removal and nest box erection.	Lismore City Council	Upon commencement of rehabilitation activities and upon completion of quarrying.
10.4	The success of the rehabilitation program will be monitored in accordance with the <i>Mine Rehabilitation Handbook</i> .	Lismore City Council	Upon commencement of rehabilitation activities and upon completion of quarrying.

APPENDIX 3 RECEIVER LOCATION PLAN



Legend

- Noise Logger
- Noise Assessment Locations

Client:	Lismore City Council	
Project:	Blakebrook Quarry Noise Assessment	
Drawing No:	0066641s_01_R1	
Date:	11/06/2009	Drawing size: A4
Drawn by:	GC	Reviewed by: MS
Source:	-	
Scale:	Not to Scale	



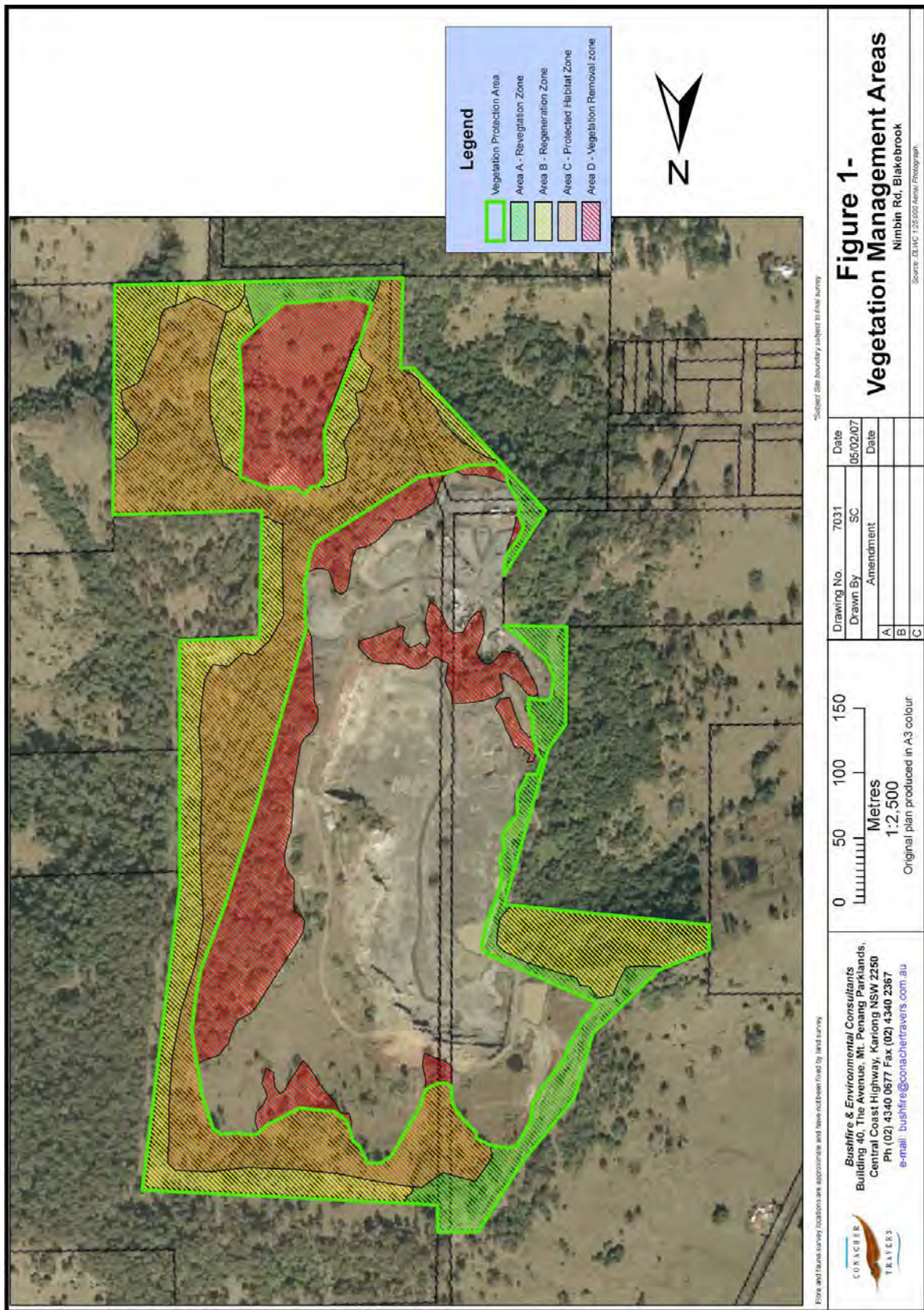
Figure 2.1

Noise Assessment and Logging Locations

Environmental Resources Management Australia Pty Ltd
Building C, 33 Saunders St, Pymont, NSW 2009
Telephone +61 2 8584 8888



APPENDIX 4 BIODIVERSITY OFFSET STRATEGY



APPENDIX 5 NOISE COMPLIANCE ASSESSMENT

Applicable Meteorological Conditions

1. The noise criteria in Table 2 are to apply under all meteorological conditions except the following:
 - (a) wind speeds greater than 3 m/s at 10 m above ground level; or
 - (b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speed greater than 2 m/s at 10 m above ground level; or
 - (c) temperature inversion conditions greater than 3°C/100 m.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions must be that recorded by the meteorological station required under condition 13 of Schedule 3.

Compliance Monitoring

3. A noise compliance assessment must be undertaken within two months of commencing mining operations under EA (Mod 1). The assessment must be conducted by a suitably qualified and experienced acoustical practitioner and must assess compliance with the noise criteria in Table 2. A report must be provided to the Secretary and EPA within 1 month of the assessment.
4. Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:
 - (a) monitoring locations for the collection of representative noise data;
 - (b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment;
 - (c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration; and
 - (d) the use of an appropriate modifying factor for low frequency noise to be applied during compliance testing. *This should be undertaken in accordance with Fact Sheet C of the NSW Noise Policy for Industry (EPA, 2017).*



Appendix B

Environmental Protection Licence 3384

Licence Variation



Licence - 3384

LISMORE CITY COUNCIL
PO BOX 23A
GOONELLABAH NSW 2480

Attention: [REDACTED]

Notice Number 1613633
File Number EF13/3226
Date 14-Jan-2022

NOTICE OF VARIATION OF LICENCE NO. 3384

BACKGROUND

- A. LISMORE CITY COUNCIL ("the licensee") is the holder of Environment Protection Licence No. 3384 ("the licence") issued under the *Protection of the Environment Operations Act 1997* ("the Act"). The licence authorises the carrying out of activities at NIMBIN ROAD, BLAKEBROOK, NSW, 2480 ("the premises").
- B. On the 20th July 2021, Department of Planning Industry and Environment (DPIE) approved Modification 3. This licence variation is to align the licence with DPIE approval conditions.
- C. On 22-Oct-2021 the Environment Protection Authority (EPA) received an application for the variation of the licence.
- D. The EPA has considered section 45 of the POEO Act when varying this license.

VARIATION OF LICENCE NO. 3384

1. By this notice the EPA varies licence No. 3384. 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:
 - Condition A2.1- Amend the premises description to include new Lot and DP numbers
 - Condition P1.2- Table updated to refer to the current premises plan
 - Condition L2.3 moved to L2.2 for clarity in reference to table.
 - Condition L2.5- Amended to refer to discharge Point 1

Licence Variation



- Condition L2.6- Amended to refer to limits in condition L2.3
- Condition L2.10- Amended to refer to licensed discharge Point 1
- Condition L4.1- Amended to include noise limit for location 7.
- Condition L6.1- Amended hours of operation
- Condition L6.3- Inserted new condition in relation to Out of Hours Work Protocol
- Condition L6.4- Inserted new condition in relation to reporting Out of Hours Work
- Condition O3.2- Inserted new condition in relation to dust from trucks
- Condition O4.10- Amended to refer to current Soil and Water Management Plan
- Condition O4.11- Amended to refer to licensed discharge point
- Condition O5.1- Inserted new odour condition
- Condition M2.3- Amended definition of Special Frequency
- Condition R1.9- Inserted reference to reporting Out of Hours Work

[Redacted]
.....
[Redacted]
A/Unit Head Regulatory Operations
Environment Protection Authority
(by Delegation)

INFORMATION ABOUT THIS NOTICE

- This notice is issued under section 58(5) of the 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 Act.

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.

Licence Variation



- 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).



Environment Protection Licence

Licence - 3384

Licence Details

Number:	3384
Anniversary Date:	17-January

Licensee

LISMORE CITY COUNCIL
 PO BOX 23A
 GOONELLABAH NSW 2480

Premises

LISMORE OR BLAKEBROOK QUARRY
 NIMBIN ROAD
 BLAKEBROOK NSW 2480

Scheduled Activity

Extractive activities

Fee Based Activity

Scale

Extractive activities	> 100000-500000 T annually extracted or processed
-----------------------	--

Contact Us

NSW EPA
 4 Parramatta Square
 12 Darcy Street
 PARRAMATTA NSW 2150
 Phone: 131 555
 Email: info@epa.nsw.gov.au

Locked Bag 5022
 PARRAMATTA NSW 2124



Environment Protection Licence

Licence - 3384

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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).



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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:

LISMORE CITY COUNCIL
PO BOX 23A
GOONELLABAH NSW 2480

subject to the conditions which follow.



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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
Extractive activities	Extractive activities	> 100000 - 500000 T annually extracted or processed

A1.2 This licence regulates water pollution resulting from the activity/ies carried out at the premises specified in A2.

A1.3 Notwithstanding the maximum scale at condition A1.1, the maximum scale of extractive activity authorised under this licence must not exceed the extraction limit approved by the current development consent granted under the *Environmental Planning and Assessment Act 1979* for the premises specified in condition A2.

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
LISMORE OR BLAKEBROOK QUARRY
NIMBIN ROAD
BLAKEBROOK
NSW 2480
LOT 53 DP 1254990, LOT 54 DP 1254990
AREA DEPICTED AS "PREMISES BOUNDARY" AS SHOWN ON THE CURRENT PREMISES PLAN FILE HELD ON FILE EF13/3226.

A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

Ancillary Activity
Bitumen Pre-mix or Hot-mix Industries



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A4 Information supplied to the EPA

- A4.1 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 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.

- P1.2 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	Wet weather overflow	Wet weather overflow	Spillway of the settlement dam at the southern end of the site nearest the weighbridge as identified on the current site map entitled Blakebrook Quarry Monitoring Sites held on file EF13/3226.

3 Limit Conditions

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.
- L1.2 The licensee must take all practical measures to avoid or minimise generation of total suspended solids



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L2 Concentration limits

- L2.1 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\.
- L2.2 For each monitoring/discharge point or utilisation area specified in the table\ 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.
- L2.3 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
Oil and Grease	Visible				Nil
pH	pH				6.5 -8.5
Total suspended solids	milligrams per litre				50

- L2.4 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.
- L2.5 The concentration limits in the table above do not apply to any discharge from Point 1 solely arising from a rainfall event exceeding 60.2 mm (the 90 percentile 5 day rain event) in total falling over any consecutive five day period.
- L2.6 If the licensee uses turbidity (NTU) in place of TSS to determine compliance with Condition L2.3, the licensee must develop a statistical correlation which identifies the relationship between NTU and TSS for water quality in the sediment basin/s in order to determine the NTU equivalent of 50 mg/L TSS before its use.
- L2.7 The licensee must provide the EPA with a copy of the statistical correlation assessment methodology and results before using NTU in place of TSS.
- L2.8 The licensee must develop and implement a method to enable the ongoing verification of the relationship between NTU and TSS.
- L2.9 The licensee must provide the EPA with any amendments the licensee makes to the statistical correlation as a result of the ongoing verification required by Condition L2.8 before using the revised statistical correlation.
- L2.10 All controlled discharges from the premises must be from licensed discharge Point 1. They must not exceed a 100th percentile limit for Total Suspended Solids concentration of 50mg/L. All discharges are to fall within the pH range of between 6.5 and 8.5. There is to be no visible oils and greases in any controlled discharges.

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L3 Waste

- L3.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal, excluding the following:
- Glass sand recovered from the Lismore Recycling and Recovery Centre.

L4 Noise limits

- L4.1 Noise from the licenced premise must not exceed an LAeq (15 minute) noise emission criterion of 36db(A) at Location 2 and 7 and 35db(A) at all other sensitive receivers, except as expressly provided by this licence.
- L4.2 Noise from the premises is to be measured at the most affected noise sensitive receiver who has not given written permission for an exceedance of condition L4.1 to determine compliance with this condition.

Note: Noise sensitive locations means buildings used as a residence, hospital, school, childcare centre, places of public worship and nursing homes. A noise sensitive location includes the land within 30m of the building.

- L4.3 The noise limits set out in the Noise Limits table apply under all meteorological conditions except for the following:
- Wind speeds greater than 3 metres/second at 10 metres above ground level; or
 - Temperature inversion conditions up to 3°C/100m and wind speeds greater than 2 metres/second at 10 metres above ground level; or
 - Temperature inversion conditions greater than 3°C/100m.

L5 Blasting

- L5.1 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; and
 - 120 dB (Lin Peak) at any time.
- as measured at the nearest sensitive receiver
- L5.2 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed:
- 5mm/s for more than 5% of the total number of blasts carried out on the premises during each reporting period; and
 - 10 mm/s at any time.

At the most affected residence or noise sensitive location that is not owned by the licensee or subject to a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative ground vibration level .

- L5.3 All sensitive receivers are to be given at least 24 hours notice when blasting is to be undertaken.
- L5.4 The licensee must report any exceedance of the licence blasting limits to the EPA within 24 hours of the

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exceedance becoming known to the licensee or to one of the licensee's employees or agents.

L6 Hours of operation

L6.1 Activities covered by this licence must be in accordance with the operating hours set out in the table below

Activity	Permissible Hours
Quarrying activities, asphalt plant operations and loading and dispatch of laden trucks	07:00 to 18:00 Monday to Friday; 07:00 to 15:00 on Saturday and at no time on Sundays and Public Holidays
Blasting	10:00 to 15:00 Monday to Friday and at no time on Saturday, Sunday and Public Holidays
Maintenance	May be conducted at any time provided that these activities are not audible at any privately-owned residence

L6.2 The following activities may be carried out outside the hours specified in Condition L6.1 above:

- delivery or despatch of material outside the hours of as requested by police or other public authorities
- emergency work to avoid the loss of lives, property or to prevent environmental harm
- operation of the asphalt plant with the permission of Lismore City Council for emergency or specific works where a traffic management problem is involved.

In such circumstances, prior notification must be provided to the EPA and affected residents as prior to undertaking the activity or as soon as possible thereafter.

Note: Where a blast failure has occurred or there are compelling safety reasons, the EPA may permit a blast to occur outside the above hours. The licensee must provide prior notice of any such blast to the EPA by contacting 131 555.

L6.3 Out of hours work implemented in accordance with conditions of approval

The licensee may also undertake limited campaign asphalt plant operations (within the limits imposed under Application No: 07_0020, Mod 3,condition 8, Schedule 2), outside of the operating hours prescribed in condition L6.1, as requested by public authorities.

In such circumstances, the licensee must prepare an Out of Hours Work Protocol. This protocol must:

1. be prepared in consultation with the EPA and any residents who may be affected by the noise generated by these works; and
2. be approved by the NSW Department of Planning and Environment Secretary prior to the commencement of any out of hours asphalt plant operations.

L6.4 Out of Hours Work reporting

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Any works undertaken through these provisions are to be reported to the EPA in accordance with condition R1.9.

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.

O3.2 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.

O4 Processes and management

O4.1 Sediment Basins shall be treated, if required, to reduce the Total Suspended Solids level to the licenced concentration limit of 50mg/L before being released to the environment. Treatment can be with gypsum or any other material that has been approved by the EPA.

O4.2 The licensee must maximise the diversion of run-on waters from lands upslope and around the site whilst land disturbance activities are being undertaken.

O4.3 The licensee must maximise the diversion of stormwater runoff containing suspended solids to sediment basins installed on the premises.

O4.4 Where sediment basins are necessary, all sediment basins and associated drainage must be installed and commissioned prior to the commencement of any clearing or grubbing works within the catchment area of the sediment basin that may cause sediment to leave the site.

O4.5 The licensee must ensure the design storage capacity of the sediment basins installed on the premises is reinstated within 5 days of the cessation of a rainfall event that causes runoff to occur on or from the premises.



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- O4.6 The licensee must ensure that sampling point(s) for water discharged from the sediment basin(s) are provided and maintained in an appropriate condition to permit:
- the clear identification of each sediment basin and discharge point;
 - the collection of representative samples of the water discharged from the sediment basin(s); and
 - access to the sampling point(s) at all times by an authorised officer of the EPA.
- O4.7 The licensee must endeavour to maximise the reuse of captured stormwater on the premises.
- O4.8 Each sedimentation basin must have a marker (the “sedimentation basin marker”) that identifies the upper level of the sediment storage zone.
- O4.9 Whenever the level of liquid and other material in any sedimentation basin exceeds the level indicated by the sedimentation basin marker, the licensee must take all practical measures as soon as possible to reduce the level of liquid and other material in the sedimentation basin.
- O4.10 The sediment basins must meet the design and operational standards of Managing Urban Stormwater Soils and Construction: Volume 1 and Volume 2 E. Mines and quarries. The sediment basin sizes must be managed as outlined in the Blakebrook Quarry Soil and Water Management (Final) - 13 February 2019, prepared by Gilbert & Sutherland on behalf of Lismore City Council.
- O4.11 The sites sediment basin(s) must be maintained and operated to ensure that:
- All 5-day rainfall events up to 60.2 mm (the 90th percentile 5 day rain event) are captured.
 - Any discharge from the licensed discharge point 1 that occurs as a result of rainfall below the 5-day total of 60.2 mm must meet the limit conditions specified in condition L2.3.
- O4.12 All liquid chemicals, fuels and oils must be stored in tanks or containers inside suitable bund(s). Bund(s) are to be designed, constructed and maintained in accordance with the relevant Australian Standard for the Storage and Handling of Flammable and Combustible Liquids.

O5 Other operating conditions

O5.1 Odour

The operation of the premises must not cause or permit the emission of offensive odour beyond the boundary of the premises.

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:

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- 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.

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 Water and/ or Land Monitoring Requirements

POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Oil and Grease	Visible	Special Frequency 1	Visual Inspection
pH	pH	Special Frequency 1	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

M2.3 For the purposes of the table(s) above Special Frequency 1 means:

- a) Sampling once <48 hours prior to actively emptying the sediment basin, and
- b) Sampling every 5 working days for ongoing discharge events arising from rainfall less than 60.2mm falling in total over a period of up to five days duration.

M3 Testing methods - concentration limits

M3.1 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.

M4 Environmental monitoring

M4.1 The licensee is required to install and maintain a rainfall depth measuring device.



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

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 condition(s) L5.2 and L5.3:

- a) Airblast overpressure and ground vibration levels must be measured at the most affected residence or noise sensitive location that is not owned by the licensee or subject to a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative level - for all blasts carried out in or on the premises; and
- b) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.

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M8 Other monitoring and recording conditions

M8.1 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 meters, and the compliance monitoring guidance provided in the NSW Industrial Noise Policy.

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 notification that the Annual Return is due.

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

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.

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:



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- a) the licence holder; or
- b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.8 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.

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.

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

R1.9 The licensee must also include the following information with the Annual Return:

- A statement detailing the total volume of material extracted from the quarry for the reporting period; and
- The total volume of extracted material transported from the premises for the reporting period.
- A statement detailing all Out of Hours Work activities undertaken and listing any complaints made in relation to such activities.

R2 Notification of environmental harm

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 they became aware of the incident.

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.

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;



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- 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.

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.

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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 <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
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 <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
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

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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 Environment 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 months. 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 <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .



Environment Protection Licence

Licence - 3384

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 [REDACTED]

Environment Protection Authority

(By Delegation)

Date of this edition: 28-August-2000



Environment Protection Licence

Licence - 3384

End Notes

- 1 Licence varied by notice 1012134, issued on 02-Apr-2002, which came into effect on 27-Apr-2002.
- 2 Licence varied by notice 1017834, issued on 03-Jun-2002, which came into effect on 28-Jun-2002.
- 3 Licence varied by notice 1020616, issued on 12-Sep-2002, which came into effect on 07-Oct-2002.
- 4 Licence varied by notice 1026159, issued on 31-Mar-2003, which came into effect on 25-Apr-2003.
- 5 Licence varied by notice 1031250, issued on 03-Oct-2003, which came into effect on 28-Oct-2003.
- 6 Licence varied by notice 1045315, issued on 11-Mar-2005, which came into effect on 05-Apr-2005.
- 7 Licence varied by notice 1049382, issued on 25-Aug-2005, which came into effect on 19-Sep-2005.
- 8 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 9 Licence varied by notice 1508293 issued on 22-Aug-2012
- 10 Licence varied by notice 1525659 issued on 30-Nov-2015
- 11 Licence varied by notice 1558031 issued on 27-Nov-2017
- 12 Licence varied by notice 1568156 issued on 06-Aug-2018
- 13 Licence format updated on 13-Feb-2019
- 14 Licence varied by notice 1577148 issued on 11-Mar-2019
- 15 Licence varied by notice 1598877 issued on 16-Sep-2020



Appendix C

DPE Response to 2021 AEMR

Lismore City Council

Commercial Services Compliance Manager
PO Box 23A
LISMORE NSW 2480

28/07/2022

**Blakebrook Quarry (MP07_0020)
Annual Environment Management Review 2021**

Dear Miss [REDACTED]

Reference is made to the Annual Review for the period 1 January 2021 to 31 December 2021, submitted to the Department of Planning and Environment (the "Department") as required under Schedule 5, Condition 11 of MP 07_0020 (the approval, as modified). The department acknowledges an extension of time for the 2021 Annual Review submission from March 2022 until 30 June 2022.

The department has reviewed the Annual Review and considers that the Annual Review needs further detail to fully address the requirements of Schedule 5, Condition 11 adequately, namely (e), (f) and (g). Given the time that has elapsed from the end of the reporting period (December 2021) and date the report was submitted (June 2022), the department will exercise its discretion and not request a revision in this instance. However, future Annual Reviews will be required to demonstrate a more comprehensive review of the project to satisfy Condition 11.

Schedule 2, Condition 14 requires the project to provide calendar year annual quarry production data. The information provided in Section 2.3.15 of the report does not clearly identify what production occurred during the 2021 calendar year. Please ensure that all future reports include an 'Operational Summary' section in the report that clearly identifies what production occurred at the project by calendar year. Preferably including a table that shows production for the current and previous calendar years.

The Annual Review itself provides minimal information regarding weed management onsite in 2021. Although the Annual Review refers to Appendix R (Bush Regeneration Report, 2021), given the department raised concerns regarding weed management during an inspection on 9 June 2021, it would be a valuable improvement to have a section in the report named 'Vegetation Management' (or similar) providing important information from Appendix R. Please consider as an improvement for future Annual Reviews.

The Annual Review identifies two non-compliances and two suggested recommendations in section 5.1. Both matters of non-compliance from 2021 reporting period have or are being addressed. The suggested recommendations identified as points 3 and 4 appear reasonable. Please update the Surface Water Management Plan (SWMP) in accordance with the

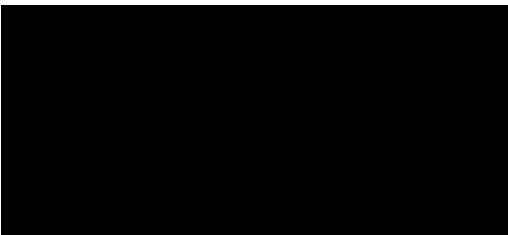
recommendations in section 5.1.

Please make publicly available a copy of the 2021 Annual Review on the company website.

Please note that the department's acceptance of this Annual Review is not an endorsement of the compliance status of the project. Non-compliances identified in the Annual Review will be assessed in accordance with the department's Compliance Policy. Further correspondence may be sent in relation to non-compliances.

Should you wish to discuss the matter further, please contact [REDACTED] (Compliance Officer), on (02) [REDACTED].

Yours sincerely



Compliance Team Leader
Compliance

As nominee of the Planning Secretary



Appendix D

Formal Surrender of DA90/341



Our Ref: MJK:5.1990.341.5

Contact: [REDACTED]

23 December 2022

Lismore City Council
PO Box 23A
LISMORE NSW 2480

council@lismore.nsw.gov.au

Dear Sir/Madam

**Development Application No. 5.1990.341.5
Lot 201 DP: 1227138, 550 Nimbin Road BLAKEBROOK**

Development Consent 1990/341 approved a bitumous hotmix (asphalt) plant on the subject land. The Section 96(2) Application seeks to modify Development Consent 1990/341 to enable the permanent relocation of the Asphalt Plant to the location approved on a temporary basis in 2015 and to enable the installation of an alternate mobile asphalt plant from that approved on a temporary basis in 2015.

Reference is made to your correspondence dated 20 July 2022 and the abovementioned development application.

Council confirms the Development Consent No. 5.1990.341.5 has been formally surrendered under Section 67 of the Environmental Planning and Assessment Regulation 2021.

Should you have any further enquiries regarding this matter, please contact Mr [REDACTED] at Council's Corporate Centre.

Copy to: office@ndc.com.au, Newton Denny Chapelle, PO Box 1138, LISMORE NSW 2480

www.lismore.nsw.gov.au

43 Oliver Avenue, Goonellabah NSW 2480 • PO Box 23A, Lismore NSW 2480 • T: 1300 87 83 87 • E: council@lismore.nsw.gov.au • ABN: 60080932837

Lismore City Council acknowledges the people of the Bundjalung Nation, traditional custodians of the land on which we work.



Appendix E

Extractive Materials Return

Extractive Materials Return

2021-2022



Regional
NSW

Form S1 – Period Ending 30 June 2022

Quote RIMS ID in all correspondence

Quarry Id:	Rims ID: 400286	Inquiries please telephone: (02) 4063 6713 Completed or Nil Returns Email – mineral.royalty@regional.nsw.gov.au Postal Address (see below)
Operators Name:	Lismore City Council	
Address:	PO BOX 23A LISMORE NSW 2480	Please amend name, postal address and location of mine or quarry if incorrect or incomplete.
Email:	council@lismore.nsw.gov.au	
Quarry Name:	BLAKEBROOK QUARRY	
Quarry Address:	540 Nimbin Rd, Blakebrook NSW 2480	

The return should be completed and forwarded to **Senior Advisory Officer, RESOURCE ECONOMICS, STRATEGY, PERFORMANCE & INDUSTRY DEVELOPMENT, DEPARTMENT OF REGIONAL NSW, PO BOX 344 HUNTER REGION MAIL CENTRE NSW 2310 on or before 31 October 2022**. If completion of the return is unavoidably delayed, an application for extension of time should be requested **before** the due date. If no work was done during the year, a **NIL** return must be forwarded.

The return should relate to the **above quarrying establishment** and should cover the operations of quarrying and treatment (such as crushing, screening, washing etc.) carried out at or near the quarry. A return is required even if the operations are solely of a developmental nature and whether the area being worked is held under a mining title or otherwise.

Director, Performance

Please complete all the following information to assist in identifying the location of the Quarry

Typical Geology Basalt

Nearest Town to Quarry Lismore

Local Council Name Lismore City Council

Deposited Plan and Lot Number/s of Quarry Lot 53 DP1254990

Email Address of Operator cscompliance@lismore.nsw.gov.au & council@lismore.nsw.gov.au

Name of Owner or Licensee Lismore City Council

Postal Address of Licensee PO BOX 23A Lismore NSW 2480

Licence/Lease Number/s (if any)
From Mining, Exploration & Geoscience (NSW Mineral Resources) N/A
From Crown Lands or other NSW Department N/A

If any output was obtained from land NOT held under licence from the above Departments, state the Name/s and Address/es of the Owners of the land _____

To the best of my knowledge, information entered in this return is correct and no blank spaces left where figures should have been inserted.

Extractive Materials Return 2021-2022



Regional
NSW

Form S1 – Period Ending 30 June 2022



- **SIGNATURE of PROPRIETOR or MANAGER**
DATE _____ 31 October 2022 _____
- **CONTACT PERSON** for this return _____ Quarry Manager, _____
- **NAME** (Block letters) _____ Telephone _____

Extractive Materials Return

2021-2022



Regional
NSW

Form S1 – Period Ending 30 June 2022

Sales During 2021-2022

Production information may be published in aggregated form for statistical reporting. However, production data for individual operations is kept strictly confidential.

Product	Description	Quantity Tonnes
Virgin Materials		
Crushed Coarse Aggregates		
Over 75mm	Gabion & Rock fill	30247.81 tonnes
Over 30mm to 75mm	Drainage aggregate	1586.12 tonnes
5mm to 30mm	Asphalt aggregates	25371.29 tonnes
Under 5mm	Crusher dust	21467.69 tonnes
Natural Sand		
Manufactured Sand		
Prepared Road Base & Sub Base	DGB20,RB20 & DGS40, RB30 & Crusher run	103030.79 tonnes
Other Unprocessed Materials	Overburden & Large rock	3635.45 tonnes
Recycled Materials		
Crushed Coarse Aggregates		
Over 75mm		
Over 30mm to 75mm		
5mm to 30mm		
Under 5mm		
Natural Sand		
Manufactured Sand		
Prepared Road Base & Sub Base		
Other Unprocessed Materials		
River Gravel		
Over 30mm		
5mm to 30mm		
Under 5mm		
Construction Sand	Excluding Industrial	
Industrial Sand		
Foundry, Moulding		
Glass		
Other (Specify)		
Dimension Stone	Building, Ornamental, Monumental	
Quarried in Blocks		
Quarried in Slabs		
Decorative Aggregate	Including Terrazzo	
Loam	Soil for Topdressing, Garden soil, Horticultural purposes)	
TOTAL SITE PRODUCTION		185339.15 tonnes
Gross Value (\$) of all Sales		
Type of Material	Basalt	\$5173113.25
Number of Full-Time Equivalent (FTE) Employees	Employees 7	Contractors 2

Please Note: A return for clay-based products can be obtained by contacting the inquiry number.



Appendix F

Quarry Production Summary

Production Summary - Quarry 2022



Product Name	Ticket Number	Avg. Price (t)	Qty	Total Ex Tax
Crushing - 10mm Aggregate	86	\$0.00	8,999.21	\$0.00
Crushing - 14mm Aggregate	84	\$0.00	7,624.46	\$0.00
Crushing - 20mm Aggregate	9	\$0.00	2,331.25	\$0.00
Crushing - 20mm Roadbase	62	\$0.00	33,375.44	\$0.00
Crushing - 30mm minus	126	\$0.00	60,650.61	\$0.00
Crushing - 40mm Roadbase	6	\$0.00	2,512.45	\$0.00
Crushing - 7mm Aggregate	84	\$0.00	4,014.92	\$0.00
Crushing - Coarse Dust	90	\$0.00	24,431.35	\$0.00
Crushing - Gabien	54	\$0.00	24,763.09	\$0.00
Crushing - Rockfill	4	\$0.00	2,755.50	\$0.00
Crushing - Scalps	31	\$0.00	6,554.28	\$0.00
Crushing Cobble	2	\$0.00	407.98	\$0.00
	638	\$0.00	178,420.54	\$0.00



Appendix G

Asphalt Production Report

Asphalt Sales summary (date no price)



Product Name	Ticket Number	Quantity
Trico AC10 COLMIX	169	2,680.52
Trico AC10 Type A CVC	85	1,144.52
Trico AC10H 450	92	1,133.36
Trico AC10Std 450	1534	8,583.45
Trico AC14H 450	1764	25,395.33
Trico AC14H A15E	346	5,500.55
Trico AC14Std 450	9	119.70
Trico AC20H 450	360	5,490.36
Trico Asphalt Plant Waste	2	15.42
	4361	50,063.21



Appendix H

LCC to DPE: Asphalt Transport Exceedance



Our ref: [REDACTED]
Your ref: MP07_0020
Contact: Lismore City Council

27 February 2023

Department of Planning and Environment (DPE)
Planning and Assessment
(Via Major Projects Portal)

Dear DPE

RE: Non-compliance Notification – MP07_0020 Blakebrook Quarry Project

In accordance with Schedule 5 Condition 9, Lismore City Council (Council) would like to report the following non-compliance with MP07-0020 Schedule 2 Condition 8(b).

8. The Proponent must not:

- (a) transport more than 600,000 tonnes of quarry products from the site per calendar year;*
- (b) transport more than 50,000 tonnes of asphalt from the site per calendar year;*
- (c) dispatch more than 120 laden trucks from the site on any calendar day prior to the completion of intersection upgrade required by Condition 21(f) of Schedule 3 to the satisfaction of TfNSW; and*
- (d) dispatch more than 150 laden trucks from the site on any calendar day following completion of the intersection upgrade required by Condition 21(f) of Schedule 3 to the satisfaction of TfNSW.*

Following an internal review of Asphalt sales figures for year 2022. It was identified that the transport of more than 50,000 tonnes of Asphalt from the site per calendar year had occurred.

Upon further investigation with TRICO Asphalt Pty Ltd/ RPQ Group (RPQ) who operate the Asphalt plant. It was determined that there had been some data discrepancies between the Blakebrook Quarry weighbridge system and the Asphalt Plant administration which led to a minor exceedance of 63.21 tonnes (Attachment 1. Asphalt Summary Report).

Council has discussed the oversight with RPQ who have agreed to implement additional reporting checks with the weighbridge to prevent any reoccurrences.

Should you require any further information, please do not hesitate to contact [REDACTED] Compliance Manager on [REDACTED] or via [REDACTED] [@lismore.nsw.gov.au](mailto:[REDACTED]@lismore.nsw.gov.au).

[REDACTED]
A/ Manager Commercial Services
Lismore City Council



Appendix I

Laden Truck Movements

Date	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec
1st		38	0	2	349	73	46	100	93		43	0
2nd	0	15	0		82	80		76	40	373	69	7
3rd		15	0	28	44	64	472	26			60	14
4th		5	0	66	76		109	70	382	114	47	190
5th				86	49	417	51	33	68	87		49
6th		73	0	84	37	65	34	6	105	58	291	77
7th	1	14	16	84		83	103	311	79	62	54	80
8th		39	21	74	288	78	119	53	83	13	61	107
9th	1	54	54	1	59	100		66	28	334	64	60
10th	9	48	53	395	83	72	416	98		61	69	7
11th	44	38	38	77	70		118	83	363	74	60	380
12th	31	14		87	66	398	76	95	63	80	9	101
13th	64	207	182	86	68		64	19	107	72	317	94
14th	76	46	68	66		36	96	414	86	67	42	45
15th	4	56	67		346	67	52	76	54		63	38
16th	228	73	92		59	81		105	45	354	70	62
17th	86	81	82	316	79	80	406	108	10	54	98	24
18th	63	68	60		93	9	88	114	365	62	60	364
19th	50	10		39	104	273	53	89	81	48		33
20th	0	334	369	47	44	60	79		46	23	333	47
21st	3	70	64	56		82	51	492	50	21	38	32
22nd		53	81	41	379	86	19	76	P/H		89	0
23rd	202	10	92		45	81		91	29	208	86	
24th	24	Nil	112	183	82	85	290	90	32	1	118	
25th	17	13	82				100	115	238	106	83	112
26th			46	83	92	394	81	71	85		11	
27th	58	146	477	119	107	100	94	37	87	107	425	
28th	19	0	26	91	35	107	119	480	94	78	63	
29th	7		0	51	361	118	82	63	69		49	
30th	125		0	5	90	101	17	82	38	292	57	
31st			0		110		493	104		72		
Total	556	760	1054	1245	1574	1708	1651	1946	1472	1260	1463	877
Avg	23.17	31.67	39.04	54.13	60.54	68.32	61.15	74.85	56.62	50.40	56.27	35.08



Appendix J

Section 94 Contributions

lgr_acc	trn_dte	pst_yer	pst_per	trn_cde	trn_ref	hrs_qty	act_kms	act_val	com_val	act_onc	tot_val	src_mdu	src_acc	acc_nme	trn_des
Ledger Account	Date	Posting Year	Posting Period	Type	Reference	Hours/Qty	Kilometers	Actual	Committed	Oncost	Total Value	Source	Source Account	Account Name	Transaction Description
001721.0785.9915	31/01/2022	2022		7	9901 15546/2022	0	0	10252.06	0	0	10252.06	GL	001721.0785.9915	Internal Charges - Expenses	Section 94 Levies - January 2022
001721.0785.9915	28/02/2022	2022		8	9901 15793/2022	0	0	10664.75	0	0	10664.75	GL	001721.0785.9915	Internal Charges - Expenses	Section 94 - Blakebrook Quarry - February 2022
001721.0785.9915	31/03/2022	2022		9	9901 15999/2022	0	0	16498.8	0	0	16498.8	GL	001721.0785.9915	Internal Charges - Expenses	Blakebrook Quarry S94 March 2022
001721.0785.9915	30/04/2022	2022		10	9901 16147/2022	0	0	16161.64	0	0	16161.64	GL	001721.0785.9915	Internal Charges - Expenses	S94 Levies - Blakebrook Quarry April 2022
001721.0785.9915	31/05/2022	2022		11	9901 16371/2022	0	0	21579.71	0	0	21579.71	GL	001721.0785.9915	Internal Charges - Expenses	S94 Levies May - Blakebrook Quarry
001721.0785.9915	30/06/2022	2022		12	9901 16561/2022	0	0	25462.75	0	0	25462.75	GL	001721.0785.9915	Internal Charges - Expenses	S94 Charges - Blakebrook Quarry - June 2022
001721.0785.9915	31/07/2022	2022		1	9901 16884/2023	0	0	26366.41	0	0	26366.41	GL	001721.0785.9915	Internal Charges - Expenses	S94 Charges - Blakebrook Quarry - July 2023
001721.0785.9915	31/08/2022	2023		2	9901 17902/2023	0	0	30085.29	0	0	30085.29	GL	005358.2035.1050	Blakebrook Quarry, Nimbin R	S94 Levies Blakebrook Quarry Aug 22
001721.0785.9915	30/09/2022	2023		3	9901 17903/2023	0	0	11153.76	0	0	11153.76	GL	005363.2035.1130	Commercial-Rural North	S94 Levies Blakebrook Quarry Sept 22
001721.0785.9915	31/10/2022	2023		4	9901 17904/2023	0	0	19790.79	0	0	19790.79	GL	005363.2035.1130	Commercial-Rural North	S94 Levies Blakebrook Quarry Oct 22
001721.0785.9915	30/11/2022	2023		5	9901 17905/2023	0	0	18876.62	0	0	18876.62	GL	005358.2035.1050	Blakebrook Quarry, Nimbin R	S94 Levies Blakebrook Quarry Nov 22
001721.0785.9915	31/12/2022	2023		6	9901 17906/2023	0	0	11153.75	0	0	11153.75	GL	005358.2035.1050	Blakebrook Quarry, Nimbin R	S94 Levies Blakebrook Quarry Dec 22



Appendix K

LCC to DPE: Out of Hours Blasting



Our ref: [REDACTED]
Your ref: MP07_0020
Contact: Lismore City Council

23 December 2022

Department of Planning and Environment (DPE)
Planning and Assessment
(Via Major Projects Portal)

Dear DPE

RE: Non-compliance Notification – MP07_0020 Blakebrook Quarry Project

In accordance with Schedule 5 Condition 9, Lismore City Council (Council) would like to report the following non-compliance with MP07-0020 Schedule 3 Condition 1.

Hours of Operation

1. The Proponent must comply with the operating hours set out in Table 1.

Table 1: Operating hours

Activity	Permissible Hours
Quarrying operations, Asphalt plant operations and loading and dispatch of laden trucks	7 am to 6 pm Monday to Friday
	7 am to 3 pm Saturday
	At no time on Sundays or public holidays
Blasting	10 am to 3 pm Monday to Friday (except public holidays)
	At no time on Sundays or public holidays

- At approximately 9.10am on 23 December 2022, a small production blast (5,167 tonnes) was undertaken at Blakebrook Quarry.
- It was noted that slumping of some holes was beginning to take effect and given the potential of further slumping which could increase risk of fly rock and air blast over pressure, it was decided the safest option was to fire the shot to control the level of risk 50 minutes early. With consideration to the impending change to current weather condition.
- Monitoring was undertaken at all three (3) primary monitor locations + two (2) additional monitor locations ([REDACTED] & [REDACTED] Keerrong Rd).
- No exceedances in air blast over pressure or ground vibration occurred.

Blakebrook Quarry Operations staff in conjunction with the blast contractor believed the above course of action was required to preserve the integrity of the blast and to avoid increasing safety risks under the circumstances, noting Schedule 3 Condition 8:

Operating Conditions

8. During blasting operations, the Proponent must:
 - (a) implement best practice management to:
 - protect the safety of people and livestock;
 - protect public or private infrastructure and property from damage; and
 - minimise the dust and fume emissions;
 - (b) operate a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site; and
 - (c) carry out regular monitoring to determine whether the project is complying with the relevant conditions of this approval,
to the satisfaction of the Secretary.

Council will include this non-compliance within the next Annual Report.

Should you require any further information please do not hesitate to contact [REDACTED], Compliance Manager on [REDACTED] or via [REDACTED] [@lismore.nsw.gov.au](mailto:[REDACTED]@lismore.nsw.gov.au). Please note Council will be closed over Christmas and New Year and resume operations on 3 January 2023.

[REDACTED]
Manager Commercial Services
Lismore City Council



Appendix L

Noise Monitoring Assessment

Ambience Audio Services

Acoustic Measurement and Analysis

Richmond Hill NSW 2480
ambienceaudio.com.au

Mobile: [REDACTED]

Results of Noise Monitoring

**Blakebrook Quarry
550 Nimbin Road
Blakebrook NSW 2480**

Prepared for

**Ecoteam
13 Ewing Street
Lismore NSW 2480**

Document Control						
Rev. No	Date	Prepared By	Reviewed By	Approved for and behalf of AAS		
Final	21/12/2022	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

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1 INTRODUCTION

Ambience Audio Services have been engaged by Ecoteam to conduct noise monitoring at Blakebrook Quarry, 550 Nimbin Road, Blakebrook NSW.

The current Noise and Blast Management Plan (NBMP) for Blakebrook Quarry (Lismore City Council Oct 2022) includes an Out of Hours Work Protocol (OHWP) for the asphalt plant, which is anticipated to occur 5 nights per month on scheduled projects. Section 7 of the NBMP details the noise monitoring program. Section 7.3 requires noise monitoring to be conducted once every 6 months to represent winter and summer conditions. The noise monitoring and reporting is to be conducted for each assessment time period; Day - 7am to 6pm, Evening – 6pm to 10pm, Night – 10pm to 7am).

Noise monitoring was conducted on the 19th of December 2022 with the quarry and asphalt plant operating under normal load conditions and suitable weather conditions.

Quarry operations while noise monitoring was conducted for the day time period included: crushing, screening and stockpiling on the northern end of the quarry floor, asphalt production at the mobile plant in the southern section of the quarry, and trucks and loaders on the quarry floor and internal haul roads. A diagram of equipment operating on the quarry floor during noise monitoring at residential receivers is provided in Appendix C.

The asphalt plant was producing cold mix during the evening and night time noise monitoring periods. There were no truck movements during the evening and night time noise monitoring.

To assist with the interpretation of some of the terminology used in this report, Appendix A provides definitions of acoustic terms. Appendix B is a chart of everyday sound pressure levels.

2 NOISE MONITORING REQUIREMENTS

The noise monitoring requirements for the Blakebrook Quarry are outlined in Section 2.2, Sections 7.1, 7.2, 7.3, 7.4, 7.5 and 7.7 of the NBMP (LCC Oct 2022).

Extracts of the relevant parts are copied below.

Section 2.2

3. *The Proponent must ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately owned land.*

Table 2: Noise Criteria dB(A)

Receiver	Day L _{Aeq} (15 minute)
Location 2 and 7	36
All other locations	35

Out of Hours Work Protocol – Asphalt Operations

The OHWP has provided management strategies for potential noise sources involving asphalt operations and truck movements. The evening and night project-specific noise level criterion is 35 dB(A) L_{Aeq} (15 minute).

L4.1 Noise from the licenced premises must not exceed an L_{Aeq} (15 minute) noise emission criteria of 36 dB(A) at Location 2 and 7, and 35 dB(A) at all other sensitive receivers, except as expressly provided by in this licence.

7.2 MONITORING LOCATIONS

The original Noise Assessment (ERM 2009) and updated NIA (Mitchel Hanlon, SEE 2019) included six (6) noise monitoring locations that were used throughout the assessment, based on proximity to nearby potentially sensitive receptors. Given the proximity between monitoring locations and the location of anticipated noise-generating plant and equipment, the monitoring locations have been revised and separated into primary and supplementary acoustic monitoring locations for the purposes of the NBMP.

Primary and supplementary acoustic locations are identified in *Figure 2*. Primary acoustic monitoring locations consist of locations 2, 4 and 8 with the remainder of locations being supplementary acoustic monitoring locations.

An agreement was reached with the landowner located along Nimbin Road (previously identified as location 8, ERM 2009) in April 2016, wherein the landowner has agreed to the exceedances in noise levels from Quarry operations. As such the location has been removed as a primary acoustic monitoring location, and a new monitoring location selected being (current) location 8.

Primary monitoring locations will be utilised during noise compliance monitoring and are considered representative in determining compliance with the relevant Conditions of Approval.

In the event that additional monitoring is required then additional monitoring may be undertaken at the most practical supplementary acoustic monitoring locations, as well as at the primary acoustic monitoring locations.

7.4 METHODOLOGY

Noise

Operator attended noise measurements shall be conducted at all primary acoustic measurement locations (Locations 2, 4 and 8 – refer *Figure 2*) to quantify and characterise the maximum (L_{Amax}), the energy equivalent (L_{Aeq}), and the background (L_{A90}) noise levels from ambient noise sources and quarrying operations over a 15 minute measurement period.

The operator shall quantify noise emissions and estimate the L_{Aeq} (Period) noise contribution during Quarry activities, as well as the overall level of ambient noise. During attended monitoring, digital recordings will be conducted to allow for additional post analysis of the Quarry noise levels and source identification.

All acoustic instrumentation employed throughout the monitoring program shall meet with the requirements of AS/NZS IEC 61672.1 Sound level meters Specifications & AS/NZS IEC 61672.2 Sound level meters Pattern Evaluation.

Instrument calibration shall be checked before and after each measurement survey, with the variation in calibrated levels not exceeding ± 0.5 dBa.

7.5 METEOROLOGICAL PARAMETERS

Adverse meteorological conditions have the potential to increase noise levels, for example wind speeds up to 3 m/s or temperature inversions, however wind speeds above 5 m/s (and rainfall) have the potential to generate extraneous and erroneous noise events, which reduce the accuracy and confidence in measured data.

As such, meteorological parameters will be evaluated prior to undertaking works on site, to gain an understanding of the weather conditions and the potential for variations in noise levels.

All noise measurements shall be accompanied by both qualitative description (including cloud cover, approximate wind direction and speed) and quantitative measurements of prevailing local weather conditions throughout the survey period. Rainfall data and meteorological parameters will be collected from the weather station located on-site, as shown in *Table H*.

Table H: Meteorological Measurement Parameters

Measured Parameter	Unit	Sample Interval
Mean Wind Speed	m/s	15 minutes
Mean Wind Direction	Degrees	15 minutes
Aggregate Rainfall	mm	15 minutes
Mean Air Temperature	C°	15 minutes

Accounting For Annoying Noise Characteristics (Low Frequency Noise)

The *Noise Policy for Industry* (NPfl 2017) states that a noise source may exhibit a range of particular characteristics that increase annoyance, such as tones, impulses, low frequency noise and intermittent noise.

Where this is the case, an adjustment ('modifying factor corrections') is applied to the source noise level received at an assessment point before it is compared with criteria to account for the additional annoyance caused by the particular characteristic.

Application of these modifying factors is described in *Fact Sheet C: Corrections for annoying noise characteristics* and outlines correction factors to be applied to the source noise level at the receiver before comparison with the project noise trigger levels to account for the additional annoyance caused by those modifying factors.

The modifying factor corrections should be applied having regard to:

- the contribution noise level from the premises when assessed/measured at a receiver location, and
- the nature of the noise source and its characteristics (as set out in this fact sheet).

The NPfl provides the following definitions to support the modifying factor corrections:

- Tonal Noise – Containing a prominent frequency and characterised by a definite pitch.
- Low Frequency Noise – Containing major components within the low frequency range (20 Hz to 250 Hz) of the frequency spectrum.
- Impulsive Noise – Having a high peak of short duration or a sequence of such peaks.
- Intermittent Noise – The level suddenly drops to that of the background noise several times during the assessment period, with a noticeable change in noise level of at least 5 dB.

The modifying factor corrections (and how they are applied) are present in *Table C1* of the NPfl and vary depending on the noise characteristic being assessed. All noise levels generated by the Quarry, which may generate tonal or low frequency content, will be assessed as part of the NBMP monitoring with due regard to these modifying factor penalties, and in accordance with the requirements presented in the NPfl.

Impulsive and intermittent noise, as defined by the NPfl, are not typical characteristics of the Quarry, hence tonal and low frequency noise (LFN) are most relevant to the Quarry and those modifying corrections are reproduced in *Table 1*.

Table 1: Meteorological Measurement Parameters

Tonal Noise	One-third octave band analysis using the objective method for assessing the audibility of tones in noise – simplified method (ISO1996.2:2007 – Annex D)	Level of one-third octave band exceeds the level of the adjacent bands on both sides by: <ul style="list-style-type: none"> • 5 dB or more if the centre frequency of the band containing the tone is in the range 500–10,000 Hz • 8 dB or more if the centre frequency of the band containing the tone is in the range 160–400 Hz • 15 dB or more if the centre frequency of the band containing the tone is in the range 25–125 Hz. 	5 dB ^{2,3}	Third octave measurements should be undertaken using unweighted or Z-weighted measurements. Note: Narrow-band analysis using the reference method in ISO1996-2:2007, Annex C may be required by the consent/regulatory authority where it appears that a tone is not being adequately identified, e.g. where it appears that the tonal energy is at or close to the third octave band limits of contiguous bands.
Low Frequency Noise	Measurement of source contribution C-weighted and A-weighted level and one-third octave measurements in the range 10–160 Hz	Measure/assess source contribution C- and A-weighted Leq,T levels over same time period. Correction to be applied where the C minus A level is 15 dB or more and: <ul style="list-style-type: none"> • where any of the one-third octave noise levels in Table C2 are exceeded by up to and including 5 dB and cannot be mitigated, a 2-dB(A) positive adjustment to measured/predicted A-weighted levels applies for the evening/night period • where any of the one-third octave noise levels in Table C2 are exceeded by more than 5 dB and cannot be mitigated, a 5-dB(A) positive adjustment to measured/predicted A-weighted levels applies for the evening/night period and a 2-dB(A) positive adjustment applies for the daytime period. 	2 or 5 dB ²	A difference of 15 dB or more between C- and A-weighted measurements identifies the potential for an unbalance spectrum and potential increased annoyance. The values in Table C2 are derived from Moorhouse (2011) for DEFRA fluctuating low-frequency noise criteria with corrections to reflect external assessment locations.

Notes:

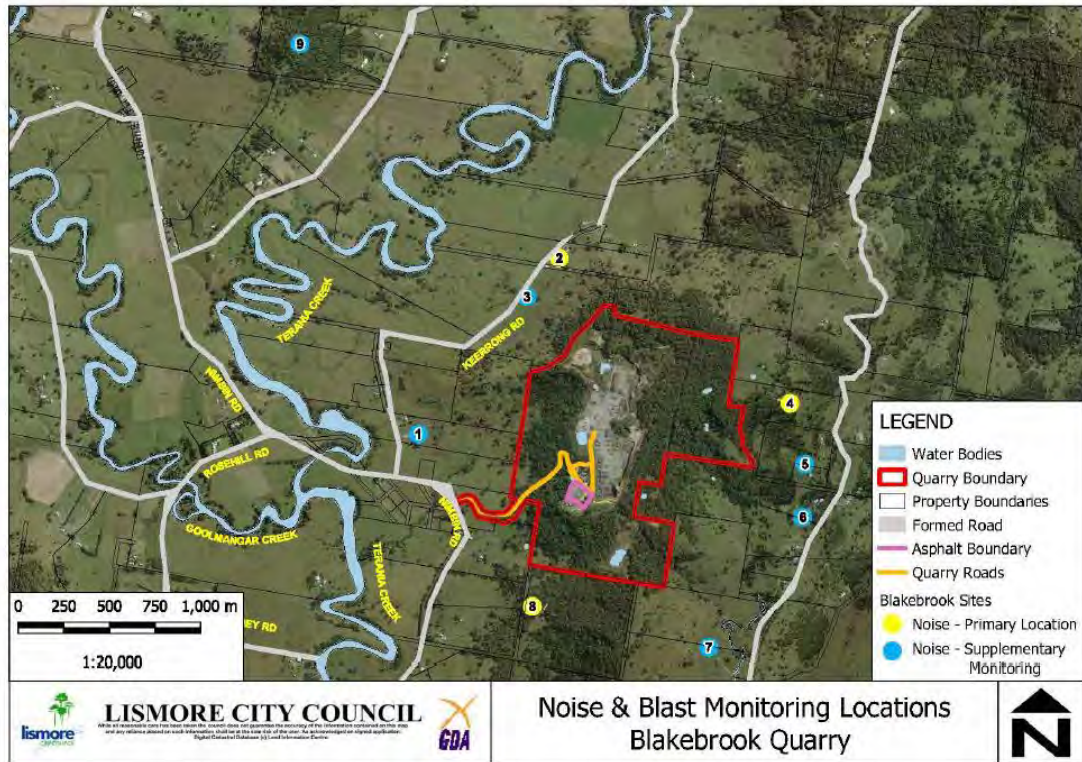
1. Corrections to be added to the measured or predicted levels, except in the case of duration where the adjustment is to be made to the criterion.
2. Where a source emits tonal and low-frequency noise, only one 5-dB correction should be applied if the tone is in the low-frequency range, that is, at or below 160 Hz.
3. Where narrow-band analysis using the reference method is required, as outlined in column 5, the correction will be determined by the ISO1996-2:2007 standard.

Noise monitoring at the receiver locations were conducted within 30m of the residential dwelling in the direction of the quarry.

Receiver	Street Address
2	████████████████████
4	████████████████████
8	████████████████████

Figure 2.1 Noise Monitoring Locations

Figure 2: Noise & Blast Monitoring Locations Map



3 MEASUREMENT PROCEDURE AND RESULTS

3.1 Instrumentation

Table 3.1 Instrumentation		
Instrument	Serial #	Calibration Date
Brüel and Kjaer 2250 G4 Sound Level Meter	3031300	Oct 2022
Bruel & Kjaer 2250 G4 Sound Level Meter	3008548	Dec 2021
Brüel and Kjaer 2250 G4 Sound Level Meter	3028735	Jan 2022
Bruel & Kjaer 4231 Calibrator	3029274	Oct 2022

The sound level meters (SLM) used during the noise survey conform to Australian Standard 1259 "Acoustics - Sound Level Meters", (1990) as type 1 precision sound level meters, and have an accuracy suitable for both field and laboratory use. The meters' calibrations were checked before and after the measurement periods with a Bruel & Kjaer acoustic calibrator. No significant system drift occurred over the measurement periods.

The SLMs and calibrator have been checked, adjusted and aligned to conform to the factory specifications and issued with conformance certificates by a certified NATA facility.

3.2 Measurement Procedure

Measurements were made in general accordance with procedures laid down in:

1. Australian Standard AS 1055 : 2018 *Acoustics - Description and measurement of environmental noise*
2. The NSW Government *Noise Policy for Industry* (EPA Oct 2017)

The microphone of a B&K 2250 G4 SLM was mounted at a height of 1.2m above the ground and a Bruel and Kjaer outdoor windscreen fitted to the microphone. The SLM was located above the cliff face where the crushing and screening equipment was operating to monitor noise levels while measurements were being conducted at the receiver locations.

The microphone of a B&K 2250 G4 was mounted on a 1.5m high tripod, a Bruel and Kjaer outdoor windscreen fitted to the microphone, and located near the asphalt plant to monitor noise levels of the asphalt plant while measurements were being conducted at the receiver locations.

Both SLMs were set to record continuously for the duration of receiver monitoring with 1 second samples. A sound recording was conducted simultaneously.

A third SLM (B&K 2250 G4) was mounted on a 1.2m – 1.5m high tripod and a Bruel and Kjaer outdoor windscreen fitted to the microphone. The SLM was used at the receiver locations to monitor noise levels while the quarry and asphalt plant were operating.

A 15 minute period was recorded at each receiver location with A and C weighting, fast response, and 1 second samples with a simultaneous sound recording. Spectrum data was recorded with a linear (Z) weighting.

3.3 Weather Conditions

Weather conditions were generally good for acoustic measurements. Observations were taken at each receiver location with a Kestrel 3000 pocket weather meter.

Table 3.2 Receiver Locations Weather Summary 19 th December 2022						
Receiver	Time	Temp	Relative Humidity	Wind	Wind Dir	Cloud Cover
		°C	%	Speed (m/s)		
2	8:20am	20	60	1.5 - 3	SW	3/8
	8:26pm	19	66	1.5 - 4	S	4/8
	11:21pm	16	70	1 - 2.5	S	1/8
8	9:17am	22	58	0.5 - 1.5	SW	5/8
	9:01pm	20	63	Calm		4/8
	10:48pm	17	73	0.5 - 1	S	3/8
4	10:05am	23	60	0.5 - 1.5	S	6/8
	9:41pm	19	66	0.5 - 1.5	S	5/8
	10:00pm	18	71	0.5 - 1	S	5/8

Weather data from the weather station at Blakebrook Quarry is presented in Table 3.3 below.

Table 3.3 Blakebrook Quarry Weather Station Observations 19 th December 2022							
Time	AVERAGE Air Temperature 10m - DegC	AVERAGE Wind Speed 10m - km/h	AVERAGE Wind Speed 10m - m/s	AVGDIR Wind Direction 10m - Degs	S-THETA Wind Direction 10m - Degs	STDEV Wind Speed 10m - km/h	TOTAL Rain Gauge - mm
8:10 AM	17.7	2.5	0.7	205.6	57.9	1.1	0
8:20 AM	18.2	2.3	0.6	204.5	59.8	0.8	0
8:30 AM	18.6	2.7	0.7	200.3	66.2	1.1	0
8:40 AM	18.8	2.4	0.7	201	66.9	0.8	0
8:50 AM	18.8	2.2	0.6	184.6	68.3	0.7	0
9:00 AM	19.3	3	0.8	198.9	62.5	1.1	0
9:10 AM	19.9	3.5	1.0	163.9	73.6	1.8	0
9:20 AM	19.7	3.5	1.0	201.4	62.5	1.8	0
9:30 AM	19.7	4.1	1.1	202.3	47.6	1.9	0
9:40 AM	19.9	3.8	1.1	195.9	51.6	1.3	0
9:50 AM	20.5	3.8	1.1	187.2	53.3	1.8	0
10:00 AM	20.3	3.8	1.1	192.5	76.3	1.9	0.2
10:10 AM	20.8	4	1.1	223.1	89.9	1.4	0
10:20 AM	21.4	3.6	1.0	179.3	71	0.9	0
10:30 AM	21	5.8	1.6	187.3	54.6	2.6	0
8:10 PM	18.5	5.8	1.6	193.1	48.8	2.6	0
8:20 PM	18.4	6.8	1.9	179.6	36.7	1.7	0
8:30 PM	18.4	6.2	1.7	202.6	44.6	2.3	0
8:40 PM	18.3	4.6	1.3	190	57.2	1.9	0
8:50 PM	18.1	2.9	0.8	231.6	50.1	1.5	0
9:00 PM	17.8	1.7	0.5	212.5	44.7	0.8	0
9:10 PM	17.6	1	0.3	231.9	71.5	0.5	0
9:20 PM	17.5	1	0.3	206.2	61.9	0.6	0
9:30 PM	17.3	1	0.3	198.2	58.4	0.6	0
9:40 PM	17.1	1.8	0.5	200	43.7	1.6	0
9:50 PM	17	1.6	0.4	206.2	44.7	0.9	0
10:00 PM	17	1.8	0.5	199.3	57	1	0
10:10 PM	16.8	1.2	0.3	202.8	53.3	0.8	0
10:20 PM	16.6	1.4	0.4	158.4	65.9	0.4	0
10:30 PM	16.4	1.1	0.3	197.2	54.9	0.4	0
10:40 PM	16.2	1	0.3	192.3	42.2	0.3	0
10:50 PM	16.2	0.8	0.2	189.2	48.2	0.2	0
11:00 PM	16.2	1.2	0.3	191.8	41.5	0.4	0
11:10 PM	16.2	1.2	0.3	191.5	57.5	0.4	0
11:20 PM	16.1	1.3	0.4	189.1	51.5	0.3	0
11:30 PM	16.1	1.4	0.4	202.8	53.3	0.1	0
11:40 PM	16.1	1.4	0.4	211.1	49.5	0.2	0
11:50 PM	16.1	1.2	0.3	205.1	61.7	0.4	0

3.3 Measurement Results

Table 3.4 Blakebrook Quarry Receiver Locations Measurement Summary - 19 th Dec 2022									
Receiver	Start Time	Elapsed Time h:mm:ss	L _A max [dB]	L _A eq [dB]	L _C eq [dB]	L _C eq-L _A eq [dB]	L _A F10.0 [dB]	L _A F90.0 [dB]	
R2	8:20 AM	0:15:00	65.8	42.5	60.0	17.5	43.3	35.1	
	8:26 PM	0:15:00	73.8	52.1	60.4	8.3	54.7	44.9	
	11:21 PM	0:15:00	61.7	35.6	49.7	14.1	36.7	32.7	
R4	10:05 AM	0:15:00	61.5	47.8	50.6	2.8	51.0	39.3	
	9:41 PM	0:15:00	49.5	40.6	44.3	3.7	41.9	39.1	
	10:00 PM	0:15:00	53.8	42.1	44.4	2.4	43.0	41.0	
R8	9:17 AM	0:15:00	67.6	42.7	49.7	7.1	41.0	36.6	
	9:01 PM	0:15:00	50.3	40.8	46.9	6.1	42.9	38.1	
	10:48 PM	0:15:00	50.4	36.9	44.1	7.1	38.6	34.6	

Note:

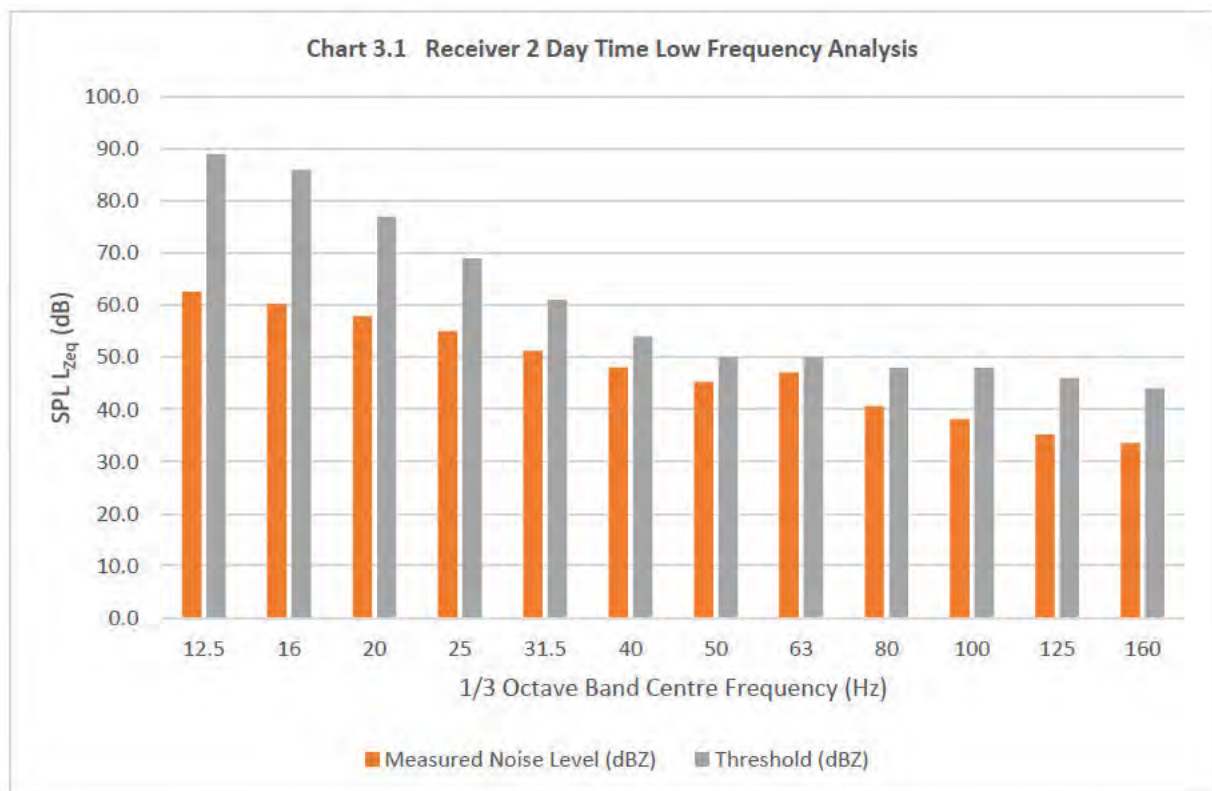
The above results are the ambient noise levels and includes noise from the rural surroundings and quarry noise if audible.

Table 3.5 Noise Observations at Receiver Locations 19 th December 2022 (All measurements 15 mins)			
Receiver	Start Time	Observed Noise Sources	Quarry Noise
2	8:20 AM	Wind in trees, occasional traffic on Keerrong Road, birds, dog barking when vehicle passing	Quarry low frequency barely audible at times
	8:26 PM	Insects consistent (8kHz - 12kHz), nearby windmill, occasional vehicle on Keerrong Road	Machinery just audible at times - wind dependent
	11:21 PM	Insects consistent (3.15kHz - 6.3kHz), distant dog barking, occasional distant traffic on Nimbin Road, occasional distant cattle	Machinery low frequency barely audible at times
4	10:05 AM	Insects dominant (2kHz - 8kHz), wind in trees, very distant traffic, distant dog barking	Occasional low frequency of machinery, barely audible
	9:41 PM	Insects consistent, (3.15kHz - 5kHz), distant traffic at times, occasional low level wind noise in trees	Machinery low frequency barely audible
	10:00 PM	Insects consistent, (3.15kHz - 5kHz), distant traffic at times, occasional low level wind noise in trees	Machinery low frequency barely audible
8	9:17 AM	Birds, distant traffic on Nimbin Road, insects consistent (4kHz), wind in trees for last minute	Machinery low frequency just audible
	9:01 PM	Insects consistent (4kHz), distant traffic Nimbin Road, distant aircraft	Machinery low frequency barely audible
	10:48 PM	Insects consistent (4kHz), occasional vehicle on Nimbin Road, occasional wind in trees	Machinery low frequency barely audible, occasionally low frequency noise level increased

3.4 Low Frequency Analysis

The difference between the C and A L_{eq} levels at Receiver 2 was greater than 15 decibels during the day time measurement period. Insect noise increased the A weighting at other measurement times at all locations.

Table 3.6 Low Frequency Analysis (R2 day time)			
1/3 Octave band Centre Frequency (Hz)	Measured Noise Level (dBZ)	Threshold (dBZ)	Difference (dB)
12.5	62.6	89	-26.42
16	60.2	86	-25.78
20	57.9	77	-19.1
25	55.0	69	-13.98
31.5	51.3	61	-9.74
40	48.1	54	-5.93
50	45.3	50	-4.74
63	47.0	50	-2.96
80	40.6	48	-7.4
100	38.1	48	-9.9
125	35.1	46	-10.87
160	33.6	44	-10.42



4 DISCUSSION OF RESULTS

The noise loggers above the quarry and near the asphalt plant indicated that there was consistent quarry and asphalt plant noise during the measurement periods at receiver locations.

Receiver 2 – Quarry low frequency noise was barely or just audible. The location of the crushing was in the northern section of the quarry and closer than previous monitoring events. The $L_{A90,15min}$ ranged from 32.7 to 44.9 dB(A). The higher background noise can be attributed to seasonal insects. Evening insect noise was observed to be higher in noise level and frequency.

Analysis of the low frequencies (below 250Hz) indicate a combined level of approximately 30 dB(A), which also includes other ambient non-quarry noise sources.

The low frequency analysis (Table 3.6 and Chart 3.1) Z weighted 1/3 octave band noise levels are below the threshold specified in Table C2 in Fact Sheet C of the NSW NPfl.

The $L_{Aeq,15 min}$ of the quarry operations is estimated to be below 30 dB(A).

Receiver 4 - Quarry low frequency noise was barely audible. Insect noise was consistent. The $L_{A90,15min}$ ranged from 39.3 to 41.0 and is due to consistent seasonal insects.

Analysis of the low frequencies (below 250Hz) indicate a combined level below 27 dB(A) for the quarry and asphalt plant, and below 24 dB(A) for the asphalt plant only. There was a southerly breeze, which would have reduced noise levels of the quarry operations and asphalt production at this location.

The $L_{Aeq,15 min}$ of the quarry operations is estimated to be below 35 dB(A) for calm meteorological conditions.

Receiver 8 - Quarry noise was barely or just audible. The $L_{A90,15min}$ ranged from 34.6 to 38.1 dB(A) and mainly due to seasonal insects for the evening and night time, and distant non-quarry noises such as distant traffic on Nimbin Road during the day .

During the night time noise monitoring period, it was noted there was an increase in the low frequency noise level for approximately 4 minutes, and is attributed to the start-up procedure of the asphalt plant (the equipment was temporarily shut down during the relocation of noise monitoring equipment from Receiver 4, as there was a limited supply of resources available to complete the noise monitoring).

The $L_{Aeq,15 min}$ of the quarry operations is estimated to be below 35 dB(A).

The resident noted that there was a hum from quarry operations most of the time, but did not feel it was excessively intrusive. The resident also noted sometimes on start-up of the asphalt plant, noise levels increased for a short period of time.

Analysis of the low frequencies (below 400Hz – low mid frequencies audible at this location) indicate a combined level below 30 dB(A) for the quarry and asphalt plant, and below 25 dB(A) for the asphalt plant only. There was a southerly breeze, which would have created an upwind condition at Receiver 8 and reduced noise levels of the quarry operations and asphalt production at this location.

The $L_{Aeq,15\text{ min}}$ of the quarry operations is estimated to be below 35 dB(A) for calm meteorological conditions.

5 SUMMARY AND CONCLUSION

A noise monitoring survey was conducted to assess compliance of the quarry and asphalt plant operational noise levels at Blakebrook Quarry, Blakebrook, via Lismore NSW. Measurements were undertaken with calibrated noise monitoring equipment on the 19th of December 2022 and conducted in general accordance with procedures in Australian Standard AS 1055:2018 and the NSW Noise Policy for Industry.

The Blakebrook Quarry operates under the New South Wales Government Environment Protection Authority, Environmental Protection Licence, EPL No. 3384. Noise emissions from quarry and asphalt plant operations at nearby residential receivers, is managed by the Noise and Blast Management Plan (NBMP) for Blakebrook Quarry (Lismore City Council Oct 2022), and includes an Out of Hours Work Protocol (OHWP) for the asphalt plant, which is anticipated to occur 5 nights per month on scheduled projects.

Day time (7am – 6pm) noise limits at residential receivers without a written agreement with the quarry are 36 dB(A) $L_{Aeq,15min}$ for receivers 2 and 7, and 35 dB(A) $L_{Aeq,15min}$ for all other receivers. The evening (6pm – 10pm) and night time (10pm – 7am) noise limit is 35dB(A) $L_{Aeq,15min}$ at all receiver locations without a written agreement with the quarry.

Measurements were conducted at the 3 primary receiver locations (Receivers 2, 4, 8) while the quarry and asphalt plant were operating during the day, and during the evening and night time periods, with only the asphalt plant producing cold mix.

Low frequency noise from the quarry and asphalt plant operations was barely audible or just audible at the primary receiver locations for the day, evening and night time periods.

The quarry operational noise levels ($L_{Aeq,15min}$) were not able to be accurately assessed at residential receiver monitoring locations, as the quarry noise was barely audible against other noise sources such as distant traffic, insects and birds.

It is estimated from the recorded $L_{A90,15min}$ levels, listening to the sound recordings, analysing the spectrum data, and observations during the attended noise monitoring, that the combined quarry and asphalt plant noise levels are below the NBMP day time noise criteria of 35 dB(A) $L_{eq,15min}$ at receiver locations 4 and 8, and below 36 dB(A) $L_{eq,15min}$ at receiver location 2. It is estimated that evening and night time noise levels of the asphalt plant are below the NBMP criteria of 35 dB(A) $L_{eq,15min}$.

The current crushing, screening, rock hammering and stock piling operations are on the main pit floor, which provides a substantial noise barrier to receivers. If crushing, screening, rock hammering and stock piling operations change to a higher ground level, then there is potential for increased noise impact at receivers and it is recommended that noise monitoring be conducted at residential receivers.

Receiver 8 is close to the southern cell. It is recommended that noise monitoring be conducted at Receiver 8 when work in the southern cell is undertaken, to assess the noise impact at Receiver 8.

It is recommended for future evening and night time noise monitoring of the asphalt plant, that the noise monitoring be coordinated with truck movements to assess the combined noise levels of asphalt production and truck movements on the internal haul roads.



Acoustic Consultant
Ambience Audio Services

APPENDIX A Definitions of Terms

Sound pressure level (L_p): A measurable quantity of the size or amplitude of the pressure fluctuations (sound waves) above and below normal atmospheric pressure compared to a reference pressure. Sound pressure levels are measured in decibels whereas sound pressure is measured in pascals (N/m^2).

Decibels (dB): a ratio of energy flows. When used for sound measurement, it is the ratio between a measured quantity of sound pressure and an agreed reference sound pressure. The dB scale is logarithmic and uses the threshold of hearing of 20 μPa (micro pascals) as the reference pressure. This reference level is defined as 0 dB.

Frequency (Hz): The number of pressure variations per second (cycles per second) is called the **frequency** of sound and is measured in **Hertz (Hz)**. The rumble of distant thunder has a low frequency, while a whistle has a high frequency. The normal range of hearing for a healthy young person extends from approximately 20Hz up to 20 000 Hz (20 kHz) while the range from the lowest to highest note on a piano is approximately 27.5 Hz to 4.2 kHz.

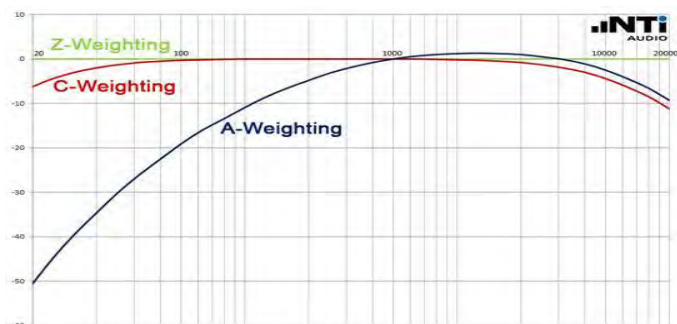
Spectral characteristics: The frequency content of noise.

Octave: a logarithmic unit for ratios between frequencies, with one octave corresponding to a doubling of frequency. For example, the frequency one octave above 40 Hz is 80 Hz.

1/3 Octave: a logarithmic unit of frequency ratio equal to one third of an octave.

“A” frequency weighting: The method of frequency weighting the electrical signal within a noise-measuring instrument to give a very approximate simulate to the human perception of loudness. The symbols for the noise parameters often include the letter “A” (e.g., L_{Aeq} , dBA) to indicate that frequency weighting has been included in the measurement. “A” weighting is most commonly used with regard to noise control issues, regulations and environmental standards.

“C” frequency weighting: The filters used in C weighting captures lower frequencies than A weighting as indicated in the chart below.



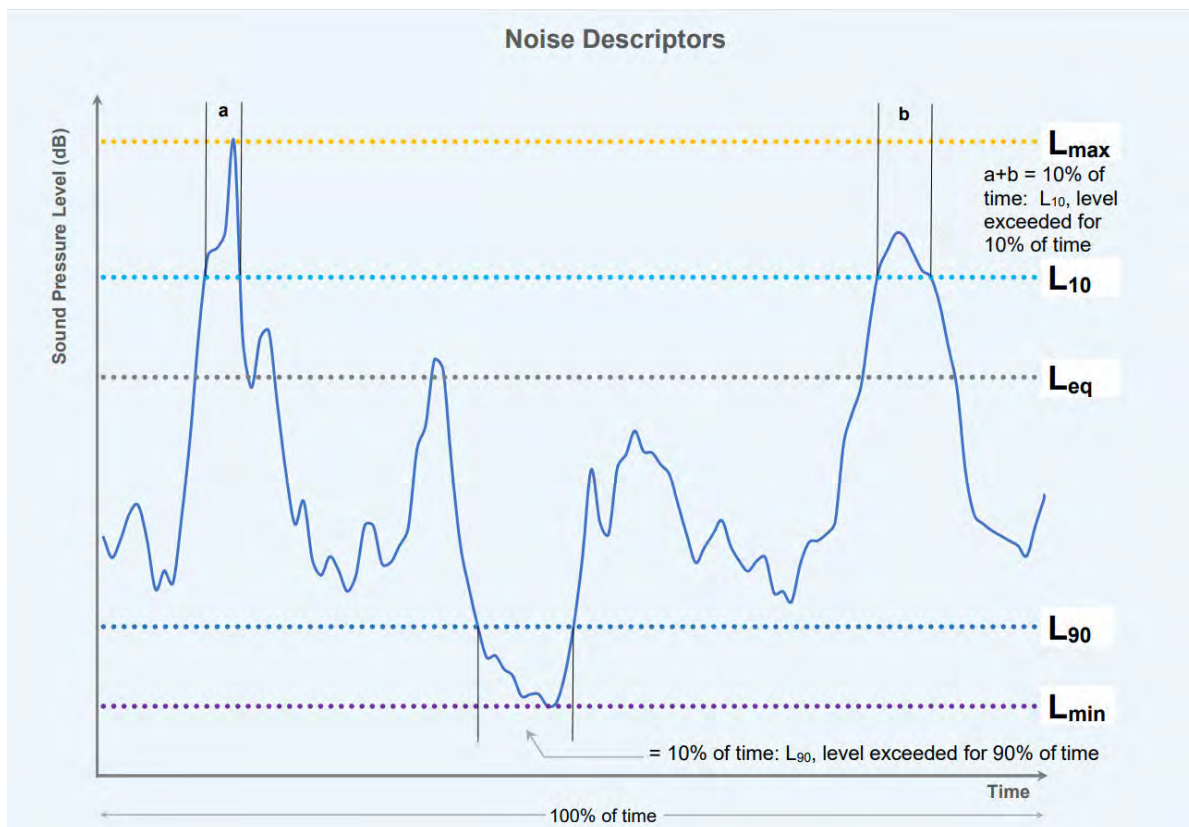
The A-weighting curve is used extensively for general purpose noise measurements but the C-weighting correlates better with the human response to high noise levels.

Fast, Slow and Impulse time weightings: Standardised root-mean-square (rms) averaging times to help define fluctuating noise levels. Impulsive noises have high peak levels with a very short duration (e.g., gun shot), or a sequence of such peaks. The 'Slow' time weighting averages the fluctuations over a one second time base whilst the 'Fast' time weighting averages the fluctuations over a one-eighth of a second time base. Environmental assessment standards usually specify the time weighting (**F**, **S**, or **I**) to be used.

L_{Aeq}: The A-weighted equivalent continuous noise level. A widely used noise descriptor which provides an average of the energy of a constant level of noise which is the same as the varying noise signal being measured. The time in which the measurement was sampled, is indicated with a subscripted number e.g. L_{Aeq,15 minute} is a 15-minute sample.

Percentile Levels L_N: The sound pressure level that is exceeded for N per cent of the time over which a given sound is measured. e.g. **L_{A90}** is the A-weighted sound pressure level that is exceeded for 90% of the time over which a given sound is measured.

L_{A90} is commonly used to describe the **background noise level** for community noise assessments.



Ambient noise: The all-encompassing noise associated within a given environment. It is the composite of sounds from many sources, both near and far.

Extraneous noise: Noise resulting from activities that are not typical of the area. Atypical activities may include construction, and traffic generated by holiday periods and by events such as concerts or sporting events. Normal daily traffic is not to be considered extraneous.

Background noise: The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is described using the **L_{A90}** descriptor, fast time weighting.

Intrusive Noise: Refers to noise that intrudes above the background level by more than 5 decibels.

Noise limits: Enforceable noise levels that appear in consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.

References:

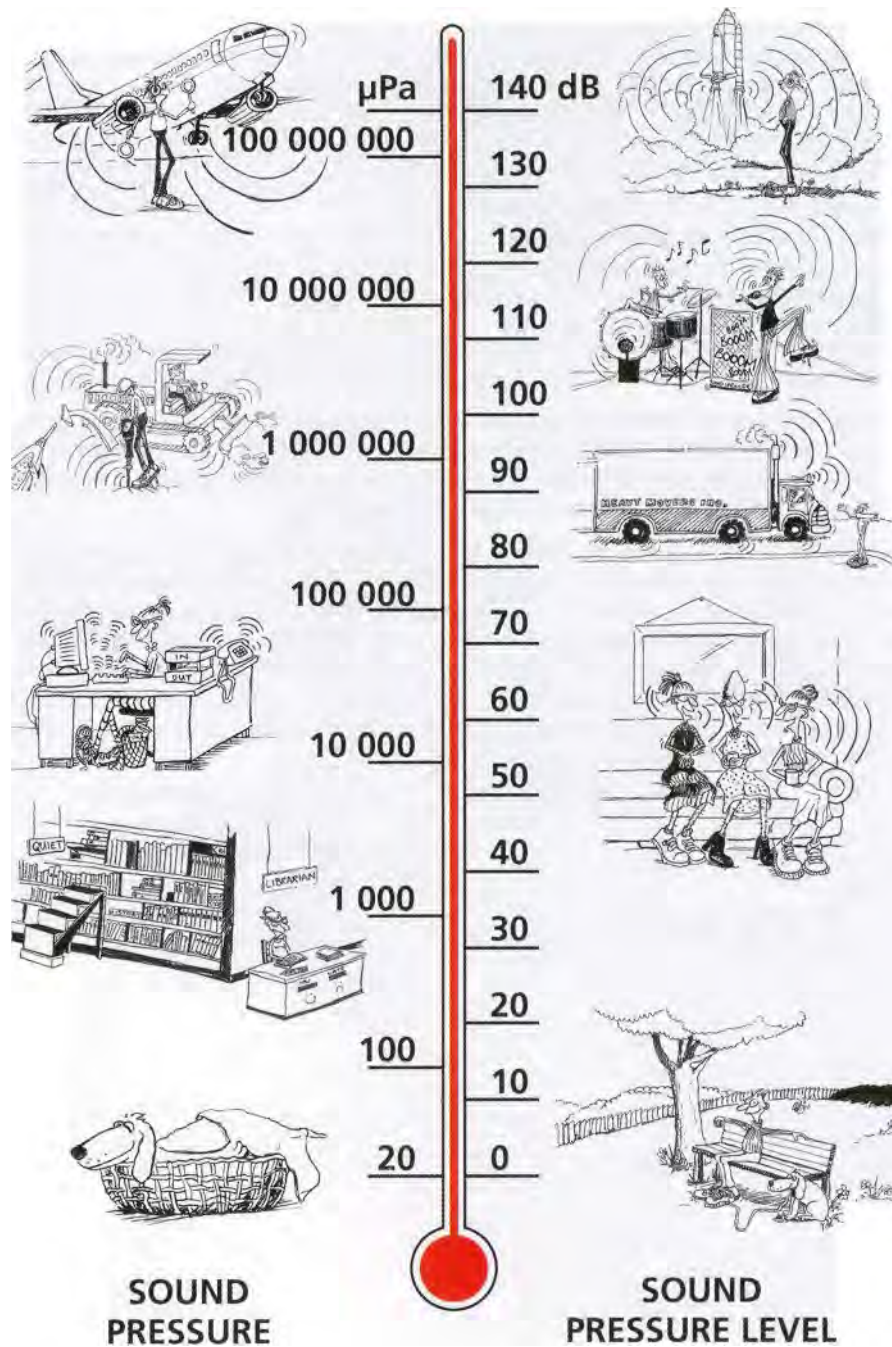
Measuring Sound Brüel and Kjær Sound & Vibration Measurements A/S
September 1984

Environmental Noise Brüel and Kjær Sound & Vibration Measurements A/S
2000, 2001

New South Wales Industrial Noise Policy NSW Environment Protection
Authority January 2000

<https://www.nti-audio.com/en/support/know-how/frequency-weightings-for-sound-level-measurements>

APPENDIX B Comparison of Sound Pressure Levels



Our hearing covers a wide range of sound pressures – a ratio of over a million to one. The dB scale makes the numbers manageable.

Reproduced from
Environmental Noise Brüel and Kjær Sound & Vibration Measurements A/S
2000, 2001

Appendix C
Quarry Operations 19th December 2022



Image Source – Lismore City Council Online Mapping
Note : Aerial photo not of 19th of December 2022 operations

Quarry Pit Floor Operations 19th December 2022



Quarry equipment in use during noise monitoring

- 1 x Kleeman MC110z jaw crusher
- 1 x McCloskey R155 reclaimer
- 1 x Lp 12/75 stacker
- 1 x Lp 14/75 stacker
- 1 x 1300 Maxtrax cone crusher
- 1 x WA 500 loader
- 1 x Cat 329 excavator

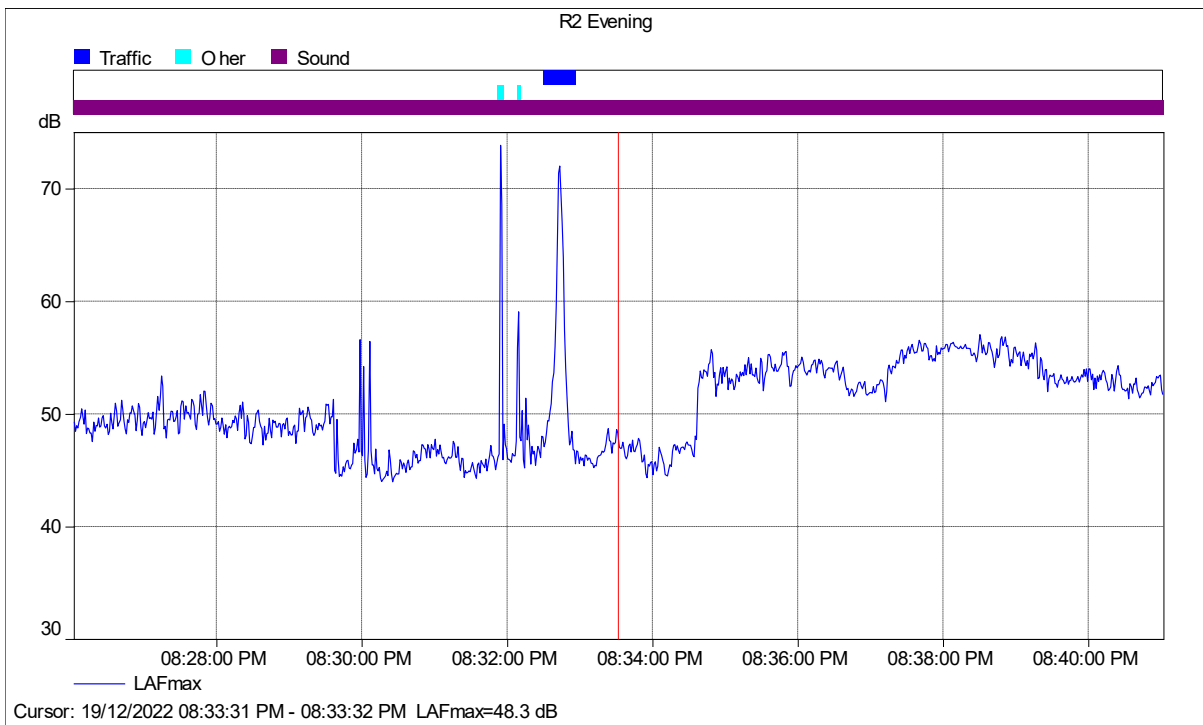
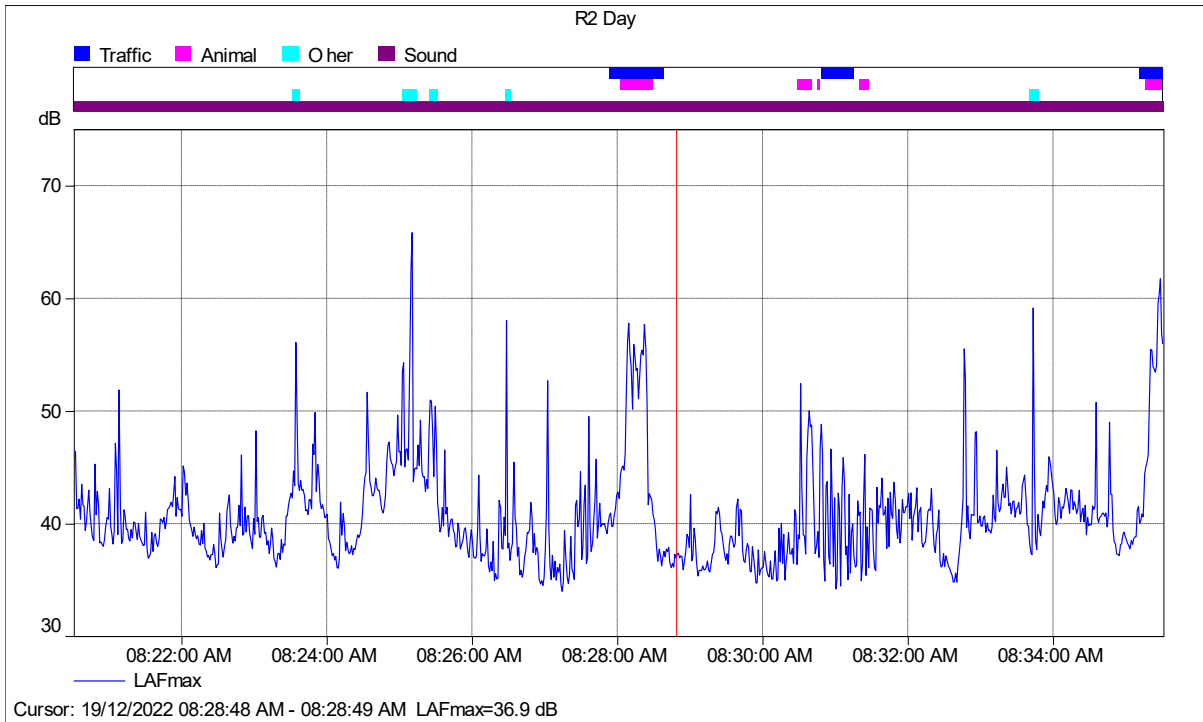
Operating but not in photo

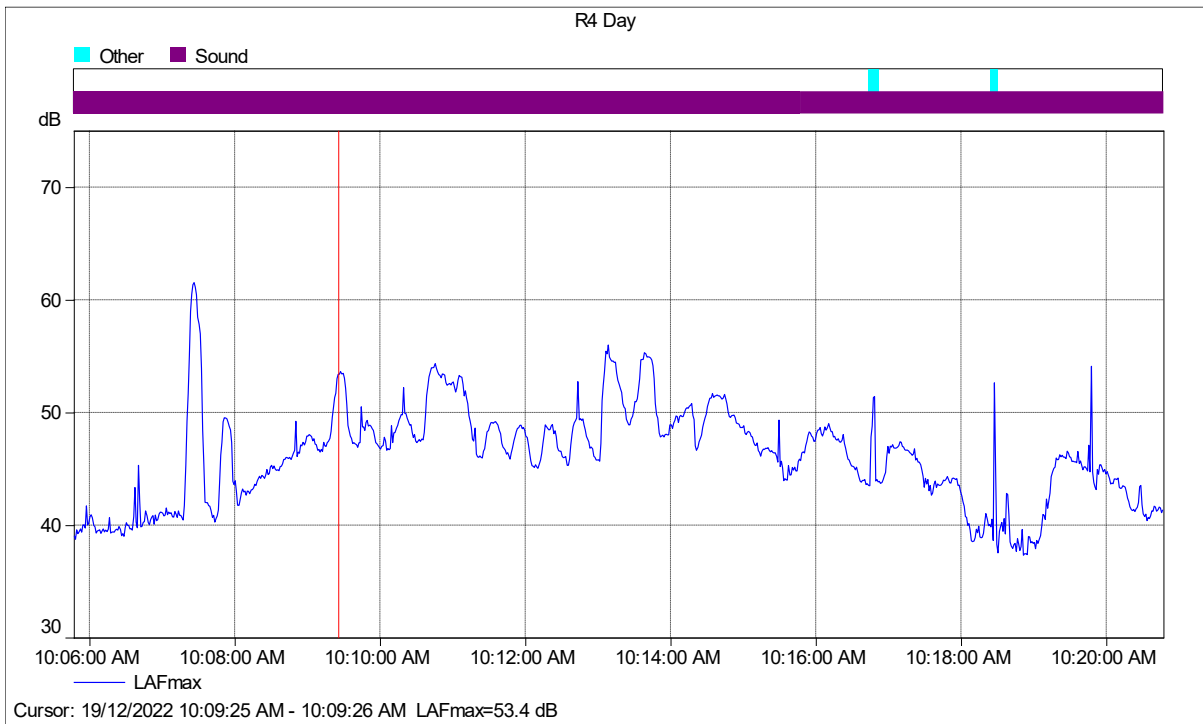
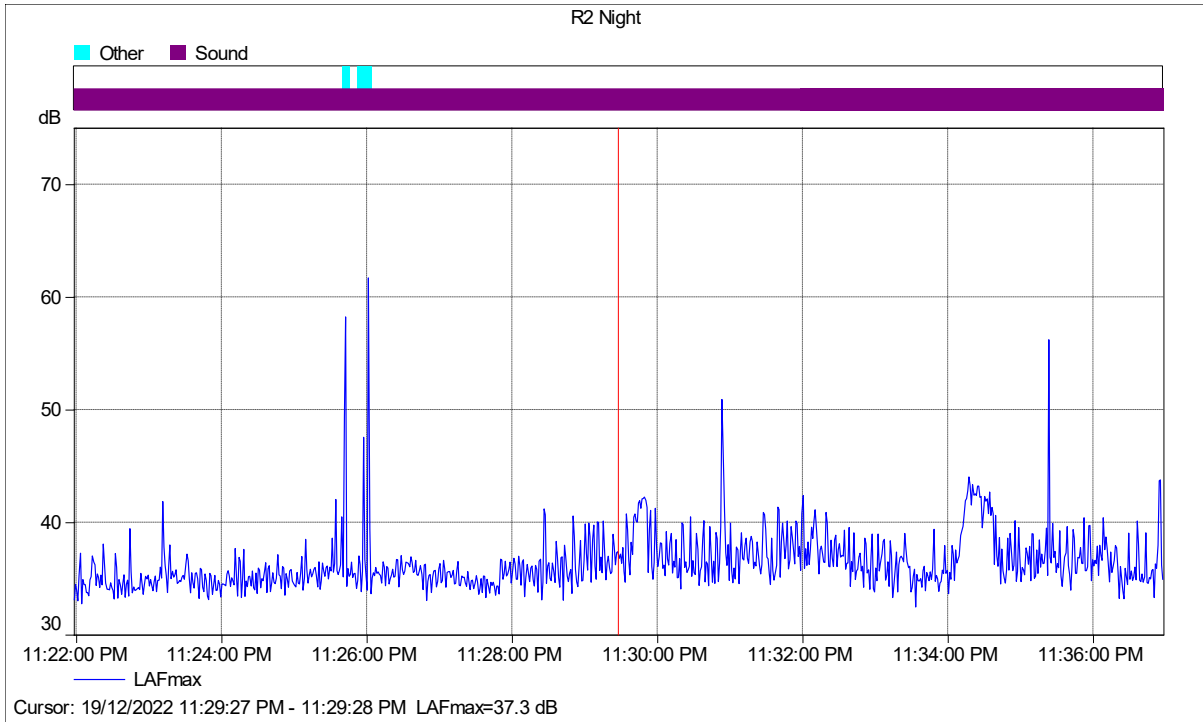
- 1 x Hyundai 520 excavator (out of view – working in hole left hand side of photo)
- 1 x water truck
- various haul trucks
- various service vehicles

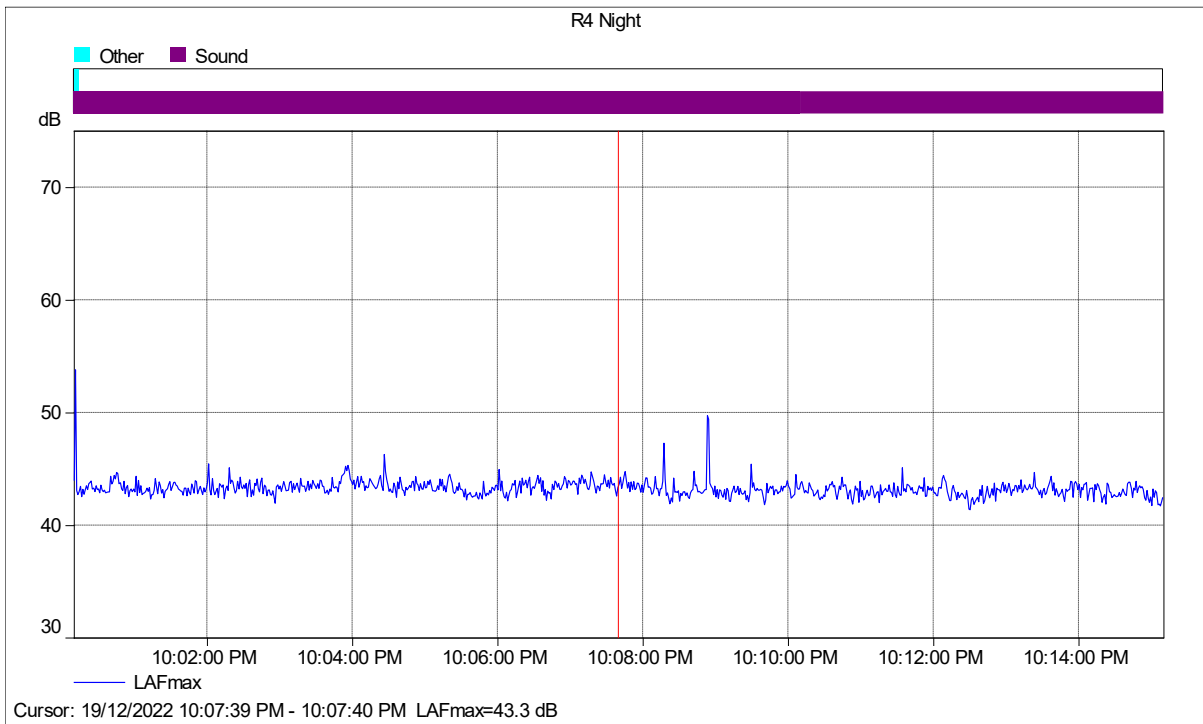
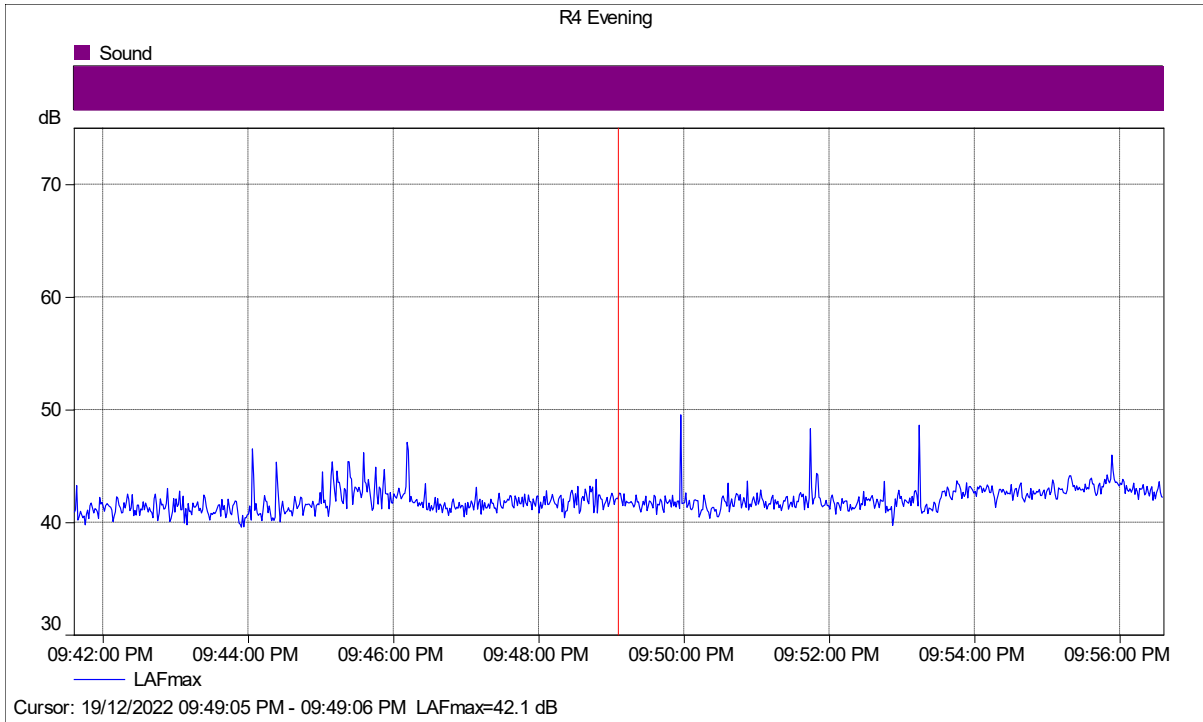
Mobile Asphalt Plant 19th December 2022

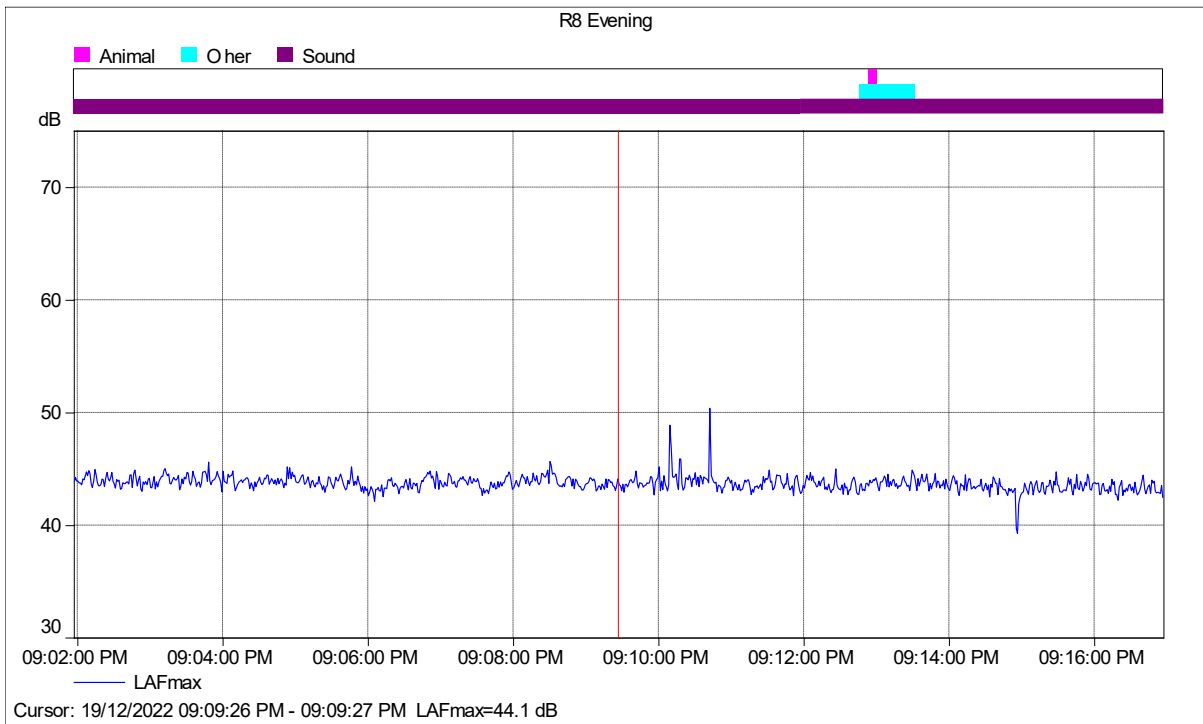
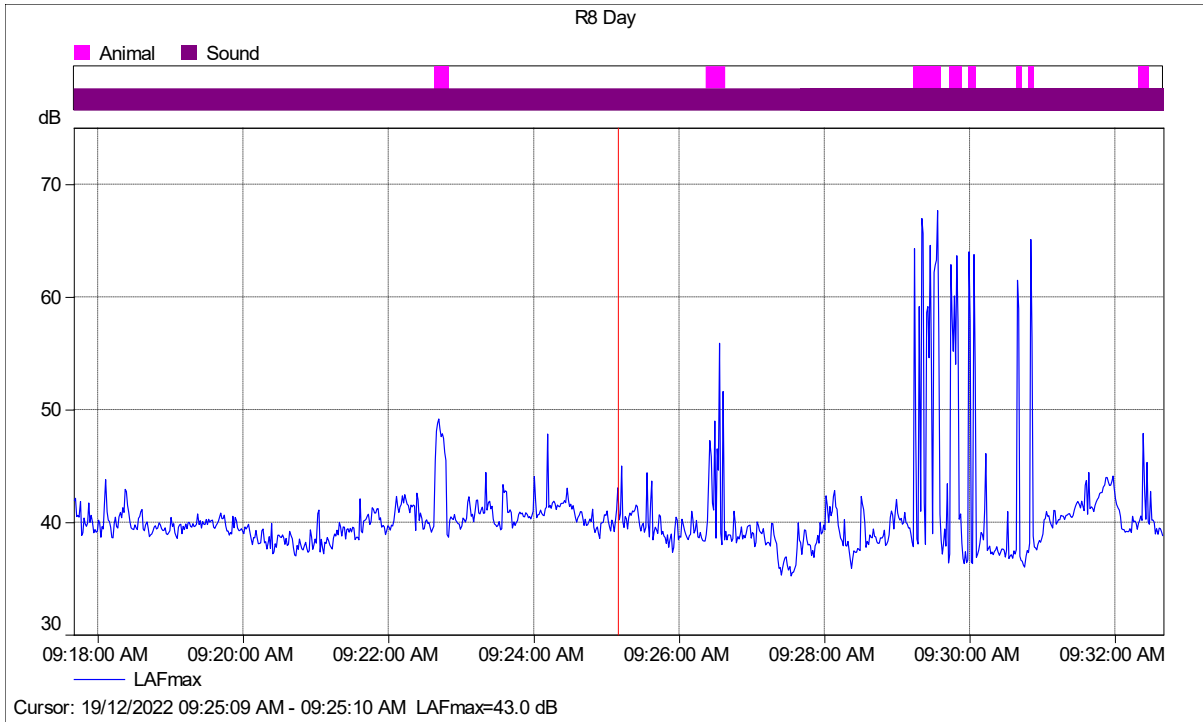


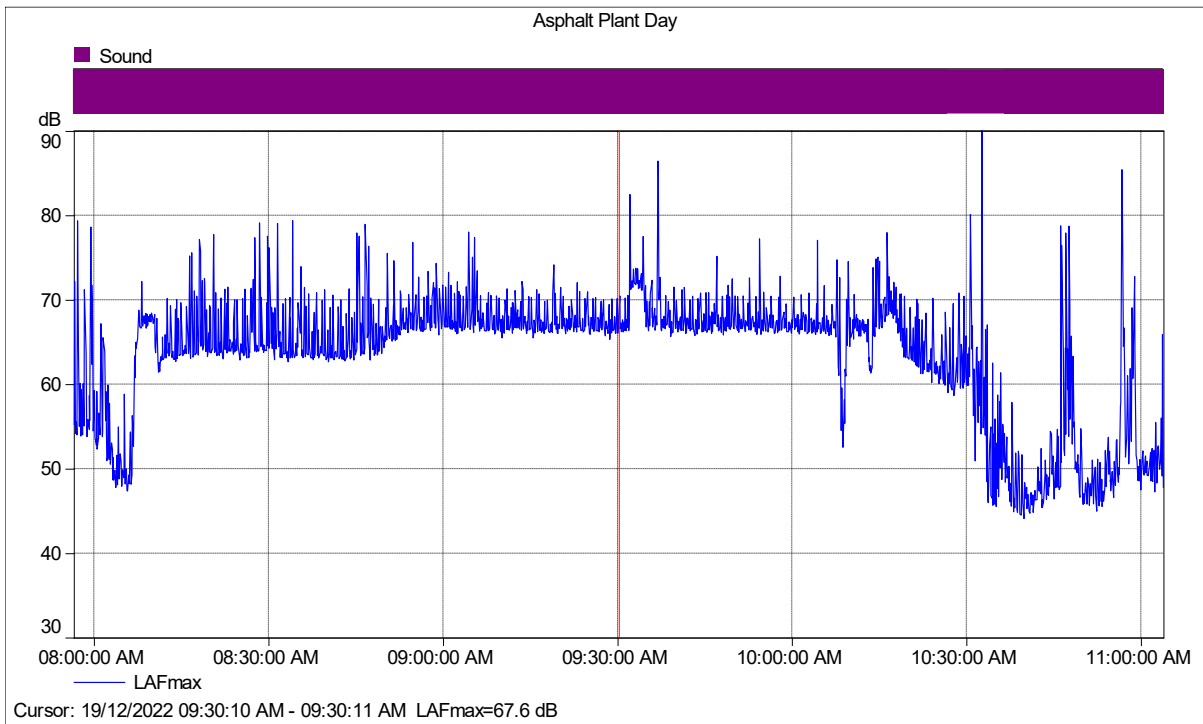
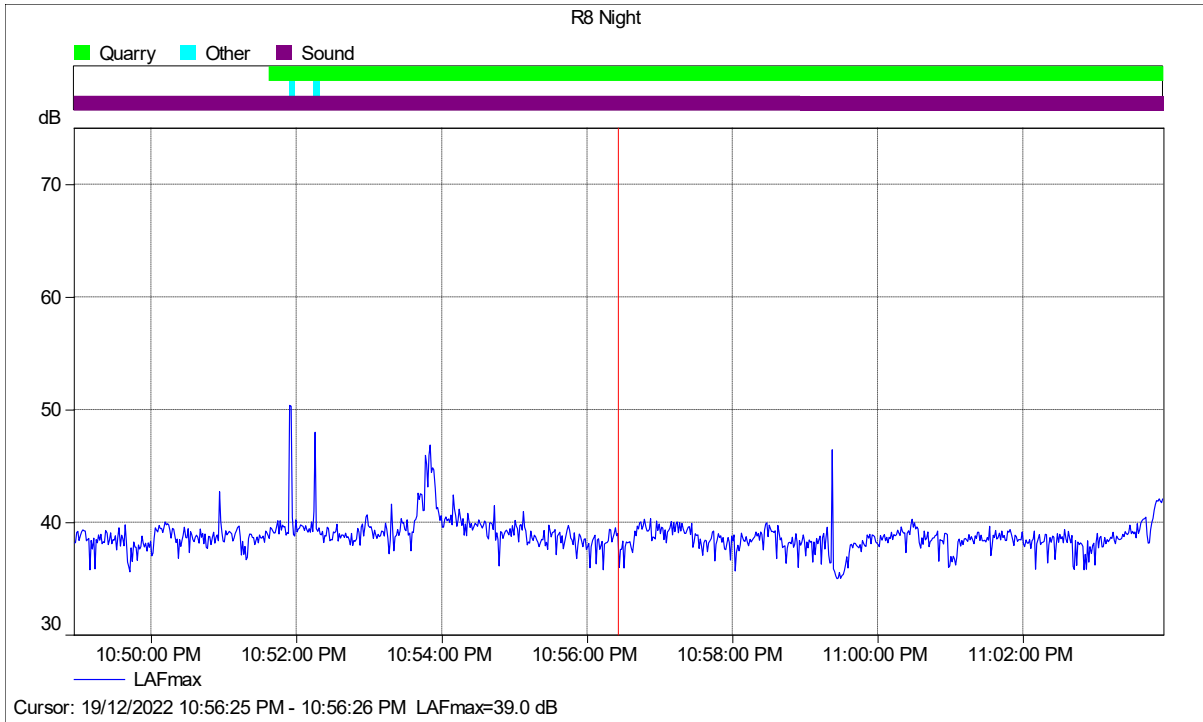
Appendix D Logged Noise Profiles

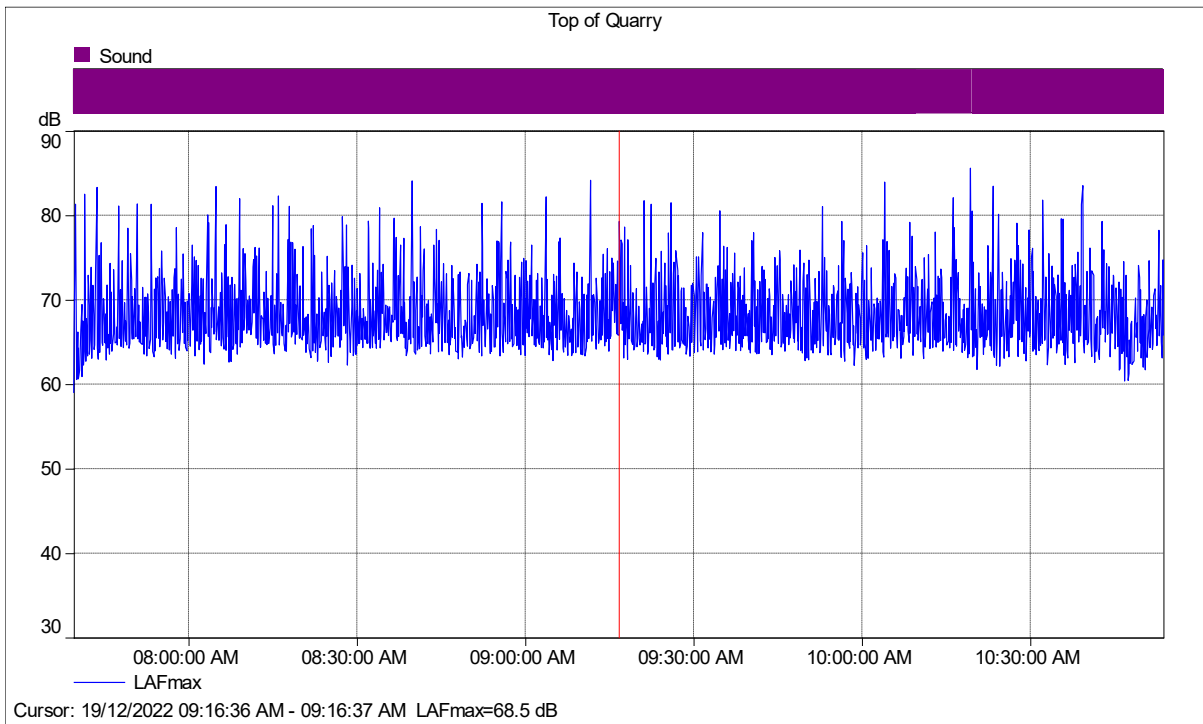
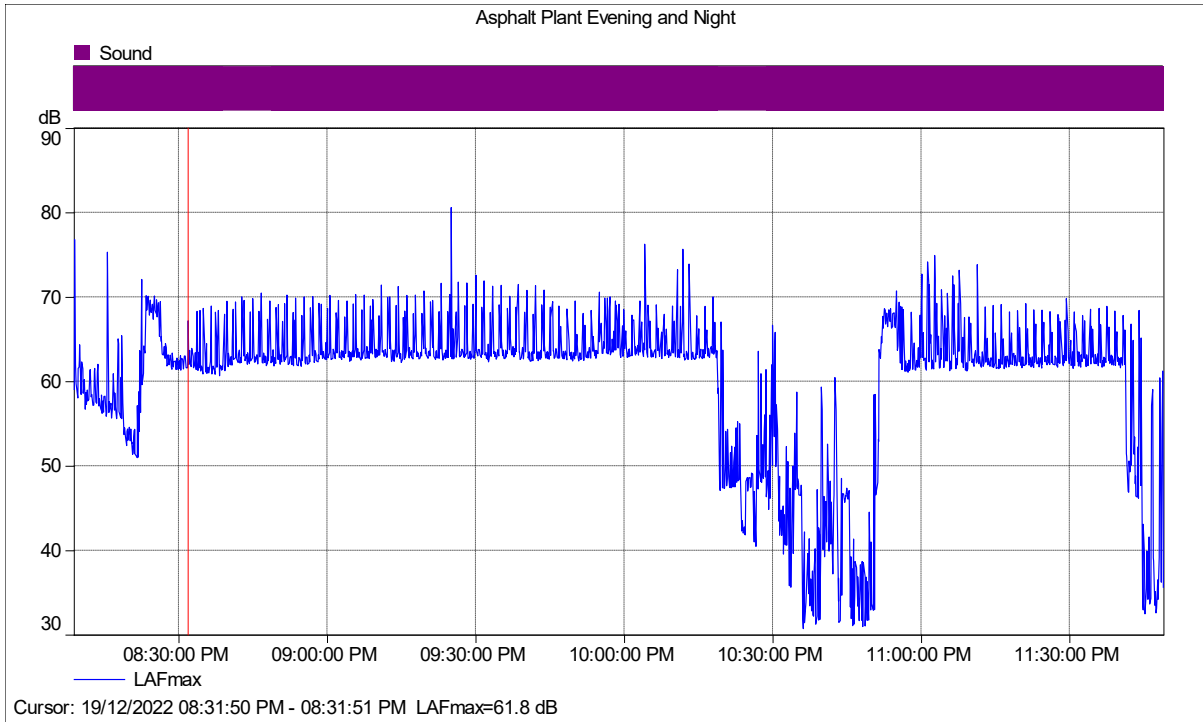














Appendix M

Blast Reports

Date/Time Long at 14:59:44 March 18, 2022
Trigger Source Geo: 0.900 mm/s
Range Geo: 254.0 mm/s
Record Time 6.0 sec at 1024 sps

Serial Number BE13371 V 10.72-1.1 Minimate Blaster
Battery Level 5.9 Volts
Unit Calibration November 30, 2021 by Saros Int
File Name O371JF3T.NK0

Notes

Post Event Notes

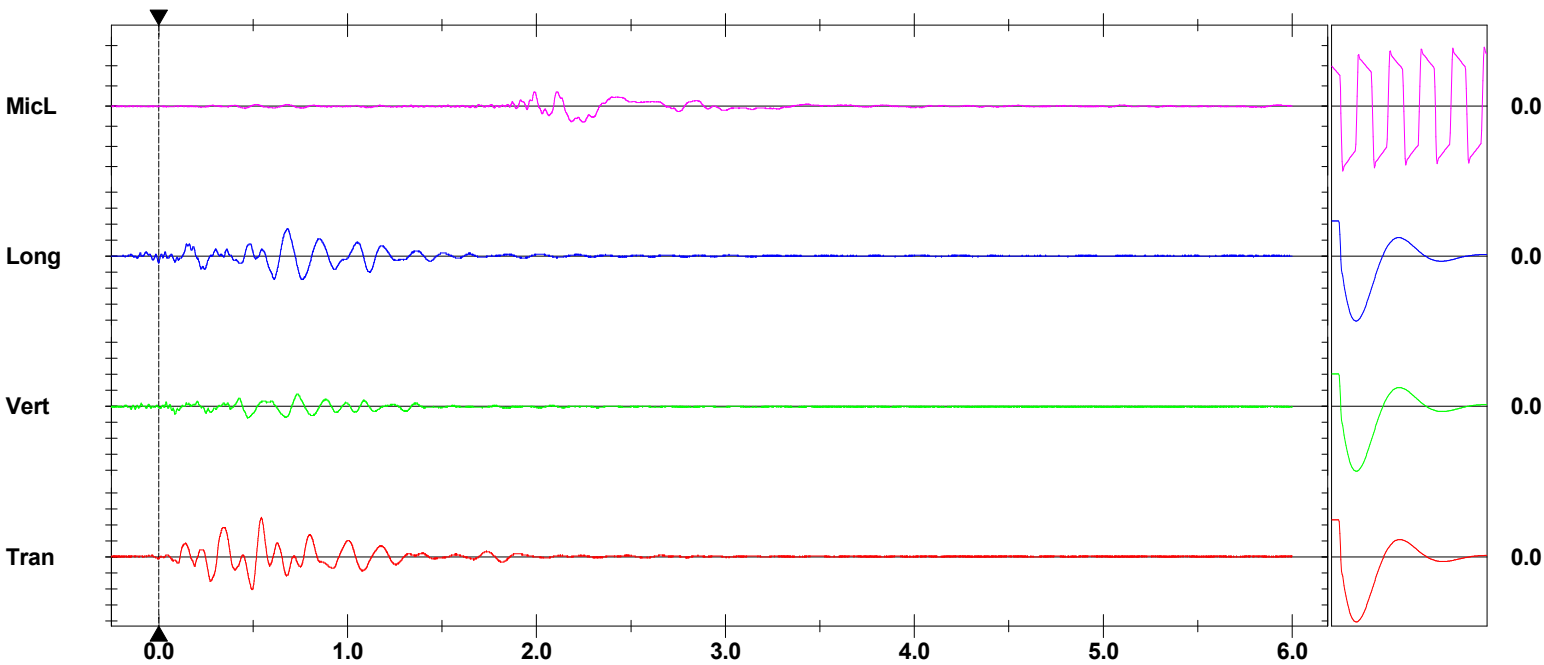
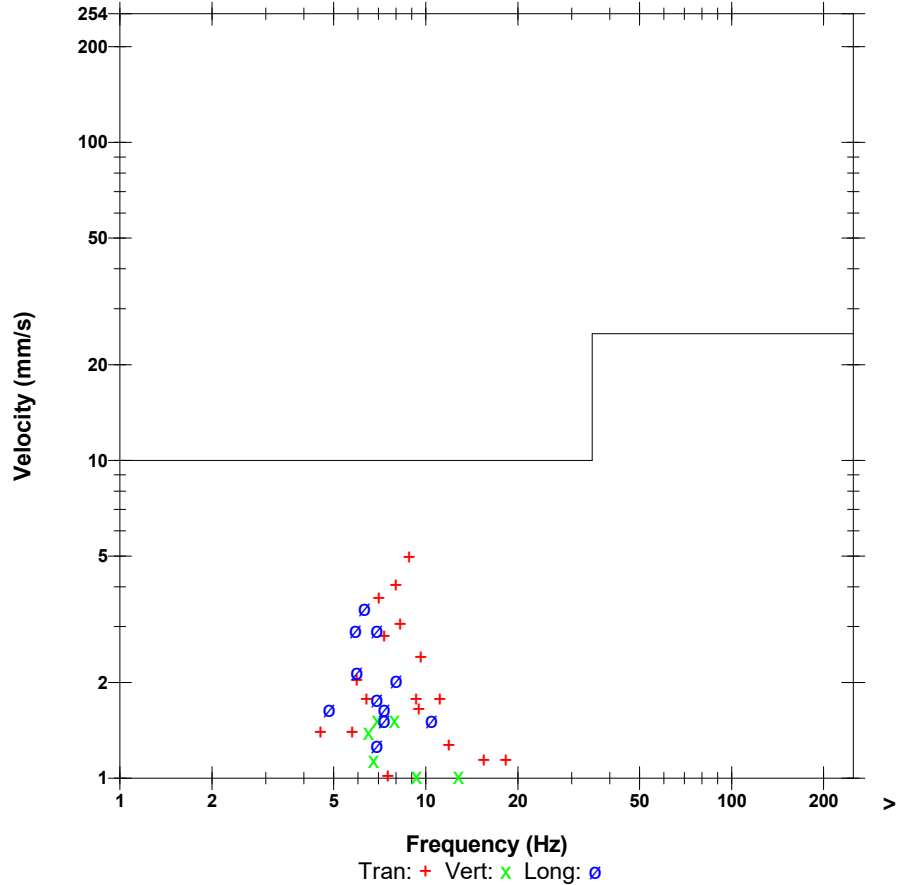
Customer Site NRQA Blakebrook Quarry
Blast ID BLA 40
Molitor Location
Monitored By

Microphone Linear Weighting
PSPL 112.0 dB(L) at 2.244 sec
ZC Freq 2.7 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 546 mv)

	Tran	Vert	Long	
PPV	4.953	1.524	3.429	mm/s
PPV	128.9	118.7	125.7	dB
ZC Freq	8.8	6.9	6.3	Hz
Time (Rel. to Trig)	0.544	0.472	0.681	sec
Peak Acceleration	0.027	0.027	0.027	g
Peak Displacement	0.090	0.035	0.085	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.5	Hz
Overswing Ratio	3.8	3.5	3.5	

Peak Vector Sum 5.072 mm/s at 0.544 sec

QLD APP Standard



Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 10.000 pa.(L)/div
Trigger =

Sensor Check

Date/Time Long at 14:59:45 March 18, 2022
Trigger Source Geo: 1.000 mm/s
Range Geo: 254.0 mm/s
Record Time 6.0 sec at 1024 sps
Operator/Setup: Operator/LINEAR.MMB

Serial Number UM11467 V 10-90FB Micromate ISEE
Battery Level 3.8 Volts
Unit Calibration September 10, 2021 by Saros Int.
File Name UM11467_20220318145945.IDFW

Notes

Location:
 Client:
 User Name:
 General:

Post Event Notes

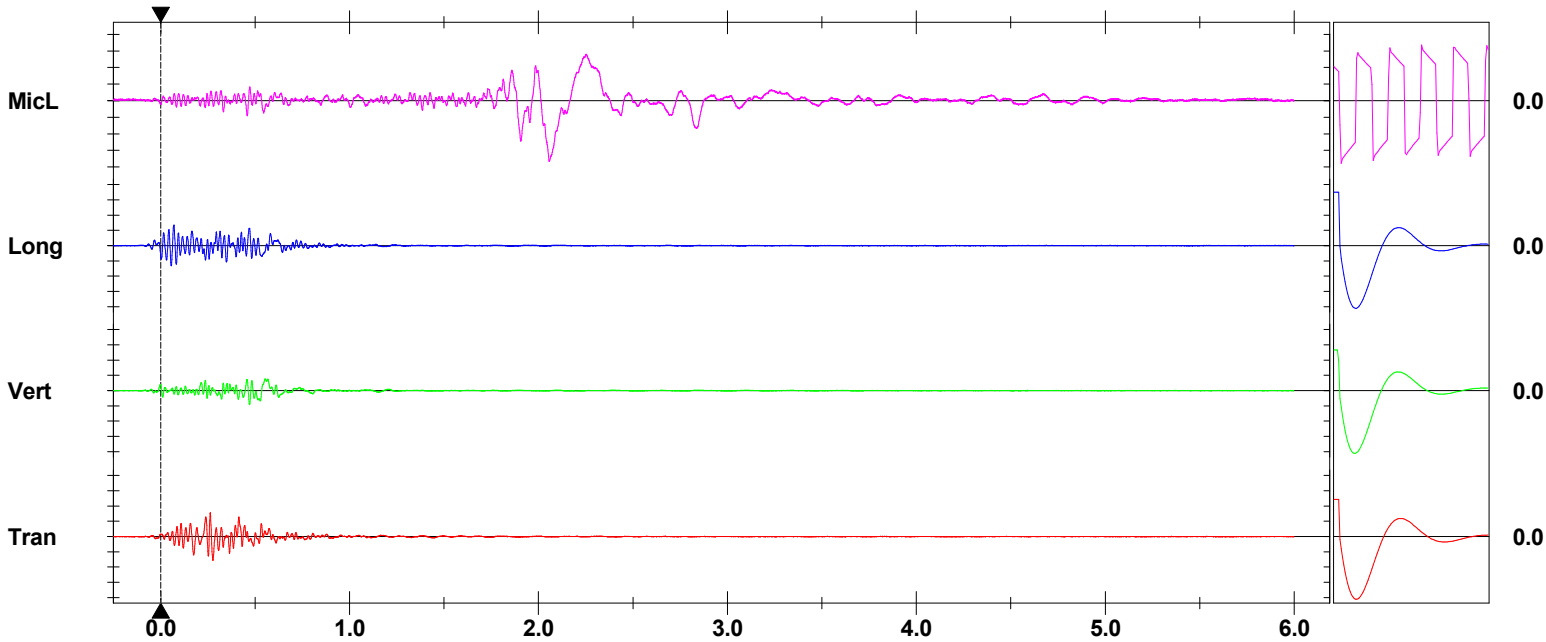
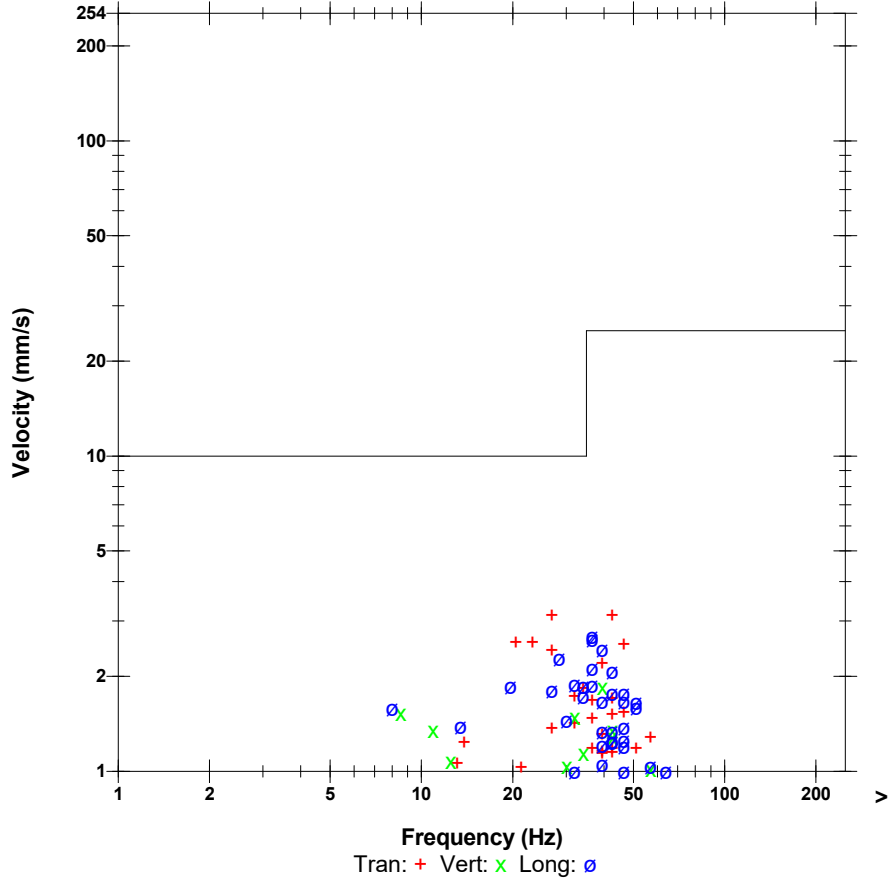
Customer Site NRQA Blakebrook Quarry
 Blast ID BLA 40
 Monitor Location
 Monitored By

Microphone Linear Weighting
PSPL 105.3 dB(L) at 2.057 sec
ZC Freq 3.3 Hz
Channel Test Passed (Freq = 19.7 Hz Amp = 1510 mv)

	Tran	Vert	Long	
PPV	3.145	1.852	2.688	mm/s
PPV	125.0	120.4	123.6	dB
ZC Freq	43	39	37	Hz
Time (Rel. to Trig)	0.263	0.471	0.069	sec
Peak Acceleration	0.090	0.041	0.064	g
Peak Displacement	0.017	0.026	0.020	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.7	7.5	Hz
Overswing Ratio	3.5	3.3	3.5	

Peak Vector Sum 3.336 mm/s at 0.238 sec

QLD APP Standard



Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 1.000 pa.(L)/div
Trigger =

Sensor Check

NRQA Blakebrook quarry
Blast BLA 40

Monitor Location

Event Report: Monitor Log

Start Time	End Time	Status
----- Mar 18 /22 14:53:30	----- Mar 18 /22 15:00:09	SERIAL NUMBER: BE12705 No events recorded. (Keyboard Exit) Geo: 0.900 mm/s

NRQA Blakebrook Quarry
Blast ID BLA-41
Monitor Location

Event Report: Monitor Log

Start Time	End Time	Status
----- May 31 /22 14:53:47	----- May 31 /22 14:57:09	SERIAL NUMBER: BE13371 No events recorded. (Keyboard Exit) Geo: 0.900 mm/s

NRQA Blakebrook Quarry
Blast ID BLA-41
Monitor Location

Event Report: Monitor Log

Start Time	End Time	Status
-----	-----	SERIAL NUMBER: BE12705
May 31 /22 14:27:18	May 31 /22 14:27:26	Event recorded. Trigger Level Tran: 0.130 mm/s
May 31 /22 14:27:26		Start Monitoring Trigger Level: Geo: 0.130 mm/s
May 31 /22 14:27:27	May 31 /22 14:27:33	Event recorded. (Keyboard Exit) Trigger Level Tran: 0.130 mm/s
May 31 /22 14:29:33	May 31 /22 15:17:20	No events recorded. (Keyboard Exit) Geo: 2.00 mm/s

NRQA Blakebrook Quarry
Blast ID BLA-41
Monitor Location



Event Report: Monitor Log

Start Time	End Time	Status
-----	-----	SERIAL NUMBER: BE13456
May 31 /22 14:51:08		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 14:52:23	May 31 /22 14:52:33	Event recorded. Trigger Level Long: 0.210 mm/s
May 31 /22 14:52:33		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 14:56:02	May 31 /22 14:56:12	Event recorded. Trigger Level Long: 0.210 mm/s
May 31 /22 14:56:12		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 14:56:47	May 31 /22 14:56:57	Event recorded. Trigger Level Tran: 0.210 mm/s
May 31 /22 14:56:57		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:00:21	May 31 /22 15:00:31	Event recorded. Trigger Level Long: 0.210 mm/s
May 31 /22 15:00:31		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:00:51	May 31 /22 15:01:01	Event recorded. Trigger Level Tran: 0.210 mm/s
May 31 /22 15:01:01		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:01:29	May 31 /22 15:01:39	Event recorded. Trigger Level Tran: 0.210 mm/s
May 31 /22 15:01:39		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:03:00	May 31 /22 15:03:10	Event recorded. Trigger Level Tran: 0.210 mm/s
May 31 /22 15:03:10		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:06:09	May 31 /22 15:06:19	Event recorded. Trigger Level Long: 0.210 mm/s
May 31 /22 15:06:19		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:07:29	May 31 /22 15:07:39	Event recorded. Trigger Level Long: 0.210 mm/s
May 31 /22 15:07:39		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:09:31	May 31 /22 15:09:41	Event recorded. Trigger Level Tran: 0.210 mm/s
May 31 /22 15:09:41		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:11:23	May 31 /22 15:11:33	Event recorded. Trigger Level Tran: 0.210 mm/s
May 31 /22 15:11:33		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:11:58	May 31 /22 15:12:08	Event recorded. Trigger Level Long: 0.210 mm/s
May 31 /22 15:12:08		Start Monitoring Trigger Level: Geo: 0.210 mm/s
May 31 /22 15:12:41	May 31 /22 15:12:51	Event recorded. Trigger Level Tran: 0.210 mm/s
May 31 /22 15:12:51	May 31 /22 15:12:54	No events recorded. (Keyboard Exit) Geo: 0.210 mm/s



No Trigger Report Summary

Customer	Northern Rivers Quarry	
Date of blast	31/5/2022	
Blast number	BLA41	
Monitor Location – 4 (Primary)		
Monitor name/ model details:	InstanTel Minimate Blaster	
Monitor Serial no:	BE13371	
Calibration date	30/11/2021	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		(Y) N
Airblast overpressure result (dB)	Not triggered. Overpressure reading set to geo trigger no overpressure dB detected	
Ground vibration result (PPV)	Less than 0.900 mm/s	
EPL limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	Monitor was set to record ground vibration above 0.900 mm/s – no event was recorded. This monitor report is compliant with EPL conditions and has been undertaken in accordance with AS 2187.2-2006	

.....   31/5/22
 Name (& signature) date



No Trigger Report Summary

Customer	Northern Rivers Quarry	
Date of blast	31/5/2022	
Blast number	BLA41	
Monitor Location – 2 (Primary)		
Monitor name/ model details:	InstanTel Minimate Blaster	
Monitor Serial no:	BE12705	
Calibration date	12/1/2022	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		Y/N
Airblast overpressure result (dB)	Not triggered. Overpressure reading set to geo trigger no overpressure dB detected	
Ground vibration result (PPV)	Less than 0.130 mm/s	
EPL limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	Monitor was set to record ground vibration above 0.130 mm/s – no event was recorded. This monitor report is compliant with EPL conditions and has been undertaken in accordance with AS 2187.2-2006	

 
 Name (& signature)

..... 31/5/22
 date



No Trigger Report Summary

Customer	Northern Rivers Quarry	
Date of blast	31/5/2022	
Blast number	BLA41	
Monitor Location		
Monitor name/ model details:	InstanTel Minimate Blaster	
Monitor Serial no:	BE13456	
Calibration date	15/4/2021	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		(Y) / N
Airblast overpressure result (dB)	Not triggered. Overpressure reading set to geo trigger no overpressure dB detected	
Ground vibration result (PPV)	Less than 0.210 mm/s	
EPL limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	Monitor was set to record ground vibration above 0.210 mm/s – no event was recorded. This monitor report is compliant with EPL conditions and has been undertaken in accordance with AS 2187.2-2006	

.....


Name (& signature)



31-5-22

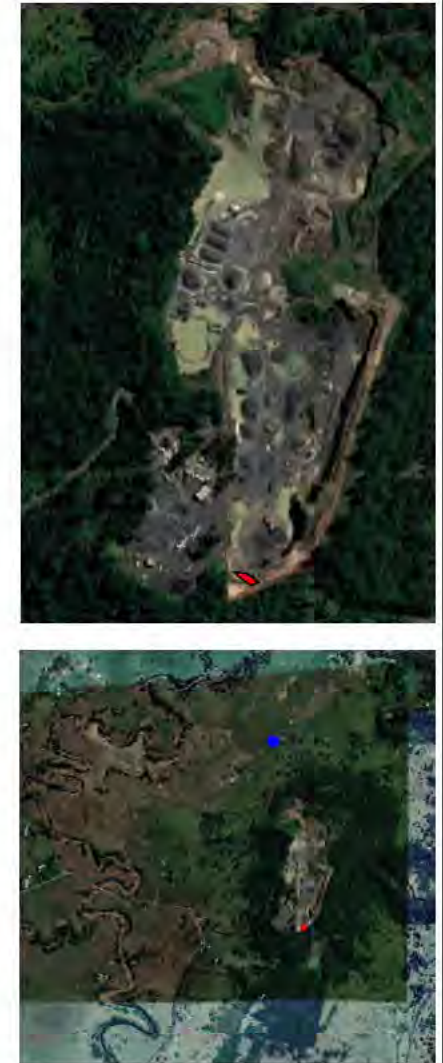
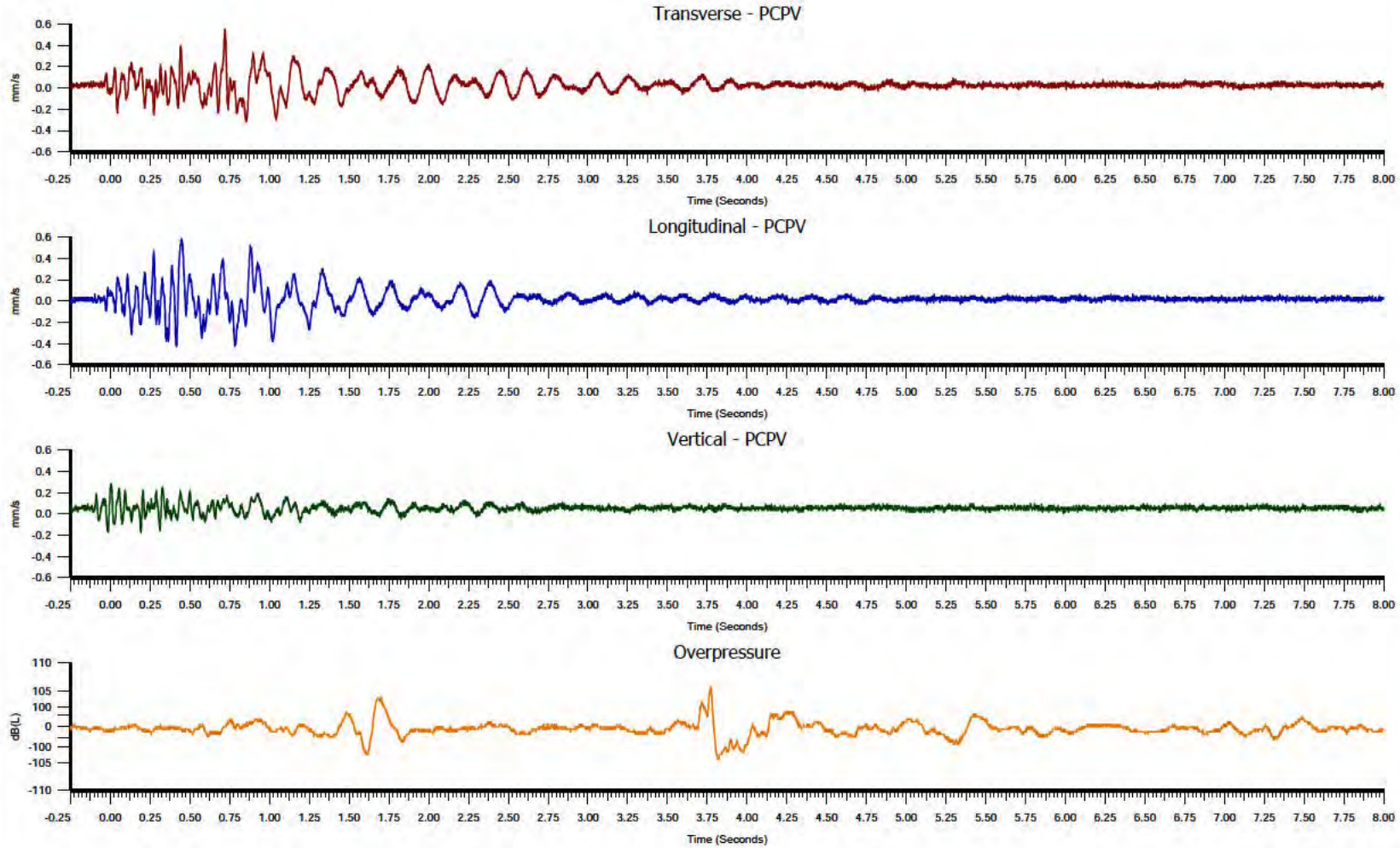
date



Blakebrook Quarry

Date 31/05/2022
Time 2:58:15 PM
Blast Number 20220531
Monitoring Location
Distance 1427 m

Monitoring Results	
Peak Vibration Level (Vector Sum)	0.70 mm/s
Peak Overpressure Level	106.0 dB(L)
Peak Vibration Level for frequencies less than 35Hz	(Long) 0.59 mm/s
Peak Vibration Level for frequencies greater than 35Hz	(Tran) 0.16 mm/s



Serial Number	BE11138
Coupling	Unknown
Last Calibration Date	April 4, 2022 by Saros Int
Source Reference	M138JIWU.X20
File Reference	

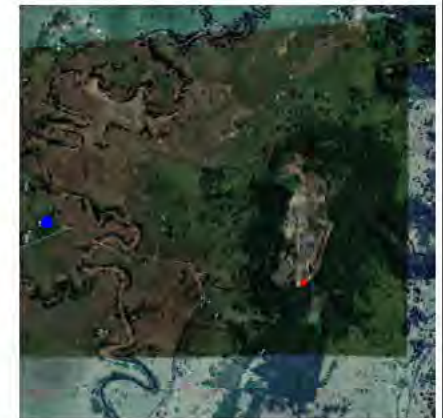
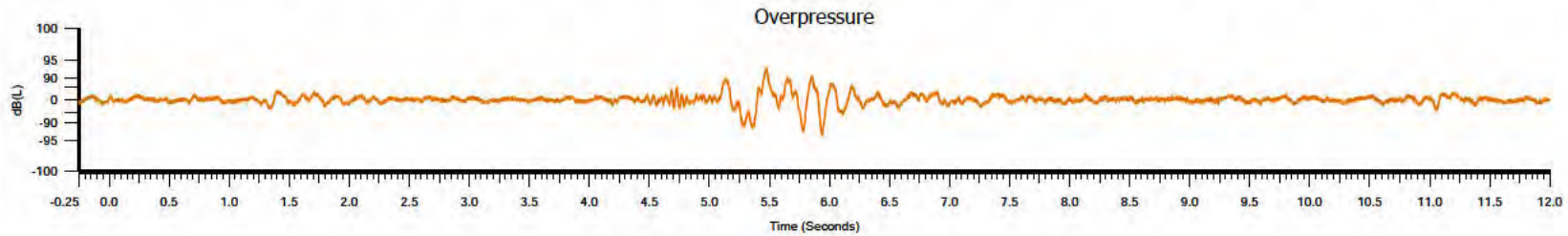
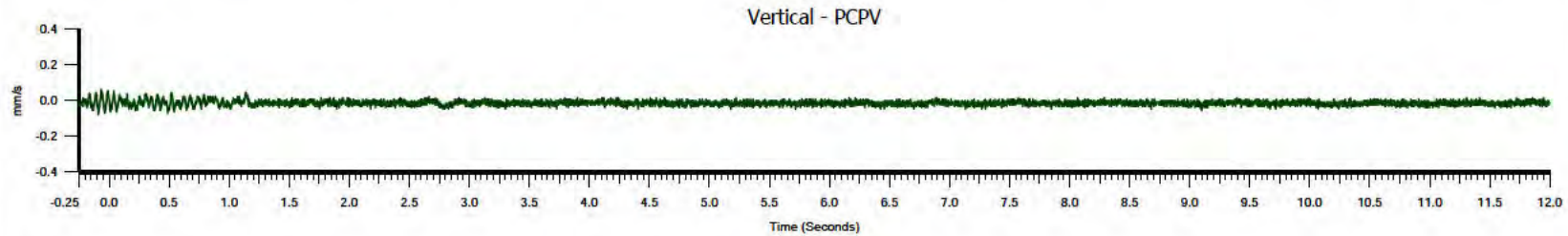
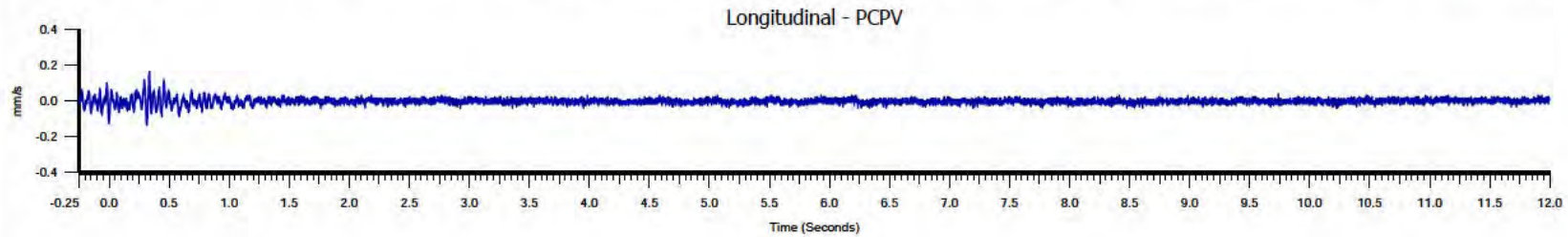
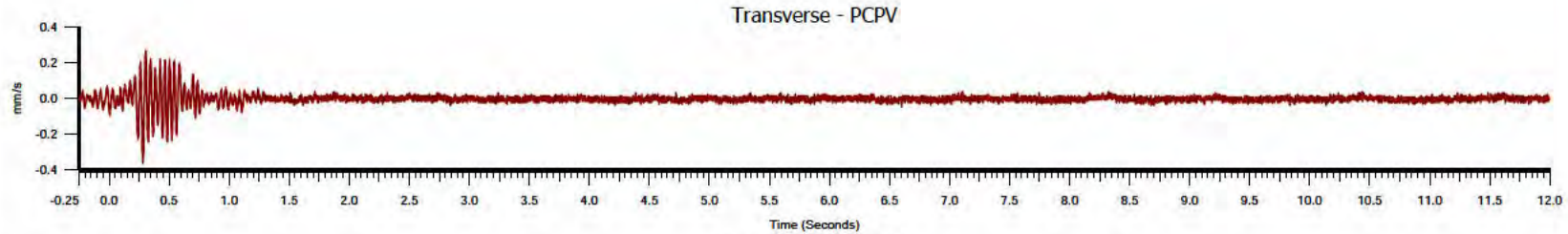


Blakebrook Quarry

Date 31/05/2022
Time 2:58:15 PM
Blast Number 20220531
Monitoring Location
Distance 1985 m

Monitoring Results

Peak Vibration Level (Vector Sum) 0.36 mm/s
Peak Overpressure Level 93.8 dB(L)
Peak Vibration Level for frequencies less than 35Hz (Tran) 0.36 mm/s
Peak Vibration Level for frequencies greater than 35Hz (Tran) 0.06 mm/s



Serial Number UM10470
Coupling Unknown
Last Calibration Date June 30, 2021 by Saros Int
Source Reference UM10470_20220531145803.IDFW
File Reference

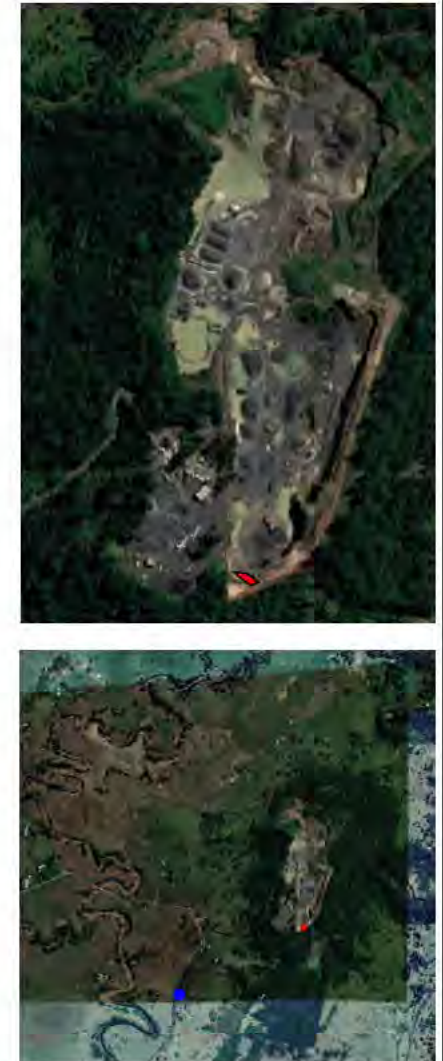
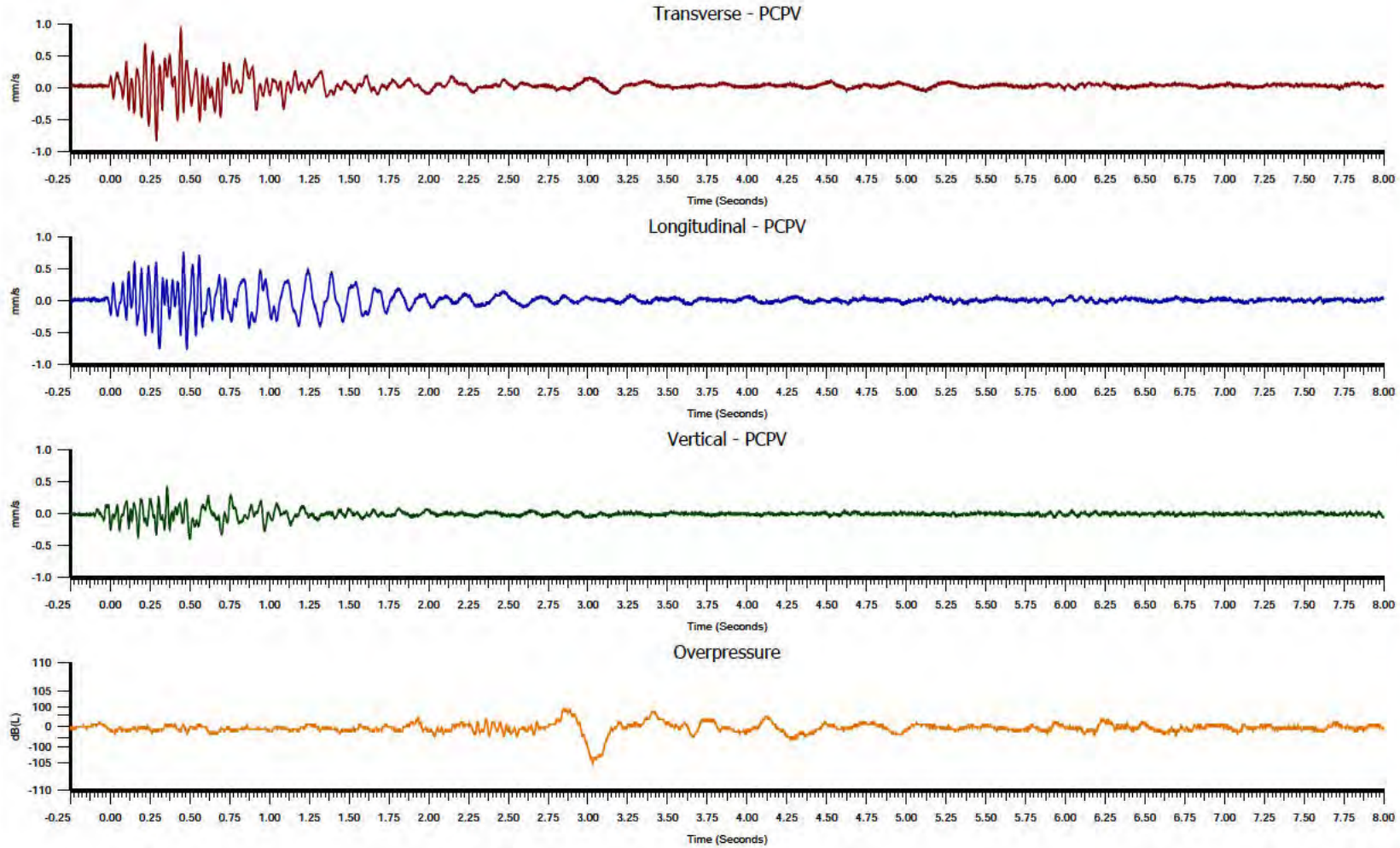


Blakebrook Quarry

Date 31/05/2022
Time 2:58:15 PM
Blast Number 20220531
Monitoring Location
Distance 1059 m

Monitoring Results

Peak Vibration Level (Vector Sum) 1.10 mm/s
Peak Overpressure Level 105.5 dB(L)
Peak Vibration Level for frequencies less than 35Hz (Tran) 0.95 mm/s
Peak Vibration Level for frequencies greater than 35Hz (Tran) 0.38 mm/s



Serial Number BE15216
Coupling Unknown
Last Calibration Date May 26, 2021 by Saros Int
Source Reference Q216JIWU.X30
File Reference

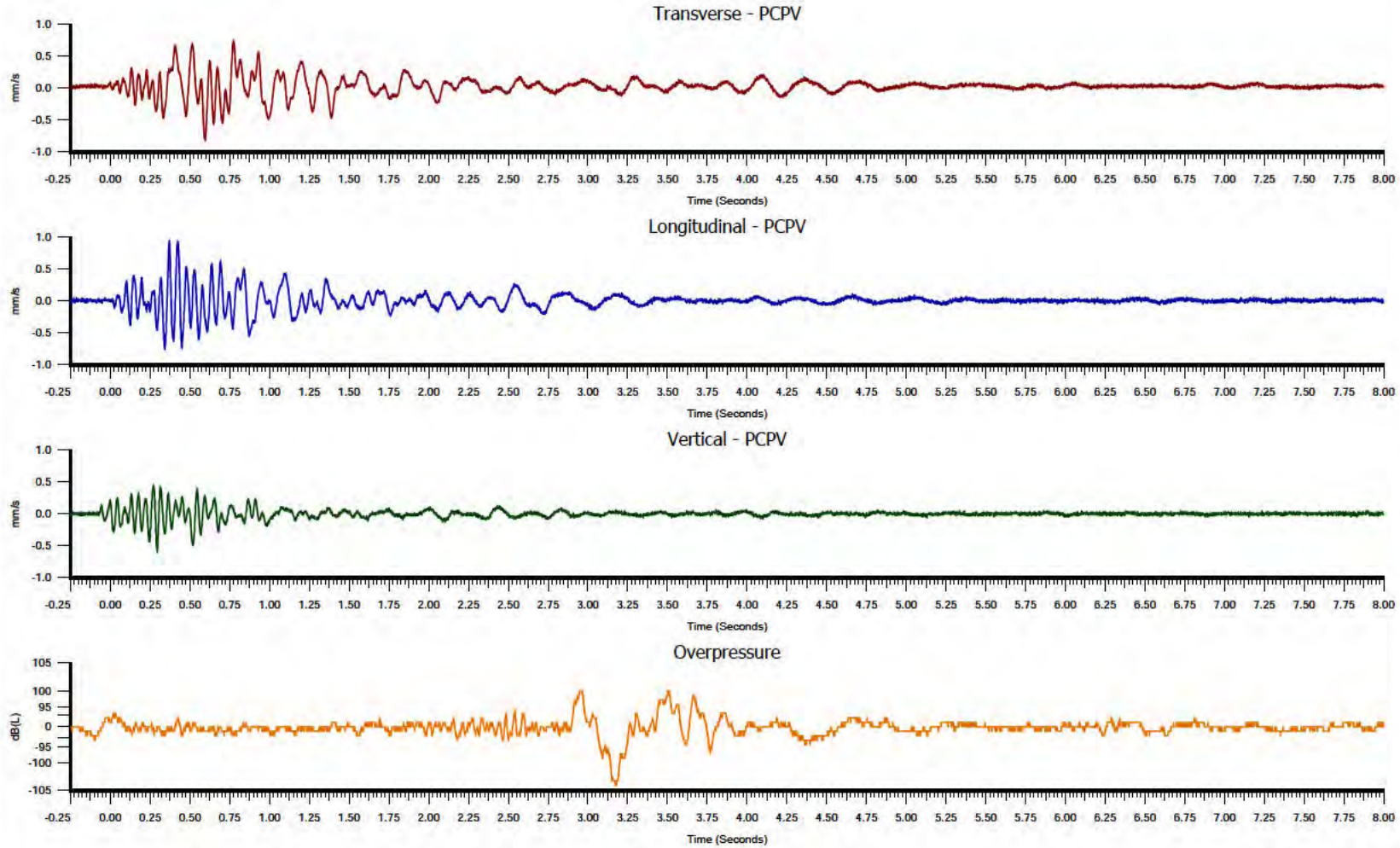


Blakebrook Quarry

Date 31/05/2022
Time 2:58:15 PM
Blast Number 20220531
Monitoring Location Cnr Nimbin Rd and Keerrong Rd
Distance 1104 m

Monitoring Results

Peak Vibration Level (Vector Sum) 1.02 mm/s
Peak Overpressure Level 104.2 dB(L)
Peak Vibration Level for frequencies less than 35Hz (Long) 0.95 mm/s
Peak Vibration Level for frequencies greater than 35Hz (Tran) 0.14 mm/s



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Telephone +61 7 3367 3400; Facsimile +61 7 3367 3844;

Serial Number BE20088
Coupling Unknown
Last Calibration Date May 19, 2021 by Saros Int
Source Reference V088JIWU.X30
File Reference

No Trigger Report Summary

Customer	Northern Rivers Quarry	
Date of blast	16/8/2022	
Blast number	BLA 42	
Monitor Location – additional	[REDACTED]	
Monitor name/ model details:	InstanTEL Micromate Blaster	
Monitor Serial no:	UM11467	
Calibration date	10/09/2021	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		Y/
Airblast overpressure result (dB)	No trigger Reading at monitor location	
Ground vibration result (PPV)	No trigger Reading at monitor location	
EPL limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	Monitor was set to record ground vibration above 1.0 mm/s – no event was recorded. This monitor report is compliant with EPL conditions and has been undertaken in accordance with AS 2187.2-2006	

[REDACTED] [REDACTED] 16-8-22
 Name (& signature) date

No Trigger Report Summary

Customer	Northern Rivers Quarry	
Date of blast	16/8/2022	
Blast number	BLA 42	
Monitor Location – 8 (Primary)	[REDACTED]	
Monitor name/ model details:	Instatel Minimate Blaster	
Monitor Serial no:	BE 12705	
Calibration date	12/01/2022	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		Y/
Airblast overpressure result (dB)	No recorded trigger	
Ground vibration result (PPV)	No recorded trigger	
EPL limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	Monitor was set to record ground vibration above 0.91 mm/s – no event was recorded. This monitor report is compliant with EPL conditions and has been undertaken in accordance with AS 2187.2-2006	

[REDACTED]

[REDACTED]

Name (& signature)

16.8.22

date

Date/Time Long at 14:26:38 August 16, 2022
Trigger Source Geo: 0.210 mm/s
Range Geo: 31.75 mm/s
Record Time 10.0 sec at 1024 sps

Serial Number BE13456 V 10.72-1.1 Minimate Blaster
Battery Level 6.3 Volts
Unit Calibration July 5, 2022 by Saros Int.
File Name __TEMP.EVT

Notes

Post Event Notes

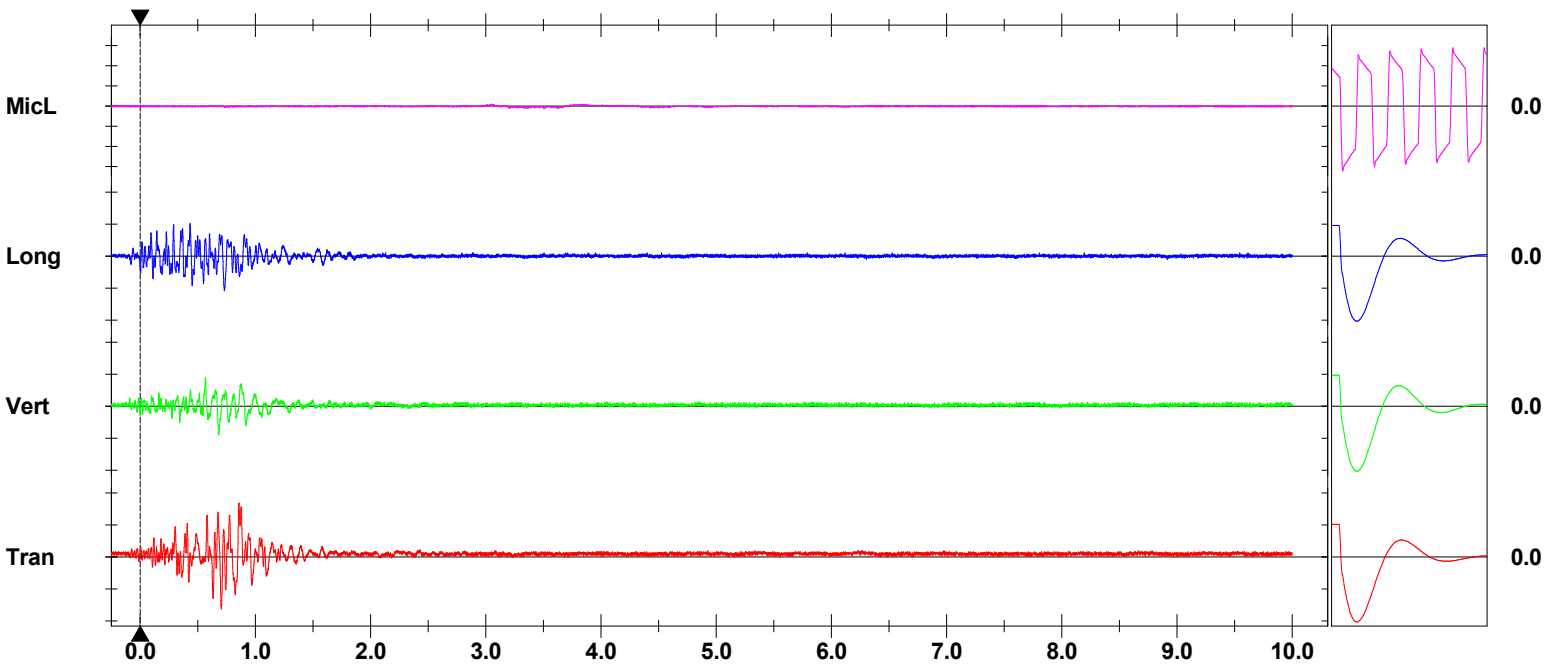
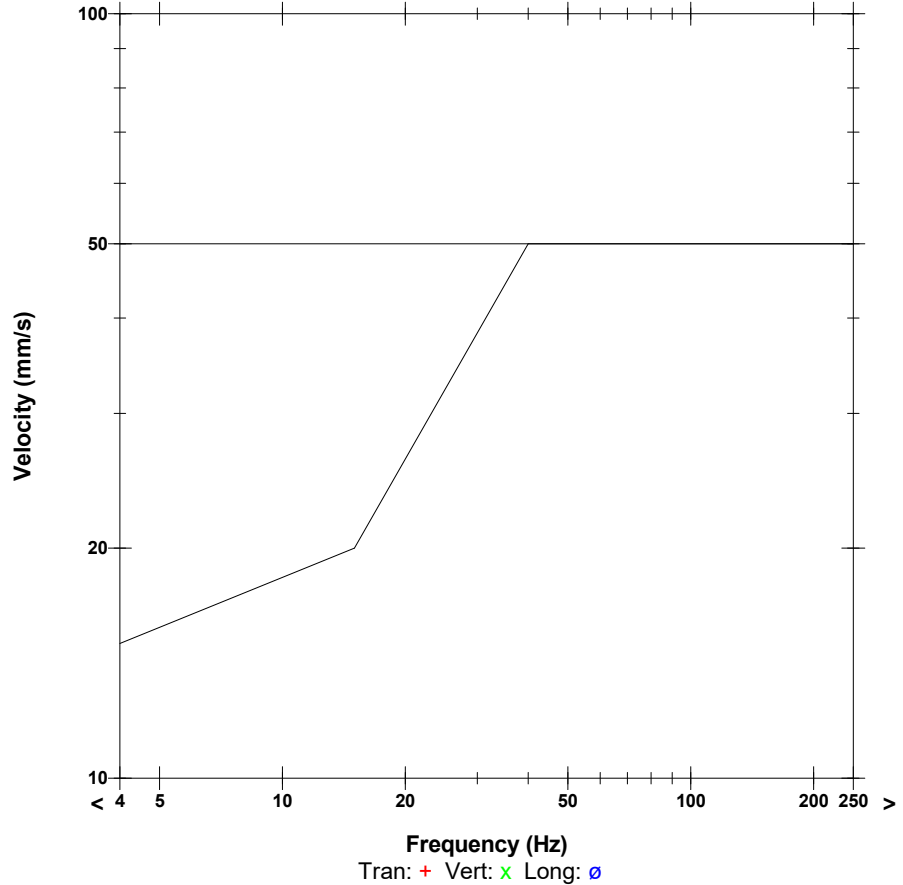
Customer Site Blakebrook
Blast ID BLA42
Monitor Location [REDACTED]
Monitored By [REDACTED]

Microphone Linear Weighting
PSPL 95.9 dB(L) at 3.362 sec
ZC Freq 5.6 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 565 mv)

	Tran	Vert	Long	
PPV	0.841	0.444	0.540	mm/s
PPV	113.5	108.0	109.6	dB
ZC Freq	12	19	16	Hz
Time (Rel. to Trig)	0.855	0.565	0.729	sec
Peak Acceleration	0.013	0.008	0.012	g
Peak Displacement	0.012	0.005	0.005	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.5	7.3	Hz
Overswing Ratio	3.9	3.2	3.7	

Peak Vector Sum 0.880 mm/s at 0.857 sec

British Standard 7385



Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.000 pa.(L)/div
Trigger =

Sensor Check

Date/Time Tran at 14:26:39 August 16, 2022
Trigger Source Geo: 0.900 mm/s, Mic: 100.0 dB(L)
Range Geo: 254.0 mm/s
Record Time 8.0 sec at 1024 sps

Serial Number BE13371 V 10.72-1.1 Minimate Blaster
Battery Level 6.0 Volts
Unit Calibration November 30, 2021 by Saros Int
File Name __TEMP.EVT

Notes

Post Event Notes

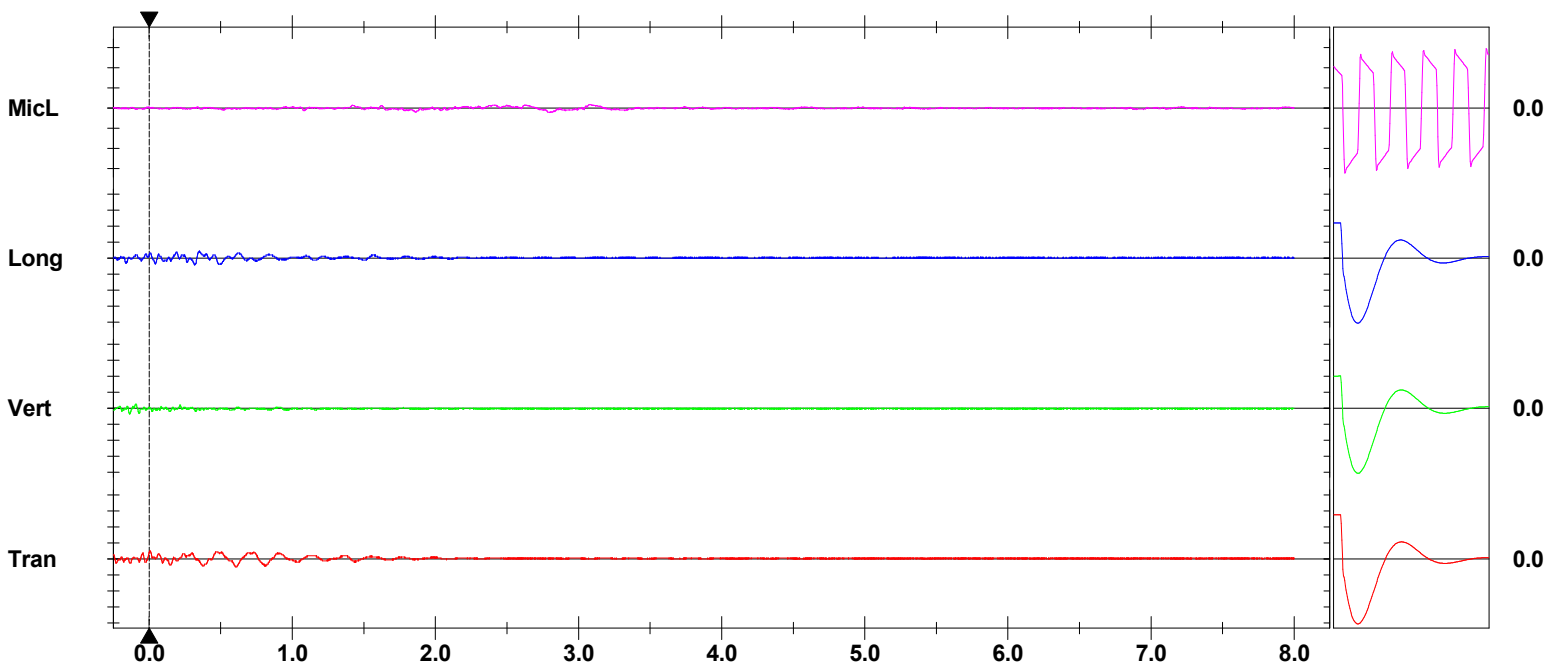
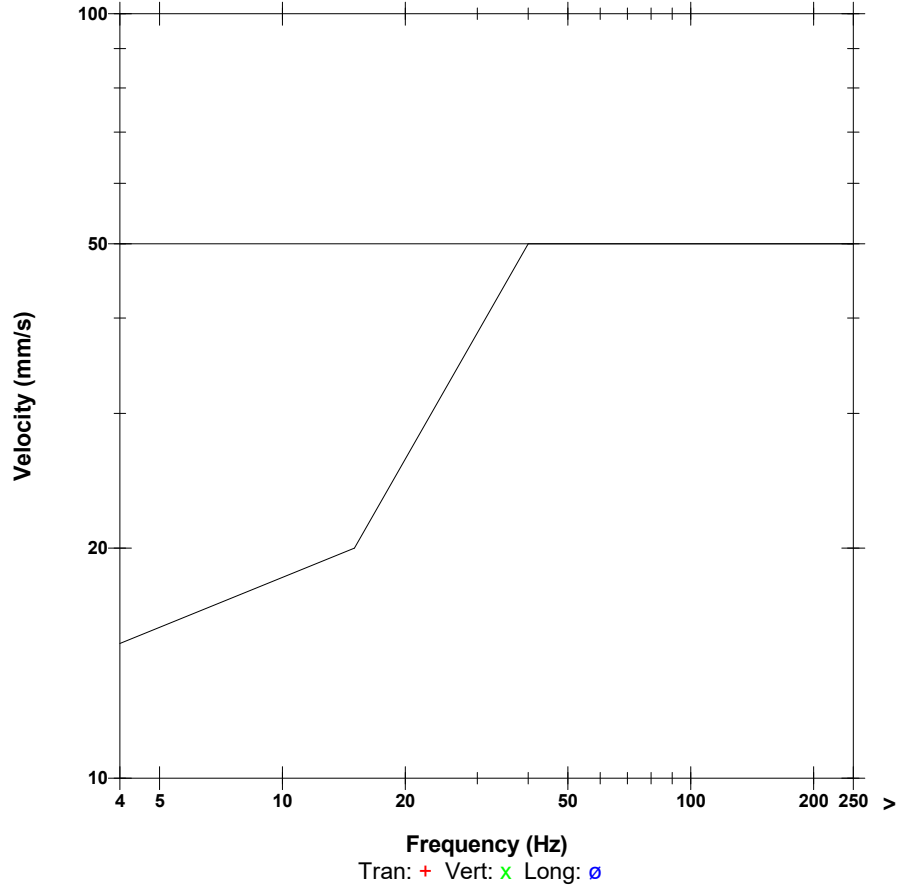
Customer Site Blakebrook
Blast ID BLA42
Monitor Location [REDACTED]
Monitored By [REDACTED]

Microphone Linear Weighting
PSPL 101.0 dB(L) at 2.795 sec
ZC Freq 3.3 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 588 mv)

	Tran	Vert	Long	
PPV	1.016	0.762	0.889	mm/s
PPV	115.1	112.6	114.0	dB
ZC Freq	17	23	14	Hz
Time (Rel. to Trig)	0.003	-0.136	0.318	sec
Peak Acceleration	0.013	0.013	0.013	g
Peak Displacement	0.031	0.005	0.018	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.4	7.5	Hz
Overswing Ratio	3.8	3.6	3.6	

Peak Vector Sum 1.205 mm/s at 0.004 sec

British Standard 7385



Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 10.000 pa.(L)/div
Trigger =

Sensor Check



ABN 53 607 162 612
 ACN 607 162 612
 20-22 Surry Street
 Coraki NSW 2471
 Tel: (02) 6683 2941
 Mob: [REDACTED]
 office@grandedb.com.au

Shot Report: LCC 04 Date: 26/09/2022

Total Holes		129
Total Meters		1,950m
Bench Height		15.11m average
Hole Diameter		89mm
Burden		2.7m - 3.1m
Spacing		3.0m
Bank Cubic Meters		16,380BCM
Bulk Explosive		9,750kg
Powder Factor		0.6kg/BCM
Sub Drill		0.4m
Angle of Holes		0 degrees
Stemming		2.7m - 15m
Wet Holes		Yes - All
Time Fired		2.38pm
Shotfirer	[REDACTED]	XBLS201341
Blast Monitor -	[REDACTED] Boorie Creek Rd	108.3DBL - 0.69mm/s
Blast Monitor -	[REDACTED] Nimbin Rd	110.6DBL - 7.71mm/s
Blast Monitor -	[REDACTED] Keerong Rd	104.7DBL - 0.45mm/s
Blast Monitor -	[REDACTED]	105.4DBL - 0.08mm/s
Weather		Partly Cloudy / Sunny
Comments: <p style="text-align: center;">See attache Drill, Blast, Exclusion zone summary & Pre Blast report for comments.</p>		

Blast Monitoring Results Summary

Customer	Northern Rivers Quarry	
Date of blast	26 September 2022	
Blast number	LCC 04	
Monitor Location	Location 8 ([REDACTED])	
Monitor name/ model details:	Texcel GTM	
Monitor Serial no	4296	
Calibration date	23/08/2022	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		Y / N
Airblast overpressure result (dB)	110.6BDL	
Ground vibration result (PPV)	7.71mm/s	
Peak Vector Sum (PVS)	7.71mm/s	
Licence limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	Recommend installing small concrete footing for better coupling to ground as the set up area is rocky in nature and can be problematic when placing geophone.	

Monitor Location	Location 4 ([REDACTED])	
Monitor name/ model details:	Texcel GTM	
Monitor Serial no	4384	
Calibration date	14/09/2022	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		Y / N
Airblast overpressure result (dB)	108.3DBL	
Ground vibration result (PPV)	0.69mm/s	
Peak Vector Sum (PVS)	0.69mm/s	
Licence limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	N/A	

Monitor Location	Location 2 ([REDACTED])	
Monitor name/ model details:	Texcel GTM	
Monitor Serial no	4298	
Calibration date	19/05/2022	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		Y / N
Airblast overpressure result (dB)	104.7DBL	
Ground vibration result (PPV)	0.45mm/s	
Peak Vector Sum (PVS)	0.45mm/s	
Licence limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	N/A	

Monitor Location	[REDACTED]	
Monitor name/ model details:	Texcel GTM	
Monitor Serial no	4207	
Calibration date	20/09/2022	
Instrumentation used to measure the airblast overpressure and ground vibration levels meets the requirements of Australian Standard AS 2187.2-2006.		Y / N
Airblast overpressure result (dB)	105.4DBL	
Ground vibration result (PPV)	0.08mm/s	
Peak Vector Sum (PVS)	0.08mm/s	
Licence limits	Airblast overpressure - 115 dB Ground vibration (PPV) - 5mm/s	
Comments	N/A	

RESULTS OF DUST ANALYSIS

3 samples supplied by Lismore City Council on 9/01/2023. Lab Job No. N6159.

Exposure Period 12/12/22 - 09/01/23

Samples submitted by [REDACTED] Your Job: PO 84432.

PO Box 23a LISMORE NSW 2480

Sample Site	EAL Code	Sample Comments	Diameter of Funnel (mm)	Sampling Days (days)	Sample Volume (L)	Deposit rate of Insoluble Solids		Deposit rate of:			
						Total Suspended Solids (SS _T)		Ash ** (g/m ² /month)	Combustible Matter ** (g/m ² /month)	Soluble Matter ** (g/m ² /month)	Total Solids ** (g/m ² /month)
						(g/m ² /month)	(mg/m ² /day)				
<i>Method Reference</i>						<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>
S23-0001-D1	N6159/1	fine org. matter	150	28	1.300	0.5	17	0.4	0.1	1.2	1.7
S23-0001-D2	N6159/2	fine org. matter, cloudy	150	28	0.790	0.9	31	0.5	0.4	1.2	2.2
S23-0001-D3	N6159/3	fine org. matter	150	28	1.380	1.7	58	1.5	0.2	1.5	3.3

METHODS REFERENCE:

a. Australian Standard AS 3580.10.1.8.2.2-2016 (1mm pre-sieving then using Whatman 42 Ashless filter)

NOTES:

- .. No data/ information
- Total Suspended Solids = Mass deposition rate of insoluble solids
- Per Month calculations incorporate 'Sampling Days' hence per Month actually refers to number of days sampled.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- ** NATA accreditation does not cover the performance of this service.
- This report was issued on 12/01/2023.





Appendix N

LCC to DPE: Ground Vibration Exceedance



Our ref: [REDACTED]
Your ref: MP07_0020
Contact: Lismore City Council

30 September 2022

Department of Planning and Environment (DPE)
Planning and Assessment
(Via Major Projects Portal)

Dear DPE

RE: Non-compliance Notification – MP07_0020 Blakebrook Quarry Project

In accordance with Schedule 5 Condition 9, Lismore City Council (Council) would like to report the following non-compliance with MP07-0020 Schedule 3 Condition 6.

BLASTING

Blasting Impact Assessment Criteria

6. The Proponent must ensure that blasting on site does not cause any exceedance of the criteria in Table 3.

Table 3: Blasting Criteria

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

However, these criteria do not apply if the Proponent has a written agreement with the relevant owner to exceed the limits in Table 3, and the Proponent has advised the Department in writing of the terms of this agreement.

A blast was executed at the Blakebrook Quarry on Monday 26 September 2022. Monitoring was undertaken at all three primary locations and at [REDACTED]. Results are listed below and show a minor vibration exceedance at Primary Location 8 [REDACTED] (Nimbin Road). The distance between the blast and the monitor was approximately 650 metres. This was the closest monitor the blast. All other monitor location vibration results were well below prescribed licence limits.

- Blast Monitor - [REDACTED] Boorie Creek Rd 108.3DBL - 0.69mm/s
- **Blast Monitor - [REDACTED] Nimbin Rd (110.6DBL - 7.71mm/s)**
- Blast Monitor - [REDACTED] Keerong Rd 104.7DBL - 0.45mm/s
- Blast Monitor - [REDACTED] 105.4DBL - 0.08mm/s

As previously discussed with the DPE, the Blakebrook Quarry does not execute more than 20 blasts per year to be able to utilise the allowable 5% exceedance criteria. Upon review of the blast operations there are no apparent causes for the minor exceedance. Council will continue to monitor blast performance and should additional exceedances occur at this location from similar blast locations further investigation will be undertaken.

Should you require any further information, please do not hesitate to contact [REDACTED], Compliance Manager on [REDACTED] or via [REDACTED] [@lismore.nsw.gov.au](mailto:[REDACTED]@lismore.nsw.gov.au)

[REDACTED]

Manager Commercial Services
Lismore City Council



Appendix O

Complaints Register

Environmental Complaints Register



To be kept for at least 4 years – date & time	Method of complaint (phone, face to face)	Details of Complainant	Nature of Complaint	Action Taken	Reason for no Action (if applicable)	NCAR Report no:
2022						
01/01/2022 31/01/2022				Nil - No complaints received		
01/02/2022 28/02/2022				Nil - No complaints received		
18/03/2022	Email to CS Compliance & LCC CRM system	Local resident 2km from Quarry [REDACTED]	Excessive shaking of property from blast	Internal investigation		230
01/04/2022 30/04/2022				Nil - No complaints received		
01/05/2022 31/05/2022				Nil - No complaints received		
01/06/2022 30/06/2022				Nil - No complaints received		
01/07/2022 31/07/2022				Nil - No complaints received		
01/08/2022 31/08/2022				Nil - No complaints received		
01/09/2022 30/09/2022	Phone call to LCC Customer Service 31/05/2022, emails to LCC and Compliance	Local resident 2km from Quarry [REDACTED]	Loud noise, windows and house shook from blast on 31 May 2022	Internal investigation		234
01/10/2022 31/10/2022				Nil - No complaints received		
08/11/2022	Phone call to LCC Customer Service, CRM 14199/2022 lodged 16/11/22	Local resident 2km from Quarry [REDACTED]	No notification of blasting on 08/11/2022	Internal investigation	Investigation complete – no blasting undertaken	
01/12/2022 31/12/2022				Nil - No complaints received		



Appendix P

Dust Deposition Gauge Results

RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 22/03/2022. Lab Job No. M7107.

Samples submitted by [REDACTED]. Your Job: SMC010-BlakebrookWQ-SurfaceWater-MARCH22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1 SW1 21/03/22	Sample 2 SW2 21/03/22	Sample 3 SW3 21/03/22	Sample 4 SW5 21/03/22
	<i>Job No.</i>	<i>M7107/1</i>	<i>M7107/2</i>	<i>M7107/3</i>	<i>M7107/4</i>
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	35	65	45	5
Phosphate (mg/L P)	APHA 4500 P-G	0.026	0.022	0.025	0.054
Nitrate (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.054	0.121	0.116	0.039
Nitrite (mg/L N)	APHA 4500 NO ₂ ⁻ -I	<0.005	0.005	0.006	0.016
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	0.077	0.072	0.070	0.164

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 30/03/2022.



RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 3/06/2022 . Lab Job No. M9257.

Samples submitted by [REDACTED]. Your Job: SMC010-Blakebrook WQ-Surface Water-JUNE 22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1	Sample 2	Sample 3	Sample 4
		SW1 (02/06/22)	SW2 (02/06/22)	SW3 (02/06/22)	SW5 (02/06/22)
	<i>Job No.</i>	M9257/1	M9257/2	M9257/3	M9257/4
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	21	53	45	2
Phosphate (mg/L P)	APHA 4500 P-G	0.031	0.023	0.031	0.042
Nitrate (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.223	0.282	0.267	0.013
Nitrite (mg/L N)	APHA 4500 NO ₂ ⁻ -I	<0.005	<0.005	<0.005	<0.005
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	0.042	0.030	0.034	0.029

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- ... Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 20/06/2022.



RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 2/09/2022 . Lab Job No. N2320.

Samples submitted by [REDACTED] Your Job: SMC010-Blakebrook WQ-Surface Water-Sept22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1 SW1	Sample 2 SW2	Sample 3 SW3	Sample 4 SW5
	<i>Job No.</i>	N2320/1	N2320/2	N2320/3	N2320/4
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	73	13	12	40
Phosphate (mg/L P)	APHA 4500 P-G	0.015	0.022	0.023	0.045
Nitrate (mg/L N)	APHA 4500 NO ₃ -F	0.020	0.067	0.076	<0.005
Nitrite (mg/L N)	APHA 4500 NO ₂ -I	<0.005	<0.005	0.006	<0.005
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	0.071	0.034	0.037	0.025

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 7/09/2022.



RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 2/12/2022. Lab Job No. N5281.

Samples submitted by [REDACTED]. Your Job: SMC010-Blakebrook WQ-Surface Water-Dec22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1 SW1	Sample 2 SW2	Sample 3 SW3	Sample 4 SW5
	<i>Job No.</i>	<i>N5281/1</i>	<i>N5281/2</i>	<i>N5281/3</i>	<i>N5281/4</i>
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	15	238	184	5
Phosphate (mg/L P)	APHA 4500 P-G	0.021	0.027	0.025	0.107
Nitrate (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.013	0.054	0.052	0.022
Nitrite (mg/L N)	APHA 4500 NO ₂ ⁻ -I	<0.005	0.008	<0.005	<0.005
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	<0.005	<0.005	<0.005	<0.005

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 7/12/2022.





Appendix Q

Weather Observations

MONTHLY CLIMATOLOGICAL SUMMARY for JAN. 2022

NAME: NRQ CITY: STATE:
 ELEV: 0 m LAT: 28° 45' 53" S LONG: 153° 15' 01" E

TEMPERATURE (°C), RAIN (mm), WIND SPEED (km/hr)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	20.2	25.9	12:00p	18.2	7:00a	0.0	1.9	28.2	0.2	12.9	1:00p	ENE
2	21.7	27.4	2:30p	18.6	2:00a	0.0	3.3	0.4	1.8	22.5	10:30a	ENE
3	22.1	25.8	3:30p	18.6	6:00a	0.0	3.7	0.4	1.9	29.0	10:00p	ENE
4	22.2	25.8	5:00p	19.9	6:00a	0.0	3.9	1.0	2.3	25.7	6:00p	ENE
5	22.6	24.4	1:30p	21.5	3:30a	0.0	4.2	0.6	1.0	17.7	10:30a	ENE
6	24.1	29.0	3:00p	21.9	6:30a	0.0	5.8	0.2	0.8	24.1	1:30p	E
7	24.3	29.8	2:30p	22.2	6:00a	0.0	6.0	0.0	0.0	16.1	2:30p	NW
8	23.1	26.2	6:00p	21.6	12:00m	0.0	4.8	0.0	0.0	1.6	10:30a	NW
9	23.7	29.4	1:30p	20.9	12:00m	0.0	5.4	0.0	0.0	0.0	---	---
10	24.1	30.7	2:30p	19.3	6:00a	0.0	5.8	0.0	0.8	16.1	6:00p	SW
11	24.2	30.1	1:00p	19.4	12:00m	0.0	5.8	2.0	1.1	16.1	11:00a	SW
12	22.9	29.6	12:00p	17.8	4:00a	0.1	4.6	0.0	0.6	16.1	6:00p	SW
13	23.1	30.6	2:30p	18.0	6:30a	0.0	4.8	0.0	1.0	14.5	1:00p	NNE
14	23.1	31.2	1:00p	16.7	4:00a	0.2	5.1	0.0	0.6	12.9	3:00p	NNE
15	25.1	32.4	12:30p	18.6	6:30a	0.0	6.8	0.0	0.6	17.7	6:00p	NE
16	24.2	33.3	3:30p	19.6	9:30a	0.0	5.9	25.4	0.2	11.3	4:00p	SE
17	25.9	33.4	2:00p	21.4	6:30a	0.0	7.6	0.2	0.6	17.7	3:00p	NE
18	26.0	32.8	1:30p	21.7	5:00a	0.0	7.7	0.0	0.6	17.7	1:00p	NE
19	24.5	33.7	1:00p	20.6	12:00m	0.0	6.2	48.6	0.8	17.7	12:00m	NNE
20	20.7	22.3	2:00p	18.3	9:30p	0.0	2.4	99.8	2.3	20.9	11:00a	NNE
21	20.7	25.8	2:30p	17.6	3:30a	0.1	2.4	6.2	1.1	19.3	3:00p	NNE
22	20.4	25.9	2:00p	17.8	7:00a	0.1	2.1	0.0	0.8	19.3	3:30p	E
23	20.8	26.8	1:00p	17.4	6:30a	0.1	2.6	0.0	0.3	11.3	4:30p	W
24	22.5	29.8	3:00p	17.3	6:30a	0.1	4.2	0.0	0.5	11.3	2:00p	NNE
25	24.0	30.9	3:00p	20.1	6:00a	0.0	5.7	0.0	0.3	11.3	3:30p	NE
26	21.8	24.3	1:00p	20.3	6:30a	0.0	3.4	13.4	0.0	12.9	7:00p	NE
27	23.2	29.4	2:30p	19.8	6:30a	0.0	4.8	5.8	0.5	12.9	4:00p	NNE
28	23.1	30.5	3:30p	20.2	12:00m	0.0	4.7	13.4	0.5	12.9	2:30p	NNE
29	23.3	31.5	2:00p	18.7	7:00a	0.0	4.9	3.0	0.5	16.1	2:00p	N
30	23.9	30.6	2:30p	19.7	5:00a	0.0	5.6	0.4	0.6	12.9	7:00p	N
31	25.6	33.1	3:00p	21.7	7:00a	0.0	7.2	3.4	0.5	11.3	4:30p	N
	23.1	33.7	19	16.7	14	0.6	149.4	252.4	0.7	29.0	3	NNE

Max >= 32.0: 6
 Max <= 0.0: 0
 Min <= 0.0: 0
 Min <= -18.0: 0
 Max Rain: 99.80 ON 20/01/22
 Days of Rain: 18 (> .2 mm) 11 (> 2 mm) 4 (> 20 mm)
 Heat Base: 18.3 Cool Base: 18.3 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for FEB. 2022

NAME: NRQ CITY: STATE:
 ELEV: 0 m LAT: 28° 45' 53" S LONG: 153° 15' 01" E

TEMPERATURE (°C), RAIN (mm), WIND SPEED (km/hr)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	26.4	38.9	3:30p	21.8	6:30a	0.0	8.1	3.6	0.2	16.1	4:30p	N
2	25.7	31.7	4:30p	22.9	1:00a	0.0	7.3	32.0	0.0	8.0	9:30a	N
3	21.7	23.9	12:30a	18.4	12:00m	0.0	3.3	159.2	0.0	17.7	1:30p	NNE
4	18.9	23.2	4:30p	16.9	2:30a	0.4	1.0	7.2	0.6	20.9	5:30p	NNE
5	19.4	25.5	1:30p	15.0	6:30a	0.9	1.9	2.2	0.5	12.9	1:00p	NNE
6	19.1	24.8	3:00p	15.2	6:30a	0.7	1.4	25.2	0.5	12.9	5:30p	SSW
7	19.0	24.9	12:30p	16.6	4:00a	0.6	1.2	3.6	0.2	11.3	3:00p	NNE
8	20.1	27.8	3:30p	15.8	3:30a	0.7	2.5	1.6	0.0	4.8	6:00a	WNW
9	22.0	31.8	3:00p	15.3	7:00a	0.7	4.4	0.0	0.0	4.8	4:00p	WNW
10	22.7	32.4	3:30p	16.1	6:00a	0.4	4.8	0.4	0.0	8.0	6:00p	WNW
11	22.2	30.2	1:00p	16.7	7:00a	0.3	4.2	0.0	1.3	19.3	5:00p	WNW
12	21.1	24.1	10:00a	18.5	12:00m	0.0	2.7	0.4	1.3	22.5	6:00p	WNW
13	20.8	26.5	3:00p	17.0	7:00a	0.2	2.6	2.2	0.6	14.5	11:00a	E
14	20.9	27.4	1:00p	17.7	7:00a	0.1	2.7	12.8	0.5	16.1	1:00p	NE
15	21.2	25.8	2:30p	18.4	7:00a	0.0	2.8	0.8	0.3	11.3	2:30p	WNW
16	21.2	27.7	12:30p	18.6	12:00m	0.0	2.8	2.2	0.2	8.0	12:30p	E
17	22.6	33.4	2:30p	16.2	7:30a	0.4	4.7	0.2	0.2	9.7	5:30p	S
18	24.0	37.3	3:00p	18.7	6:30a	0.0	5.7	16.0	0.2	19.3	4:30p	S
19	21.8	30.5	2:30p	17.7	6:00a	0.1	3.5	4.6	1.3	17.7	1:00p	ENE
20	22.8	29.4	2:30p	18.8	7:30a	0.0	4.5	0.8	0.3	14.5	2:30p	S
21	24.6	34.2	2:00p	18.9	7:00a	0.0	6.3	0.0	0.3	9.7	3:30p	E
22	22.9	29.1	4:00p	20.0	6:00a	0.0	4.6	20.6	0.5	16.1	4:30p	WSW
23	21.8	23.7	4:00p	20.7	9:00a	0.0	3.4	81.8	0.2	9.7	8:30a	ENE
24	22.5	23.9	2:30p	21.6	8:30a	0.0	4.2	235.8	0.2	14.5	11:30a	WSW
25	22.2	23.5	3:00p	21.3	12:00p	0.0	3.8	13.2	0.0	8.0	5:30a	WSW
26	22.2	25.2	2:00p	21.1	4:00a	0.0	3.8	47.0	0.0	4.8	9:30a	ENE
27	20.2	21.9	1:00a	19.2	7:30p	0.0	1.9	570.8	0.0	1.6	12:30a	NE
28	21.0	22.3	10:30a	19.2	2:30a	0.0	2.7	770.0	0.0	1.6	12:30a	NNE

	21.8	38.9	1	15.0	5	5.3	103.0	2014.2	0.3	22.5	12	NNE

Max >= 32.0: 5
 Max <= 0.0: 0
 Min <= 0.0: 0
 Min <= -18.0: 0
 Max Rain: 770.00 ON 28/02/22
 Days of Rain: 25 (> .2 mm) 19 (> 2 mm) 9 (> 20 mm)
 Heat Base: 18.3 Cool Base: 18.3 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for MAR. 2022

NAME: NRQ CITY: STATE:
 ELEV: 0 m LAT: 28° 45' 53" S LONG: 153° 15' 01" E

TEMPERATURE (°C), RAIN (mm), WIND SPEED (km/hr)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	22.9	28.2	1:30p	20.1	4:30a	0.0	4.6	4.4	0.0	0.0	---	---
2	23.7	31.1	1:00p	20.6	6:30a	0.0	5.3	1.8	0.0	0.0	---	---
3	22.4	30.6	3:30p	19.6	10:00a	0.0	4.1	16.0	0.0	0.0	---	---
4	22.5	28.3	1:30p	20.1	11:30p	0.0	4.2	6.2	0.0	0.0	---	---
5	23.3	29.8	3:00p	19.8	2:30a	0.0	5.0	1.8	0.0	0.0	---	---
6	24.0	33.2	2:00p	20.9	7:30a	0.0	5.7	2.4	0.0	0.0	---	---
7	22.6	30.6	3:30p	18.2	11:30p	0.0	4.3	11.2	0.0	0.0	---	---
8	23.9	33.1	3:30p	17.8	6:30a	0.1	5.7	0.6	0.0	0.0	---	---
9	25.5	36.6	2:30p	21.0	6:30a	0.0	7.2	11.8	0.0	0.0	---	---
10	21.2	24.0	2:30p	18.3	7:30a	0.0	2.9	4.4	0.0	3.2	7:30p	SE
11	19.1	20.4	3:00p	17.9	12:00m	0.1	0.8	23.2	0.0	3.2	1:00a	SE
12	20.9	27.6	3:00p	16.7	5:00a	0.4	2.9	0.2	0.0	3.2	7:00p	SE
13	19.6	25.9	12:30p	16.1	6:30a	0.5	1.7	0.8	0.0	3.2	11:30a	W
14	20.8	27.6	1:30p	16.3	7:00a	0.3	2.9	4.4	0.0	6.4	5:30p	SE
15	21.3	27.9	3:30p	17.8	7:00a	0.1	3.0	3.6	0.2	9.7	1:00p	SE
16	21.7	28.7	2:30p	18.5	4:00a	0.0	3.4	4.8	0.2	8.0	4:30p	SE
17	22.4	28.6	3:30p	18.9	6:30a	0.0	4.1	5.6	0.2	9.7	5:00p	SE
18	22.4	29.3	2:00p	18.8	7:00a	0.0	4.1	0.6	0.5	14.5	5:00p	SE
19	21.9	29.5	2:30p	17.2	7:00a	0.1	3.7	1.4	0.6	12.9	12:30p	SE
20	21.5	29.4	3:00p	16.7	8:00a	0.2	3.4	1.0	0.5	11.3	4:00p	SE
21	20.9	28.1	3:00p	15.4	7:00a	0.7	3.3	0.0	0.3	16.1	5:30p	WNW
22	21.9	30.4	3:30p	16.9	7:00a	0.2	3.8	0.0	0.3	14.5	6:00p	ENE
23	23.8	33.9	3:00p	16.4	7:30a	0.3	5.8	0.2	0.0	9.7	11:00a	E
24	23.4	31.8	2:30p	19.2	11:00p	0.0	5.1	1.6	0.2	19.3	9:30p	ENE
25	21.3	27.4	2:00p	19.1	9:30p	0.0	3.0	49.6	0.2	11.3	1:00p	ENE
26	19.2	21.4	2:30p	18.1	7:00a	0.0	0.9	38.2	0.2	12.9	4:00p	SE
27	20.2	23.6	3:00p	17.8	2:30a	0.1	1.9	7.4	0.0	8.0	3:30p	N
28	19.8	20.9	11:00a	18.8	10:30p	0.0	1.5	131.2	0.0	12.9	4:00p	E
29	19.7	22.7	11:00a	17.9	8:00p	0.0	1.4	167.4	1.0	17.7	5:00p	NW
30	20.3	23.1	2:30p	18.6	7:30a	0.0	1.9	7.4	1.4	27.4	11:00a	E
31	21.1	25.6	2:30p	18.9	10:30p	0.0	2.8	5.2	0.3	12.9	6:30p	NW

	21.8	36.6	9	15.4	21	3.0	110.4	514.4	0.2	27.4	30	SE

Max >= 32.0: 4
 Max <= 0.0: 0
 Min <= 0.0: 0
 Min <= -18.0: 0
 Max Rain: 167.41 ON 29/03/22
 Days of Rain: 29 (> .2 mm) 19 (> 2 mm) 5 (> 20 mm)
 Heat Base: 18.3 Cool Base: 18.3 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for APR. 2022

NAME: NRQ CITY: STATE:
 ELEV: 0 m LAT: 28° 45' 53" S LONG: 153° 15' 01" E

TEMPERATURE (°C), RAIN (mm), WIND SPEED (km/hr)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	20.2	26.4	1:00p	15.1	7:00a	0.7	2.5	0.0	0.0	8.0	1:00a	ESE
2	21.1	28.3	1:30p	15.9	6:30a	0.6	3.3	0.0	0.0	1.6	12:30a	ENE
3	22.7	31.5	2:30p	17.4	5:30a	0.1	4.4	0.2	0.0	11.3	10:30p	SE
4	21.2	28.8	2:30p	17.3	6:00a	0.2	3.1	11.2	0.0	6.4	8:30a	W
5	22.6	30.9	2:00p	17.9	6:00a	0.0	4.3	0.2	0.0	9.7	4:30p	W
6	20.7	25.8	10:00a	18.3	12:00m	0.0	2.3	0.6	0.2	11.3	4:30p	ESE
7	20.2	25.5	2:00p	17.1	6:30a	0.2	2.1	11.8	0.2	14.5	4:30p	W
8	20.0	25.3	2:00p	18.2	12:00m	0.0	1.7	35.0	0.5	16.1	3:30p	ESE
9	19.0	22.2	10:00a	17.5	11:30p	0.2	0.8	25.8	0.0	8.0	2:00p	E
10	19.8	24.4	2:30p	16.9	4:00a	0.3	1.8	2.4	0.0	3.2	12:30p	E
11	21.2	28.8	1:00p	15.9	6:30a	0.4	3.3	0.2	0.0	1.6	7:30a	W
12	20.8	27.7	1:30p	16.8	6:30a	0.2	2.7	0.8	0.0	1.6	7:30a	W
13	18.1	21.2	10:30a	16.0	12:00m	0.7	0.4	13.2	0.0	1.6	1:30a	E
14	17.3	23.6	2:30p	14.9	3:30a	1.6	0.5	14.0	0.0	4.8	3:00p	E
15	17.3	21.3	1:30p	15.2	6:00a	1.3	0.3	24.0	0.0	1.6	4:00a	WNW
16	17.3	21.6	11:00a	14.6	4:00a	1.3	0.3	7.6	0.0	0.0	---	---
17	18.6	24.2	1:30p	15.4	6:30a	0.9	1.2	2.6	0.0	0.0	---	---
18	19.4	26.9	1:00p	15.6	12:00m	0.8	1.9	0.0	0.0	0.0	---	---
19	19.6	28.6	2:30p	13.7	6:30a	1.3	2.6	0.2	0.0	0.0	---	---
20	22.6	30.8	1:00p	16.7	5:00a	0.3	4.4	0.0	0.0	0.0	---	---
21	19.1	24.6	11:30a	16.5	5:00a	0.3	1.1	1.4	0.0	1.6	11:00p	E
22	17.8	21.3	1:30p	15.5	6:30a	1.0	0.5	42.8	0.0	6.4	11:30p	E
23	18.2	24.0	1:00p	15.6	12:00m	1.1	1.0	5.6	0.0	9.7	2:30p	E
24	17.1	21.1	2:30p	14.8	6:00a	1.6	0.3	19.0	0.0	9.7	11:00a	E
25	17.6	23.3	12:30p	14.5	12:00m	1.7	0.9	12.4	0.0	4.8	11:30a	E
26	17.6	22.2	1:30p	13.3	4:00a	1.7	0.9	1.4	0.0	3.2	10:30a	W
27	18.4	24.3	12:30p	15.2	6:30a	1.1	1.1	0.6	0.0	1.6	5:30a	W
28	19.7	27.0	1:30p	15.8	3:30a	0.7	2.1	0.2	0.0	1.6	3:30a	W
29	19.7	25.4	2:00p	17.7	1:00a	0.1	1.5	6.2	0.0	1.6	2:30a	SW
30	20.7	27.9	2:00p	17.2	6:00a	0.2	2.5	1.2	0.0	1.6	3:00a	SE

	19.5	31.5	3	13.3	26	20.6	55.8	240.6	0.0	16.1	8	E

Max >= 32.0: 0
 Max <= 0.0: 0
 Min <= 0.0: 0
 Min <= -18.0: 0

Max Rain: 42.80 ON 22/04/22

Days of Rain: 26 (> .2 mm) 15 (> 2 mm) 4 (> 20 mm)

Heat Base: 18.3 Cool Base: 18.3 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for MAY. 2022

NAME: NRQ CITY: STATE:
 ELEV: 0 m LAT: 28° 45' 53" S LONG: 153° 15' 01" E

TEMPERATURE (°C), RAIN (mm), WIND SPEED (km/hr)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	17.6	19.4	12:30a	16.7	6:30a	0.8	0.0	0.0	0.0	4.8	1:00a	E
2	18.1	24.1	1:00p	13.9	12:00m	1.3	1.1	0.2	0.0	1.6	12:30a	SW
3	16.3	18.7	2:30p	13.7	2:30a	2.0	0.0	29.0	0.0	1.6	7:00a	E
4	18.7	25.6	2:30p	15.6	7:00a	1.0	1.4	0.2	0.0	1.6	6:00a	E
5	20.6	28.7	2:00p	14.8	6:00a	0.8	3.1	3.2	0.0	0.0	---	---
6	20.1	22.6	2:00p	18.3	12:00m	0.0	1.8	29.0	0.0	0.0	---	---
7	18.2	20.8	1:00p	16.1	9:00p	0.6	0.4	35.8	0.0	0.0	---	---
8	16.3	17.2	4:00p	14.5	11:00p	2.1	0.0	6.2	0.0	0.0	---	---
9	15.9	17.9	11:30a	14.4	2:00a	2.4	0.0	0.6	0.0	0.0	---	---
10	17.0	19.8	12:00p	15.4	6:00a	1.4	0.1	3.2	0.0	0.0	---	---
11	18.2	21.1	11:00a	15.9	12:30a	0.5	0.4	55.4	0.0	0.0	---	---
12	20.2	22.6	11:30a	17.6	4:30a	0.1	1.9	12.0	0.0	0.0	---	---
13	20.8	22.8	1:00p	19.5	11:30p	0.0	2.5	22.4	0.0	0.0	---	---
14	20.2	21.5	1:30p	18.9	8:00a	0.0	1.8	27.0	0.0	0.0	---	---
15	21.3	23.3	3:00p	19.3	6:30a	0.0	2.9	31.4	0.0	0.0	---	---
16	22.9	29.9	1:30p	20.7	12:00m	0.0	4.6	40.6	0.0	0.0	---	---
17	19.9	20.8	1:00p	18.2	11:30p	0.0	1.6	0.0	0.0	0.0	---	---
18	20.1	27.9	2:30p	16.7	6:00a	0.4	2.2	0.0	0.0	0.0	---	---
19	17.8	20.3	1:00p	15.6	12:00m	0.8	0.3	6.0	0.0	0.0	---	---
20	15.6	17.6	3:30p	13.8	7:00a	2.8	0.0	14.4	0.0	0.0	---	---
21	15.4	16.3	12:00p	14.8	10:00p	2.9	0.0	55.8	0.0	0.0	---	---
22	15.3	16.9	10:30a	14.2	11:00p	3.0	0.0	57.2	0.0	0.0	---	---
23	15.2	17.0	10:30a	13.6	4:00a	3.2	0.0	37.6	0.0	0.0	---	---
24	15.6	19.2	1:30p	14.4	3:30a	2.7	0.0	27.6	0.0	0.0	---	---
25	16.0	20.9	1:30p	13.9	6:30a	2.5	0.2	18.4	0.0	0.0	---	---
26	16.4	21.4	2:00p	13.8	12:00m	2.2	0.3	3.8	0.0	0.0	---	---
27	16.6	23.6	1:30p	13.6	1:00a	2.2	0.4	2.2	0.0	0.0	---	---
28	17.8	24.9	2:30p	14.3	12:00m	1.6	1.1	0.2	0.0	0.0	---	---
29	15.6	21.5	2:00p	11.6	7:30a	3.1	0.3	0.0	0.0	0.0	---	---
30	15.5	19.3	8:00p	12.4	6:00a	2.9	0.1	2.4	0.0	0.0	---	---
31	15.8	21.1	2:00p	12.9	5:00a	2.9	0.3	0.2	0.0	0.0	---	---
	17.8	29.9	16	11.6	29	46.2	28.8	522.0	0.0	4.8	1	E

Max >= 32.0: 0
 Max <= 0.0: 0
 Min <= 0.0: 0
 Min <= -18.0: 0

Max Rain: 57.20 ON 22/05/22

Days of Rain: 27 (> .2 mm) 22 (> 2 mm) 12 (> 20 mm)

Heat Base: 18.3 Cool Base: 18.3 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for JUN. 2022

NAME: NRQ CITY: STATE:
 ELEV: 0 m LAT: 28° 45' 53" S LONG: 153° 15' 01" E

TEMPERATURE (°C), RAIN (mm), WIND SPEED (km/hr)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	14.4	20.8	2:00p	10.8	6:00a	4.1	0.2	0.0	0.0	0.0	---	---
2	11.8	18.8	2:30p	6.3	7:00a	6.6	0.0	0.0	0.0	0.0	---	---
3	13.4	21.0	2:30p	6.6	4:30a	5.2	0.3	12.2	0.0	0.0	---	---
4	15.4	21.4	1:30p	10.2	11:30p	3.3	0.4	6.8	0.0	1.6	8:00a	W
5	13.8	24.1	2:30p	7.6	7:00a	5.1	0.6	0.0	0.0	3.2	6:30p	W
6	16.1	21.9	2:00p	11.8	12:00m	2.7	0.4	1.6	0.5	6.4	9:00a	ENE
7	12.7	16.3	2:30p	10.1	7:00a	5.7	0.0	0.2	0.3	8.0	1:30a	E
8	12.2	20.1	2:30p	7.3	7:00a	6.2	0.1	0.0	0.3	9.7	11:00a	ENE
9	10.8	19.8	2:00p	4.1	6:30a	7.6	0.1	0.0	0.5	11.3	3:30p	E
10	11.1	18.8	2:00p	4.7	6:30a	7.2	0.0	0.0	0.5	9.7	10:00a	E
11	11.2	18.8	2:00p	5.1	6:30a	7.2	0.0	0.0	0.3	8.0	1:30p	E
12	13.9	22.4	2:30p	9.5	6:00a	4.8	0.4	0.0	0.6	9.7	7:30p	E
13	12.4	19.2	2:30p	7.3	7:30a	6.0	0.0	0.0	0.2	8.0	12:00p	WNW
14	13.6	22.5	2:30p	7.8	6:00a	5.2	0.4	0.0	0.0	11.3	4:30p	WNW
15	14.7	24.6	2:00p	8.7	7:30a	4.4	0.8	0.0	0.0	8.0	1:00p	WNW
16	14.9	25.5	2:30p	9.8	7:00a	4.3	0.9	0.0	0.0	6.4	2:00p	E
17	13.5	23.5	1:30p	7.6	7:00a	5.5	0.6	0.0	0.0	6.4	12:30p	ESE
18	13.3	22.7	2:00p	8.2	7:00a	5.4	0.4	0.0	0.2	9.7	11:00a	W
19	15.0	21.2	1:00p	10.3	1:30a	3.6	0.2	0.2	0.3	14.5	4:30p	WNW
20	14.1	19.7	1:30p	10.7	12:00m	4.3	0.0	1.2	0.2	16.1	1:30p	WNW
21	13.7	23.3	2:30p	8.9	7:00a	5.1	0.4	0.2	0.0	6.4	9:00a	N
22	14.1	23.8	1:30p	8.8	5:00a	4.9	0.6	0.2	0.2	9.7	11:30a	E
23	14.2	23.6	2:30p	9.1	7:00a	4.7	0.6	0.0	0.0	8.0	1:00p	E
24	13.9	23.1	2:30p	9.2	7:30a	4.9	0.6	0.2	0.3	11.3	11:30a	NE
25	13.2	22.9	2:30p	6.7	7:30a	5.7	0.5	0.0	0.0	8.0	2:30p	WNW
26	13.6	23.6	2:30p	7.4	6:30a	5.3	0.6	0.2	0.0	6.4	3:00p	WNW
27	14.1	22.9	2:30p	8.9	4:30a	4.7	0.4	0.0	0.3	12.9	11:30p	W
28	13.0	17.7	2:30p	8.6	3:30a	5.3	0.0	0.6	0.8	16.1	4:30p	W
29	13.0	17.5	1:30p	10.1	2:30a	5.3	0.0	1.6	0.0	11.3	3:00p	WSW
30	14.4	19.5	2:00p	10.6	6:00a	3.9	0.1	0.2	0.0	8.0	11:30a	N

	13.5	25.5	16	4.1	9	154.2	9.5	25.4	0.2	16.1	20	E

Max >= 32.0: 0
 Max <= 0.0: 0
 Min <= 0.0: 0
 Min <= -18.0: 0

Max Rain: 12.19 ON 03/06/22

Days of Rain: 13 (> .2 mm) 2 (> 2 mm) 0 (> 20 mm)

Heat Base: 18.3 Cool Base: 18.3 Method: Integration

MONTHLY CLIMATOLOGICAL SUMMARY for JUL. 2022

NAME: NRQ CITY: STATE:
 ELEV: 0 m LAT: 28° 45' 53" S LONG: 153° 15' 01" E

TEMPERATURE (°C), RAIN (mm), WIND SPEED (km/hr)

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	HEAT DEG DAYS	COOL DEG DAYS	RAIN	AVG WIND SPEED	HIGH	TIME	DOM DIR
1	13.2	13.8	2:00p	12.7	6:00p	5.2	0.0	16.2	0.0	4.8	7:30a	N
2	13.0	14.1	4:30p	12.2	12:00m	5.3	0.0	17.0	0.0	1.6	12:30a	N
3	13.6	21.3	2:00p	10.2	6:30a	4.9	0.2	0.2	0.0	6.4	1:00p	N
4	11.3	14.2	2:00p	8.9	7:00a	7.0	0.0	4.2	0.0	6.4	3:00p	N
5	10.7	12.2	11:30p	9.4	4:00a	7.7	0.0	39.6	0.0	6.4	10:30a	ENE
6	13.8	18.1	2:30p	11.4	11:30p	4.5	0.0	30.2	0.0	6.4	9:00p	E
7	16.2	23.9	2:00p	11.4	12:30a	2.9	0.7	0.2	0.3	11.3	9:00a	E
8	14.0	20.3	2:00p	9.9	12:00m	4.4	0.1	0.0	0.0	6.4	7:00a	E
9	10.4	18.4	2:00p	5.3	7:30a	7.9	0.0	0.0	0.0	1.6	1:00a	WNW
10	10.4	19.2	1:30p	5.2	7:00a	7.9	0.0	0.0	0.0	1.6	7:30a	W
11	11.9	19.1	1:30p	6.1	2:00a	6.4	0.0	0.8	0.0	3.2	1:00p	SW
12	12.5	21.3	1:30p	8.1	7:00a	6.0	0.2	6.2	0.0	3.2	6:30p	WNW
13	11.3	18.1	1:30p	6.8	6:30a	7.0	0.0	3.2	0.2	4.8	8:30p	SE
14	12.7	18.3	1:00p	8.6	2:00a	5.7	0.0	0.0	0.0	3.2	7:30a	SE
15	12.0	20.1	2:00p	6.9	6:30a	6.4	0.1	0.0	0.0	1.6	7:30a	NNW
16	12.3	22.3	2:30p	5.7	7:30a	6.4	0.4	0.0	0.0	3.2	6:30p	N
17	14.5	22.7	2:30p	9.2	5:00a	4.4	0.6	0.0	0.0	6.4	4:00p	N
18	15.8	23.8	1:30p	11.1	12:00m	3.3	0.9	0.0	0.0	4.8	2:00a	N
19	10.7	11.3	5:00a	8.9	3:00a	7.6	0.0	5.6	0.0	8.0	1:30p	ESE
20	12.2	16.0	3:30p	10.3	6:00a	6.2	0.0	3.4	0.3	14.5	12:00p	W
21	13.2	15.7	3:30p	10.2	5:00a	5.2	0.0	3.4	1.1	22.5	6:30p	W
22	14.2	15.5	1:00p	13.2	4:00a	4.2	0.0	8.2	2.1	20.9	2:30p	W
23	14.3	17.0	4:00p	12.6	12:00m	4.1	0.0	10.2	0.5	12.9	2:30a	W
24	14.4	20.7	1:00p	10.2	12:00m	4.1	0.1	8.6	0.0	6.4	10:30a	W
25	13.4	21.0	1:30p	8.4	5:30a	5.1	0.2	6.0	0.0	3.2	6:30p	N
26	16.1	25.2	2:00p	9.4	5:30a	3.6	1.3	2.4	0.2	8.0	12:00m	N
27	12.9	21.4	2:30p	7.9	12:00m	5.6	0.2	0.0	0.3	6.4	1:00a	NE
28	12.2	22.4	2:30p	6.1	5:30a	6.4	0.3	0.0	0.0	4.8	3:00a	NNE
29	12.8	22.5	2:30p	6.6	8:00a	5.9	0.4	0.0	0.0	12.9	6:00p	ENE
30	11.8	18.8	1:00p	6.3	7:00a	6.5	0.0	0.0	0.3	11.3	2:00p	NNE
31	13.3	18.7	3:00p	8.5	5:30a	5.0	0.0	0.0	0.2	12.9	4:00p	N
	12.9	25.2	26	5.2	10	172.8	5.6	165.6	0.2	22.5	21	N

Max >= 32.0: 0
 Max <= 0.0: 0
 Min <= 0.0: 0
 Min <= -18.0: 0

Max Rain: 39.60 ON 05/07/22

Days of Rain: 18 (> .2 mm) 15 (> 2 mm) 2 (> 20 mm)

Heat Base: 18.3 Cool Base: 18.3 Method: Integration

Historical Reports



User: [redacted]
Report Generated on: 2022/10/20 10:27

Report **BQ - Monthly Weather Data - August 2022**

Select Report Criteria

For cd: [dropdown]

Specific Start and End Dates [dropdown]

Weather Stat on(s): [Lismore]

Report Type: [Grid Report]

Lower Guide
 Va ue: [dropdown] Text: [dropdown]
 Co our: [White]

Start Date and Time yyyy-mm-dd
 2022-08-01 00:00

Memory: [Daily Summary]

Graph Type: [Line]

Upper Guide
 Va ue: [dropdown] Text: [dropdown]
 Co our: [White]

End Date and Time yyyy-mm-dd
 2022-08-31 23:59

Sensor(s): [AVERAGE Air Temperature 10m, AVERAGE Wind Speed 10m, MAXIMUM Air Temperature 10m, MINIMUM Air Temperature 10m]

Summar ze: [Daily]

Auto Y-Ax s Sca e
 Min Va ue: [dropdown] Max Va ue: [dropdown]

Save Report
 Report Name: **BQ - Monthly Weather Data - August 2022**

BQ - Monthly Weather Data - August 2022

Date	Lismore AVERAGE Air Temperature 10m DegC	Lismore AVERAGE Wind Speed 10m km/h	Lismore MAXIMUM Air Temperature 10m DegC	Lismore MINIMUM Air Temperature 10m DegC	Lismore TOTAL Rain Gauge mm	Lismore VVDIR Vector Wind Dir Degs
2022-08-01 09:00	14	3.7	17.6	11.5	0	29.5 - NNE
2022-08-02 09:00	15.3	3.4	19.6	11.3	0	358.3 - N
2022-08-03 09:00	14.9	2.5	21.7	10.3	0	18.8 - NNE
2022-08-04 09:00	16.8	3.1	21.7	12.9	0	24.9 - NNE
2022-08-05 09:00	19.1	5.7	24	15.3	0	14.3 - NNE
2022-08-06 09:00	17.1	4.8	21.6	14.2	2.6	305.7 - NW
2022-08-07 09:00	15.8	3.5	21.7	11	0	259.9 - W
2022-08-08 09:00	14	3	19.9	8.3	0	259.5 - W
2022-08-09 09:00	13.8	2.1	19.5	9	0	202.9 - SSW
2022-08-10 09:00	13	2.2	19.2	7.9	0	136.5 - S
2022-08-11 09:00	12.5	2.4	19	7.3	0	201.6 - SSW
2022-08-12 09:00	14.5	3.3	19.1	11.2	0	35 - NE
2022-08-13 09:00	16.1	4.5	19.2	14	1.2	17.3 - NNE
2022-08-14 09:00	13.6	3.7	17.2	9.3	2.8	343.8 - NNW
2022-08-15 09:00	14.5	3.9	20.6	8.4	0	284.7 - W
2022-08-16 09:00	13.8	3.4	19.6	8	0	292 - WNW
2022-08-17 09:00	12.9	2.6	20.7	7.9	7.2	289.7 - WNW
2022-08-18 09:00	13.3	2.4	19.6	8.1	0	353.1 - N
2022-08-19 09:00	16	3.4	22.6	11.2	0	20.5 - NNE
2022-08-20 09:00	18.9	3.6	27	11.7	0	254.8 - W
2022-08-21 09:00	14.9	2.9	21.7	10.8	0	41.1 - NE
2022-08-22 09:00	13.2	2.7	18.7	8.6	0	159.3 - SSE
2022-08-23 09:00	15.8	5.7	20.3	12.2	0	18.2 - NNE
2022-08-24 09:00	15.4	6.9	23.7	8.1	3.6	295.6 - WNW
2022-08-25 09:00	12.6	2.8	19.9	5.9	0	308 - NW
2022-08-26 09:00	12.9	3.4	20.3	7.1	0	30.9 - NNE
2022-08-27 09:00	14.5	1.9	21.2	10.8	0	223.6 - SW
2022-08-28 09:00	14.3	2	18	12.6	3.4	138.6 - SE
2022-08-29 09:00	15.1	2.2	20.9	11.1	2.2	45.6 - NE
2022-08-30 09:00	16.1	4.7	20.2	12.3	0	32.6 - NNE
2022-08-31 09:00	16.4	2.6	18.8	14.6	9.2	358.1 - N

Historical Reports



Report **BQ - Monthly Weather Data - September 2022**

Select Report Criteria

Period: **Specific Start and End Dates**

Weather Station(s): **Lismore**

Report Type: **Grid Report**

Lower Guide: Value [] Text [] Colour **White**

Start Date and Time: **2022-09-01 00:00** (yyyy-mm-dd)

Memory: **Day Summary**

Graph Type: **Line**

Upper Guide: Value [] Text [] Colour **White**

End Date and Time: **2022-09-30 23:59** (yyyy-mm-dd)

Sensor(s): **AVERAGE Air Temperature 10m, AVERAGE Wind Speed 10m, MAXIMUM Air Temperature 10m, MINIMUM Air Temperature 10m**

Summarize: **Daily**

Auto Y-Axis Scale
Min Value [] Max Value []

Save Report
Report Name: **BQ - Monthly Weather Data - September**

BQ - Monthly Weather Data - September 2022

Date	Lismore AVERAGE Air Temperature 10m DegC	Lismore AVERAGE Wind Speed 10m km/h	Lismore MAXIMUM Air Temperature 10m DegC	Lismore MINIMUM Air Temperature 10m DegC	Lismore TOTAL Rain Gauge mm	Lismore VVDIR Vector Wind Dir Degs
2022-09-01 09:00	15.4	1.8	19.1	12.4	0.2	189.5 - S
2022-09-02 09:00	16.6	3.1	22.1	12.3	0	39 - NE
2022-09-03 09:00	15	1.8	18.4	12.6	48.8	190.3 - S
2022-09-04 09:00	12.8	2.4	14.3	11.3	15	201.9 - SSW
2022-09-05 09:00	13.9	3.2	17.9	11.2	0.2	196.3 - SSW
2022-09-06 09:00	14	2.3	19.1	10.5	0	176 - S
2022-09-07 09:00	13.6	2.4	19.6	9.2	0	133.6 - SE
2022-09-08 09:00	14	2.3	20.4	8.5	0	53 - NE
2022-09-09 09:00	16.1	4.4	19.6	13.5	8	38.6 - NE
2022-09-10 09:00	17.2	3.8	21.9	13.3	0	352.6 - N
2022-09-11 09:00	16.1	3.9	24.2	13.5	0	247.6 - WSW
2022-09-12 09:00	17.3	3.8	24.2	13.1	0	21 - NNE
2022-09-13 09:00	17.3	2.4	23.4	12.2	0	340.2 - NNW
2022-09-14 09:00	15.9	2.5	22.1	11.8	0	172.4 - S
2022-09-15 09:00	15.3	2.7	21.6	11.9	0	96.6 - E
2022-09-16 09:00	17.4	7.1	19.6	13.8	4.8	14.3 - NNE
2022-09-17 09:00	18.9	4.5	22.9	15.7	0.2	334.6 - NNW
2022-09-18 09:00	21	4.3	27.4	14.9	0	288.1 - WNW
2022-09-19 09:00	18.8	3.4	25.7	13.5	0	257.5 - WNW
2022-09-20 09:00	19.4	4	27.5	11.7	0	1.5 - N
2022-09-21 09:00	17.7	2.6	24.2	13.7	0	121.4 - ESE
2022-09-22 09:00	16.1	7.9	20.6	16.1	6.6	40.6 - NE
2022-09-23 09:00	16.6	7.6	18.2	15.7	62.8	45.3 - NE
2022-09-24 09:00	17.5	2.5	20.6	15.8	12.2	111.4 - ESE
2022-09-25 09:00	19.2	2.5	25.8	12.8	0	244.1 - WSW
2022-09-26 09:00	18	3.4	24.3	12.6	0	21.2 - NNE
2022-09-27 09:00	19.1	3.7	24.3	15.5	0.2	41.8 - NE
2022-09-28 09:00	20.1	3.9	27	15.2	5.6	353.6 - N
2022-09-29 09:00	20.6	4.3	27.3	14.2	0	234.3 - WNW
2022-09-30 09:00	16.7	2.6	21.7	12.7	0	283.1 - WNW

Historical Reports



Report BQ - Monthly Weather Data - October 2022

Select Report Criteria

Period: **Specific Start and End Dates**

Weather Stat on(s): **Lismore**

Report Type: **Grid Report**

Lower Guide: Value: Text: Colour: **White**

Upper Guide: Value: Text: Colour: **White**

Start Date and Time: **2022-10-01 00:00**

Memory: **Daily Summary**

Graph Type: **Line**

Upper Guide: Value: Text: Colour: **White**

End Date and Time: **2022-10-31 23:59**

Sensor(s): **AVERAGE Air Temperature 10m, AVERAGE Wind Speed 10m, MAXIMUM Air Temperature 10m, MINIMUM Air Temperature 10m**

Summarize: **Daily**

Auto Y-Axis Scale

Min Value: Max Value:

Save Report

Report Name: **BQ - Monthly Weather Data - October 2022**

BQ - Monthly Weather Data - October 2022

Date	Lismore AVERAGE Air Temperature 10m DegC	Lismore AVERAGE Wind Speed 10m km/h	Lismore MAXIMUM Air Temperature 10m DegC	Lismore MINIMUM Air Temperature 10m DegC	Lismore TOTAL Rain Gauge mm	Lismore VVDIR Vector Wind Dir Degs
2022-10-01 09:00	17.8	3	24.3	13.8	3.6	192 - SSW
2022-10-02 09:00	13.4	2.8	16.4	11.4	24.2	190.7 - S
2022-10-03 09:00	13.2	1.7	16.3	9.7	1.2	194.9 - SSW
2022-10-04 09:00	13.9	2.7	18.4	9.4	0.2	84.8 - E
2022-10-05 09:00	16.4	3.7	22.1	11.4	0.2	30.6 - NNE
2022-10-06 09:00	17.1	2.5	20.9	14	0.2	68.3 - ENE
2022-10-07 09:00	16.8	2.5	19.4	14.5	0.8	34.8 - NE
2022-10-08 09:00	19.2	6.8	22.5	16.3	0	23.1 - NNE
2022-10-09 09:00	21.4	7.4	26.3	17.4	8.4	15.6 - NNE
2022-10-10 09:00	17.9	3.3	26.1	13.5	2.8	199.9 - SSW
2022-10-11 09:00	15.8	3.2	20	13.2	0.6	124.7 - SE
2022-10-12 09:00	16.2	2.9	20.8	12.6	1.8	185.6 - SSE
2022-10-13 09:00	16.9	3.3	22.4	13.5	3.6	174.6 - S
2022-10-14 09:00	18.3	4.2	22.9	15	0	35.5 - NE
2022-10-15 09:00	20.7	3.3	25.2	15.2	0	301.4 - WNW
2022-10-16 09:00	18.6	3.2	22.8	14.5	0	112 - ESE
2022-10-17 09:00	18.8	5.5	23.6	15.3	1.2	38.7 - NE
2022-10-18 09:00	17.7	4.5	22.7	15.1	9	38.8 - NE
2022-10-19 09:00	18.9	6.1	21.3	16.4	0.2	41.5 - NE
2022-10-20 09:00	18.1	4.8	19.8	17	6	42.5 - NE
2022-10-21 09:00	20.1	5.4	22.1	18.9	0.6	40.7 - NE
2022-10-22 09:00	19.6	7.9	21.7	17.9	1.4	38.1 - NE
2022-10-23 09:00	16.5	5.2	20.5	16.8	23.6	50.5 - NE
2022-10-24 09:00	17.5	5.1	19	16.8	120.8	170.8 - S
2022-10-25 09:00	21.5	5	27.2	17.8	0	43.2 - NE
2022-10-26 09:00	24.2	4.3	29.7	19.9	0	339.3 - NNW
2022-10-27 09:00	25	3.2	31.2	18.1	0	288.5 - WNW
2022-10-28 09:00	26.2	4.5	32.8	19.7	0	13.4 - NNE
2022-10-29 09:00	23.6	4.4	30	16.4	0	255.6 - WSW
2022-10-30 09:00	22.7	3.8	28.8	15.7	0	283 - W
2022-10-31 09:00	21.1	4.8	27.7	16.1	0	36.5 - NE

Historical Reports



Report **BQ - Monthly Weather Data - November 2022**

Select Report Criteria

Period: **Specific Start and End Dates**

Start Date and Time: **2022-11-01 00:00**

End Date and Time: **2022-11-30 23:59**

Weather Station(s): **Lismore**

Memory: **Day Summary**

Sensor(s): **AVERAGE Air Temperature 10m, AVERAGE Wind Speed 10m, MAXIMUM Air Temperature 10m, MINIMUM Air Temperature 10m, TOTAL Rain Gauge, VVWDR Vector Wind Dir**

Report Type: **Grid Report**

Graph Type: **Line**

Summary: **Daily**

Lower Guide: Value Text

Upper Guide: Value Text

Color: **White**

Color: **White**

Auto Y-Axis Scale

Min Value Max Value

Save Report

Report Name: **BQ - Monthly Weather Data - November 2**

BQ - Monthly Weather Data - November 2022

Date	Lismore AVERAGE Air Temperature 10m DegC	Lismore AVERAGE Wind Speed 10m km/h	Lismore MAXIMUM Air Temperature 10m DegC	Lismore MINIMUM Air Temperature 10m DegC	Lismore TOTAL Rain Gauge mm	Lismore VVWDR Vector Wind Dir Degs
2022-11-01 08:00	25.1	7.8	29.8	18.7	6.4	348.2 - NNW
2022-11-02 08:00	18.7	6	24.4	12.8	0.8	286 - W
2022-11-03 08:00	16.4	3.2	22.5	10.1	0	237 - WSW
2022-11-04 08:00	16.2	2.8	22.9	11.1	0	398.8 - N
2022-11-05 08:00	16.3	3.1	22.2	13	0	179.4 - S
2022-11-06 08:00	17.5	3.1	22.6	13.8	1.4	162.6 - SSE
2022-11-07 08:00	17.7	2.5	23.2	12.7	0	75.9 - ENE
2022-11-08 08:00	17.3	3.3	23.6	11.5	0.2	65.5 - ENE
2022-11-09 08:00	15.1	1.8	20.9	10.6	1.6	335.9 - NNW
2022-11-10 08:00	17.4	3.4	23.1	12.6	0	154.5 - SSE
2022-11-11 08:00	17.5	3.1	23.4	12.4	0	128 - SE
2022-11-12 08:00	20	4.4	26.4	15.1	0	38.7 - NE
2022-11-13 08:00	22.5	3.1	30.4	17.1	0.2	28.9 - NNE
2022-11-14 08:00	24.4	8.9	30.2	21.7	0.2	15.1 - NNE
2022-11-15 08:00	24.4	4.7	30.4	17.9	0	337.1 - NNW
2022-11-16 08:00	21.8	4.3	31.1	14.9	0	31.7 - NNE
2022-11-17 08:00	20.2	3.4	29	13.5	0	221.7 - SW
2022-11-18 08:00	16.6	3.3	22.2	11.1	0	103.1 - ESE
2022-11-19 08:00	18.2	3.5	25.2	12.8	0	50.2 - NE
2022-11-20 08:00	24.6	6.3	29.8	19.8	0	347.6 - NNW
2022-11-21 08:00	27.9	5	34.7	21.1	0	272.9 - W
2022-11-22 08:00	25.3	4.8	32.5	18.4	0	246.6 - WSW
2022-11-23 08:00	20.3	4.1	27.8	15.1	0	18.4 - NNE
2022-11-24 08:00	21.8	3.4	28.4	16.8	0	333 - NNW
2022-11-25 08:00	21.6	4.2	27.2	16.7	0	38 - NE
2022-11-26 08:00	22.2	4.6	29.7	16.8	0	40.3 - NE
2022-11-27 08:00	22	4.3	29.7	17.9	0	121.4 - ESE
2022-11-28 08:00	24.7	5.1	27.3	22.1	0	334.4 - NNW
2022-11-29 08:00	24.7	4.1	31.8	19.9	0	327.4 - NNW
2022-11-30 08:00	22.7	5	29.8	18.5	0	151 - SSE

Historical Reports



Report BQ - Monthly Weather Data - December 2022

Select Report Criteria

Period: **Specific Start and End Dates**

Weather Station(s): **Lismore**

Report Type: **Grid Report**

Lower Guide: Value Text

Colour: **White**

Start Date and Time: **2022-12-01 00:00**

Memory: **Day Summary**

Graph Type: **Bar**

Upper Guide: Value Text

Colour: **White**

End Date and Time: **2022-12-31 23:59**

Sensor(s): **AVERAGE Air Temperature 10m, MAXIMUM Air Temperature 10m, MINIMUM Air Temperature 10m, S THETA Wind Direction on 10m, STDEV Wind Speed 10m, TOTAL Rain Gauge**

Summary: **Daily**

Auto Y-Axis Scale

Min Value Max Value

Save Report

Report Name: **BQ - Monthly Weather Data - December 2022**

BQ - Monthly Weather Data - December 2022

Date	Lismore AVERAGE Air Temperature 10m DegC	Lismore MAXIMUM Air Temperature 10m DegC	Lismore MINIMUM Air Temperature 10m DegC	Lismore S THETA Wind Direction 10m Degs	Lismore STDEV Wind Speed 10m km/h	Lismore TOTAL Rain Gauge mm
2022-12-01 09:00	17.7	22.2	14.4	61.7	2.8	17.2
2022-12-02 09:00	15.2	16.9	14.6	65.3	1.5	30
2022-12-03 09:00	17.7	22.9	14.4	54.8	3.9	0.4
2022-12-04 09:00	17.6	23.1	14.4	61.1	3.8	2.4
2022-12-05 09:00	18.4	22.3	15.7	75.8	2.5	0.2
2022-12-06 09:00	22.3	29.6	17.4	79.4	3.1	0
2022-12-07 09:00	24.8	35.9	17.5	66.7	2.9	0
2022-12-08 09:00	24	32.1	20.6	92.9	4.6	0
2022-12-09 09:00	23.8	31	17.5	86.4	3.1	3.4
2022-12-10 09:00	19.6	23.3	16.7	83.2	3	1.6
2022-12-11 09:00	19.7	23.3	16.5	74.4	3.1	0.8
2022-12-12 09:00	23.3	28.8	18.3	58	3.6	0
2022-12-13 09:00	28.1	31.8	21.3	84.8	4.1	0.2
2022-12-14 09:00	21.4	25.8	17.1	82	3.5	0.2
2022-12-15 09:00	22.9	33	16.5	68.8	2.7	0
2022-12-16 09:00	20.2	27.7	15.2	100.6	3.2	1
2022-12-17 09:00	19.1	26.4	14.9	91.8	4.3	5
2022-12-18 09:00	19.2	23.7	15.3	62.9	2.8	0.2
2022-12-19 09:00	19.1	24.3	15.2	61.4	3	0.2
2022-12-20 09:00	18.3	24.2	13.5	55.8	3.8	0.2
2022-12-21 09:00	18.1	24.3	14.9	59	3.2	0
2022-12-22 09:00	19.6	24.3	16.4	100.2	3	0
2022-12-23 09:00	21.6	26.7	18.3	73.1	4.4	0
2022-12-24 09:00	22	26.8	19.7	47.1	2.2	3.4
2022-12-25 09:00	20.9	25.3	17.1	70.8	1.7	2.4
2022-12-26 09:00	22	29.1	17.5	84.8	3.1	0.4
2022-12-27 09:00	21.2	26.2	17.2	72.2	3.9	3
2022-12-28 09:00	21.3	26.4	17	91.4	3.8	0
2022-12-29 09:00	20.6	25.7	16.3	85.6	2.9	2.2
2022-12-30 09:00	22.4	27.8	18.5	83.6	2.9	3.2
2022-12-31 09:00	20	23.6	16.1	89.3	2.5	7.6



Appendix R

LCC to DPE: Non-Compliant Discharge



Our ref: [REDACTED]
Your ref: MP07-0020
Contact: Commercial Services

16 May 2022

Department of Planning and Environment
Attn: [REDACTED]
Locked Bag 5022
Parramatta NSW 2124

Dear [REDACTED],

RE: Blakebrook Quarry MP07-0020

As discussed, Lismore City Council's (Council) would like to report the following non-compliance with MP07-0020 Schedule 4 Condition 5 – Property Investigations.

5. If any owner of privately-owned land within 2 kilometres of proposed blasting activities, or any other landowner nominated by the Secretary, claims that his/her property, including vibration-sensitive infrastructure such as water supply or underground irrigation mains, has been damaged as a result of blasting at the project, the Proponent shall within 3 months of receiving this request:

- (a) commission a suitably qualified person whose appointment has been approved by the Secretary to investigate the claim and prepare a property investigation report; and*
- (b) give the landowner a copy of the report.*

Council received a complaint on 13 December 2022 following a blast event at Blakebrook Quarry. At the time the distance between the blast and the property residence was measured and determined to be more than 2km. As such the above condition was not considered to be applicable. Council proceeded to engage a building consultant to inspect and report on the alleged structural damage at the residence. Due to the floods this dilapidation report was delayed and provided to the property owner on 27 April 2022. At the time Council did not seek Consultant endorsement by the Department due to the above.

After further consideration to the proximity of the property residence, Council has scheduled additional monitoring at the property during the next blast event. Furthermore, Council is in the process of engaging a third-party blast consultant to investigate the damage claim. The consultants scope includes additional monitoring at receivers and the property residence, review of the dilapidation report and blast circumstances (including monitoring results) to determine the likelihood of blast impacts at the property residence. Once procurement is finalised Council will submit an endorsement request to the Department to proceed with this Consultant.

Council is also seeking clarification on the below condition Schedule 4 Condition 4 - Property Inspections.

3. Prior to 30 June 2010, the Proponent must advise all owners of privately-owned land within 2 kilometres of proposed blasting activities, and any other landowner nominated by the Secretary, that they are entitled to a property inspection to establish the baseline condition of the property.

4. If the Proponent receives a written request for a property inspection from any such landowner, the Proponent must:

(a) commission a suitably qualified person, whose appointment has been approved by Secretary, to inspect and report on the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and

(b) give the landowner a copy of this property inspection report. Should you require any further information, please do not hesitate to contact.

Can the Department please confirm that condition 4 applies to Condition 3.

Council would also like to advise that on the 28 March 2022 we incorrectly reported a blast exceedance for Blast Event BLA40 (MP3). It has been identified that we reported the Peak Vector Sum of 5.072 mm/s opposed to the conditioned Peak Vibration Velocity which was 4.953 mm/s. As a result, the PPV was below the prescribed 5mm/s (EPA correspondence attached).

Lastly, Council would like to notify a failure to comply with the Environmental Protection Licence (EPL3384) and as such the Soil and Water Management Plan. On 9 May 2022, during an EPA site visit it was identified that stormwater was being discharged from sediment basin SW1 (please refer to attached compliance report).

Yours faithfully



Compliance Manager



Appendix S

Surface Water Monitoring Results

Tuesday 5th April 2022

Environmental Engineer & Director

█@ecoteam.com.au

To: █
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

mob: █
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

Re: Surface Water Quality Monitoring Results & Report for Blakebrook Quarry

Reporting period: 1st December 2021 to 1st March 2021

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly surface water quality on behalf of Lismore City Council for the Blakebrook Quarry. This report presents results from the March 2022 sampling round. Sampling was undertaken following a very large flood event.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the surface water monitoring program is to monitor surface water quality surrounding the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Surface Water) - Work Method Statement 3. The project objectives are to detect changes in water quality within surface water which may be a result of the Blakebrook Quarry activities.

3.0 SAMPLING LOCATIONS

Samples were collected from 4 of the 4 surface water sample sites. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly surface water sampling sites, sample codes and site information.

Location	Easting	Northing	Description
SW1	523693	6818008	Flow under Nimbin Road, downstream of LPD1 and LPD2
SW2	523124	6817955	Upstream of site, discharges in Terania Creek
SW3	523422	6817156	Downstream of site, discharges in Terania Creek
SW5	523807	6817669	Flow under Nimbin Road, downstream of LPD3

Appendix A - Sampling Locations in blue

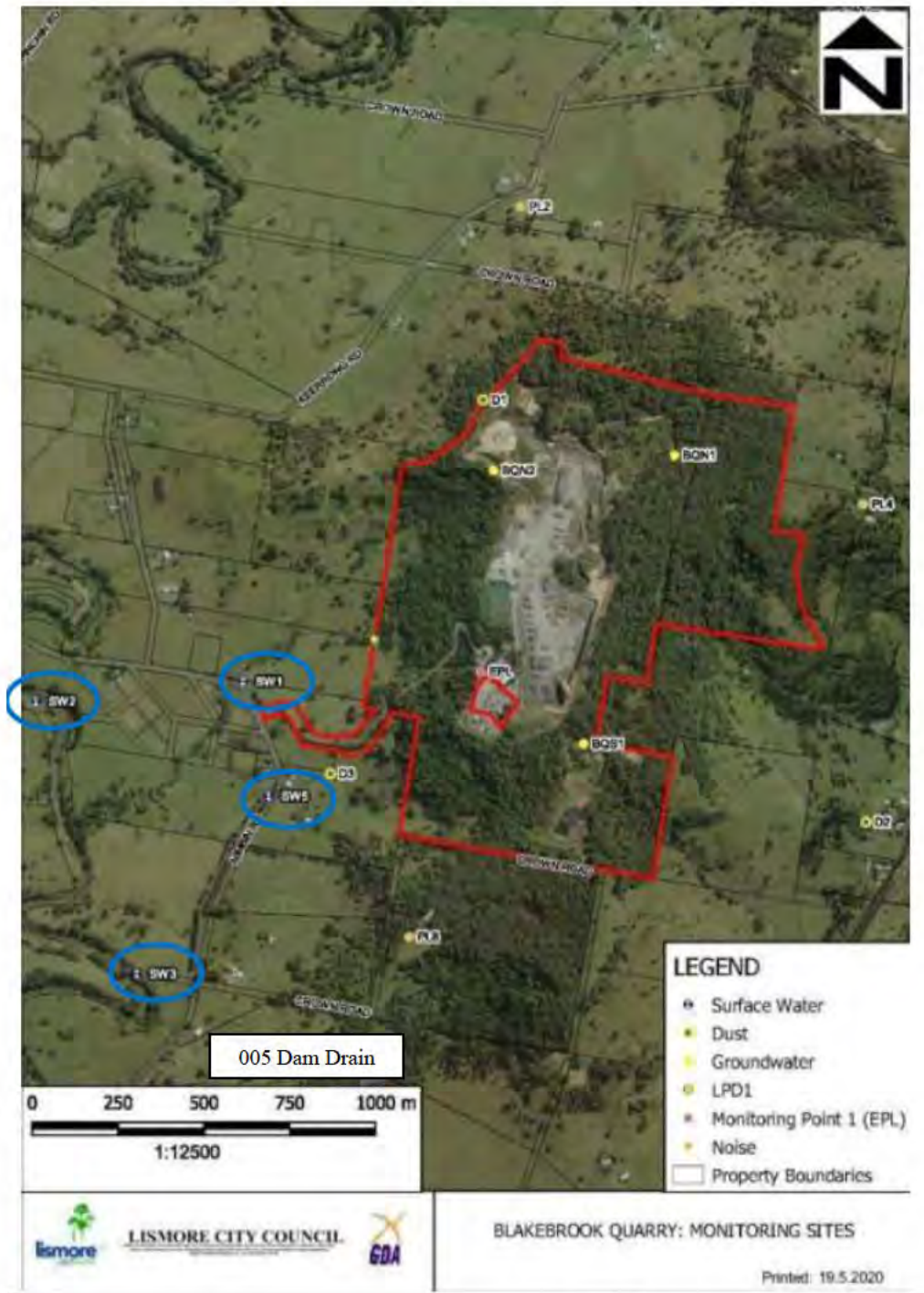


Figure 1. Map of monthly of surface water sampling sites (Source: Lismore City Council)

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [REDACTED] and [REDACTED] on Monday 21st March 2021. In situ physico-chemical measurements were collected using an AquaTROLL400 multi-parameter probe. Oil and Grease was visually assessed. The calibration certificate for the AquaTROLL is included as **Appendix C**. Sample collection methods and in-situ results are presented in **Appendix A (Table 2)**. Photographs of sample locations taken during sampling are presented in **Appendix B**.

Samples were stored on ice and dropped off the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix D**.

During sampling it was observed that Site SW1 has now split into two creeks (**Appendix B**) which then meet and flow under the road drain. Sampling was undertaken from the original sample location.

5.0 RESULTS

5.1 Physico-chemical Results

In situ physico-chemical sampling results are shown in **Appendix A (Table 2)**. There were no surface sheens visible at any sites, therefore Oil and Grease was not present.

5.2 Laboratory Results

The chain of custody form is included in **Appendix E**. A full copy of the laboratory results is included as **Appendix F**.

Kind regards,

██████████

Environmental Engineer & Director

██████@ecoteam.com.au

mob: ██████████

office: (02) 66-215-123

fax: (02) 66-218-123

ABN: 82 106 758 123

APPENDIX A – Water Quality Result comparison to WQOs

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Blakebrook Surface Water Sample Information				
Site name	SW1	SW2	SW3	SW5
Site Type	Downstream	Upstream	Downstream	Downstream
Date	21/03/22	21/03/22	21/03/22	21/03/22
Time	14:20	14:50	15:20	15:00
Sample Method	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep
Oil and Grease	Not Present	Not Present	Not Present	Not Present
Odour	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Moderate flow, Slightly turbid	Moderate flow, Very turbid, disturbance from high flows	Moderate flow, Very turbid, disturbance from high flows	Low Flow- Very deep water body present
Analyte	Water Quality Observations			
pH	7.87	7.52	8.31	7.50
EC $\mu\text{S}/\text{cm}$	279.88	112.35	120.97	451.33
DO (%)	98.40	96.42	96.30	83.00
Temperature ($^{\circ}\text{C}$)	23.74	23.59	23.13	23.06
ORP	131.23	94.29	252.19	128.79
Turbidity	57.4	63.7	67.0	4.0

Appendix B - Site Photos



**Site SW1 –
Creek (Downstream)
(21/03/2022)
Second creek is present in
background.**



**Site SW2 –
Leycester Creek (Upstream)
(21/03/2022)**



**Site SW3 -
Leycester Creek
(Downstream)**

(21/03/2022)



**Site SW5 -
Drain (Downstream)
Low Flow**
(21/03/2022)

Appendix C - Calibration certificate for AquaTROLL

<p>Thermo Fisher Scientific Australia Pty Ltd ABN 52 058 390 917 5 Caribbean Drive Scoresby VIC 3179 Phone: 1 300 735 295 Fax: 03 9763 1169</p>	<h2 style="margin: 0;">ELECTROCHEMICAL INSTRUMENT MAINTENANCE & CALIBRATION REPORT</h2>
Customer: Ecotechnology Australia PTY Ltd Address: 13 Ewing st Lismore NSW 2480 Attention: XXXXXXXXXX	

Make: In-Situ	Lab.ID/Assett No. NA	Calibration Date: 27-05-2021
Model: AquaTroll 400	Customer O/No. PO-0063	Next Calibration: 05-2022
Serial No: 741219 / 746352	Location: NA	Call Number: SV2105240050

Service and Safety Checks	Pass/Fail	Check and Adjust	Pass/Fail
Consult operator regarding performance/problems	Pass	Probes, leads and connectors	Pass
Check general operation, note additional problems	Pass	Keypad / user controls	Pass
Electrical safety if applicable to AS/NZS 3760:2003	N/A	Power supply / battery voltage and condition	Pass
Initialization Procedure	Pass	Probe(s) performance (response slow or acceptable)	Acceptable
Instrument Condition	Pass	Internal and external cleaning	Pass

Calibration/ Accuracy Tests

Standard Type	Serial Number (if applicable)	Standard Value ± Variation	Displayed Value	Standard Value ± Variation	Displayed Value	Standard Value ± Variation	Displayed Value	Pass/Fail
✓ pH	20945	7.00 ± 0.02	7.00	4.00 ± 0.02	4.00			Pass
✓ mV (pH)		0.0 +/- .30	-7.7	175.5 +/- 30	163.1			Pass
✓ Slope (pH)		-59.1 +/- 3	-56.93					Pass
✓ DO	745063	8.3mg/L @21.5oC	8.27mg/L @21.66oC	0.0	0.03			Pass
ISE								
✓ ORP	20945	234.5mV @22.0oC	234.5 @22.1oC					Pass
✓ Conductivity	746352	1413us/cm	1413us/cm					Pass
TDS								
✓ Temp C	746352	22.5	22.47					Pass

Reference Instruments Used			
Make	Model / Part Number	Serial / Batch Number	Expiry / Reference #
Thermo Scientific	ECBU4BTC1LIT	450/01	Nov 2023
Thermo Scientific	ECBU7BTC1LIT	450/02	Nov 2023
FLUKE	179 True RMS multimeter	91610338	Feb 2022
Thermo Scientific	ECCON1413BT	270/01	Jun 2023
ACR	Zobell A & B (0608/0609)	362211 (A) & 357174 (B)	Oct 2021 (A & B)
TPS	Sodium Sulphite for Zero DO	10640	Aug 2021

<p style="text-align: center;">General Comments and Recommendations on Instrument Condition, Location Details and Parts Used in Service</p> <p>Instrument inspected and noted operation. Refilled pH reference filling solution and replaced reference junction. Cleaned sensors and instrument. Calibrated individual sensor parameters. DO Sensor slope of 1.070123. ORP sensor offset of 5.5mV. Conductivity cell constant:0.979</p> <p>Issued Maintenance Kit and Reference junction kit.</p> <p style="text-align: center;">Engineer's Name XXXXXXXXXX</p> <p style="text-align: right;">Date 27th May 2021</p>
--

Issue 1

Oct 06
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G0232
 Page 1 of 1

Appendix D. Full List of Sampling Analytes

Field

- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential
- Oil and Grease
- Turbidity

Laboratory

- Nitrate
- Nitrite
- Phosphate
- Ammonium
- Total suspended Solids (TSS)

Appendix E - Chain of Custody Form

CHAIN OF CUSTODY

 <p>eal Environmental Analysis Laboratory Southern Cross University</p> <p>PO Box 157 (Military Road) LISMORE NSW 2480 P 02 6620 3678 F 02 6620 3957 eal@scu.edu.au, www.scu.edu.au/eal</p>	<p>Submitting Client Details</p> <p>Quote Id: EALQ5821 Job Ref: SMC010-Blakebrook WQ- Surface Water- MARCH22 Company Name: Ecoteam Contact Person: [REDACTED] Phone: 66215123 Mobile: [REDACTED] Fax: Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>	<p>Billing Client Details</p> <p>ABN: Company Name: Ecoteam Contact Person: [REDACTED] Phone: 02 66215123 Mobile: [REDACTED] Fax: Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>
--	--	--

This section will be destroyed after being processed. Only Complete CVV number if you are supplying the original hardcopy to EAL.

Payment Method:

Purchase Order

Cheque

Invoice (prior approval required)

Credit Card Mastercard / Visa No: _____ / _____ / _____ / _____

Exp. Date: _____ Name on Card: _____ CVV: _____

Relinquished By: [REDACTED]	Date: 22/3/22	Signed: [REDACTED]
Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other:		
Received By: [Signature]	Date: 22-3-22	
Condition on receipt: Ambient / Cool / Frozen / Other:		

Comments:

Marketing Survey – where did you find us?

Word of mouth Magazine Google search Other

		Sample Analysis Request																					
		Price List Code (e.g. SW-PACK-06)																					
Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)	TSS- SWSING-003		Nutrients- Dissolved- SW-PACK -020														
	SW1	300mm	21/03/22			Water	X	X															
	SW2	300mm	21/03/22			Water	X	X															
	SW3	300mm	21/03/22			Water	X	X															
	SW5	300mm	21/03/22			Water	X	X															

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)
	SW1	300mm	21/03/22			Water
	SW2	300mm	21/03/22			Water
	SW3	300mm	21/03/22			Water
	SW5	300mm	21/03/22			Water

M7107 x 4 water

Appendix F. Full Laboratory Results

RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 22/03/2022. Lab Job No. M7107.

Samples submitted by [REDACTED]. Your Job: SMC010-BlakebrookWQ-SurfaceWater-MARCH22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1 SW1 21/03/22	Sample 2 SW2 21/03/22	Sample 3 SW3 21/03/22	Sample 4 SW5 21/03/22
	<i>Job No.</i>	<i>M7107/1</i>	<i>M7107/2</i>	<i>M7107/3</i>	<i>M7107/4</i>
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	35	65	45	5
Phosphate (mg/L P)	APHA 4500 P-G	0.026	0.022	0.025	0.054
Nitrate (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.054	0.121	0.116	0.039
Nitrite (mg/L N)	APHA 4500 NO ₂ ⁻ -I	<0.005	0.005	0.006	0.016
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	0.077	0.072	0.070	0.164

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 30/03/2022.



Wednesday 22nd June 2022

Environmental Engineer & Director

█@ecoteam.com.au

mob: █
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

To: █
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

Re: Surface Water Quality Monitoring Results & Report for Blakebrook Quarry

Reporting period: 1st March 2022 to 1st June 2022

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly surface water quality on behalf of Lismore City Council for the Blakebrook Quarry. This report presents results from the June 2022 sampling round.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the surface water monitoring program is to monitor surface water quality surrounding the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Surface Water) - Work Method Statement 3. The project objectives are to detect changes in water quality within surface water that may be a result of the Blakebrook Quarry activities.

3.0 SAMPLING LOCATIONS

Samples were collected from 4 of the 4 surface water sample sites. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly surface water sampling sites, sample codes, and site information.

Location	Easting	Northing	Description
SW1	523693	6818008	Flow under Nimbin Road, downstream of LPD1 and LPD2
SW2	523124	6817955	Upstream of site, discharges in Terania Creek
SW3	523422	6817156	Downstream of site, discharges in Terania Creek
SW5	523807	6817669	Flow under Nimbin Road, downstream of LPD3

Appendix A - Sampling Locations in blue

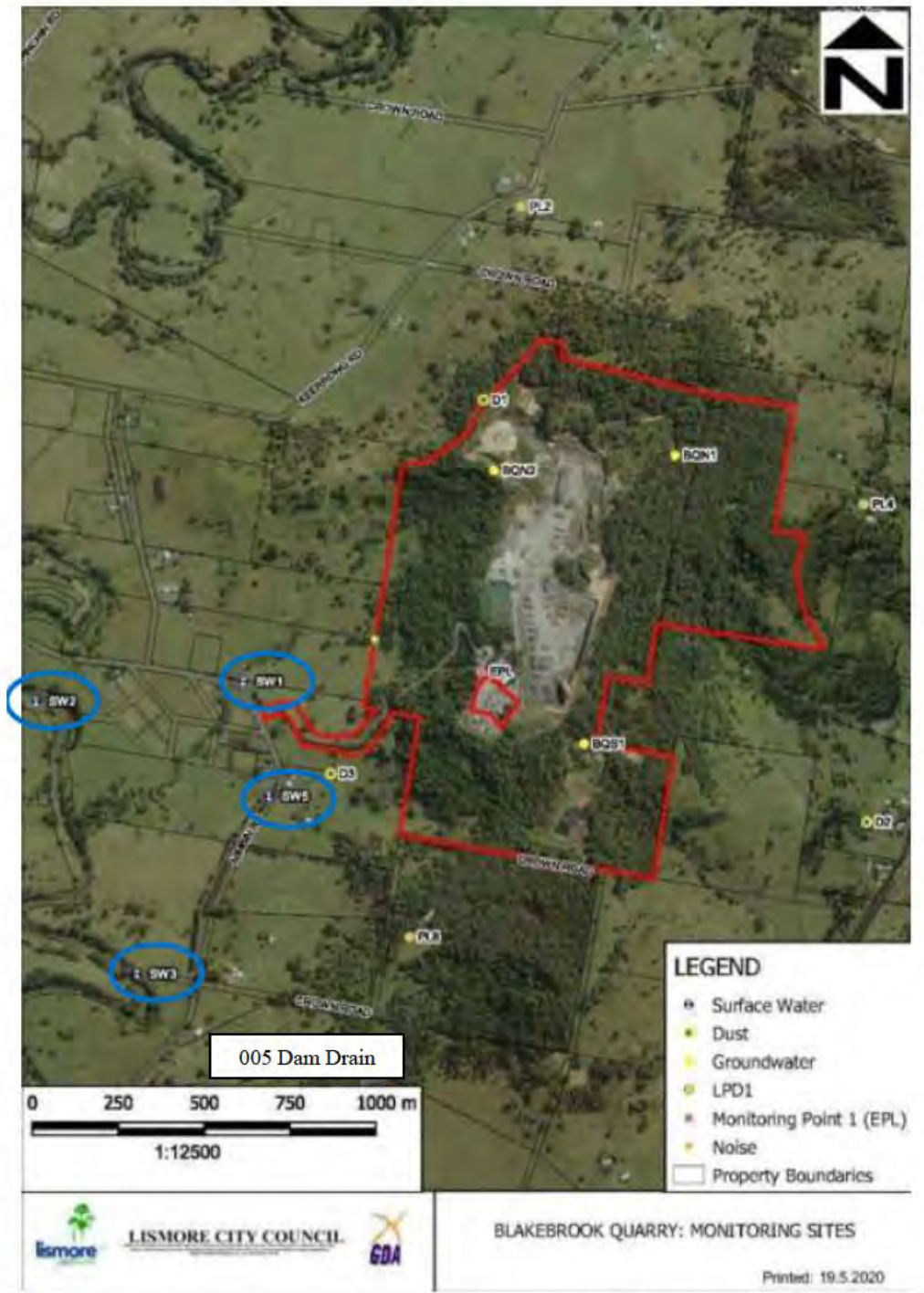


Figure 1. Map of monthly of surface water sampling sites (Source: Lismore City Council)

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [REDACTED] and [REDACTED] on Thursday 02nd June 2022. In situ, physico-chemical measurements were collected using an YSI Water Quality Meter. Oil and Grease was visually assessed. The calibration certificate for the water quality meter is included as **Appendix C**. Sample collection methods and in-situ results are presented in **Appendix A (Table 2)**. Photographs of sample locations taken during sampling are presented in **Appendix B**.

Samples were stored on ice and dropped off at the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix D**.

5.0 RESULTS

5.1 Physico-chemical Results

In situ, physico-chemical sampling results are shown in **Appendix A (Table 2)**. There were no surface sheens visible at any sites, therefore Oil and Grease was not present.

5.2 Laboratory Results

The chain of custody form is included in **Appendix E**. A full copy of the laboratory results is included as **Appendix F**.

Kind regards,

██████████

Environmental Engineer & Director

██████@ecoteam.com.au

mob: ██████████

office: (02) 66-215-123

fax: (02) 66-218-123

ABN: 82 106 758 123

APPENDIX A – Water Quality Result comparison to WQOs

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Blakebrook Surface Water Sample Information				
Site name	SW1	SW2	SW3	SW5
Site Type	Downstream	Upstream	Downstream	Downstream
Date	02/06/22	02/06/22	02/06/22	02/06/22
Time	13:28	13:45	14:25	14:05
Sample Method	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep
Oil and Grease	Not Present	Not Present	Not Present	Not Present
Odour	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Moderate flow, slightly turbid. Flow from dam behind fence.	Moderate to high flow, very turbid,	Moderate flow, very turbid,	Low Flow, clear with white biological film.
Analyte	Water Quality Observations			
pH	8.09	7.61	8.02	7.57
EC $\mu\text{S}/\text{cm}$	215.1	92.1	97.7	329.3
DO (%)	101.5	102.4	114.2	1.0
Temperature ($^{\circ}\text{C}$)	15.2	15.0	15.2	15.6
ORP	34.2	50.3	41.9	56.0
Turbidity	12	34.1	28.9	1.88

Appendix B - Site Photos



**Site SW1 –
Creek (Downstream)
(02/06/2022)**



**Site SW2 –
Leycester Creek (Upstream)
(02/06/2022)**



**Site SW3 -
Leycester Creek
(Downstream)
(02/06/2022)**



**Site SW5 -
Drain (Downstream)
Low Flow
(02/06/2022)**

Appendix C - Calibration certificate for PGN9003871 Water Quality Meter



EQUIPMENT CERTIFICATION REPORT

PGN9003871 WATER QUALITY METER – MULTIFUNCTION

Plant Number: 1072179

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	377339 380327	<input checked="" type="checkbox"/>
Conductivity	2.76 mS/cm @ 25°C	2.76 mS/cm		377099	<input checked="" type="checkbox"/>
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	5928	<input checked="" type="checkbox"/>
ORP	240mV @ 25°C	240mV	-	7035	<input checked="" type="checkbox"/>

Battery Status <u>95</u> %	Temperature <u>21</u> °C
Electrodes Cleaned and Checked	

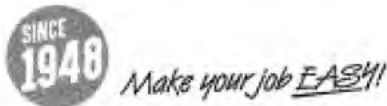
Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' \$55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By [REDACTED] Date: 25/5/22 Signed: [REDACTED]

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap



135 135 | kennards.com.au

Appendix D. Full List of Sampling Analytes


Field

- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential
- Oil and Grease
- Turbidity

Laboratory

- Nitrate
- Nitrite
- Phosphate
- Ammonium
- Total suspended Solids (TSS)

Appendix E - Chain of Custody Form

CHAIN OF CUSTODY		
 <p>PO Box 157 (Military Road) LISMORE NSW 2480 P 02 6620 3678 F 02 6620 3957 eal@scu.edu.au, www.scu.edu.au/eal</p>	Submitting Client Details Quote Id: EALQ5821 Job Ref: SMC010-Blakebrook WQ- Surface Water- JUNE22 Company Name: Ecoteam Contact Person: [REDACTED] Phone: 66215123 Mobile [REDACTED] Fax: Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore	Billing Client Details ABN: Company Name: Ecoteam Contact Person: [REDACTED] Phone: 02 66215123 Mobile [REDACTED] Fax: Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore
This section will be destroyed after being processed. Only Complete CVV number if you are supplying the original hardcopy to EAL.		

Payment Method: <input type="checkbox"/> Purchase Order <input type="checkbox"/> Cheque <input type="checkbox"/> Invoice (prior approval required) <input type="checkbox"/> Credit Card Mastercard / Visa No: _____ / _____ / _____ Exp. Date: _____ Name on Card: _____ CVV: _____	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Relinquished By: [REDACTED]</td> <td style="text-align: center;">2.6.22</td> <td>[REDACTED]</td> </tr> <tr> <td colspan="3">Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other: /</td> </tr> <tr> <td>Received By: [REDACTED]</td> <td style="text-align: center;">3/6</td> <td>[Signature]</td> </tr> <tr> <td colspan="3">Condition on receipt: Ambient / <u>Cool</u> / Frozen / Other:</td> </tr> </table>	Relinquished By: [REDACTED]	2.6.22	[REDACTED]	Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other: /			Received By: [REDACTED]	3/6	[Signature]	Condition on receipt: Ambient / <u>Cool</u> / Frozen / Other:		
Relinquished By: [REDACTED]	2.6.22	[REDACTED]											
Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other: /													
Received By: [REDACTED]	3/6	[Signature]											
Condition on receipt: Ambient / <u>Cool</u> / Frozen / Other:													

Comments:

Marketing Survey – where did you find us?
 Word of mouth Magazine Google search Other

Sample Analysis Request									
Price List Code (e.g. SW-PACK-06)									
TSS- SWSING-003	Nutrients- Dissolved- SW-PACK -020								

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)
	SW1	300	2/6/22			Water
	SW2	300	2/6/22			Water
	SW3	300	2/6/22			Water
	SW5	300	2/6/22			Water

EAL Chain of Custody
Issue: V1.1 27/09/2016

EAL Project Reference: *M9257 x 4 Water*

QFORM 4.2
Page 1 of 2

Appendix F. Full Laboratory Results

RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 3/06/2022 . Lab Job No. M9257.

Samples submitted by [REDACTED]. Your Job: SMC010-Blakebrook WQ-Surface Water-JUNE 22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1	Sample 2	Sample 3	Sample 4
		SW1 (02/06/22)	SW2 (02/06/22)	SW3 (02/06/22)	SW5 (02/06/22)
	<i>Job No.</i>	M9257/1	M9257/2	M9257/3	M9257/4
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	21	53	45	2
Phosphate (mg/L P)	APHA 4500 P-G	0.031	0.023	0.031	0.042
Nitrate (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.223	0.282	0.267	0.013
Nitrite (mg/L N)	APHA 4500 NO ₂ ⁻ -I	<0.005	<0.005	<0.005	<0.005
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	0.042	0.030	0.034	0.029

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- ... Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 20/06/2022.



Monday 19th September 2022

Environmental Engineer & Director

█@ecoteam.com.au

To: █
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

mob: █
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

Re: Surface Water Quality Monitoring Results & Report for Blakebrook Quarry

Reporting period: 1st June 2022 to 1st September 2022

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly surface water quality on behalf of Lismore City Council for the Blakebrook Quarry. This report presents results from the September 2022 sampling round.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the surface water monitoring program is to monitor surface water quality surrounding the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Surface Water) - Work Method Statement 3. The project objectives are to detect changes in water quality within surface water that may be a result of the Blakebrook Quarry activities.

3.0 SAMPLING LOCATIONS

Samples were collected from 4 of the 4 surface water sample sites. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly surface water sampling sites, sample codes, and site information.

Location	Easting	Northing	Description
SW1	523693	6818008	Flow under Nimbin Road, downstream of LPD1 and LPD2
SW2	523124	6817955	Upstream of site, discharges in Terania Creek
SW3	523422	6817156	Downstream of site, discharges in Terania Creek
SW5	523807	6817669	Flow under Nimbin Road, downstream of LPD3

Appendix A - Sampling Locations in blue

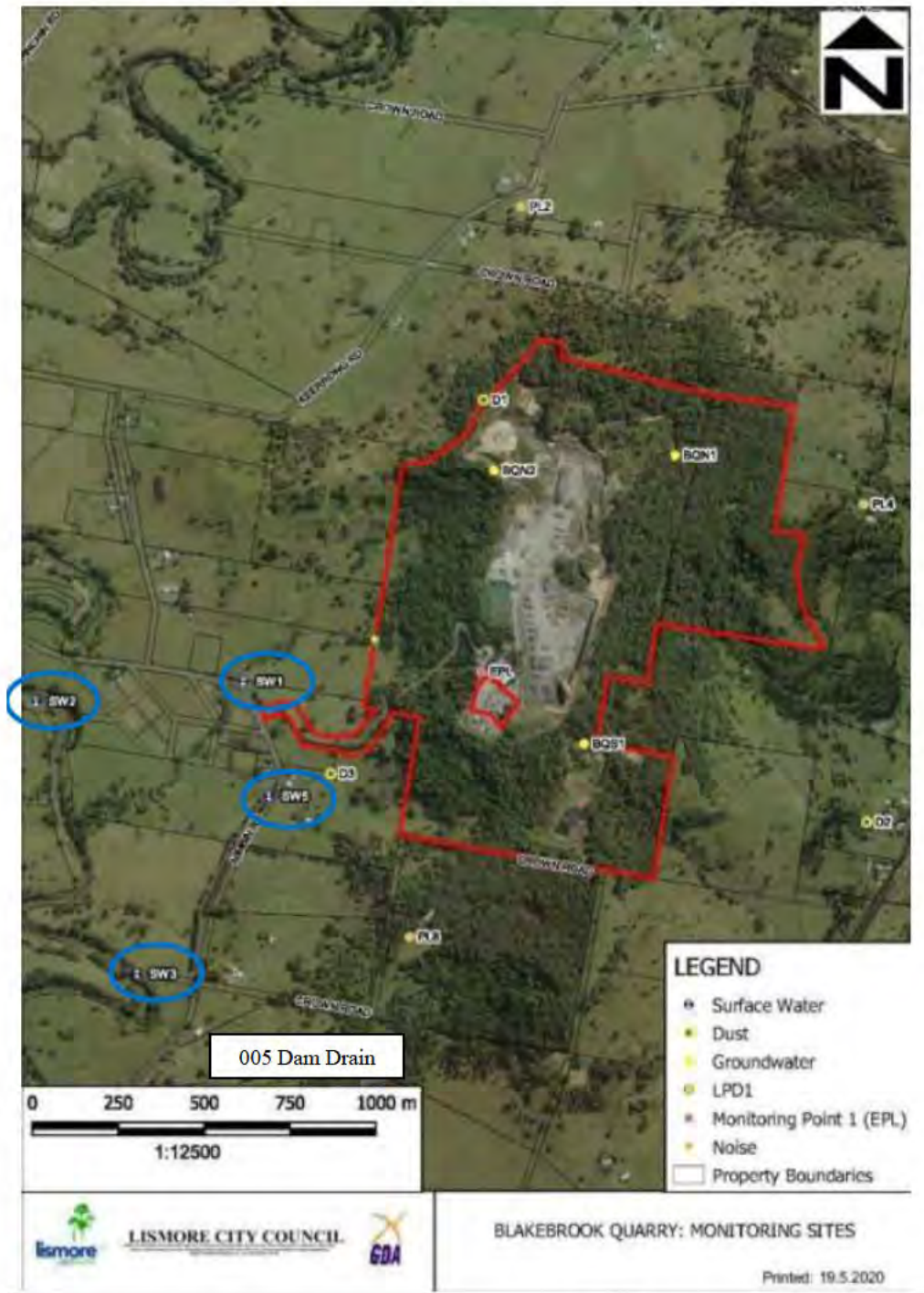


Figure 1. Map of monthly of surface water sampling sites (Source: Lismore City Council)

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [REDACTED] and [REDACTED] on Thursday 1st September 2022. In situ, physico-chemical measurements were collected using an YSI Water Quality Meter. Oil and Grease was visually assessed. The calibration certificate for the water quality meter is included as **Appendix C**. Sample collection methods and in-situ results are presented in **Appendix A (Table 2)**. Photographs of sample locations taken during sampling are presented in **Appendix B**.

Samples were stored on ice and dropped off at the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix D**.

5.0 RESULTS

5.1 Physico-chemical Results

In situ, physico-chemical sampling results are shown in **Appendix A (Table 2)**. There were no surface sheens visible at any sites, therefore Oil and Grease was not present.

5.2 Laboratory Results

The chain of custody form is included in **Appendix E**. A full copy of the laboratory results is included as **Appendix F**.

Kind regards,

██████████

Environmental Engineer & Director

██████@ecoteam.com.au

mob: ██████████

office: (02) 66-215-123

fax: (02) 66-218-123

ABN: 82 106 758 123

APPENDIX A – Water Quality Result comparison to WQOs

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Blakebrook Surface Water Sample Information				
Site name	SW1	SW2	SW3	SW5
Site Type	Downstream	Upstream	Downstream	Downstream
Date	01/09/22	01/09/22	01/09/22	01/09/22
Time	15:50	16:10	16:30	16:20
Sample Method	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep
Oil and Grease	Not Present	Not Present	Not Present	Not Present
Odour	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Moderate flow, very turbid.	Moderate to high flow, slightly turbid.	Moderate flow, slightly turbid,	Low Flow, moderately turbid.
Analyte	Water Quality Observations			
pH	8.97	8.89	8.48	8.21
EC $\mu\text{S/cm}$	686.1	201.8	221.1	760.4
DO (%)	100.0	108.9	100.5	102.4
Temperature ($^{\circ}\text{C}$)	22.7	18.0	18.8	17.7
ORP	54.1	48.1	59.7	82.1
Turbidity	125	17.2	20.6	92.3

Appendix B - Site Photos



**Site SW1 –
Creek (Downstream)
(01/09/2022)**

Not Taken

**Site SW2 –
Leycester Creek (Upstream)
(01/09/2022)**



**Site SW3 -
Leycester Creek
(Downstream)
(01/09/2022)**



**Site SW5 -
Drain (Downstream)
Low Flow
(01/09/2022)**

Appendix C - Calibration certificate for PGN9003871 Water Quality Meter



EQUIPMENT CERTIFICATION REPORT

PGN9003871 WATER QUALITY METER - MULTIFUNCTION

Plant Number: 1089690

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	377339 380327	<input checked="" type="checkbox"/>
Conductivity	2.76 mS/cm @ 25°C	2.76 mS/cm		377099	<input checked="" type="checkbox"/>
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	5928	<input checked="" type="checkbox"/>
ORP	240mV @ 25°C	240mV	-	7035	<input checked="" type="checkbox"/>

Battery Status <u>100</u> %	Temperature <u>21</u> °C
Electrodes Cleaned and Checked	

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' \$55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: [REDACTED] Date: 29/8/22 Signed: [REDACTED]

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap



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Appendix D. Full List of Sampling Analytes

Field


- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential
- Oil and Grease
- Turbidity

Laboratory

- Nitrate
- Nitrite
- Phosphate
- Ammonium
- Total suspended Solids (TSS)

Appendix E - Chain of Custody Form

CHAIN OF CUSTODY



eal Environmental Analysis Laboratory
Southern Cross University

PO Box 157 (Military Road)
LISMORE NSW 2480
P| 02 6620 3678 F| 02 6620 3957
eal@scu.edu.au, www.scu.edu.au/eal

Submitting Client Details

Quote Id: EALQ5821
Job Ref: SMC010-Blakebrook WQ- Surface Water- SEPT22
Company Name: Ecoteam
Contact Person: [REDACTED]
Phone: 66215123
Mobile: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]@ecoteam.com.au
Postal Address: 13 Ewing Street, Lismore

Billing Client Details

ABN: [REDACTED]
Company Name: Ecoteam
Contact Person: [REDACTED]
Phone: 02 66215123
Mobile: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]@ecoteam.com.au
Postal Address: 13 Ewing Street, Lismore

This section will be destroyed after being processed. Only Complete CVV number if you are supplying the original hardcopy to EAL. Date _____ Signed _____

Payment Method:

Purchase Order

Cheque

Invoice (prior approval required)

Credit Card Mastercard / Visa No: _____ / _____ / _____ / _____

Exp. Date: _____ Name on Card: _____ CVV: _____

Relinquished By: [REDACTED] 02/09/2022 [REDACTED]

Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other: _____

Received By: [REDACTED] 2/9 [REDACTED]

Condition on receipt: Ambient / Cool / Frozen / Other: _____

Comments:

Marketing Survey - where did you find us?

Word of mouth Magazine Google search Other

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)
	SW1	300				Water
	SW2	300				Water
	SW3	300				Water
	SWS	300				Water

Sample Analysis Request

Price List Code (e.g. SW-PACK-06)

	TSS- SWSING-003	Nutrients- Dissolved- SW-PACK -020							
	X	X							
	X	X							
	X	X							
	X	X							

N 2320 x 4 Water

Appendix F. Full Laboratory Results

RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 2/09/2022 . Lab Job No. N2320.

Samples submitted by [REDACTED]. Your Job: SMC010-Blakebrook WQ-Surface Water-Sept22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1 SW1	Sample 2 SW2	Sample 3 SW3	Sample 4 SW5
	<i>Job No.</i>	N2320/1	N2320/2	N2320/3	N2320/4
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	73	13	12	40
Phosphate (mg/L P)	APHA 4500 P-G	0.015	0.022	0.023	0.045
Nitrate (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.020	0.067	0.076	<0.005
Nitrite (mg/L N)	APHA 4500 NO ₂ ⁻ -I	<0.005	<0.005	0.006	<0.005
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	0.071	0.034	0.037	0.025

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 7/09/2022.



Tuesday 20th December 2022

Environmental Engineer & Director

██████████@ecoteam.com.au

To: ██████████
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

mob: ██████████
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

Re: Surface Water Quality Monitoring Results & Report for Blakebrook Quarry

Reporting period: 1st September 2022 to 1st December 2022

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly surface water quality on behalf of Lismore City Council for the Blakebrook Quarry. This report presents results from the December 2022 sampling round.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the surface water monitoring program is to monitor surface water quality surrounding the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Surface Water) - Work Method Statement 3. The project objectives are to detect changes in water quality within surface water that may be a result of the Blakebrook Quarry activities.

3.0 SAMPLING LOCATIONS

Samples were collected from 4 of the 4 surface water sample sites. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly surface water sampling sites, sample codes, and site information.

Location	Easting	Northing	Description
SW1	523693	6818008	Flow under Nimbin Road, downstream of LPD1 and LPD2
SW2	523124	6817955	Upstream of site, discharges in Terania Creek
SW3	523422	6817156	Downstream of site, discharges in Terania Creek
SW5	523807	6817669	Flow under Nimbin Road, downstream of LPD3

Appendix A - Sampling Locations in blue

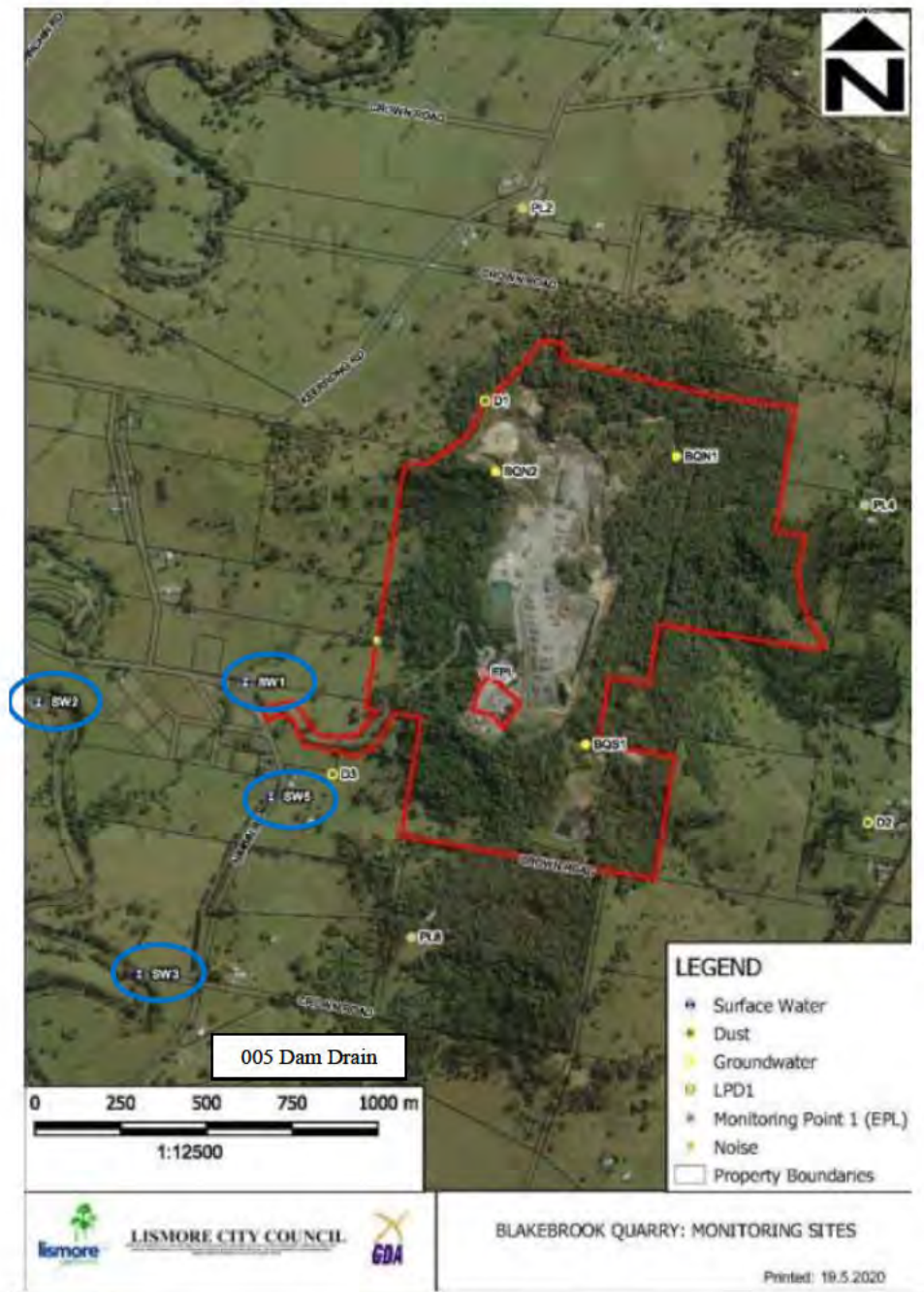


Figure 1. Map of monthly of surface water sampling sites (Source: Lismore City Council)

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [redacted] and [redacted] on Thursday 2nd December 2022. In situ, physico-chemical measurements were collected using an Aquatroll Water Quality Meter. Oil and Grease was visually assessed. The calibration certificate for the water quality meter is included as **Appendix C**. Sample collection methods and in-situ results are presented in **Appendix A (Table 2)**. Photographs of sample locations taken during sampling are presented in **Appendix B**.

Samples were stored on ice and dropped off at the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix D**.

5.0 RESULTS

5.1 Physico-chemical Results

In situ, physico-chemical sampling results are shown in **Appendix A (Table 2)**. There were no surface sheens visible at any sites, therefore Oil and Grease was not present.

5.2 Laboratory Results

The chain of custody form is included in **Appendix E**. A full copy of the laboratory results is included as **Appendix F**.

Kind regards,

██████████

Environmental Engineer & Director

██████████@ecoteam.com.au

mob: ██████████

office: (02) 66-215-123

fax: (02) 66-218-123

ABN: 82 106 758 123

APPENDIX A – Water Quality Result comparison to WQOs

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Blakebrook Surface Water Sample Information				
Site name	SW1	SW2	SW3	SW5
Site Type	Downstream	Upstream	Downstream	Downstream
Date	02/12/22	02/12/22	02/12/22	02/12/22
Time	13:50	16:08	14:35	14:23
Sample Method	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep	Grab Sample 300mm deep
Oil and Grease	Not Present	Not Present	Not Present	Not Present
Odour	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Moderate flow, moderately turbid.	Moderate flow, highly turbid.	Moderate flow, highly turbid.	Low Flow, slightly turbid.
Analyte	Water Quality Observations			
pH	7.71	7.39	7.01	7.35
EC $\mu\text{S}/\text{cm}$	424.72	146.26	434.00	155.38
DO (%)	80.01	88.57	68.94	88.45
Temperature ($^{\circ}\text{C}$)	22.97	21.94	22.72	21.97
ORP	104.66	122.01	123.31	119.76
Turbidity	15.2	167.0	146.0	4.6

Appendix B - Site Photos



**Site SW1 –
Creek (Downstream)
(02/12/2022)**



**Site SW2 –
Leycester Creek (Upstream)
(02/12/2022)**



**Site SW3 -
Leycester Creek
(Downstream)
(02/12/2022)**



**Site SW5 -
Drain (Downstream)
Low Flow
(02/12/2022)**

Appendix C - Calibration certificate for PGN9003871 Water Quality Meter

Calibration Report

Instrument Aqua TROLL 500
Serial Number 757823
Created 21/11/2022

Sensor **Turbidity**
Serial Number 754060
Last Calibrated Factory Defaults

Sensor **RDO**
Serial Number 754373
Last Calibrated 10/07/2022

Calibration Details

Slope 1
Offset -0.10 mg/L

Pre Measurement

RDO Concentration 8.74 mg/L

Post Measurement

RDO Concentration 8.75 mg/L

Sensor **pH/ORP**
Serial Number 742301
Last Calibrated 21/11/2022

Calibration Details

Calibration Point 1

pH of Buffer 4.01 pH
pH mV 96.0 mV
Temperature 29.11 °C

Pre Measurement

pH 4.22 pH
pH mV 96.0 mV

Post Measurement

pH 4.01 pH
pH mV 97.4 mV

Calibration Point 2

pH of Buffer 6.99 pH
pH mV -71.3 mV
Temperature 30.21 °C

Pre Measurement

pH 7.11 pH
pH mV -71.6 mV

Post Measurement

pH 6.99 pH
pH mV -72.6 mV

Slope and Offset 1

Slope -56.17 mV/pH
Offset -71.9 mV

ORP

ORP Solution Zobell's
Offset 55.0 mV
Temperature 30.27 °C
Pre Measurement 167.7 mV
Post Measurement 222.2 mV

Sensor **Conductivity**
Serial Number 756927
Last Calibrated 10/07/2022

Calibration Details

TDS Conversion Factor (ppm) 0.65
Cell Constant 0.873
Reference Temperature 20.00 °C

Appendix D. Full List of Sampling Analytes

Field

- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential
- Oil and Grease
- Turbidity

Laboratory

- Nitrate
- Nitrite
- Phosphate
- Ammonium
- Total suspended Solids (TSS)

Appendix E - Chain of Custody Form

CHAIN OF CUSTODY		
<div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">eal</div> <div style="font-weight: bold; margin-bottom: 5px;">Environmental Analysis Laboratory</div> <small>Southern Cross University</small> PO Box 157 (Military Road) LISMORE NSW 2480 P 02 6620 3678 F 02 6620 3957 eal@scu.edu.au, www.scu.edu.au/eal	Submitting Client Details Quote Id: EALQ5821 Job Ref: SMC010-Blakebrook WQ- Surface Water- DEC22 Company Name: Ecoteam Contact Person: [REDACTED] Phone: 66215123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore	Billing Client Details ABN: [REDACTED] Company Name: Ecoteam Contact Person: [REDACTED] Phone: 02 66215123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore

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Payment Method:

Purchase Order

Cheque

Invoice (prior approval required)

Credit Card Mastercard / Visa No: _____

Exp. Date: _____ Name on Card: _____ CVV: _____

Relinquished By: [REDACTED]	2.12.22	[REDACTED]
Preservation: None / Ice / Ice Bricks / Acidified / Filtered / Other: _____		
Received By: [REDACTED]		Sam 5/12/22
Condition on receipt: Ambient / Cool / Frozen / Other: _____		

Comments:

Marketing Survey – where did you find us?

Word of mouth Magazine Google search Other

Sample Analysis Request		Price List Code (e.g. SW-PACK-06)																		
TSS- SWSING-003	Nutrients- Dissolved- SW-PACK-020																			
X	X																			
X	X																			
X	X																			
X	X																			

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)
1	SW1	300				Water
2	SW2	300				Water
3	SW3	300				Water
	SWS added as per email					

EAL Chain of Custody
Issue: V1.1 27/09/2016

EAL Project Reference: **N5281**

QFORM 4.2
Page 1 of 2

Appendix F. Full Laboratory Results

RESULTS OF WATER ANALYSIS

4 samples supplied by Ecoteam on 2/12/2022. Lab Job No. N5281.

Samples submitted by [REDACTED]. Your Job: SMC010-Blakebrook WQ-Surface Water-Dec22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1 SW1	Sample 2 SW2	Sample 3 SW3	Sample 4 SW5
	<i>Job No.</i>	<i>N5281/1</i>	<i>N5281/2</i>	<i>N5281/3</i>	<i>N5281/4</i>
Total Suspended Solids (mg/L)	GFC equiv. filter - APHA 2540-D	15	238	184	5
Phosphate (mg/L P)	APHA 4500 P-G	0.021	0.027	0.025	0.107
Nitrate (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.013	0.054	0.052	0.022
Nitrite (mg/L N)	APHA 4500 NO ₂ ⁻ -I	<0.005	0.008	<0.005	<0.005
Ammonia (mg/L N)	APHA 4500 NH ₃ -H	<0.005	<0.005	<0.005	<0.005

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 7/12/2022.





Appendix T

Groundwater Monitoring Results

Tuesday 5th April, 2022

Environmental Engineer &
Director

To: [REDACTED]
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

[REDACTED]@ecoteam.com.au
mob: [REDACTED]
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

Re: Groundwater Quality Monitoring Results & Report for Blakebrook Quarry
Reporting period: 1st December 2021 to 1st March 2022

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly groundwater quality and water level monitoring on behalf of Lismore City Council for the Blakebrook Quarry, Blakebrook, NSW. This report presents results from the March 2022 sampling round.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the groundwater monitoring is to monitor groundwater quality and water levels at the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Groundwater) -Work Method Statement 2. The project objectives are to detect any potential changes in water quality or water levels within groundwater wells which may be a result of the Blakebrook Quarry activities, to calibrate the level meters, and assess the functioning of water levels meters at the site.

3.0 SAMPLING LOCATIONS

Water samples and level data were collected from all 9 groundwater bores. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly groundwater sampling sites, sample codes and well information

Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
Northern Two Clusters of Monitoring Bores (re. BQN1A, BQN1B, BQN2A, BQN2B, NOW & Cook p4 (2016))									
BQN1-B (BQN1-S)	GW307 323	524993.7	6818662.9	25/7/13	30	15 - 19	30	12 - 21	4.5
BQN1-A (BQN1-I)	GW307 322	524757.0	6818728.0	26/7/13	60	52 - 60	48	48 - 60	42.5
BQN1-D		524994	6818654.5	29/8/16	115	56 - 63; 99 - 109	115	97 - 109	?
BQN2-B (BQN2-S)	GW307 325	524437.7	6818619	28/7/13	42	28 - 38	42	30 - 42	28.5
BQN2-A (BQN2-S)	GW307 324	524436.7	6818615.5	27/7/13	60	52 - 60	60	51 - 60	31.3
BQN2-D		524447.5	6818616.5	29/8/16	133	19 - 24; 44 - 46.5; 112 - 117	133	109 - 121	
Southern Cluster of Monitoring Bores (re. Form A - particulars of completed work, 25/08/16 & GS letter 27/07/17)									
Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
BQS1-S		524684.5	6817848.6	25/8/16	55	38 - 43	55	40 - 52	30
BQS1-I		524681.5	6817842.8	24/8/16	73	34 - 39; 64 - 70	73	58 - 70	30
BQS1-D		524678	6817837.2	23/8/16	102.7	34 - 39; 64 - 72; 95 - 99	102.7	87.7 - 99.7	30



Figure 1. Map of monthly of groundwater sampling sites (Source: Lismore City Council)

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [REDACTED] and [REDACTED] on Monday 21st and Tuesday 22nd March 2022. In situ physico-chemical measurements were collected using an AquaTROLL400 multi-parameter probe and level information was downloaded using the Vu-Situ APP and Wireless TROLL Com instrument and cable connector. Samples collection methods and in-situ results are presented in **Appendix A (Table 2)**. The calibration certificate for the AquaTROLL is included as **Appendix B**.

Samples were stored on ice and dropped off at the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix C**.

Some damage was noted at BQN1-D following flooding (**Appendix D**). This well is still functioning; however, a crevasse has formed which may allow surface water to flow into the groundwater. This intrusion is evident in the groundwater hydrograph for BQN1A.

5.0 RESULTS

5.1 Physico-chemical Results

In situ physico-chemical sampling results are shown in **Appendix A (Table 2)**.

5.2 Laboratory Results

The chain of custody form is included in **Appendix E**. A full copy of the laboratory results is included as **Appendix F**.

5.3 Well Level Results

Well level results for the past three months and the last five years are presented in **Appendix G**. Groundwater levels have risen in all wells (BQS1-I, BQS1-D, BQN2-B, BQN2-D, BQN1-A, BQN1-D, BQN2-A, BQS1-S BQN1-B) over the past three months.

6.0 SUMMARY OF RESULTS

- Groundwater levels have risen in all wells (BQS1-I, BQS1-D, BQN2-B, BQN2-D, BQN1-A, BQN1-D, BQN2-A, BQS1-S BQN1-B) over the past three months
- Battery levels in all water level meters remain above 50%.
- All level meters appear to be functioning adequately.
- All level meters have been upgraded and calibrated.
- Surface water intrusion into groundwater is evident at BQN1D.

Kind regards,

██████████

Environmental Engineer & Director

██████████@ecoteam.com.au

mob: ██████████

office: (02) 66-215-123

fax: (02) 66-218-123

ABN: 82 106 758 123

APPENDIX A- Physicochemical and sample Information

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Sample Information	Blakebrook Quarry Groundwater Well Sampling Information								
	SOUTH			NORTH 1			NORTH 2		
Site Name	BQS1S	BQS1I	BQS1D	BQN1B	BQN1A	BQN1D	BQN2B	BQN2A	BQN2D
Well Type	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep
Date	21/03/22	21/03/22	21/03/22	22/03/22	21/03/22	21/03/22	21/03/22	21/03/22	21/03/22
Time	12:53 PM	1:36 PM	1:00 PM	8:32 AM	12:06 PM	11:44 AM	9:15 AM	10:07 AM	9:19 AM
Recorded Depth 1	26.56	40.89	80.30	4.70	46.87	100.11	29.19	30.30	87.65
Recorded Depth 2	26.00	41.70	80.30	4.95	46.10	100.11	29.40	31.03	87.72
Level Meter Calibrated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Battery Level	60%	60%	60%	61%	61%	60%	61%	61%	61%
Memory Level	87%	87%	87%	90%	90%	90%	87%	87%	87%
Sample Method	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	12-volt submersible pump	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone
Odour	Not Present	Yes	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Clear water	Clear water	Clear water	Clear water	Clear water, some particles	Slightly turbid water	Clear water, some particles	Clear water	Clear water, some particles
Fresh Water WQOs	Water Quality Observations								
pH	7.11	8.05	8.13	7.23	9.62	8.66	10.02	7.42	9.08
EC μ S/cm	273.71	1400.37	1718.68	998.53	1860.48	1334.95	874.95	305.68	879.12
DO (%)	68.03	43.76	58.68	36.75	87.92	46.94	57.45	89.49	71.19
Temperature (°C)	22.69	23.27	22.78	23.4	22.78	23.5	20.84	22.11	21.68
ORP	168.51	-108.77	124.42	19.9	115.26	162.23	113.07	135.19	168.6

Appendix B - Calibration certificate for AquaTROLL

ThermoFisher SCIENTIFIC Thermo Fisher Scientific Australia Pty Ltd ABN 52 058 390 917 5 Caribbean Drive Scoresby VIC 3179 Phone: 1 300 735 295 Fax: 03 9763 1169	ELECTROCHEMICAL INSTRUMENT MAINTENANCE & CALIBRATION REPORT	
	Customer: Address:	Ecolotechnology Australia PTY Ltd 13 Ewing st Lismore NSW 2480
Attention: XXXXXXXXXX		

Make:	In-Situ	Lab.ID/Assett No.	NA	Calibration Date:	27-05-2021
Model:	AquaTroll 400	Customer O/No.	PO-0063	Next Calibration:	05-2022
Serial No:	741219 / 746352	Location:	NA	Call Number:	SV2105240050

Service and Safety Checks	Pass/Fail	Check and Adjust	Pass/Fail
Consult operator regarding performance/problems	Pass	Probes, leads and connectors	Pass
Check general operation, note additional problems	Pass	Keypad / user controls	Pass
Electrical safety if applicable to AS/NZS 3760:2003	N/A	Power supply / battery voltage and condition	Pass
Initialization Procedure	Pass	Probe(s) performance (response slow or acceptable)	Acceptable
Instrument Condition	Pass	Internal and external cleaning	Pass

Calibration/ Accuracy Tests

Standard Type	Serial Number (if applicable)	Standard Value ± Variation	Displayed Value	Standard Value ± Variation	Displayed Value	Standard Value ± Variation	Displayed Value	Pass/Fail
✓ pH	20945	7.00 ± 0.02	7.00	4.00 ± 0.02	4.00			Pass
✓ mV (pH)		0.0 +/- .30	-7.7	175.5 +/- 30	163.1			Pass
✓ Slope (pH)		-59.1 +/- 3	-56.93					Pass
✓ DO	745063	8.3mg/L @21.5oC	8.27mg/L @21.66oC	0.0	0.03			Pass
ISE								
✓ ORP	20945	234.5mV @22.0oC	234.5 @22.1oC					Pass
✓ Conductivity	746352	1413us/cm	1413us/cm					Pass
TDS								
✓ Temp C	746352	22.5	22.47					Pass

Reference Instruments Used			
Make	Model / Part Number	Serial / Batch Number	Expiry / Reference #
Thermo Scientific	ECBU4BTC1LIT	450/01	Nov 2023
Thermo Scientific	ECBU7BTC1LIT	450/02	Nov 2023
FLUKE	179 True RMS multimeter	91610338	Feb 2022
Thermo Scientific	ECCON1413BT	270/01	Jun 2023
ACR	Zobell A & B (0608/0609)	362211 (A) & 357174 (B)	Oct 2021 (A & B)
TPS	Sodium Sulphite for Zero DO	10640	Aug 2021

<p>General Comments and Recommendations on Instrument Condition, Location Details and Parts Used in Service</p> <p>Instrument inspected and noted operation. Refilled pH reference filling solution and replaced reference junction. Cleaned sensors and instrument. Calibrated individual sensor parameters. DO Sensor slope of 1.070123. ORP sensor offset of 5.5mV. Conductivity cell constant:0.979</p> <p>Issued Maintenance Kit and Reference junction kit.</p> <p style="text-align: right;">Date 27th May 2021</p>
--

Engineer's Name
XXXXXXXXXX

Issue 1

Oct 06
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Page 1 of 1

Appendix C - Full List of Sampling Analytes

Field

- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential

Laboratory

- Total Petroleum Hydrocarbons (TPH,) C10-C40
- Benzene, Toluene, Ethylbenzene Xylene (BTEX)
- Total iron
- Total lead
- Dissolved iron
- Dissolved lead
- Total oils and grease -Hexane Extractable
- Major ions (Sulfate, Chloride)
- Major cations (Calcium, Magnesium, sodium, potassium)

Appendix D – Site Photographs



**BQN1D –
Well damage following
flooding
(21/03/2022)**



**BQN1D –
Well damage following
flooding
(21/03/2022)**

Appendix E - Chain of Custody Form

CHAIN OF CUSTODY

 <p>eal Environmental Analysis Laboratory Southern Cross University</p> <p>PO Box 157 (Military Road) LISMORE NSW 2480 P 02 6620 3678 F 02 6620 3957 eal@scu.edu.au, www.scu.edu.au/eal</p>	<p>Submitting Client Details</p> <p>Quote Id: EALQ5821 Job Ref: SMC010-Blakebrook WQ- Groundwater- MARCH22 Company Name: Ecoteam Contact Person: [REDACTED] Phone: 66215123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>	<p>Billing Client Details</p> <p>ABN: [REDACTED] Company Name: Ecoteam Contact Person: [REDACTED] Phone: 02 66215123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>
--	---	--

This section will be destroyed after being processed. Only Complete CVV number if you are supplying the original hardcopy to EAL.

Payment Method:

Purchase Order

Cheque

Invoice (prior approval required)

Credit Card Mastercard / Visa No: _____ / _____ / _____

Exp. Date: _____ Name on Card: _____ CVV: _____

Relinquished By: [REDACTED]	Date: 22/3/22	Signed: [REDACTED]
Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other: _____		
Received By: [REDACTED]	Date: 22.3.22	
Condition on receipt: Ambient / Cool / Frozen / Other: _____		

Comments:

DO NOT TEST FOR Ph or EC

Marketing Survey - where did you find us?

Word of mouth Magazine Google search Other

Sample Analysis Request																
Price List Code (e.g. SW-PACK-06)																
Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)	Salt Soluble- (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104			
	BQN1-B		21/03/22			Water	X	X	X	X	X	X	X			
	BQN1-A		21/03/22			Water	X	X	X	X	X	X	X			
	BQN1-D		21/03/22			Water	X	X	X	X	X	X	X			
	BQN2-B		21/03/22			Water	X	X	X	X	X	X	X			
	BQN2-A		21/03/22			Water	X	X	X	X	X	X	X			
	BQN2-D		21/03/22			Water	X	X	X	X	X	X	X			

M7106 x 9 water

CHAIN OF CUSTODY

Comments:

DO NOT TEST FOR Ph or EC

Marketing Survey – where did you find us?
 Word of mouth Magazine Google search Other

Sample Analysis Request														
Price List Code (e.g. SW-PACK-06)														
Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)	Salt Suite- (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104	
	BQS1-S		21/03/22			Water	X	X	X	X	X	X	X	
	BQS1-I		21/03/22			Water	X	X	X	X	X	X	X	
	BQS1-D		21/03/22			Water	X	X	X	X	X	X	X	

Tab through for extra lines

Appendix F - Full Laboratory Results

RESULTS OF WATER ANALYSIS

9 samples supplied by Ecoteam on 22/03/2022. Lab Job No. M7106.
 Samples submitted by [REDACTED]. Your Job: SMC010-BlakebrookWQ-Groundwater-MARCH22
 13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9
		BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
	Job No.	M7106/1	M7106/2	M7106/3	M7106/4	M7106/5	M7106/6	M7106/7	M7106/8	M7106/9
Bicarbonate (Alkalinity) (mg/L CaCO ₃ equivalent)	** Total Alkalinity - APHA 2320	224	200	121	83	150	326	112	181	107
Water Hardness (mg/L CaCO ₃ equivalent)	** Using Ca and Mg calculation	152	253	35	72	81	15	63	99	46
Total Oils and Grease (mg/L)	APHA 5520-D (hexane extractable)	6	4	5	<2	<2	6	5	5	7
Sodium (mg/L)	APHA 3125 ICPMS ¹⁰¹⁴ 182	191	298	294	171	78.5	231	41.7	283	390
Potassium (mg/L)	APHA 3125 ICPMS ¹⁰¹⁴ 182	3.91	9.07	2.42	5.94	4.49	2.04	3.11	5.54	3.96
Calcium (mg/L)	APHA 3125 ICPMS ¹⁰¹⁴ 182	30.6	91.4	10.4	25.4	20.0	4.83	17.0	31.0	14.9
Magnesium (mg/L)	APHA 3125 ICPMS ¹⁰¹⁴ 182	18.3	5.92	2.13	2.01	7.51	0.82	5.05	5.32	2.14
Sodium Absorption Ratio (SAR)	** By calculation	6.7	8.1	21.7	8.8	3.8	25.5	2.3	12.3	25.0
Chloride (mg/L)	APHA 3125 ICPMS ¹⁰¹⁴ 182	188	358	267	182	41	85	<10	298	433
Sulfate (mg/L SO ₄ ²⁻)	APHA 3125 ICPMS ¹⁰¹⁴ 182	12	26	76	32	18	26	11	16	46
Chloride/Sulfate Ratio	** Calculation	15.6	14.0	3.5	5.7	2.3	3.3	...	18.5	9.4
Iron (mg/L)	Total Available - APHA 3125 ICPMS ¹⁰¹⁴ 182	1.87	0.794	3.21	0.155	0.141	0.739	0.533	0.203	0.907
Lead (mg/L)	Total Available - APHA 3125 ICPMS ¹⁰¹⁴ 182	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002
Iron (mg/L)	Dissolved - APHA 3125 ICPMS ¹⁰¹⁴ 182	0.318	0.012	0.009	0.009	0.007	0.007	0.023	0.019	0.007
Lead (mg/L)	Dissolved - APHA 3125 ICPMS ¹⁰¹⁴ 182	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
RTEX										
Benzene (µg/L or ppb)	Subcontracted: SGS report SE230336	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene (µg/L or ppb)	Subcontracted: SGS report SE230336	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene (µg/L or ppb)	Subcontracted: SGS report SE230336	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-Xylene (µg/L or ppb)	Subcontracted: SGS report SE230336	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene (µg/L or ppb)	Subcontracted: SGS report SE230336	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene (µg/L or ppb)	Subcontracted: SGS report SE230336	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Recoverable Hydrocarbons (TRH)										
C6-C9 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<40	<40	<40	<40	<40	<40	<40	<40	<40
C10-C14 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15-C28 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<100	<100	<100	<100	<100	<100	<100	<100	<100
C29-C36 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<50	<50	<50	<50	<50	<50	<50	<50	<50
C10-C16 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<60	<60	<60	<60	<60	<60	<60	<60	<60
C10-C16 less Naphthalene Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<60	<60	<60	<60	<60	<60	<60	<60	<60
C16-C34 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<200	<200	<200	<200	<200	<200	<200	<200	<200
C34-C40 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sum C10-C36 Fraction (µg/L or ppb)	Subcontracted: SGS report SE230336	<100	<100	<100	<100	<100	<100	<100	<100	<100

Notes:

- Total metals - samples digested with nitric acid; Total available (acid soluble/ extractable) metals - samples acidified with nitric acid to pH <2;
Dissolved metals - samples filtered through 0.45µm cellulose acetate and then acidified with nitric acid prior to analysis
- Metals and salts analysed by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS).
- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm.
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- ... Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 05/04/2022.



Appendix G - Hydrographs



Blakebrook Quarry- Groundwater Monitoring

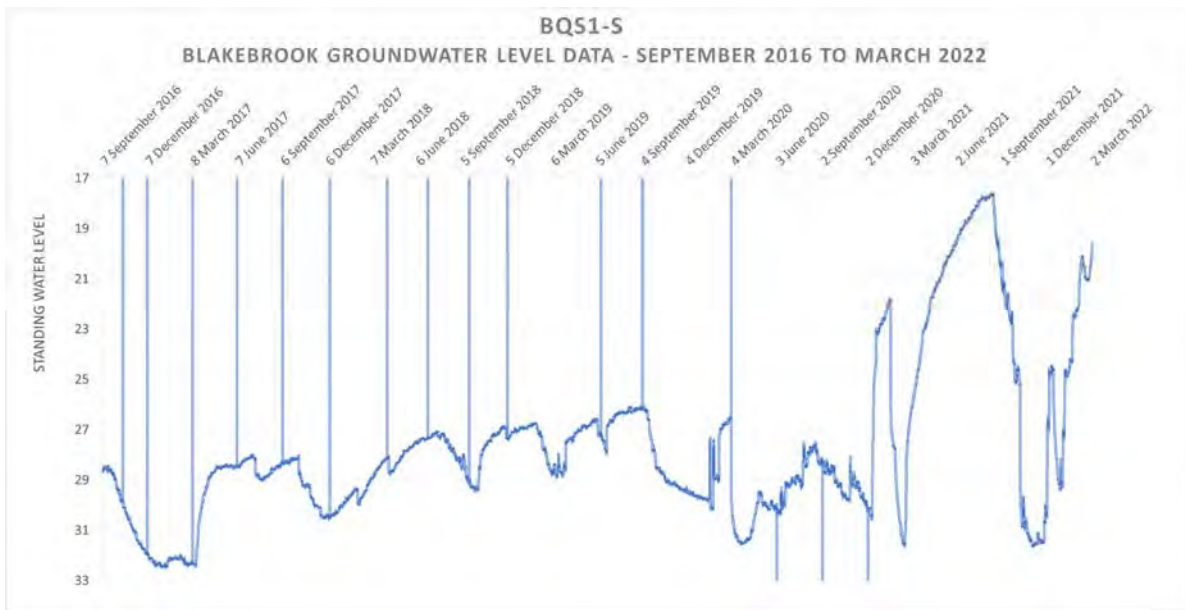
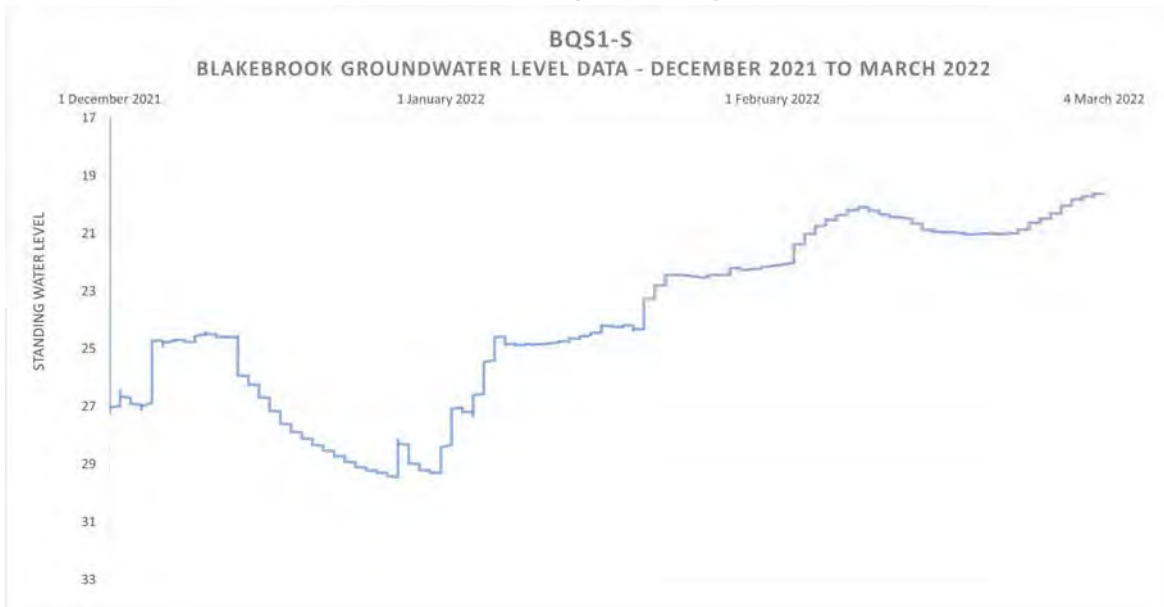
Groundwater Hydrographs

March 2022

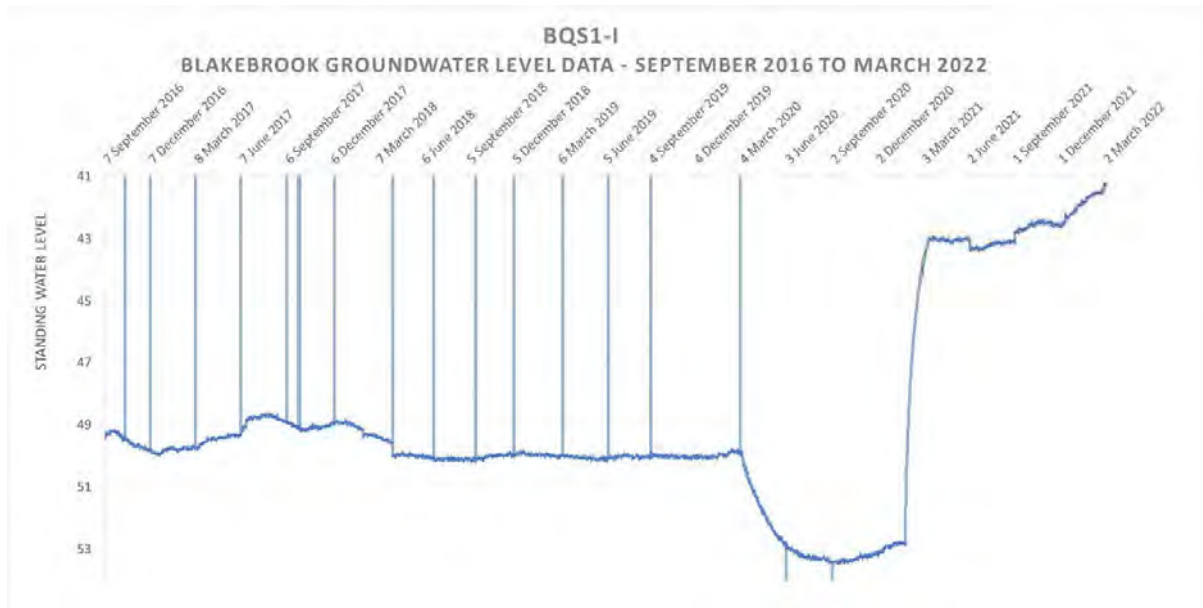
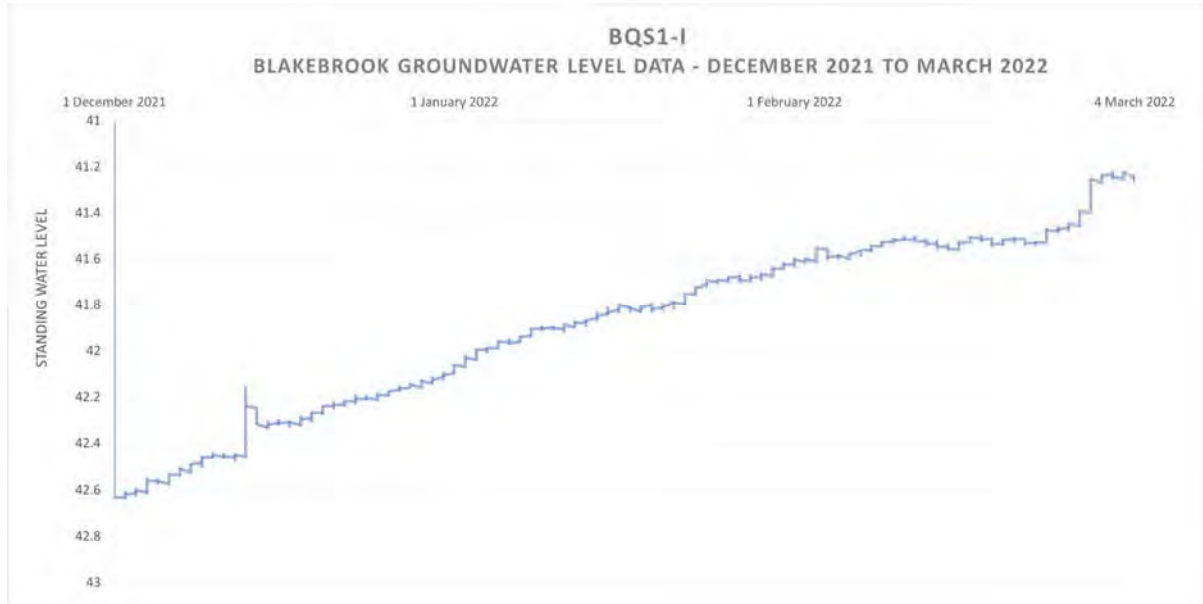


13 Ewing Street, LISMORE
NSW 2480 Australia
Phone: (02) 6621 5123
Fax: (02) 6621 8123
Email: info@ecoteam.com.au
Web: www.ecoteam.com.au

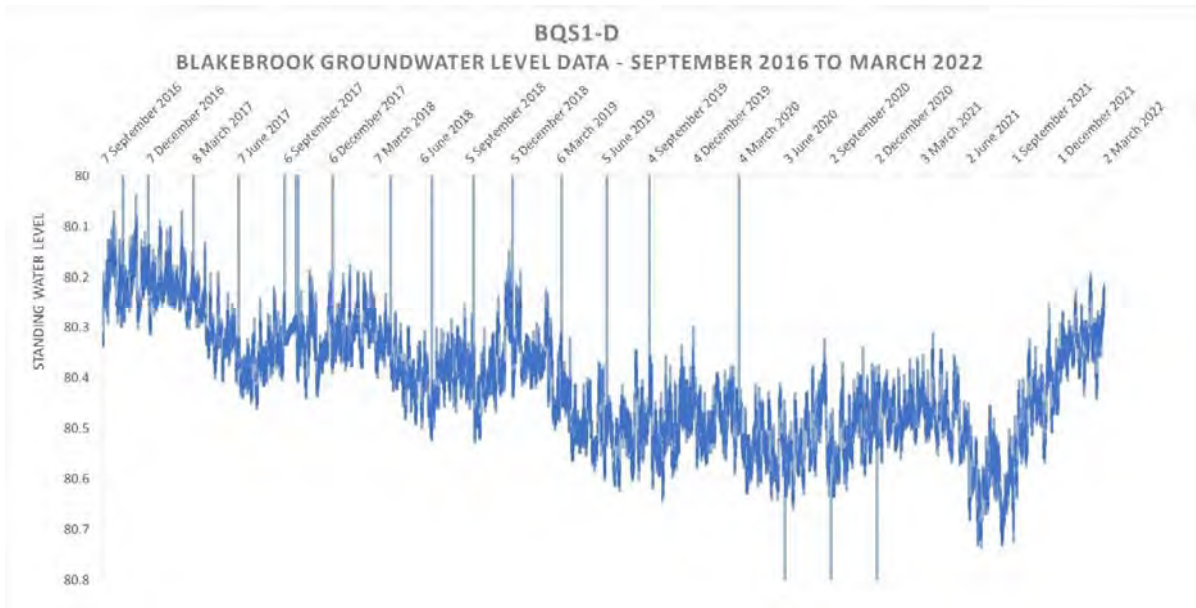
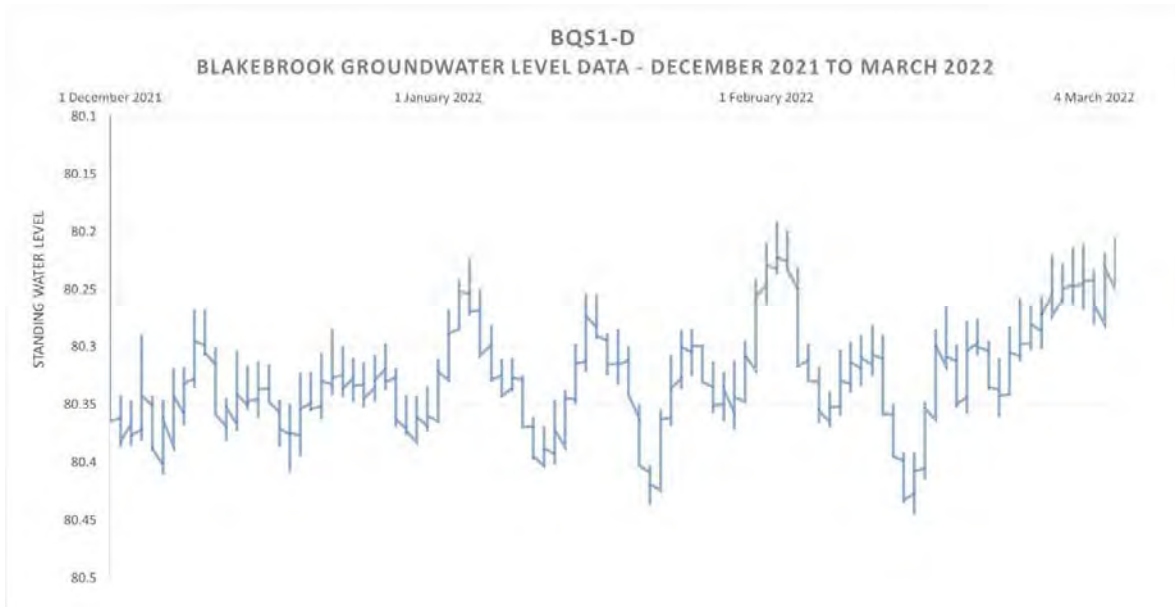
Blakebrook Groundwater Wells – SOUTH 1 BQS1- S (Shallow)



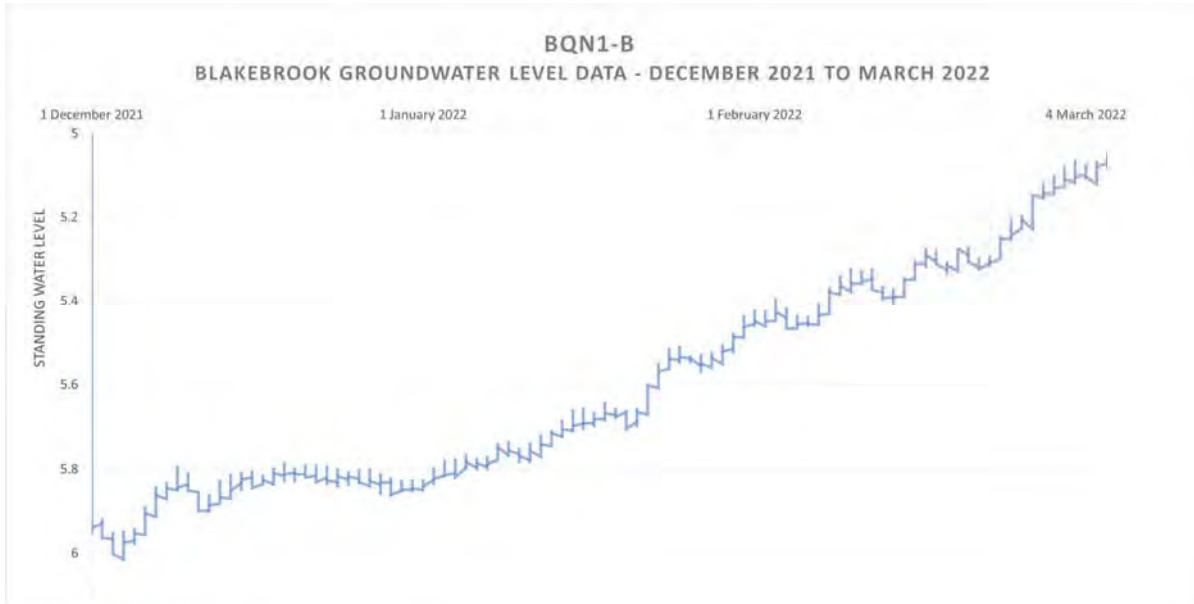
Blakebrook Groundwater Wells – SOUTH 1 BSQS1- I (Intermediate)



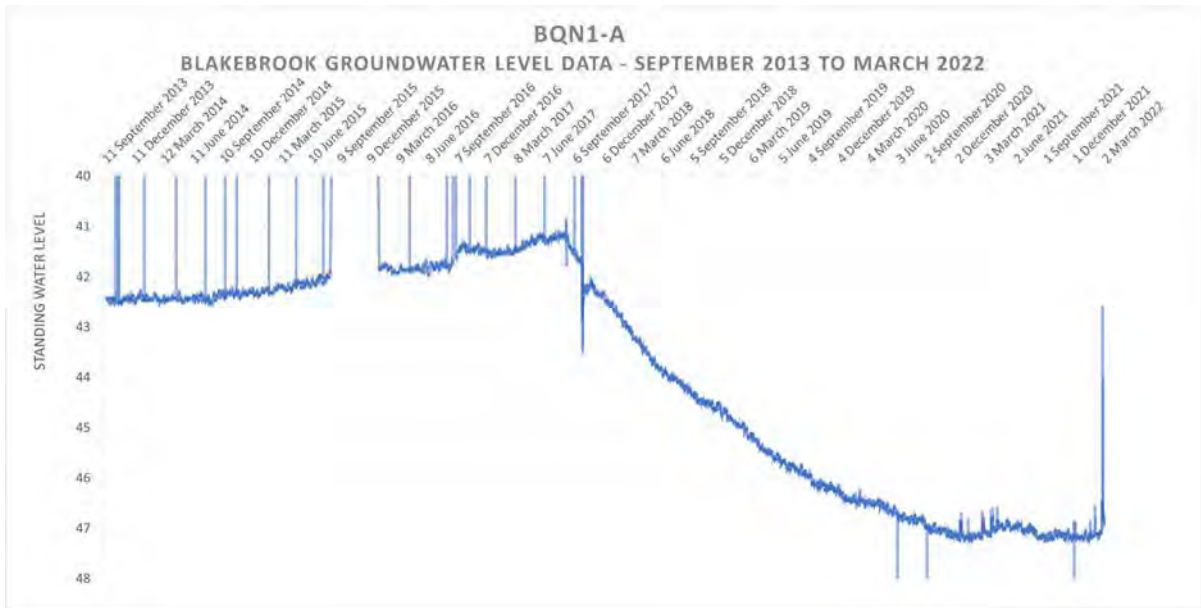
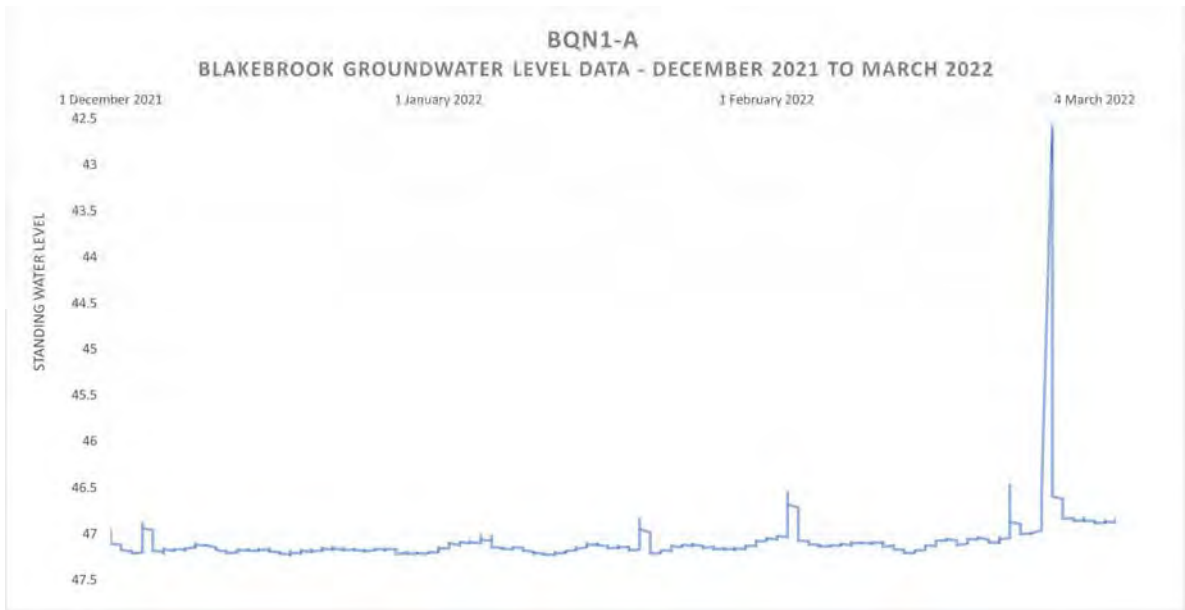
Blakebrook Groundwater Wells -SOUTH 1 BQS1- D (Deep)



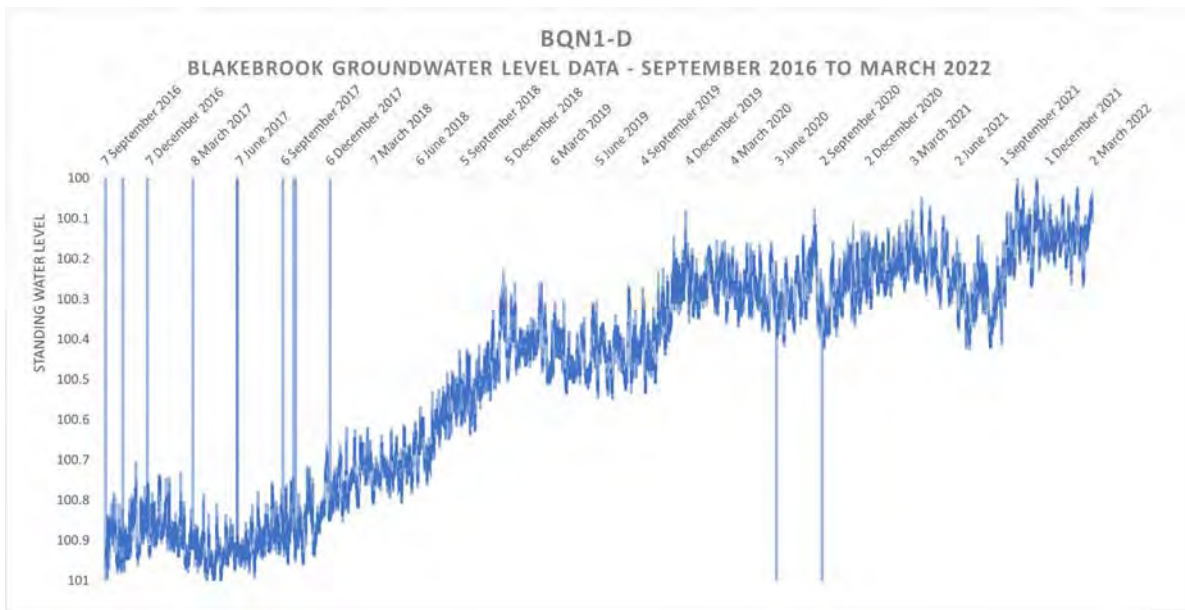
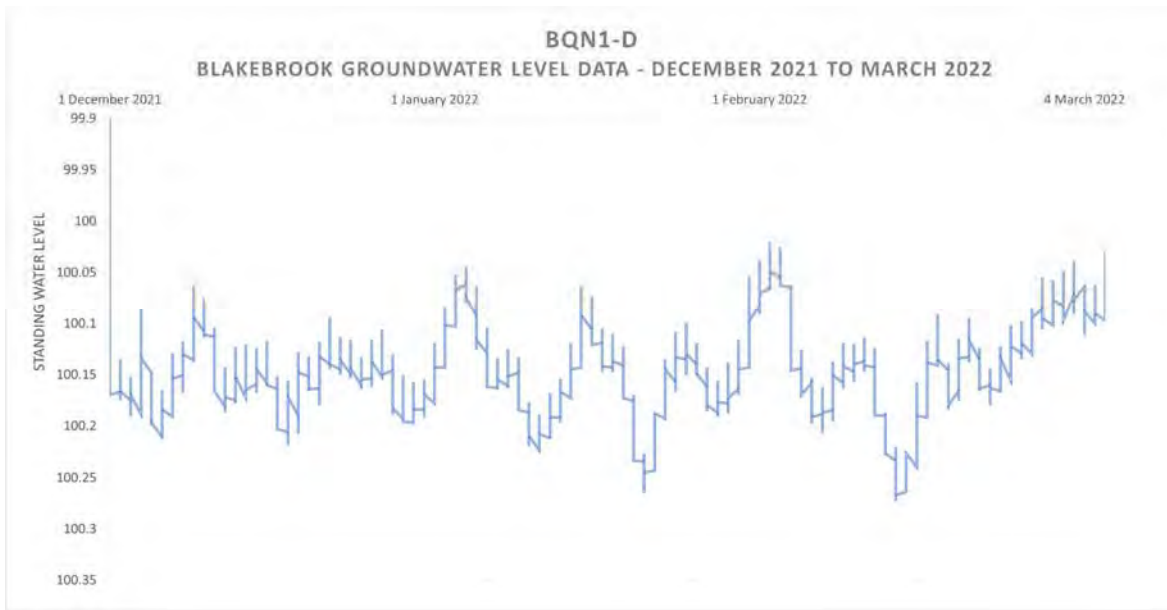
Blakebrook Groundwater Wells -NORTH 1 BQN1- B (Shallow)



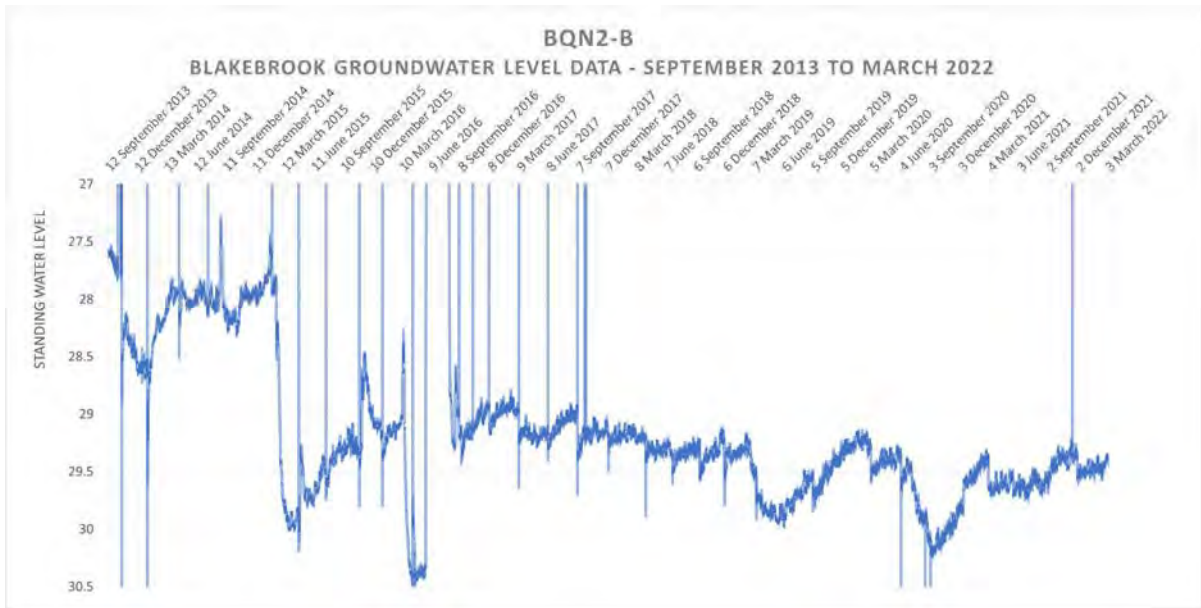
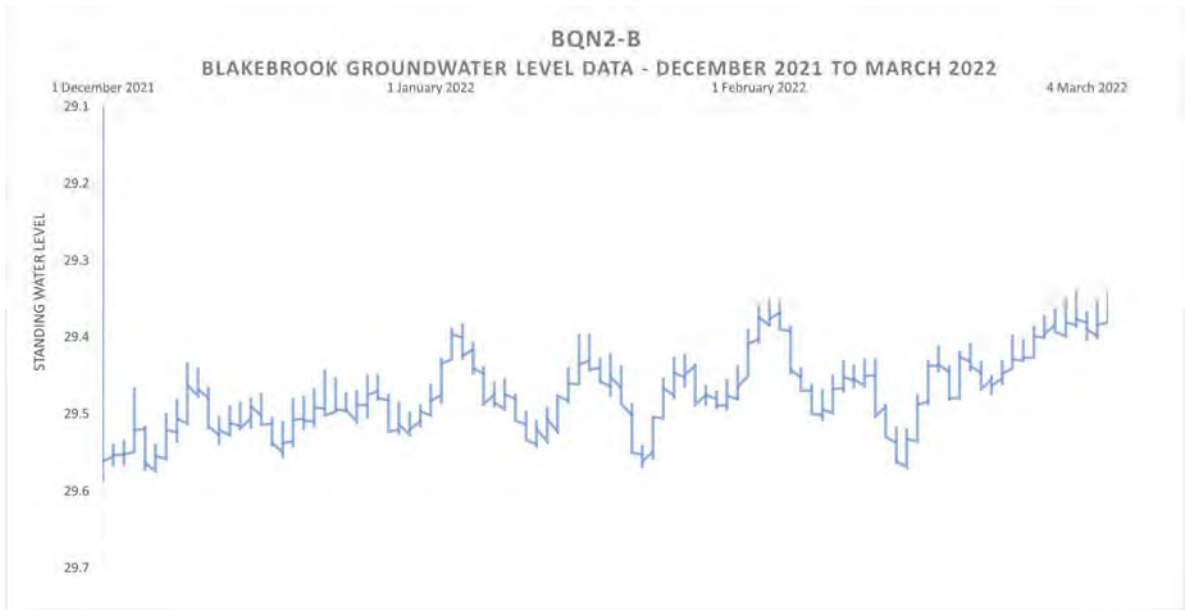
Blakebrook Groundwater Wells -NORTH 1 BQN1- A (Intermediate)



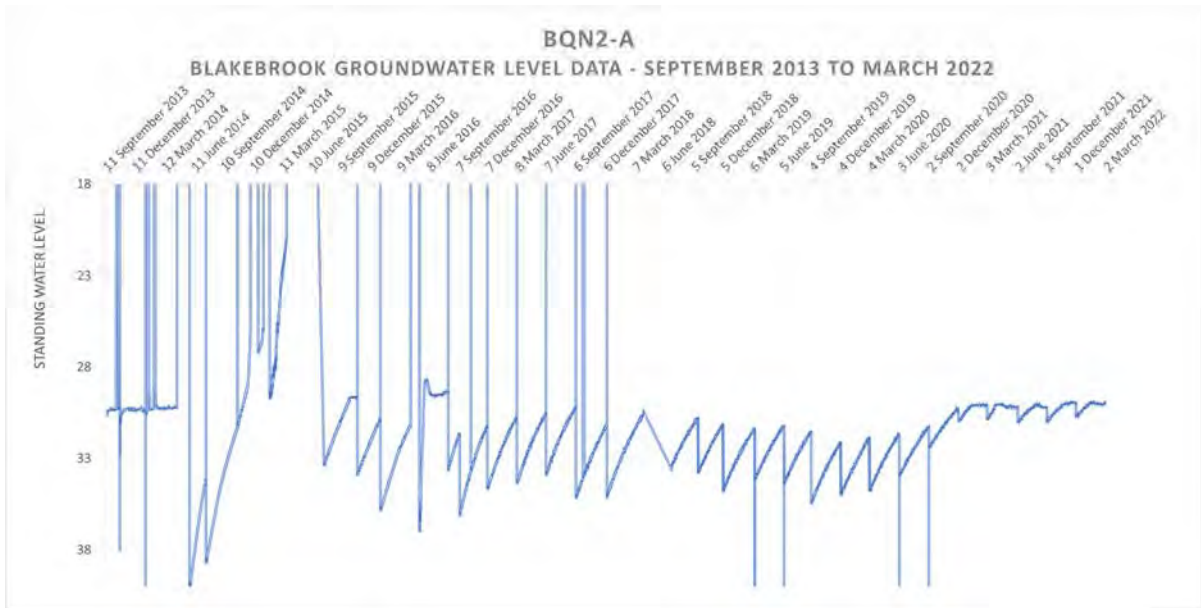
Blakebrook Groundwater Wells -NORTH 1 BQN1- D (Deep)



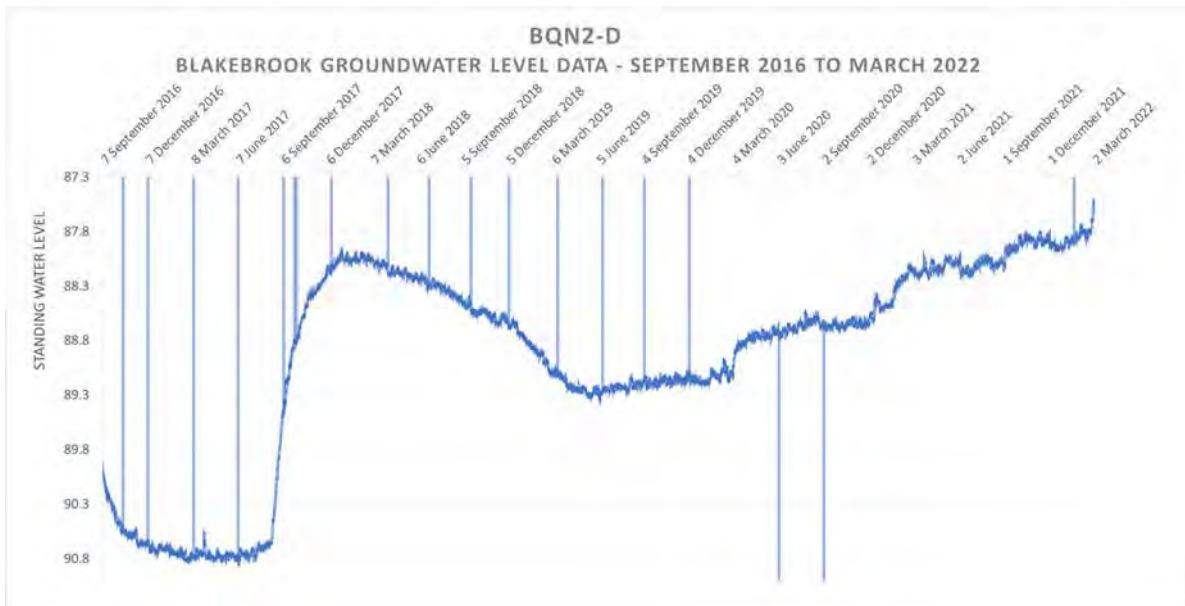
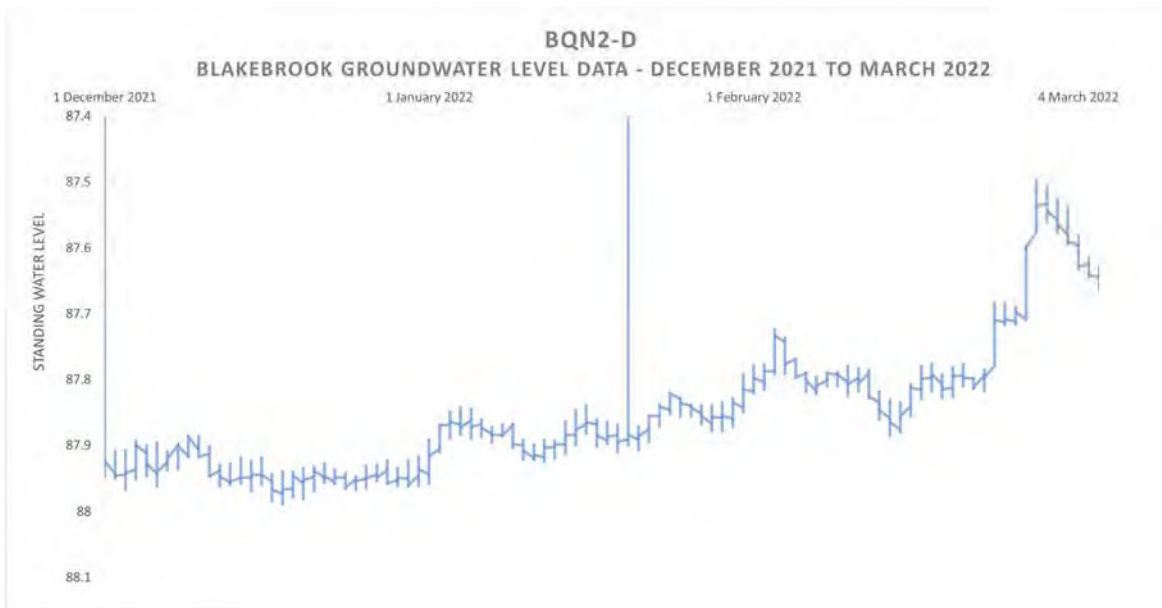
Blakebrook Groundwater Wells -NORTH 2 BQN2- B (Shallow)



Blakebrook Groundwater Wells -NORTH 2 BQN2- A (Intermediate)



Blakebrook Groundwater Wells -NORTH 2 BQN2- D (Deep)



Wednesday 22nd June, 2022

Environmental Engineer &
Director

To: [REDACTED]
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

[REDACTED]@ecoteam.com.au
mob: [REDACTED]
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

Re: Groundwater Quality Monitoring Results & Report for Blakebrook Quarry
Reporting period: 1st March to 1st of June 2022

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly groundwater quality and water level monitoring on behalf of Lismore City Council for the Blakebrook Quarry, Blakebrook, NSW. This report presents results from the June 2022 sampling round.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the groundwater monitoring is to monitor groundwater quality and water levels at the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Groundwater) -Work Method Statement 2. The project objectives are to detect any potential changes in water quality or water levels within groundwater wells which may be a result of the Blakebrook Quarry activities, to calibrate the level meters, and assess the functioning of water level meters at the site.

3.0 SAMPLING LOCATIONS

Water samples and level data were collected from all 9 groundwater bores. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly groundwater sampling sites, sample codes and well information

Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
Northern Two Clusters of Monitoring Bores (re. BQN1A, BQN1B, BQN2A, BQN2B, NOW & Cook p4 (2016))									
BQN1-B (BQN1-S)	GW307 323	524993.7	6818662.9	25/7/13	30	15 - 19	30	12 - 21	4.5
BQN1-A (BQN1-I)	GW307 322	524757.0	6818728.0	26/7/13	60	52 - 60	48	48 - 60	42.5
BQN1-D		524994	6818654.5	29/8/16	115	56 - 63; 99 - 109	115	97 - 109	?
BQN2-B (BQN2-S)	GW307 325	524437.7	6818619	28/7/13	42	28 - 38	42	30 - 42	28.5
BQN2-A (BQN2-S)	GW307 324	524436.7	6818615.5	27/7/13	60	52 - 60	60	51 - 60	31.3
BQN2-D		524447.5	6818616.5	29/8/16	133	19 - 24; 44 - 46.5; 112 - 117	133	109 - 121	
Southern Cluster of Monitoring Bores (re. Form A - particulars of completed work, 25/08/16 & GS letter 27/07/17)									
Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
BQS1-S		524684.5	6817848.6	25/8/16	55	38 - 43	55	40 - 52	30
BQS1-I		524681.5	6817842.8	24/8/16	73	34 - 39; 64 - 70	73	58 - 70	30
BQS1-D		524678	6817837.2	23/8/16	102.7	34 - 39; 64 - 72; 95 - 99	102.7	87.7 - 99.7	30



Figure 1. Map of monthly groundwater sampling sites (Source: Lismore City Council)

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [REDACTED] and [REDACTED] on Thursday 2nd June 2022. In situ, physico-chemical measurements were collected using a YSI Water Quality Meter and level information was downloaded using the Vu-Situ APP and Wireless TROLL Com instrument and cable connector. Samples collection methods and in-situ results are presented in **Appendix A (Table 2)**. The calibration certificate for the water quality meter is included as **Appendix B**.

Samples were stored on ice and dropped off at the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix C**.

5.0 RESULTS

5.1 Physico-chemical Results

In situ, physico-chemical sampling results are shown in **Appendix A (Table 2)**.

5.2 Laboratory Results

The chain of custody form is included in **Appendix D**. A full copy of the laboratory results is included as **Appendix E**.

5.3 Well Level Results

Well level results for the past three months and the last six years are presented in **Appendix F**. Groundwater levels have risen in the North 1 shallow and intermediate wells and the North 2 deep well (BQN1-A, BQN1-B, BQN2-D), fallen in the North 2 shallow well and all South wells (BQS1-S, BQS1-I, BQS1-D, BQN2-B) and remained consistent in the North 2 intermediate well and North 1 deep well (BQN2-A, BQN1-D) over the past three months.

6.0 SUMMARY OF RESULTS

- Groundwater levels have risen in the North 1 shallow and intermediate wells and the North 2 deep well (BQN1-A, BQN1-B, BQN2-D)
- Groundwater levels have fallen in the North 2 shallow well and all South wells (BQS1-S, BQS1-I, BQS1-D, BQN2-B)
- Groundwater levels have remained consistent in the North 2 intermediate well and North 1 deep well (BQN2-A, BQN1-D)
- Battery levels in all water level meters remain above 50%.
- All level meters appear to be functioning adequately.
- All level meters have been upgraded and calibrated.

Kind regards,

██████████

Environmental Engineer & Director

██████████@ecoteam.com.au

mob: ██████████

office: (02) 66-215-123

fax: (02) 66-218-123

ABN: 82 106 758 123

APPENDIX A- Physicochemical and sample Information

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Sample Information	Blakebrook Quarry Groundwater Well Sampling Information								
	SOUTH			NORTH 1			NORTH 2		
Site Name	BQS1S	BQS1I	BQS1D	BQN1B	BQN1A	BQN1D	BQN2B	BQN2A	BQN2D
Well Type	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep
Date	02/06/22	02/06/22	02/06/22	02/06/22	02/06/22	02/06/22	02/06/22	02/06/22	02/06/22
Time	12:05 PM	12:05 PM	12:20 PM	10:25 AM	10:25 AM	16:30 PM	08:40 AM	09:30 AM	08:40 AM
Recorded Depth 1	26.73	41.15	80.30	4.04	46.70	100.16	29.67	29.97	88.22
Recorded Depth 2	26.82	41.80	80.30	4.18	46.70	100.18	30.40	30.71	87.52
Level Meter Calibrated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Battery Level	59%	59%	59%	60%	59%	59%	60%	60%	60%
Memory Level	87%	87%	87%	84%	81%	84%	87%	87%	87%
Sample Method	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	12-volt submersible pump	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone
Odour	Not Present	Yes	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Clear water	Clear water	Clear water, some particles	Clear water	Clear water	Slightly turbid water	Clear water	Clear water	Slightly turbid water
Fresh Water WQOs	Water Quality Observations								
pH	9.17	7.44	7.70	7.03	10.35	7.62	9.39	8.17	9.04
EC μ S/cm	235.6	1100	1483	925	1600	1114	955	340.8	778
DO (%)	24.5	40.7	45.3	16.5	66.5	38.8	50.00	10.00	37.4
Temperature (°C)	29.2	19.3	20.4	20.4	19.7	18.4	18.6	19	20.0
ORP	37.8	82.6	82.9	20.3	-11.5	-47.9	-8.2	49	22.8

Appendix B - Calibration certificate for PGN9003871 Water Quality Meter



EQUIPMENT CERTIFICATION REPORT

PGN9003871 WATER QUALITY METER - MULTIFUNCTION

Plant Number: 1072179

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	377339 380327	<input checked="" type="checkbox"/>
Conductivity	2.76 mS/cm @ 25°C	2.76 mS/cm		377099	<input checked="" type="checkbox"/>
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	5928	<input checked="" type="checkbox"/>
ORP	240mV @ 25°C	240mV	-	7035	<input checked="" type="checkbox"/>

Battery Status <u>95</u> %	Temperature <u>21</u> °C
Electrodes Cleaned and Checked	

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' \$55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: [REDACTED] Date: 25/5/22 Signed: [REDACTED]

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap



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Appendix C - Full List of Sampling Analytes

Field

- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential

Laboratory

- Total Petroleum Hydrocarbons (TPH,) C10-C40
- Benzene, Toluene, Ethylbenzene Xylene (BTEX)
- Total iron
- Total lead
- Dissolved iron
- Dissolved lead
- Total oils and grease -Hexane Extractable
- Major ions (Sulfate, Chloride)
- Major cations (Calcium, Magnesium, sodium, potassium)

Appendix D - Chain of Custody Form

CHAIN OF CUSTODY

 <p>PO Box 157 (Military Road) LISMORE NSW 2480 P 02 6620 3678 F 02 6620 3957 eal@scu.edu.au, www.scu.edu.au/eal</p>	Submitting Client Details Quote Id: EALQ5821 Job Ref: SMC010-Blakebrook WQ- Groundwater- JUNE22 Company Name: Ecoteam Contact Person: [REDACTED] Phone: 66215123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore	Billing Client Details ABN: [REDACTED] Company Name: Ecoteam Contact Person: [REDACTED] Phone: 02 66215123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore
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This section will be destroyed after being processed. Only Complete CVV number if you are supplying the original hardcopy to EAL.

Date Signed

Payment Method:
 Purchase Order
 Cheque
 Invoice (prior approval required)
 Credit Card Mastercard / Visa No: _____
 Exp. Date: _____ Name on Card: _____ CVV: _____

Relinquished By: [REDACTED]	2/6/22	[REDACTED]
Preservation: None / ice / ice bricks / Acidified / Filtered / Other: /		
Received By: [REDACTED]	3/6	[REDACTED]
Condition on receipt: Ambient / Cool / Frozen / Other:		

Comments:
 DO NOT TEST FOR Ph or EC
 Marketing Survey - where did you find us?
 Word of mouth Magazine Google search Other

Sample Analysis Request													
Price List Code (e.g. SW-PACK-05)													
Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)	Salt Sulphate (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104
1	BQN1-B		02/06/22			Water	X	X	X	X	X	X	X
2	BQN1-A		02/06/22			Water	X	X	X	X	X	X	X
3	BQN1-D		02/06/22			Water	X	X	X	X	X	X	X
4	BQN2-B		02/06/22			Water	X	X	X	X	X	X	X
5	BQN2-A		02/06/22			Water	X	X	X	X	X	X	X
6	BQN2-D		02/06/22			Water	X	X	X	X	X	X	X

EAL Chain of Custody
Issue: V1.1 27/09/2016

EAL Project Reference:

M 9259 x 9 Water

QFORM 4.2
Page 1 of 2

CHAIN OF CUSTODY

Comments:

DO NOT TEST FOR Ph or EC

Marketing Survey – where did you find us?
 Word of mouth Magazine Google search Other

Sample Analysis Request														
Price List Code (e.g. SW-PACK-06)														
Salt Suite- (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104								
x	x	x	x	x	x	x								
x	x	x	x	x	x	x								
x	x	x	x	x	x	x								

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)
7	BQS1-S 1x BTEX vial		02/06/22			Water
8	BQS1-I		02/06/22			Water
9	BQS1-D		02/06/22			Water

Tab through for extra lines

Appendix E - Full Laboratory Results

RESULTS OF WATER ANALYSIS

9 samples supplied by Ecolam on 3/05/2022. Lab Job No. M9259.

Samples submitted by [REDACTED] Your Job: SMC010-Blakebrook WQ- Groundwater-JUNE 22

13 Ewing Street LISMORE NSW 2460

Parameter	Methods reference	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9
		BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
	Job No.	M9259/1	M9259/2	M9259/3	M9259/4	M9259/5	M9259/6	M9259/7	M9259/8	M9259/9
pH	APHA4500-H ⁺ -B	7.01	11.03	8.52	8.57	7.80	8.79	6.54	7.94	8.08
Conductivity (EC) (dS/m)	APHA 2510-B	0.988	1.70	1.25	1.27	0.483	0.845	0.280	1.34	1.62
Total Dissolved Salts (mg/L)	** Calcula ion using EC x 690	672	1,155	847	861	328	575	177	914	1,103
Bicarbonate (Alkalinity) (mg/L CaCO ₃ equivalent)	** Total Alkalinity - APHA 2320	235	75	134	157	165	344	114	191	108
Water Hardness (mg/L CaCO ₃ equivalent)	** Using Ca and Mg calculation	142	221	39	108	96	10	60	96	40
Total Oil and Grease (mg/L)	APHA 5520-D (Hexane extractable)	<2	3	3	2	<2	<2	<2	<2	<2
Sodium (mg/L)	APHA 3125 ICPMS TM 162	188	318	288	240	76.0	203	35.5	259	340
Potassium (mg/L)	APHA 3125 ICPMS TM 162	3.71	9.08	2.42	7.09	4.80	1.96	2.64	5.27	3.82
Calcium (mg/L)	APHA 3125 ICPMS TM 162	27.7	76.8	10.3	31.9	24.7	3.40	15.6	29.4	13.2
Magnesium (mg/L)	APHA 3125 ICPMS TM 162	17.7	7.14	3.27	7.01	8.31	0.48	5.22	5.42	1.75
Sodium Absorption Ratio (SAR)	** By calculation	6.1	9.3	18.6	10.0	3.4	27.4	2.0	11.5	23.3
Chloride (mg/L)	APHA 3125 ICPMS TM 162	211	500	290	312	61	88	18	333	465
Sulfate (mg/L SO ₄ ²⁻)	APHA 3125 ICPMS TM 162	<9	23	64	33	12	18	<9	11	35
Chloride/Sulfate Ratio	** Calculation	..	21.8	4.5	9.5	5.0	4.9	..	31.7	13.4
Iron (mg/L)	Total Available - APHA 3125 ICPMS TM 162	1.73	0.748	5.67	0.199	0.064	0.118	0.503	0.111	0.237
Lead (mg/L)	Total Available - APHA 3125 ICPMS TM 162	<0.001	0.004	0.003	0.006	0.001	0.026	0.003	0.002	0.003
Iron (mg/L)	Dissolved - APHA 3125 ICPMS TM 162	0.397	<0.005	<0.005	0.016	<0.005	<0.005	0.020	0.016	0.005
Lead (mg/L)	Dissolved - APHA 3125 ICPMS TM 162	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BTEX										
Benzene (µg/L or ppb)	Subcontracted: SGG report SE232832	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene (µg/L or ppb)	Subcontracted: SGG report SE232832	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene (µg/L or ppb)	Subcontracted: SGG report SE232832	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m,p-Xylene (µg/L or ppb)	Subcontracted: SGG report SE232832	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene (µg/L or ppb)	Subcontracted: SGG report SE232832	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene (µg/L or ppb)	Subcontracted: SGG report SE232832	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Recoverable Hydrocarbons (TRH)										
Benzene (F8) (µg/L or ppb)	Subcontracted: SGG report SE232832	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
C8-C9 Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<40	<40	<40	<40	<40	<40	<40	<40	<40
C8-C10 Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<50	<50	<50	<50	<50	<50	<50	<50	<50
C8-C10 minus BTEX (F1) Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<50	<50	<50	<50	<50	<50	<50	<50	<50
C10-C14 Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C28 Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<100	<100	<100	<100	<100	<100	<100	<100	<100
C28-C38 Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<50	<50	<50	<50	<50	<50	<50	<50	<50
C10-C18 Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<60	<60	<60	<60	<60	<60	<60	<60	<60
C10-C18 less Naphthalene (F2) Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<60	<60	<60	<60	<60	<60	<60	<60	<60
C18-C34 (F3) Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<200	<200	<200	<200	<200	<200	<200	<200	<200
C34-C40 (F4) Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sum C10-C38 Fraetion (µg/L or ppb)	Subcontracted: SGG report SE232832	<100	<100	<100	<100	<100	<100	<100	<100	<100

Notes:

- Total metals - samples digested with nitric acid; Total available (acid soluble/ extractable) metals - samples acidified with nitric acid to pH <2; Dissolved metals - samples filtered through 0.45µm cellulose acetate and then acidified with nitric acid prior to analysis
- Metals and salts analysed by inductively Coupled Plasma - Mass Spectrometry (ICP-MS).
- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm.
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer sou.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 20/06/2022.



Appendix F - Hydrographs



Blakebrook Quarry- Groundwater Monitoring

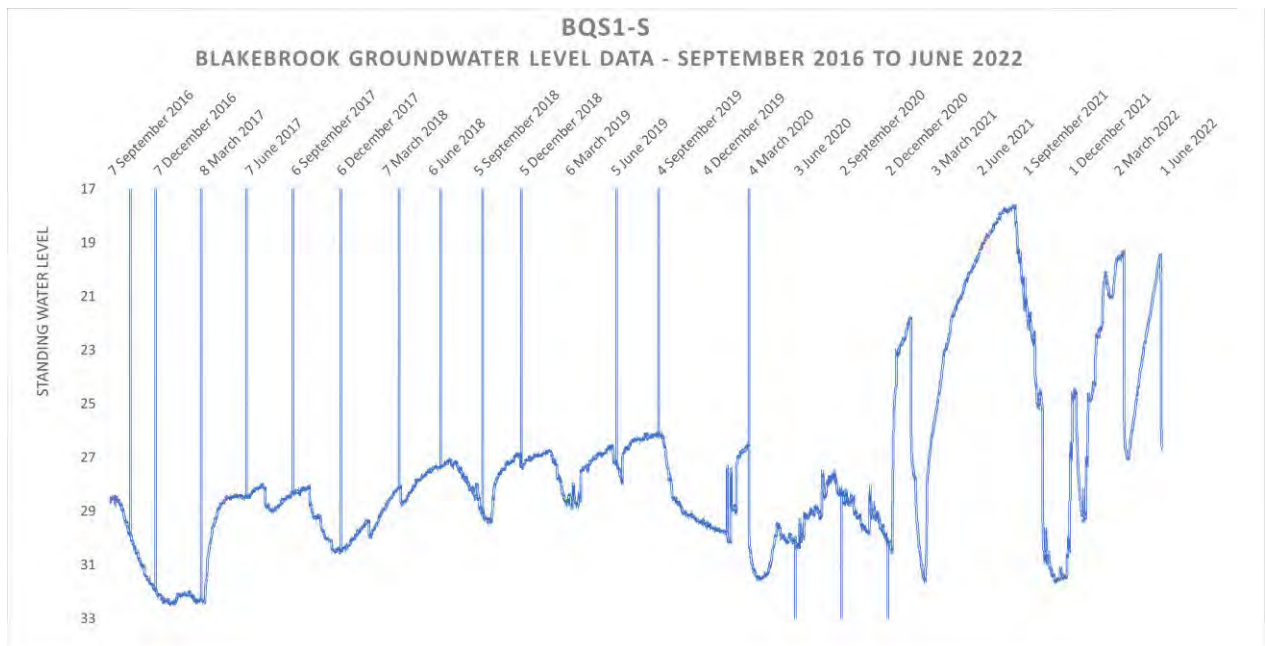
Groundwater Hydrographs

June 2022

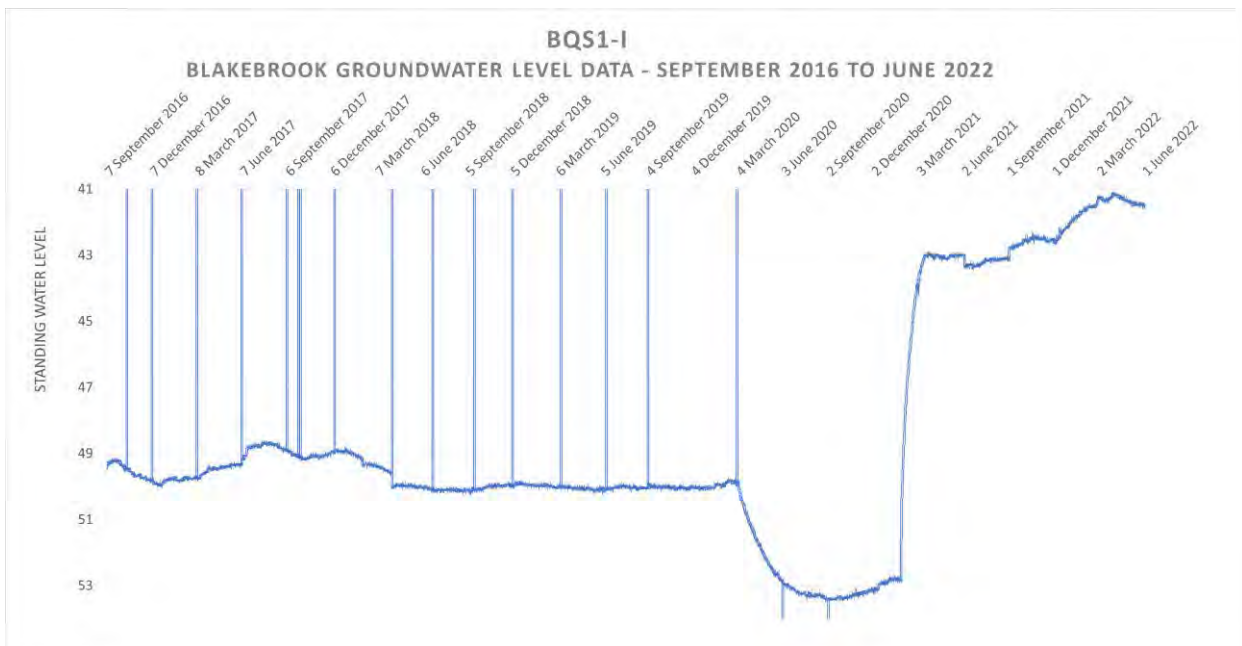
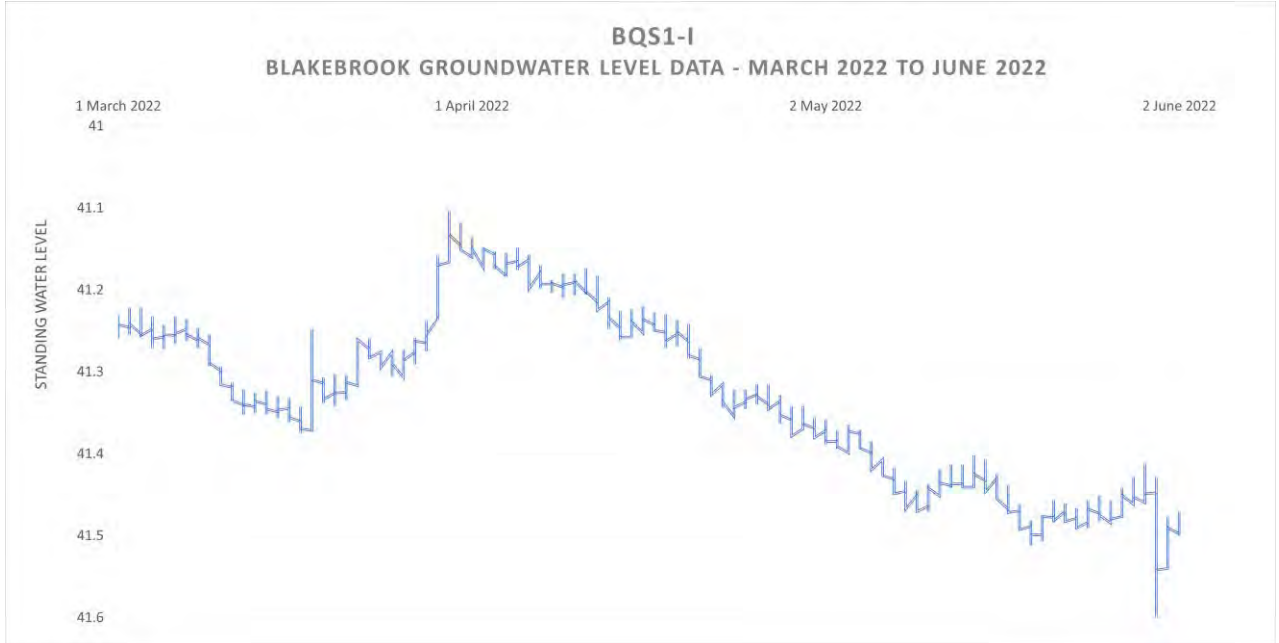


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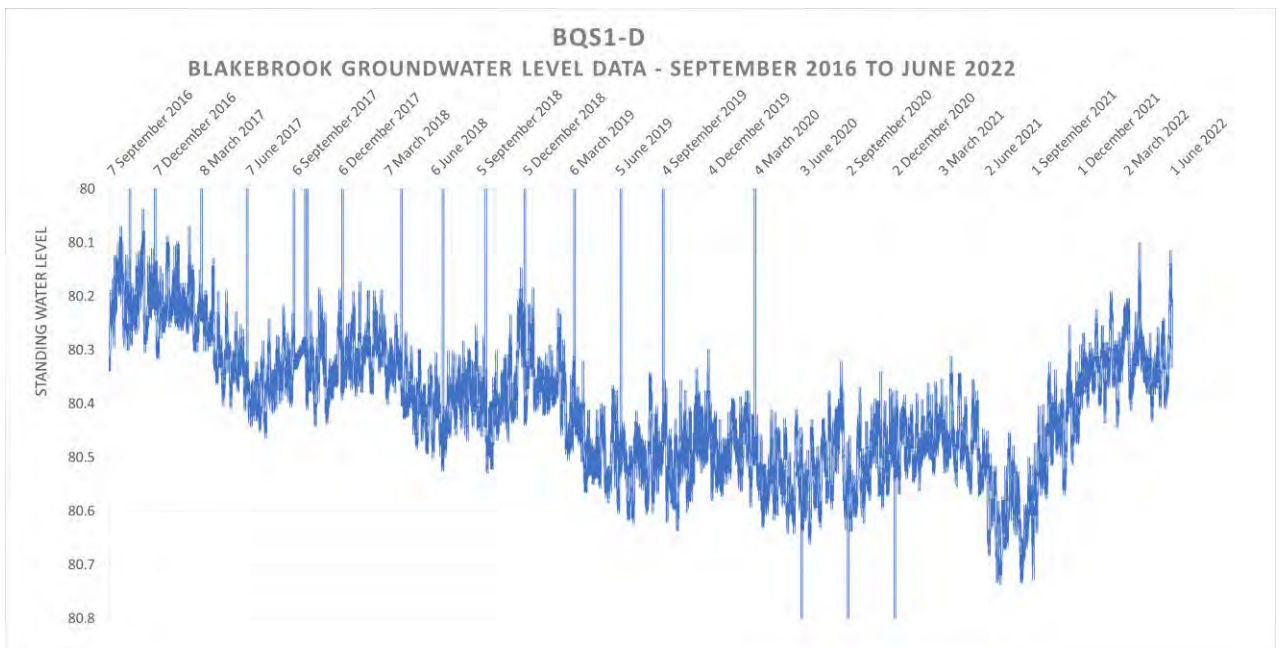
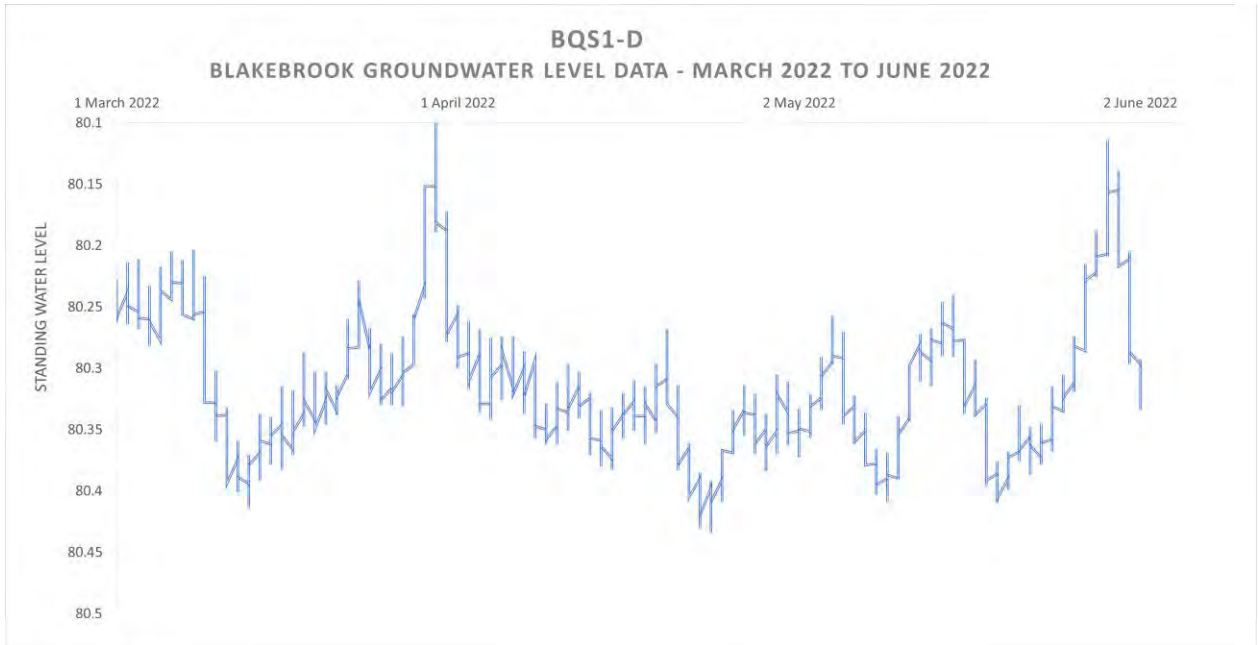
Blakebrook Groundwater Wells – SOUTH 1 BQS1- S (Shallow)



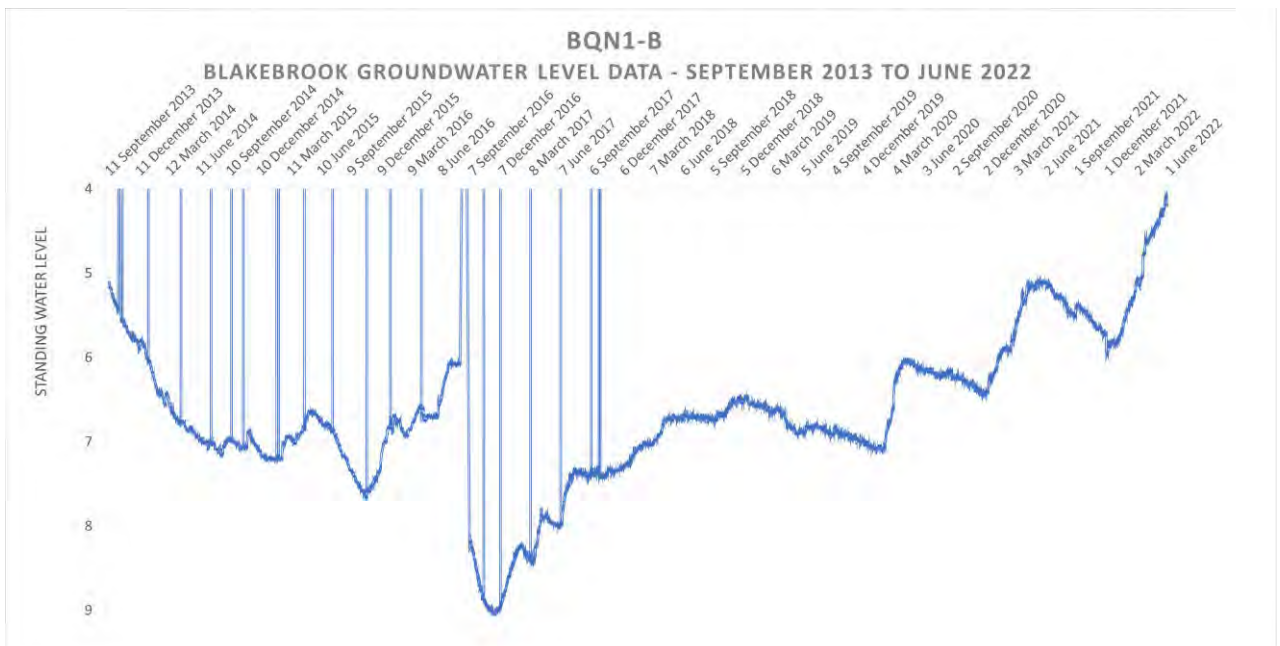
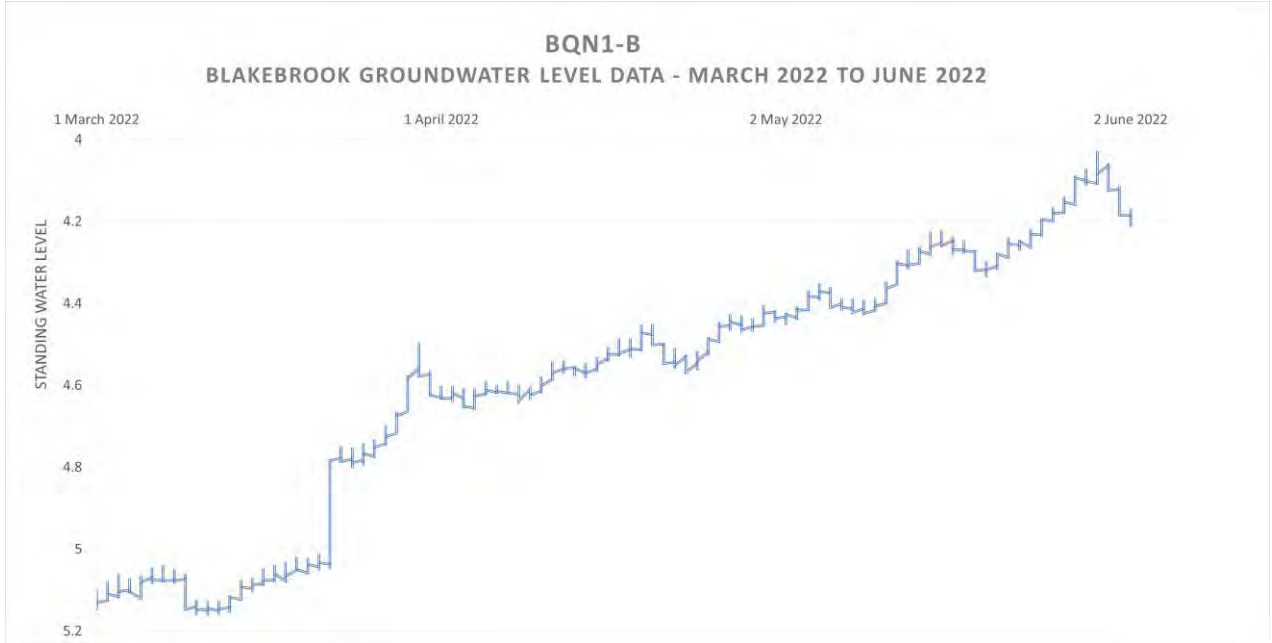
Blakebrook Groundwater Wells – SOUTH 1 BSQS1- I (Intermediate)



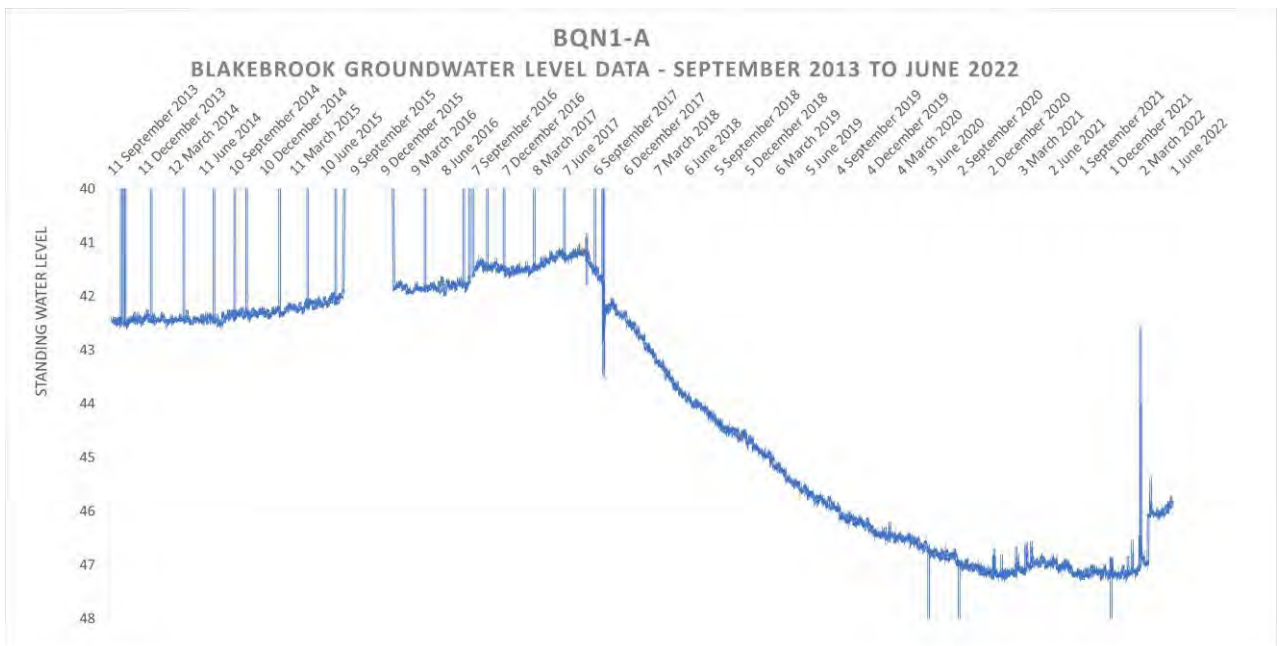
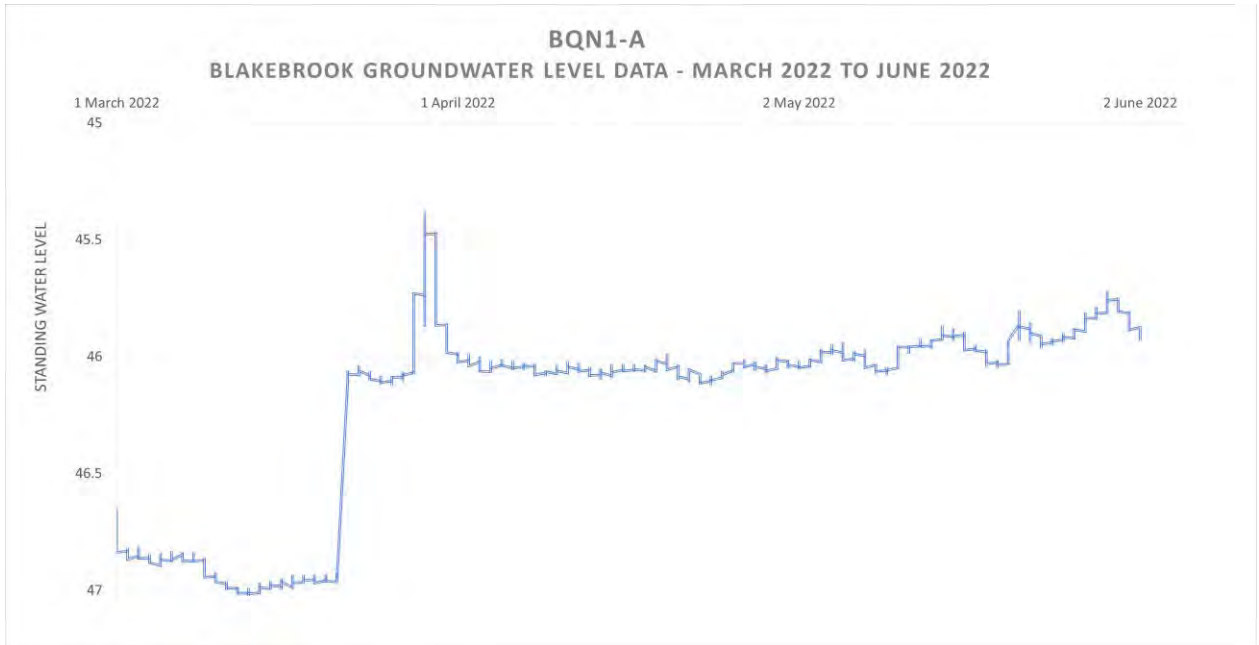
Blakebrook Groundwater Wells -SOUTH 1 BQS1- D (Deep)



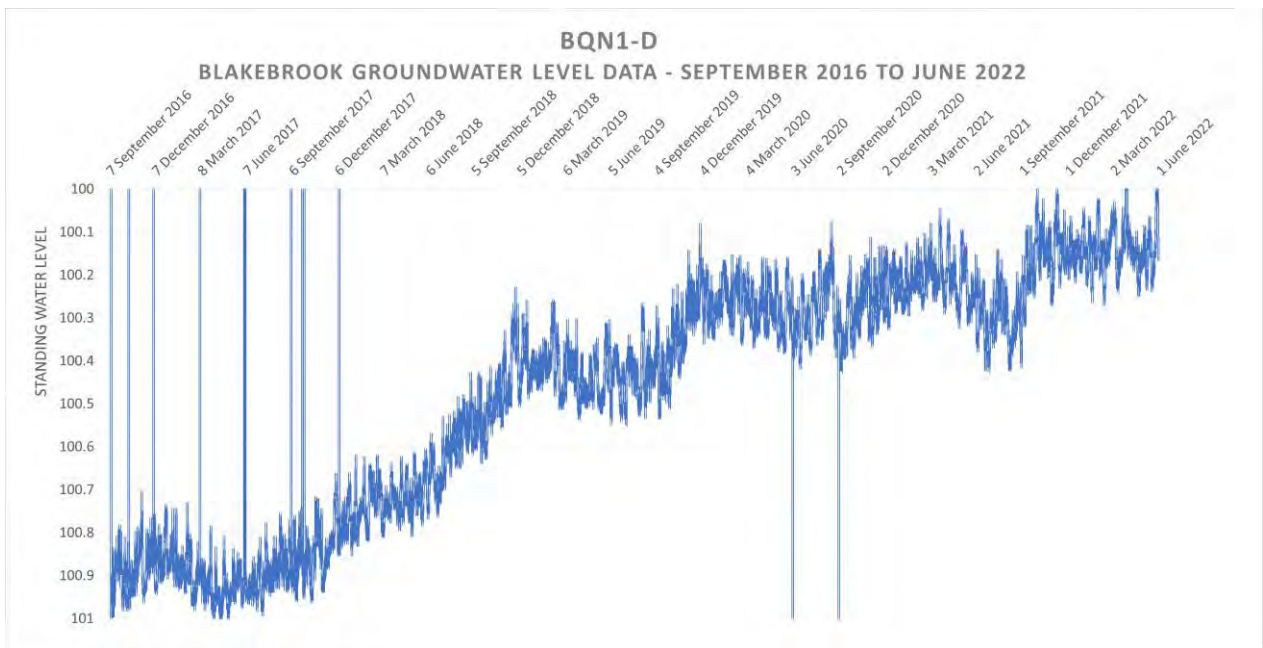
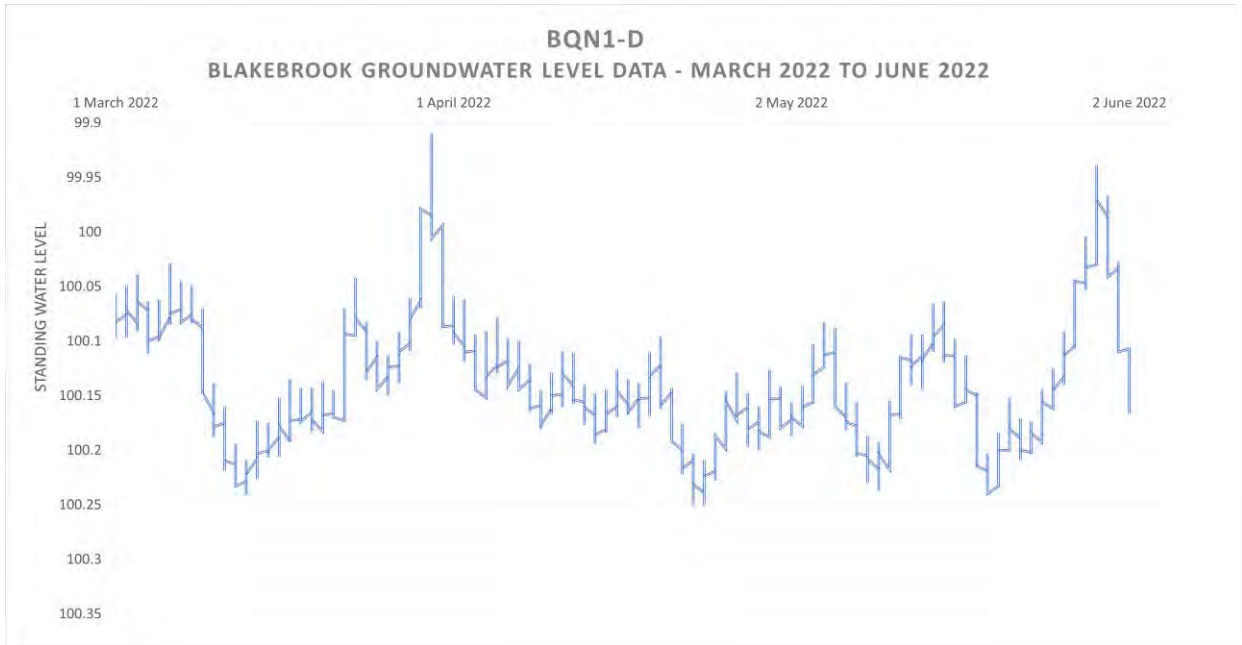
Blakebrook Groundwater Wells -NORTH 1 BQN1- B (Shallow)



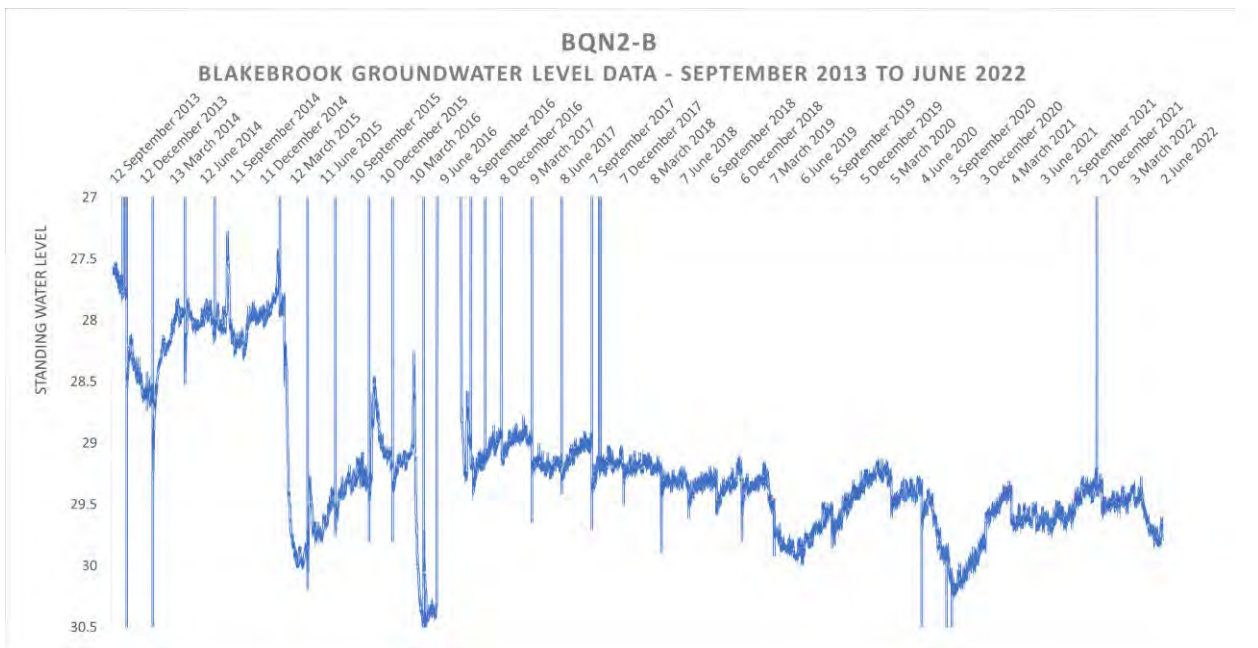
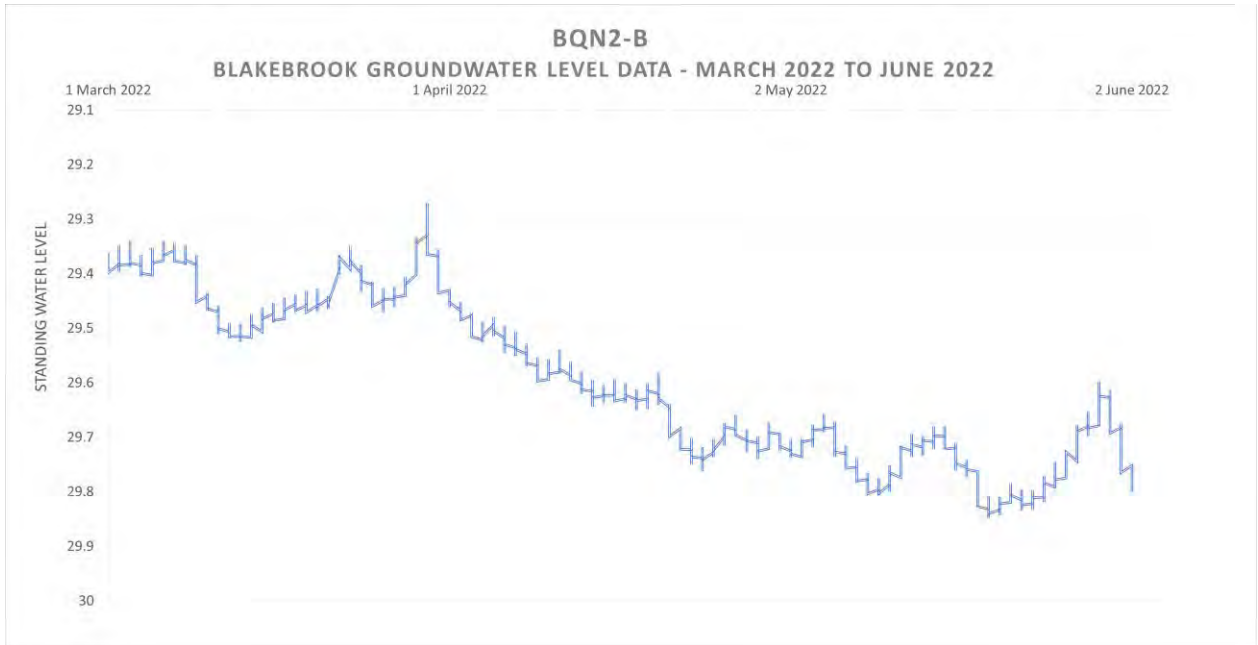
Blakebrook Groundwater Wells -NORTH 1 BQN1- A (Intermediate)



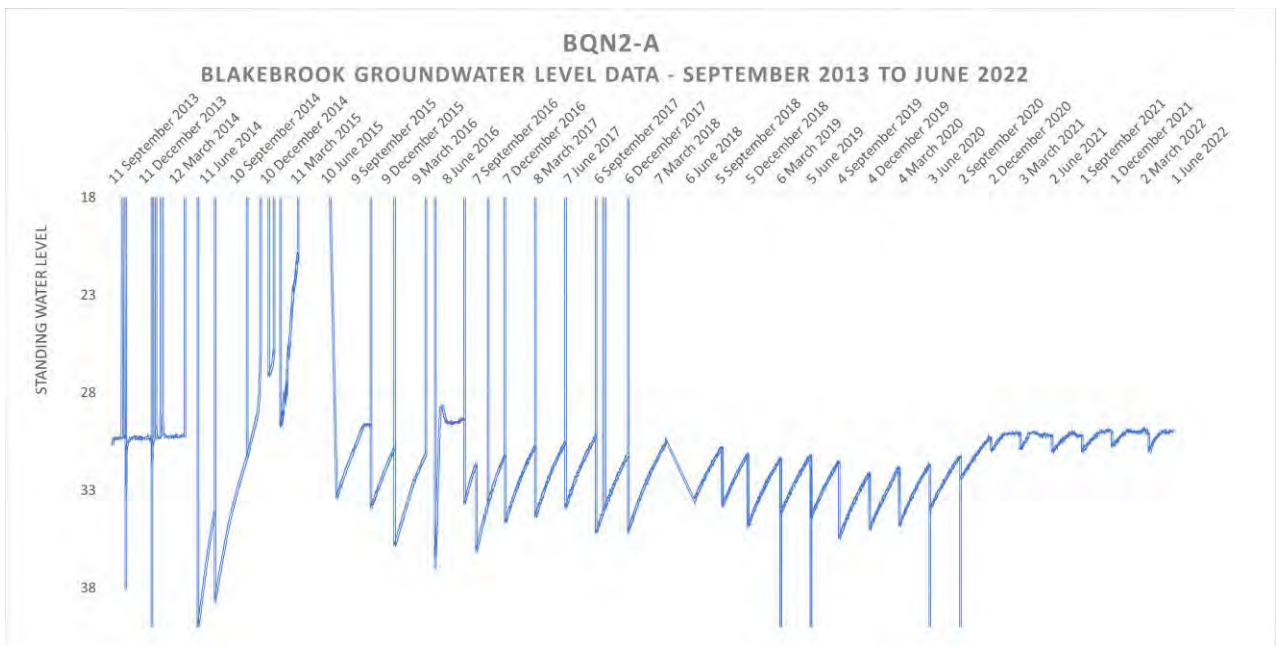
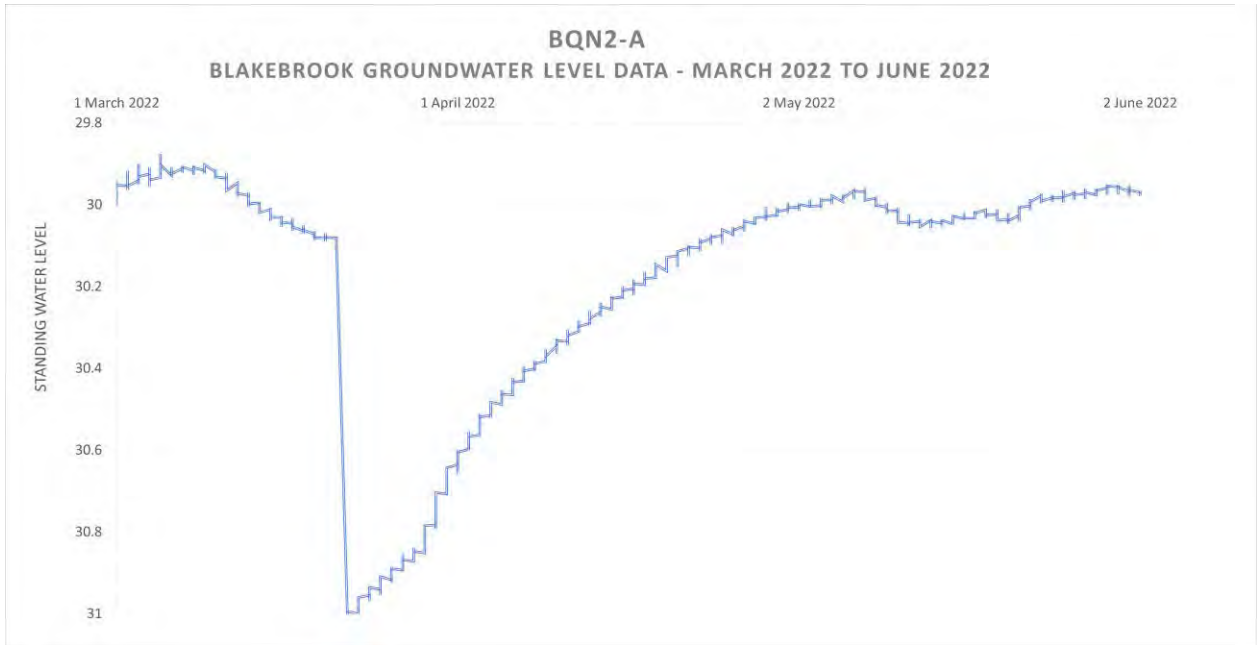
Blakebrook Groundwater Wells -NORTH 1 BQN1- D (Deep)



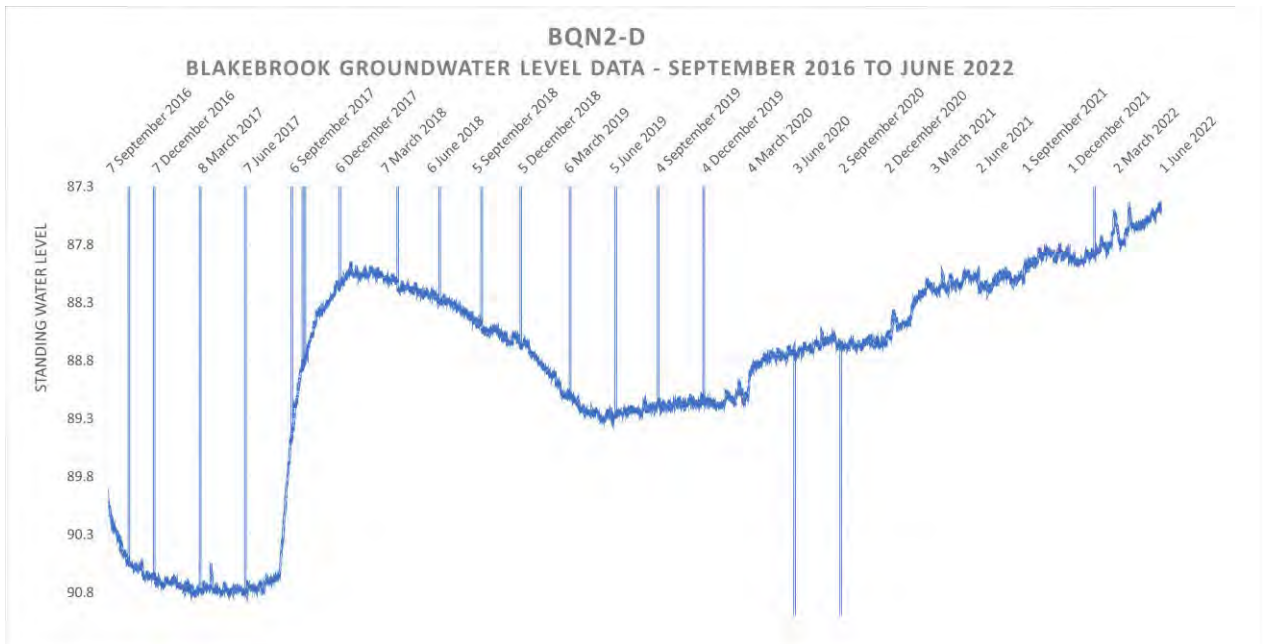
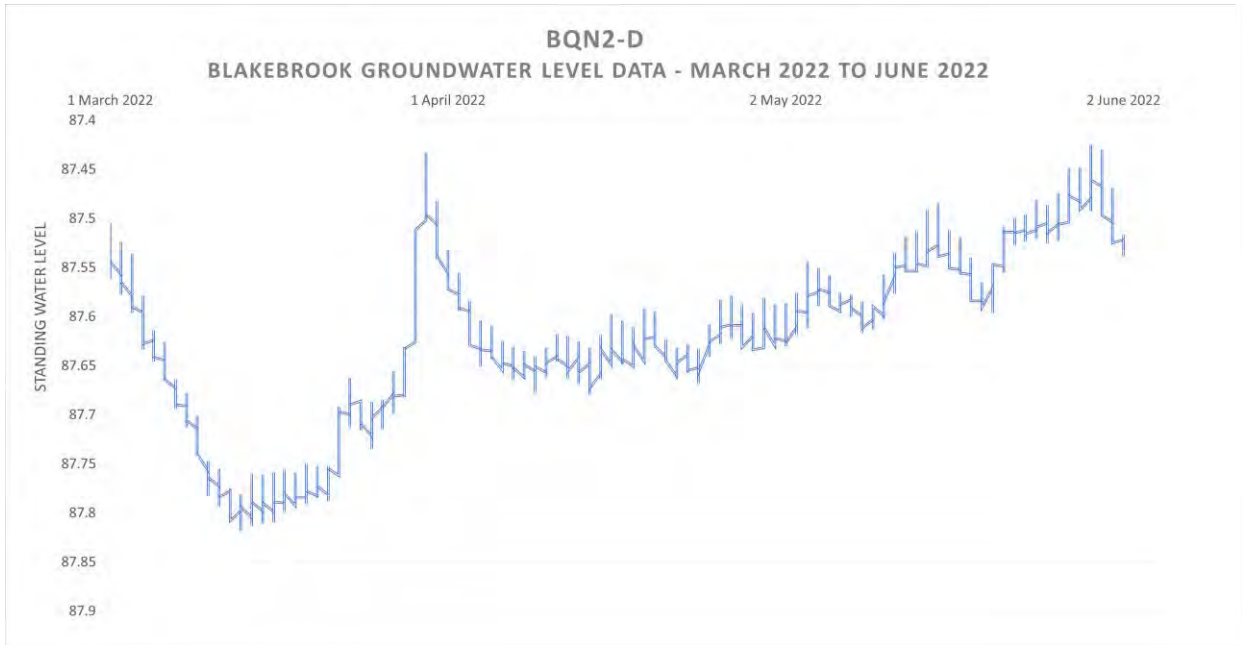
Blakebrook Groundwater Wells -NORTH 2 BQN2- B (Shallow)



Blakebrook Groundwater Wells -NORTH 2 BQN2- A (Intermediate)



Blakebrook Groundwater Wells -NORTH 2 BQN2- D (Deep)



Monday 19th September 2022

Environmental Engineer &
Director

To: [REDACTED]
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

[REDACTED]@ecoteam.com.au
mob: [REDACTED]
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

Re: Groundwater Quality Monitoring Results & Report for Blakebrook Quarry
Reporting period: 1st June 2022 to 1st September 2022

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly groundwater quality and water level monitoring on behalf of Lismore City Council for the Blakebrook Quarry, Blakebrook, NSW. This report presents results from the September 2022 sampling round.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the groundwater monitoring is to monitor groundwater quality and water levels at the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Groundwater) -Work Method Statement 2. The project objectives are to detect any potential changes in water quality or water levels within groundwater wells which may be a result of the Blakebrook Quarry activities, to calibrate the level meters, and assess the functioning of water level meters at the site.

3.0 SAMPLING LOCATIONS

Water samples and level data were collected from all 9 groundwater bores. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly groundwater sampling sites, sample codes and well information

Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
Northern Two Clusters of Monitoring Bores (re. BQN1A, BQN1B, BQN2A, BQN2B, NOW & Cook p4 (2016))									
BQN1-B (BQN1-S)	GW307 323	524993.7	6818662.9	25/7/13	30	15 - 19	30	12 - 21	4.5
BQN1-A (BQN1-I)	GW307 322	524757.0	6818728.0	26/7/13	60	52 - 60	48	48 - 60	42.5
BQN1-D		524994	6818654.5	29/8/16	115	56 - 63; 99 - 109	115	97 - 109	?
BQN2-B (BQN2-S)	GW307 325	524437.7	6818619	28/7/13	42	28 - 38	42	30 - 42	28.5
BQN2-A (BQN2-S)	GW307 324	524436.7	6818615.5	27/7/13	60	52 - 60	60	51 - 60	31.3
BQN2-D		524447.5	6818616.5	29/8/16	133	19 - 24; 44 - 46.5; 112 - 117	133	109 - 121	
Southern Cluster of Monitoring Bores (re. Form A - particulars of completed work, 25/08/16 & GS letter 27/07/17)									
Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
BQS1-S		524684.5	6817848.6	25/8/16	55	38 - 43	55	40 - 52	30
BQS1-I		524681.5	6817842.8	24/8/16	73	34 - 39; 64 - 70	73	58 - 70	30
BQS1-D		524678	6817837.2	23/8/16	102.7	34 - 39; 64 - 72; 95 - 99	102.7	87.7 - 99.7	30



Figure 1. Map of monthly groundwater sampling sites (Source: Lismore City Council).

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [REDACTED] and [REDACTED] on Thursday 1st September 2022. In situ, physico-chemical measurements were collected using an YSI Water Quality Meter and level information was downloaded using the Vu-Situ APP and Wireless TROLL Com instrument and cable connector. Samples collection methods and in-situ results are presented in **Appendix A (Table 2)**. The calibration certificate for the water quality meter is included as **Appendix B**.

Samples were stored on ice and dropped off at the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix C**.

5.0 RESULTS

5.1 Physico-chemical Results

In situ, physico-chemical sampling results are shown in **Appendix A (Table 2)**.

5.2 Laboratory Results

The chain of custody form is included in **Appendix D**. A full copy of the laboratory results is included as **Appendix E**.

5.3 Well Level Results

Well level results for the past three months and the last seven years are presented in **Appendix F**. Groundwater levels have risen in the North 2 shallow well and South shallow well (BQN2-B, BQS1-S), fallen in the North 1 shallow well, South intermediate well and North 2 deep well (BQN1-B, BQS1-I, BQN2-D) and remained consistent in the North 1 intermediate and deep wells, North 2 intermediate well and South deep well (BQN1-A, BQN1-D, BQN2-A, BQS1-D) over the past three months.

6.0 SUMMARY OF RESULTS

- Groundwater levels have risen in the North 2 shallow well and South shallow well (BQN2-B, BQS1-S).
- Groundwater levels have fallen in the North 1 shallow well, South intermediate well and North 2 deep well (BQN1-B, BQS1-I, BQN2-D).
- Groundwater levels have remained consistent in the North 1 intermediate and deep wells, North 2 intermediate well and South deep well (BQN1-A, BQN1-D, BQN2-A, BQS1-D).
- Battery levels in all water level meters remain above 50%.
- All level meters appear to be functioning adequately.
- All level meters have been upgraded and calibrated.

Kind regards,

██████████

Environmental Engineer & Director

██████████@ecoteam.com.au

mob: ██████████

office: (02) 66-215-123

fax: (02) 66-218-123

ABN: 82 106 758 123

APPENDIX A- Physicochemical and sample Information

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Sample Information	Blakebrook Quarry Groundwater Well Sampling Information								
	SOUTH			NORTH 1			NORTH 2		
Site Name	BQS1S	BQS1I	BQS1D	BQN1B	BQN1A	BQN1D	BQN2B	BQN2A	BQN2D
Well Type	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep
Date	01/09/22	01/09/22	01/09/22	01/09/22	01/09/22	01/09/22	01/09/22	01/09/22	01/09/22
Time	1:10 PM	1:11 PM	1:33 PM	2:10 PM	2:25 AM	2:15 PM	12:10 PM	11:45 AM	11:50 AM
Recorded Depth 1	19.94	43.00	79.60	4.28	46.60	100.13	29.70	29.40	87.54
Recorded Depth 2	20.30	43.60	80.40	4.56	46.60	100.11	30.82	30.00	87.57
Level Meter Calibrated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Battery Level	58%	56%	58%	60%	58%	58%	58%	59%	58%
Memory Level	84%	84%	84%	84%	84%	84%	84%	87%	84%
Sample Method	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	12-volt submersible pump	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone
Odour	Not Present	Yes	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Clear water	Clear water	Clear water	Clear water	Clear water	Slightly turbid water	Clear water	Clear water	Clear, some particles
Fresh Water WQOs	Water Quality Observations								
pH	7.08	7.27	8.08	7.53	10.95	8.02	10.6	6.79	8.06
EC $\mu\text{S/cm}$	286	1388	1747	945	2048	1532	1035	345	878
DO (%)	71.1	32.0	41.4	82.45	52.8	44.1	33.8	63.1	31.6
Temperature ($^{\circ}\text{C}$)	21.3	21.9	22.2	20.7	21.4	22.5	21.4	20.9	21.4
ORP	118.5	110.9	27.5	25.0	-17.4	-65.6	32.1	113.6	90.2

Appendix B - Calibration certificate for YSI Water Quality Meter



EQUIPMENT CERTIFICATION REPORT

PGN9003871 WATER QUALITY METER - MULTIFUNCTION


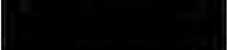
Plant Number: 1089690

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	377339 380327	<input checked="" type="checkbox"/>
Conductivity	2.76 mS/cm @ 25°C	2.76 mS/cm		377099	<input checked="" type="checkbox"/>
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation In Air	5928	<input checked="" type="checkbox"/>
ORP	240mV @ 25°C	240mV	-	7035	<input checked="" type="checkbox"/>

Battery Status <u>100</u> %	Temperature <u>21</u> °C
Electrodes Cleaned and Checked	

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' \$55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By:  Date: 29/8/22 Signed: 

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap



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Appendix C - Full List of Sampling Analytes

Field

- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential

Laboratory

- Total Petroleum Hydrocarbons (TPH,) C10-C40
- Benzene, Toluene, Ethylbenzene Xylene (BTEX)
- Total iron
- Total lead
- Dissolved iron
- Dissolved lead
- Total oils and grease -Hexane Extractable
- Major ions (Sulfate, Chloride)
- Major cations (Calcium, Magnesium, sodium, potassium)

Appendix D - Chain of Custody Form

CHAIN OF CUSTODY

 <p>eal Environmental Analysis Laboratory <small>Southern Cross University</small></p> <p>PO Box 157 (Military Road) LISMORE NSW 2480 P 02 6620 3678 F 02 6620 3957 eal@scu.edu.au, www.scu.edu.au/eal</p>	<p>Submitting Client Details</p> <p>Quote Id: EALQ5821 Job Ref: SMC010-Blakesbrook WQ- Groundwater- SEPT22 Company Name: Ecoteam Contact Person: [REDACTED] Phone: 66215123 Mobile [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>	<p>Billing Client Details</p> <p>ABN: [REDACTED] Company Name: Ecoteam Contact Person: [REDACTED] Phone: 02 66215123 Mobile [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>
	<p>This section will be destroyed after being processed. Only Complete CVV number if you are supplying the original hardcopy to EAL.</p>	

Payment Method:

Purchase Order

Cheque

Invoice (prior approval required)

Credit Card Mastercard / Visa No: _____

Exp. Date: _____ Name on Card: _____ CVV: _____

Relinquished By: [REDACTED] Date: 02/09/2022

Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other: _____

Received By: [REDACTED] Date: 02.09.22

Condition on receipt: Ambient / Cool / Frozen / Other: _____

Comments:

DO NOT TEST FOR Ph or EC

Marketing Survey – where did you find us?

Word of mouth Magazine Google search Other

Sample Analysis Request												
Price List Code (e.g. SW-PACK-06)												
Salt Suite- (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104						
x	x	x	x	x	x	x						
x	x	x	x	x	x	x						
x	x	x	x	x	x	x						
x	x	x	x	x	x	x						
x	x	x	x	x	x	x						
x	x	x	x	x	x	x						

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)
	BQN1-B					Water
	BQN1-A					Water
	BQN1-D					Water
	BQN2-B					Water
	BQN2-A					Water
	BQN2-D					Water

CHAIN OF CUSTODY

Comments:

DO NOT TEST FOR Ph or EC

Marketing Survey – where did you find us?
 Word of mouth Magazine Google search Other

Sample Analysis Request																	
Price List Code (e.g. SW-PACK-06)																	
Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)	Salt Suite- (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104				
	BQS1-S					Water	x	x	x	x	x	x	x				
	BQS1-I					Water	x	x	x	x	x	x	x				
	BQS1-D					Water	x	x	x	x	x	x	x				

Tab through for extra lines

Appendix E - Full Laboratory Results

RESULTS OF WATER ANALYSIS

9 samples supplied by Ecoteam on 2/09/2022. Lab Job No. N2321.
 Samples submitted by ██████████ Your Job: SMC010-Blakebrook WQ-Groundwater-Sept22

13 Erving Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9
		BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
	Job No.	N2321/1	N2321/2	N2321/3	N2321/4	N2321/5	N2321/6	N2321/7	N2321/8	N2321/9
Bicarbonate (Alkalinity) (mg/L CaCO ₃ equivalent)	** Total Alkalinity - APHA 2320	229	196	126	82	106	336	117	221	111
Water Hardness (mg/L CaCO ₃ equivalent)	** Using Ca and Mg calculation	198	163	30	66	57	11	67	97	41
Total Oils and Grease (mg/L)	APHA 5520-D (hexane extractable)	<2	<2	<2	<2	<2	<2	3	<2	<2
Sodium (mg/L)	APHA 3125 ICPMS ^{1004 142}	221	330	261	158	44.4	210	40.2	250	354
Potassium (mg/L)	APHA 3125 ICPMS ^{1004 142}	5.70	10.2	2.56	6.68	3.32	2.56	3.03	5.32	4.19
Calcium (mg/L)	APHA 3125 ICPMS ^{1004 142}	38.9	60.9	9.42	25.4	15.0	3.73	17.1	29.7	13.7
Magnesium (mg/L)	APHA 3125 ICPMS ^{1004 142}	24.4	2.60	1.65	0.54	4.87	0.49	5.90	5.43	1.73
Sodium Absorption Ratio (SAR)	** By calculation	6.8	11.3	20.6	8.5	2.5	27.1	2.1	11.0	23.9
Chloride (mg/L)	APHA 3125 ICPMS ^{1004 142}	253	494	270	185	31	85	12	301	445
Sulfate (mg/L SO ₄ ²⁻)	APHA 3125 ICPMS ^{1004 142}	9	27	62	25	<9	19	<9	<9	39
Chloride/Sulfate Ratio	** Calculation	27.2	18.6	4.3	7.4	..	4.5	11.5
Iron (mg/L)	Total Available - APHA 3125 ICPMS ^{1004 142}	2.75	0.210	1.99	0.072	0.084	0.096	0.083	0.061	0.108
Lead (mg/L)	Total Available - APHA 3125 ICPMS ^{1004 142}	<0.001	0.001	0.002	0.002	0.007	0.012	0.001	0.001	0.003
Iron (mg/L)	Dissolved - APHA 3125 ICPMS ^{1004 142}	0.245	<0.005	<0.005	0.006	<0.005	0.007	0.005	0.015	<0.005
Lead (mg/L)	Dissolved - APHA 3125 ICPMS ^{1004 142}	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
BTEX										
Benzene (µg/L)	Subcontracted: SGS report SE 236315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene (µg/L)	Subcontracted: SGS report SE 236315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene (µg/L)	Subcontracted: SGS report SE 236315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m,p-xylene (µg/L)	Subcontracted: SGS report SE 236315	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-xylene (µg/L)	Subcontracted: SGS report SE 236315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes (µg/L)	Subcontracted: SGS report SE 236315	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX (µg/L)	Subcontracted: SGS report SE 236315	<3	<3	<3	<3	<3	<3	<3	<3	<3
Naphthalene (VOC) (µg/L)	Subcontracted: SGS report SE 236315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Recoverable Hydrocarbons (TRH)										
TRH C6-C9 (µg/L)	Subcontracted: SGS report SE 236315	<40	47	<40	<40	<40	86	<40	<40	<40
Benzene (F0) (µg/L)	Subcontracted: SGS report SE 236315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10 (µg/L)	Subcontracted: SGS report SE 236315	<50	<50	<50	<50	<50	88	<50	<50	<50
TRH C6-C10 minus BTEX (F1) (µg/L)	Subcontracted: SGS report SE 236315	<50	<50	<50	<50	<50	88	<50	<50	<50
LLTRH C10-C14 (µg/L)	Subcontracted: SGS report SE 236315	<50	<50	<50	<50	<50	<50	<50	<50	<50
LLTRH C15-C28 (µg/L)	Subcontracted: SGS report SE 236315	<100	<100	<100	<100	<100	<100	<100	<100	<100
LLTRH C29-C36 (µg/L)	Subcontracted: SGS report SE 236315	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH Sum C10-C36 (µg/L)	Subcontracted: SGS report SE 236315	<100	<100	<100	<100	<100	<100	<100	<100	<100
LLTRH >C10-C16 (µg/L)	Subcontracted: SGS report SE 236315	<60	<60	<60	<60	<60	<60	<60	<60	<60
LLTRH >C16-C34 (F3) (µg/L)	Subcontracted: SGS report SE 236315	<200	<200	<200	<200	<200	<200	<200	<200	<200
LLTRH >C34-C40 (F4) (µg/L)	Subcontracted: SGS report SE 236315	<100	<100	<100	<100	<100	<100	<100	<100	<100

Notes:

- Total metals - samples digested with nitric acid. Total available (acid soluble/ extractable) metals - samples acidified w/ h nitric acid to pH <2.
Dissolved metals - samples filtered through 0.45µm cellulose acetate and then acidified w/ h nitric acid prior to analysis
- Metals and salts analysed by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS).
- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L. (micrograms per litre) = 1000 ppb (part per billion).
- For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm.
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and report date.
- ** NATA accreditation does not cover the performance of this service.
- ... Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This report was issued on 15/09/2022.



Appendix F - Hydrographs



Blakebrook Quarry- Groundwater Monitoring

Groundwater Hydrographs

September 2022



13 Ewing Street, LISMORE

NSW 2480 Australia

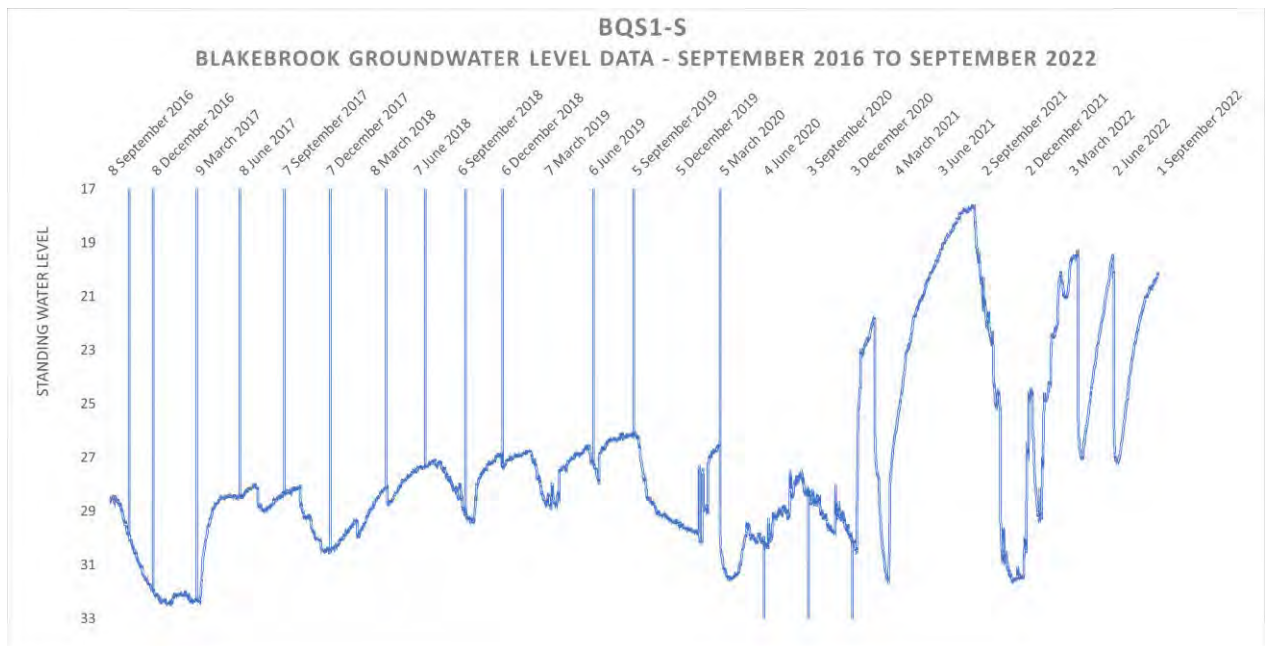
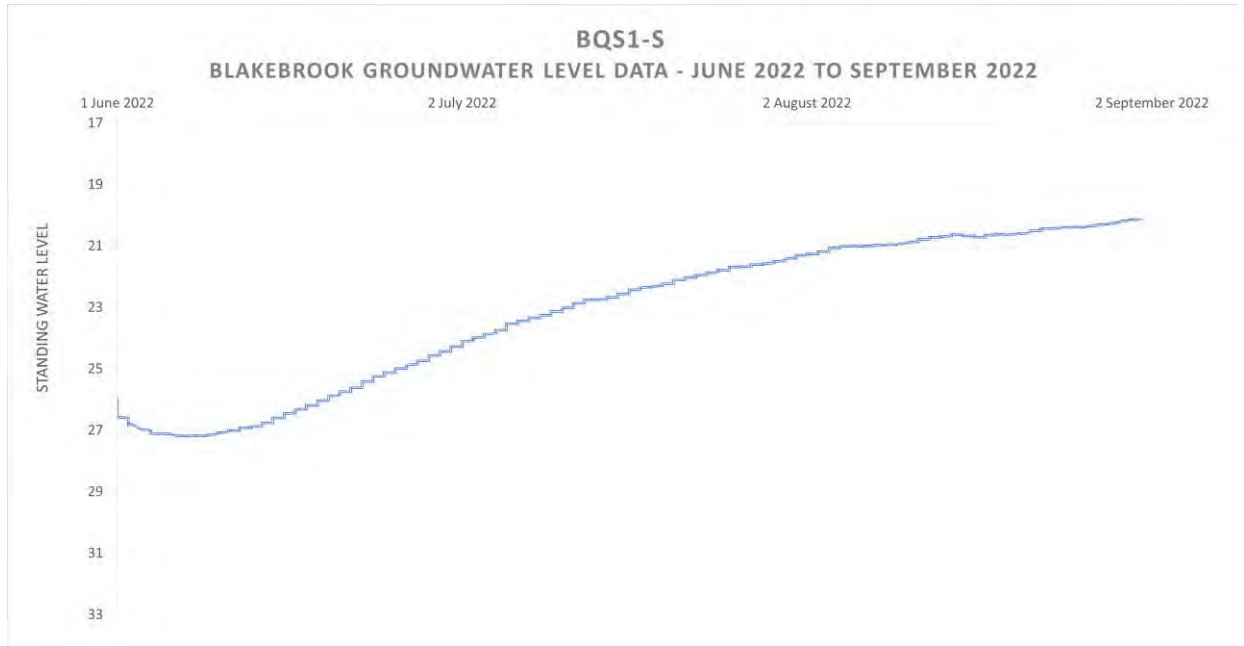
Phone: (02) 6621 5123

Fax: (02) 6621 8123

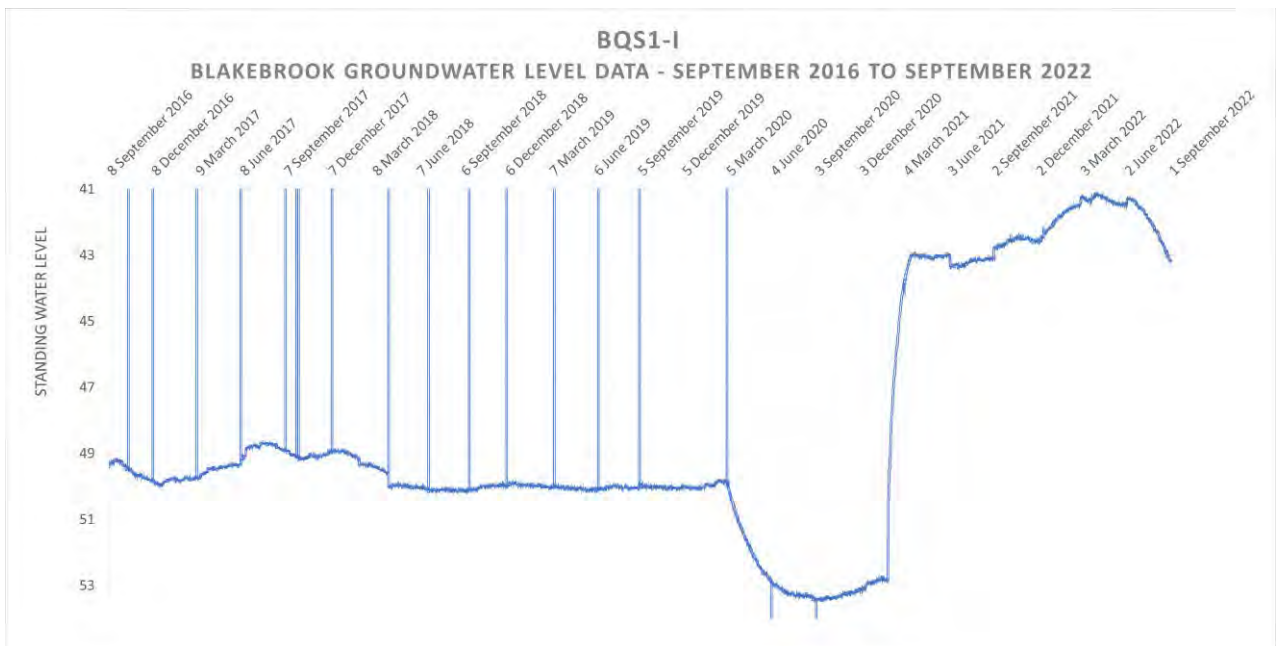
Email: info@ecoteam.com.au

Web: www.ecoteam.com.au

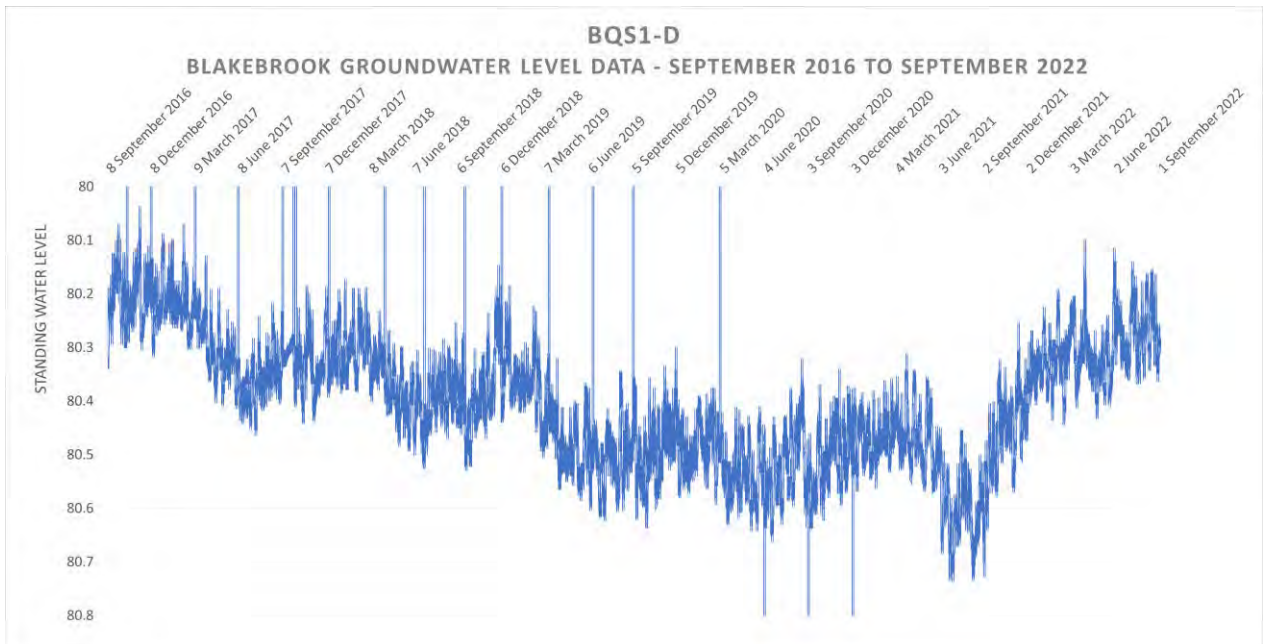
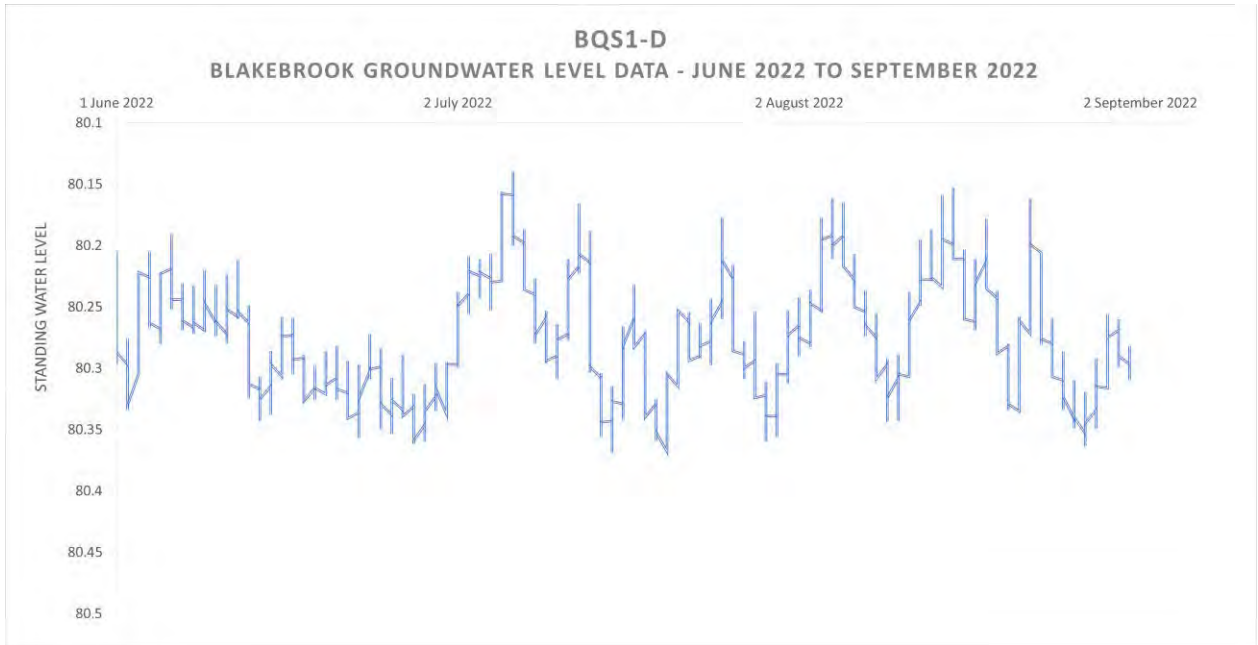
Blakebrook Groundwater Wells – SOUTH 1 BQS1- S (Shallow)



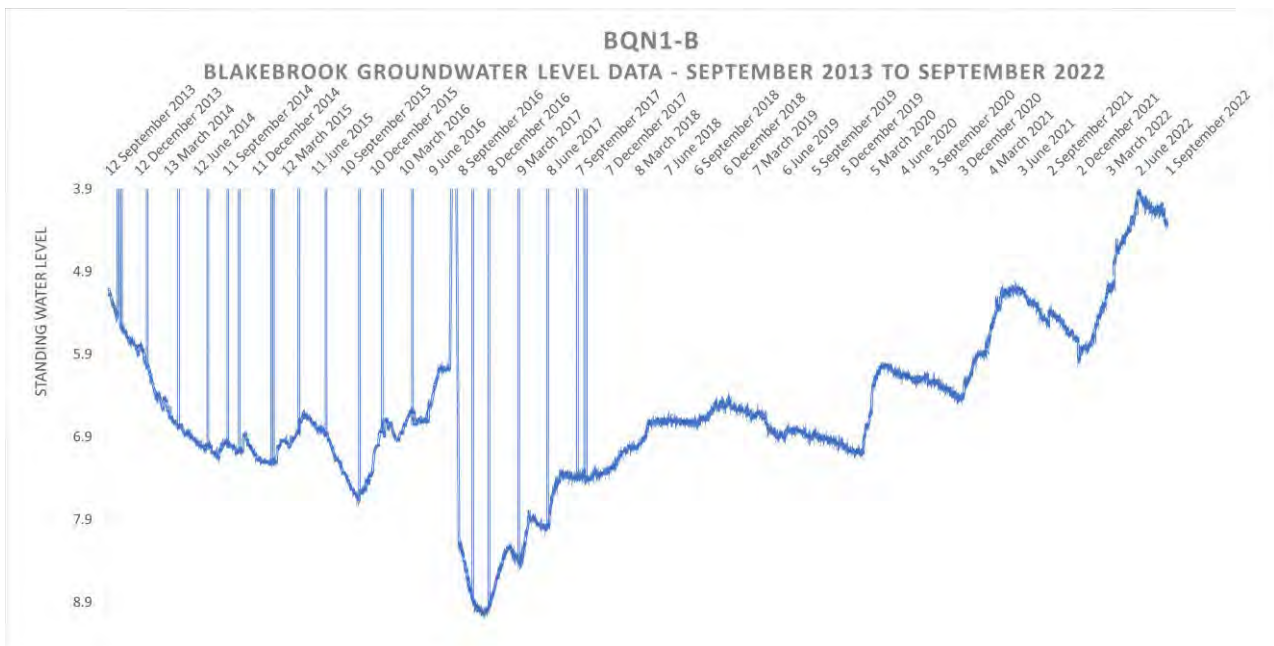
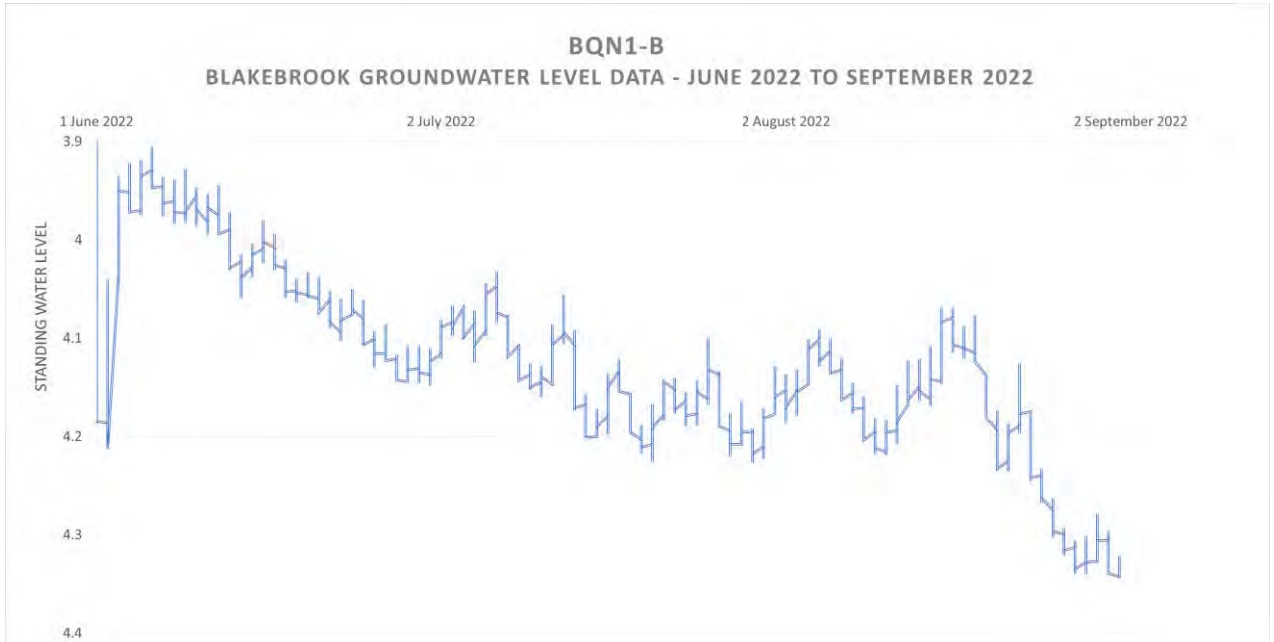
Blakebrook Groundwater Wells – SOUTH 1 BSQS1- I (Intermediate)



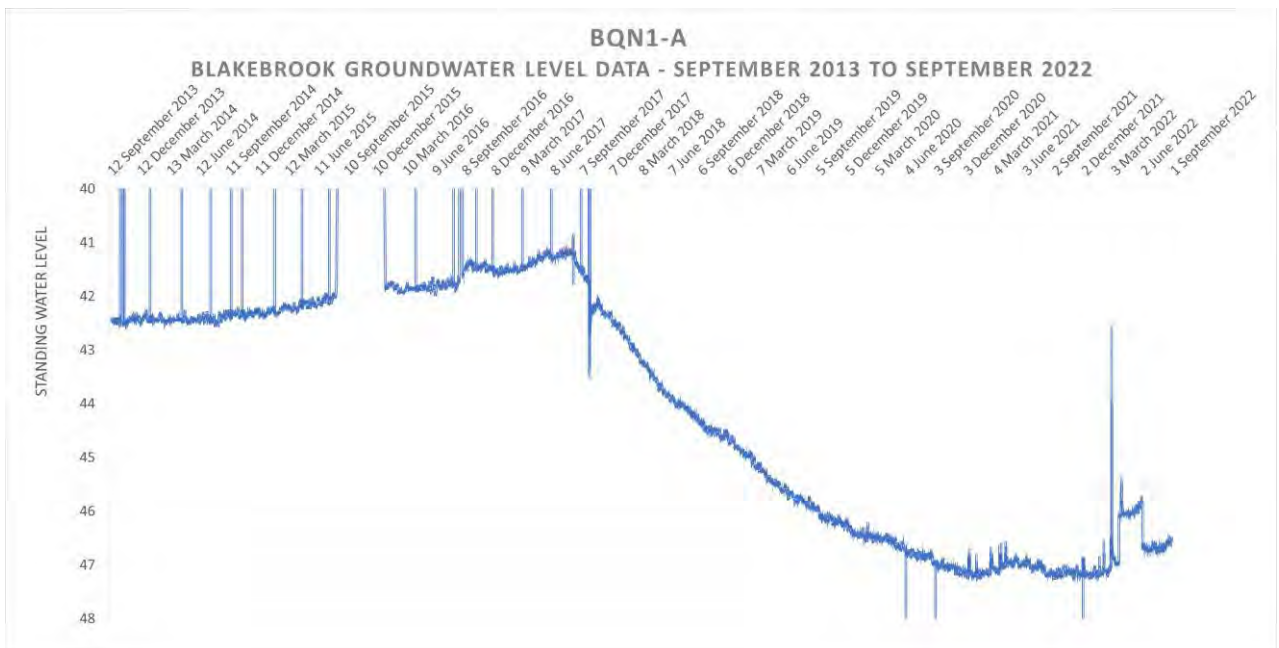
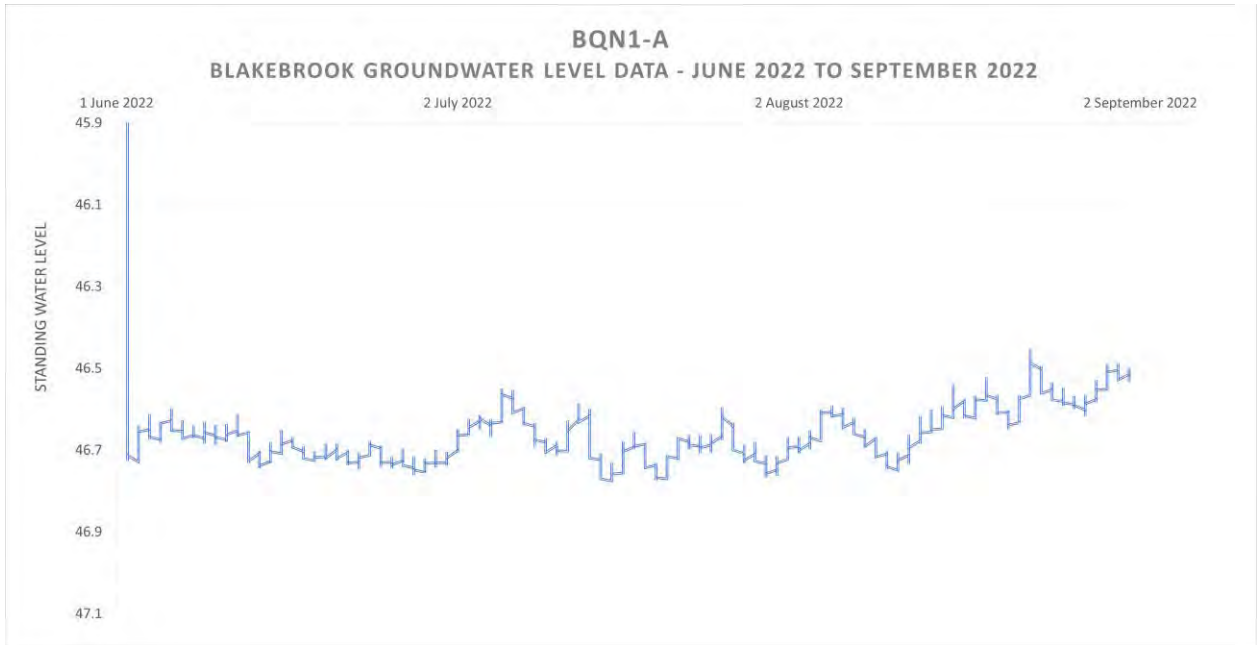
Blakebrook Groundwater Wells -SOUTH 1 BQS1- D (Deep)



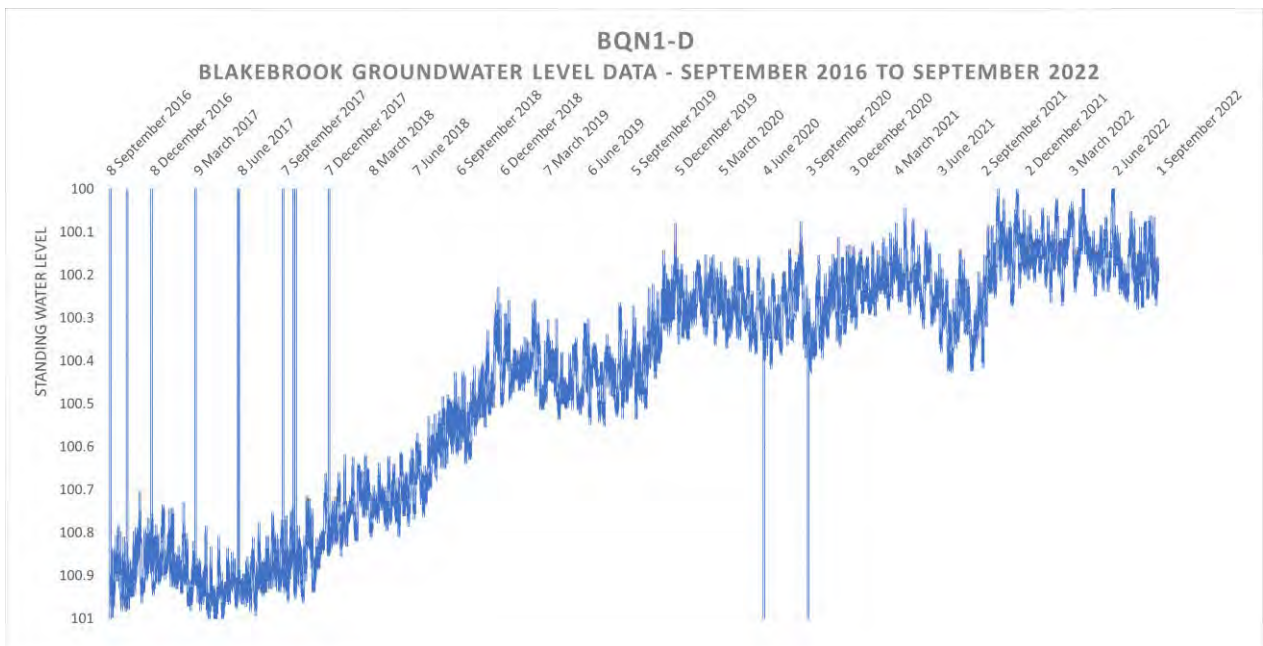
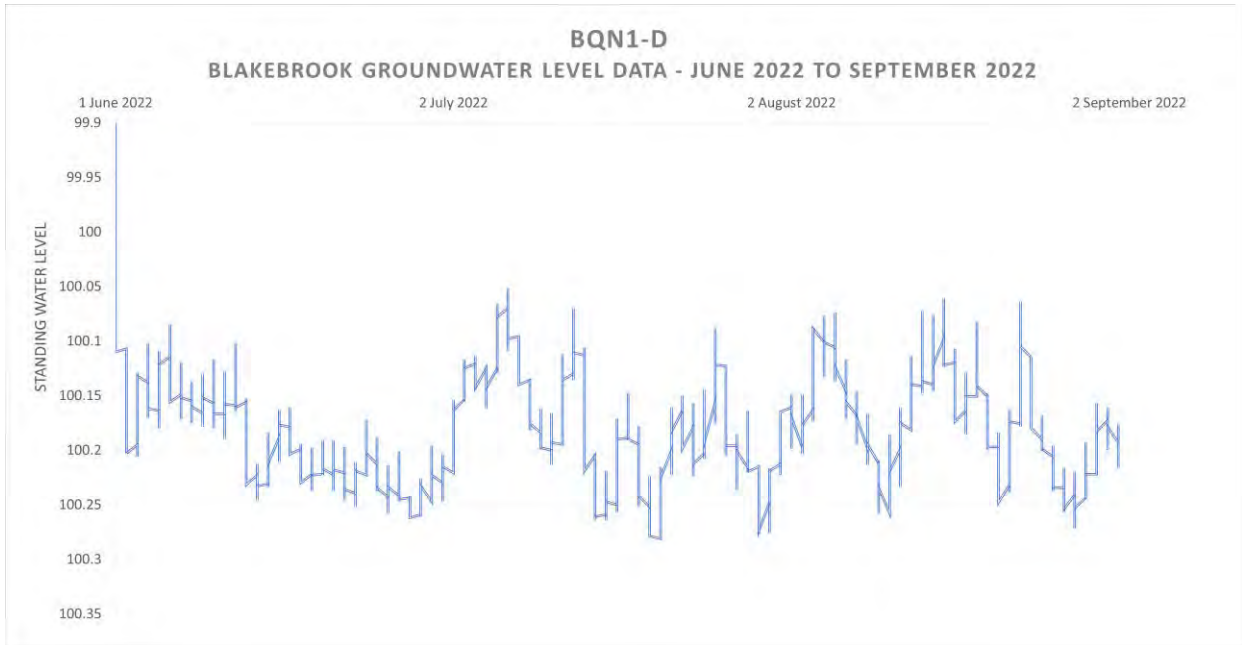
Blakebrook Groundwater Wells -NORTH 1 BQN1- B (Shallow)



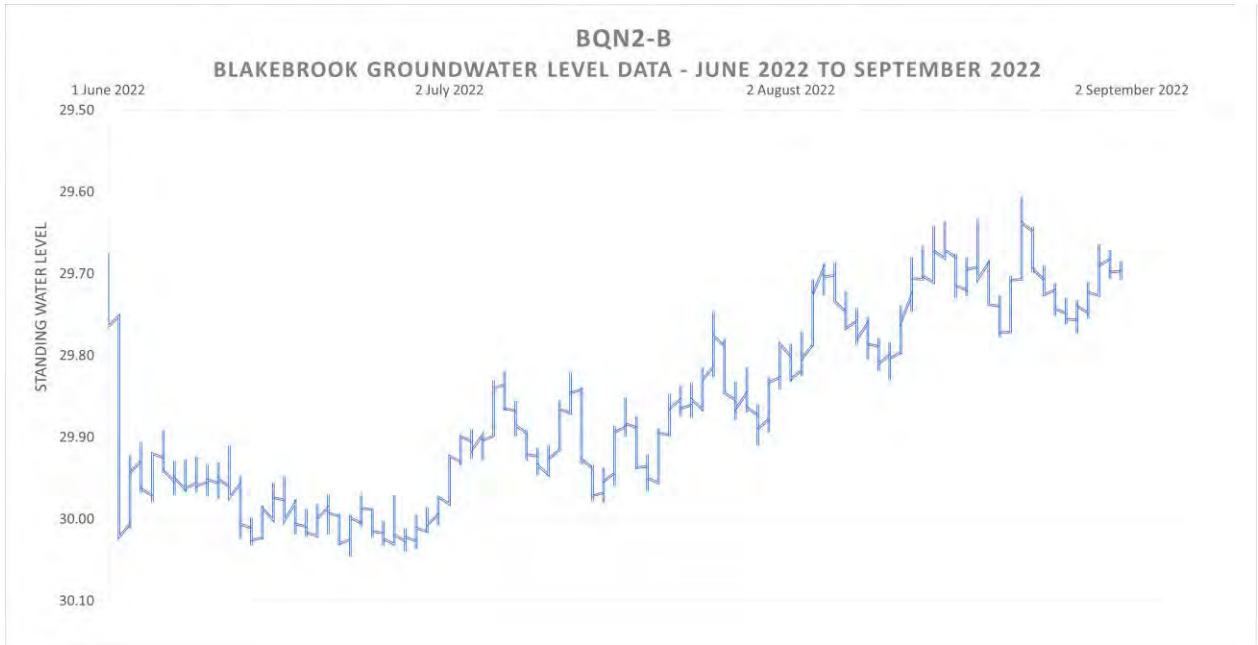
Blakebrook Groundwater Wells -NORTH 1 BQN1- A (Intermediate)



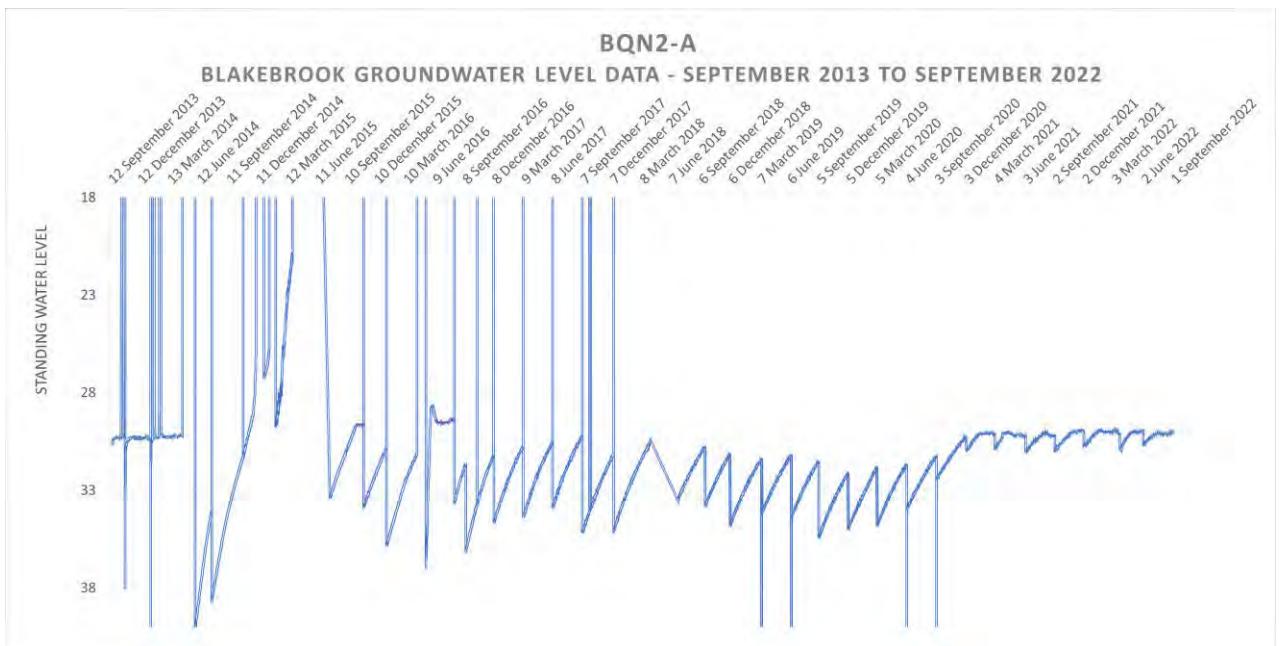
Blakebrook Groundwater Wells -NORTH 1 BQN1- D (Deep)



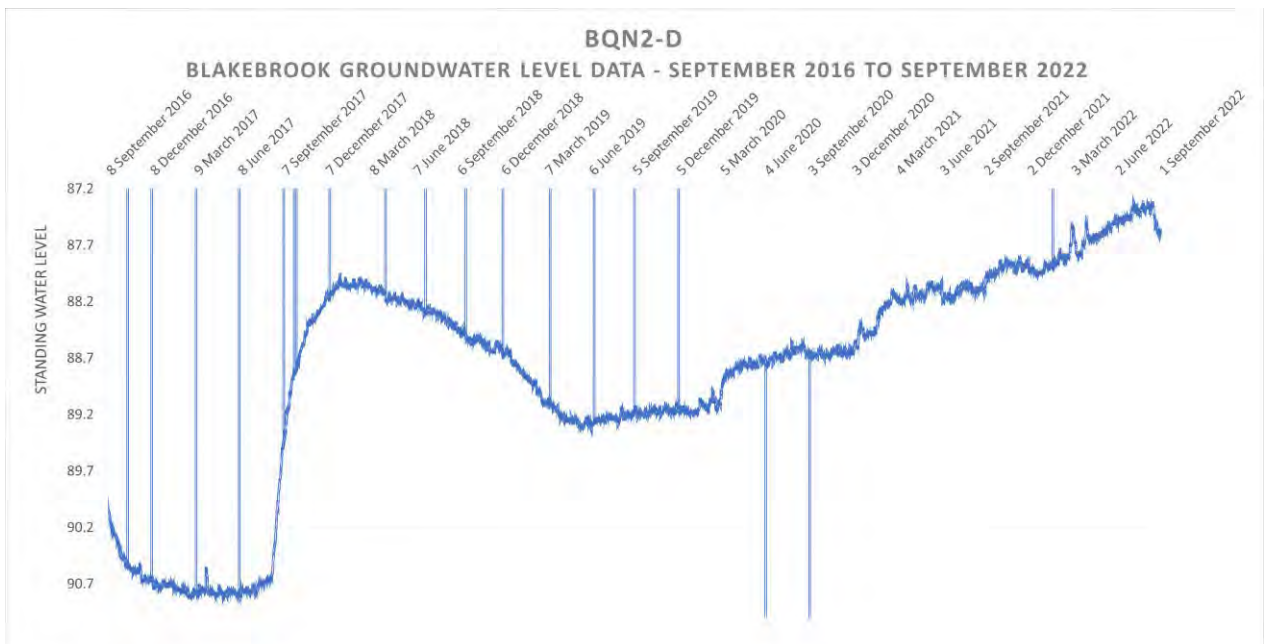
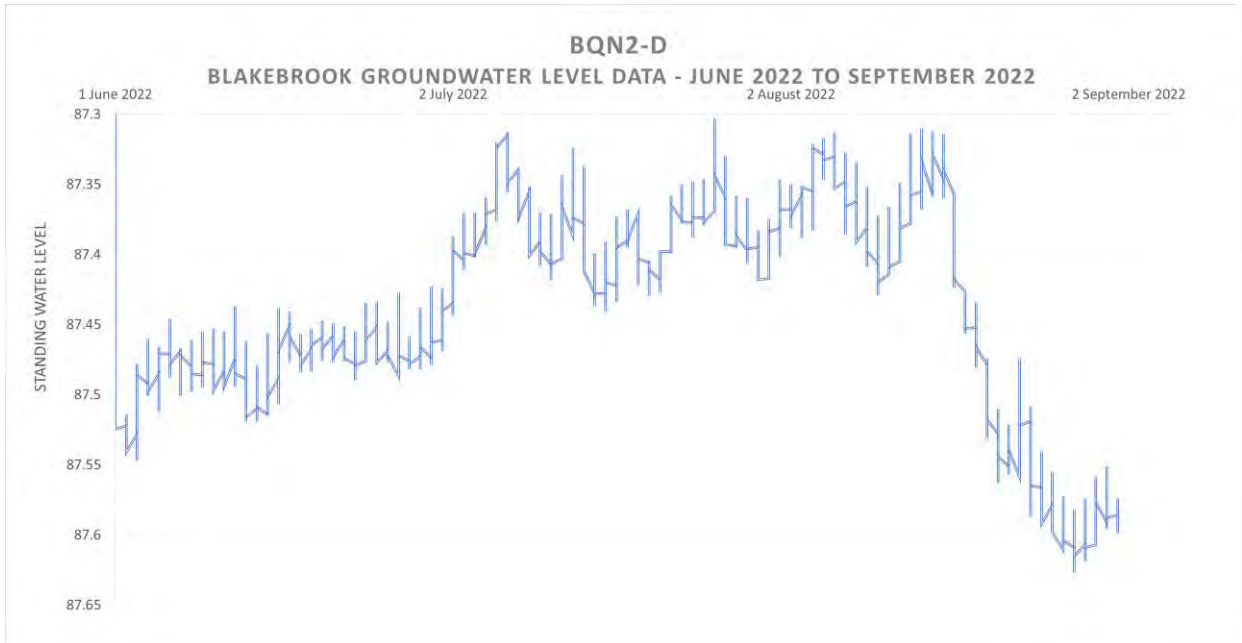
Blakebrook Groundwater Wells -NORTH 2 BQN2- B (Shallow)



Blakebrook Groundwater Wells -NORTH 2 BQN2- A (Intermediate)



Blakebrook Groundwater Wells -NORTH 2 BQN2- D (Deep)



Tuesday 20th September 2022

To: [REDACTED]
Compliance Officer, Lismore City Council
Blakebrook Quarry Water Quality Sampling

[REDACTED]
Environmental Engineer &
Director
[REDACTED]@ecoteam.com.au
mob: [REDACTED]
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

Re: Groundwater Quality Monitoring Results & Report for Blakebrook Quarry
Reporting period: 1st September 2022 to 1st December 2022

1.0 INTRODUCTION

Ecoteam is engaged to undertake quarterly groundwater quality and water level monitoring on behalf of Lismore City Council for the Blakebrook Quarry, Blakebrook, NSW. This report presents results from the December 2022 sampling round.

2.0 PROJECT AIMS AND SAMPLING OBJECTIVES

The aim of the groundwater monitoring is to monitor groundwater quality and water levels at the Blakebrook Quarry site as per Northern Rivers Quarry - Blakebrook Quarry Monitoring Procedure (Groundwater) -Work Method Statement 2. The project objectives are to detect any potential changes in water quality or water levels within groundwater wells which may be a result of the Blakebrook Quarry activities, to calibrate the level meters, and assess the functioning of water level meters at the site.

3.0 SAMPLING LOCATIONS

Water samples and level data were collected from all 9 groundwater bores. Sample codes and corresponding sampling locations are shown in **Table 1** and **Figure 1**.

Table 1. Quarterly groundwater sampling sites, sample codes and well information

Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
Northern Two Clusters of Monitoring Bores (re. BQN1A, BQN1B, BQN2A, BQN2B, NOW & Cook p4 (2016))									
BQN1-B (BQN1-S)	GW307 323	524993.7	6818662.9	25/7/13	30	15 - 19	30	12 - 21	4.5
BQN1-A (BQN1-I)	GW307 322	524757.0	6818728.0	26/7/13	60	52 - 60	48	48 - 60	42.5
BQN1-D		524994	6818654.5	29/8/16	115	56 - 63; 99 - 109	115	97 - 109	?
BQN2-B (BQN2-S)	GW307 325	524437.7	6818619	28/7/13	42	28 - 38	42	30 - 42	28.5
BQN2-A (BQN2-S)	GW307 324	524436.7	6818615.5	27/7/13	60	52 - 60	60	51 - 60	31.3
BQN2-D		524447.5	6818616.5	29/8/16	133	19 - 24; 44 - 46.5; 112 - 117	133	109 - 121	
Southern Cluster of Monitoring Bores (re. Form A - particulars of completed work, 25/08/16 & GS letter 27/07/17)									
Bore ID	RN (NOW)	Easting	Northing	Completion date	TD (mBGL)	Water strike (mBGL)	Casing Depth (mBGL)	Screened (mBGL)	SWL (mBGL)
BQS1-S		524684.5	6817848.6	25/8/16	55	38 - 43	55	40 - 52	30
BQS1-I		524681.5	6817842.8	24/8/16	73	34 - 39; 64 - 70	73	58 - 70	30
BQS1-D		524678	6817837.2	23/8/16	102.7	34 - 39; 64 - 72; 95 - 99	102.7	87.7 - 99.7	30



Figure 1. Map of monthly groundwater sampling sites (Source: Lismore City Council).

4.0 SAMPLING METHODOLOGY

Sampling was undertaken by [REDACTED] and [REDACTED] on Thursday 2nd December 2022. In situ, physico-chemical measurements were collected using an Aquatroll Water Quality Meter and level information was downloaded using the Vu-Situ APP and Wireless TROLL Com instrument and cable connector. Samples collection methods and in-situ results are presented in **Appendix A (Table 2)**. The calibration certificate for the water quality meter is included as **Appendix B**.

Samples were stored on ice and dropped off at the Environmental Analysis Laboratory (EAL) in Lismore. Samples were not field filtered. A full list of analytes for the project are included in **Appendix C**.

5.0 RESULTS

5.1 Physico-chemical Results

In situ, physico-chemical sampling results are shown in **Appendix A (Table 2)**.

5.2 Laboratory Results

The chain of custody form is included in **Appendix D**. A full copy of the laboratory results is included as **Appendix E**.

5.3 Well Level Results

Well level results for the past three months and the last seven years are presented in **Appendix F**. Groundwater levels have risen in the North 2 shallow and intermediate wells and North 1 intermediate well (BQN2-A, BQN2-B, BQN1-A) fallen in the North 1 shallow well and South shallow and intermediate wells (BQN1-B, BQS1-S, BQS1-I) and remained consistent in all deep wells (BQN1-D, BQS1-D, BQN2-D) over the past three months.

6.0 SUMMARY OF RESULTS

- Groundwater levels have risen in the North 2 shallow and intermediate wells and North 1 intermediate well (BQN2-A, BQN2-B, BQN1-A).
- Groundwater levels have fallen in the North 1 shallow well and South shallow and intermediate wells (BQN1-B, BQS1-S, BQS1-I).
- Groundwater levels have remained consistent in all deep wells (BQN1-D, BQS1-D, BQN2-D).
- Battery levels in all water level meters remain above 50%.
- All level meters appear to be functioning adequately.
- All level meters have been upgraded and calibrated.

Kind regards,

██████████
Environmental Engineer & Director
██████████@ecoteam.com.au
mob: ██████████
office: (02) 66-215-123
fax: (02) 66-218-123
ABN: 82 106 758 123

APPENDIX A- Physicochemical and sample Information

Table 2. Results of physico-chemical parameters collected in situ at quarterly sampling.

Sample Information	Blakebrook Quarry Groundwater Well Sampling Information								
	SOUTH			NORTH 1			NORTH 2		
Site Name	BQS1S	BQS1I	BQS1D	BQN1B	BQN1A	BQN1D	BQN2B	BQN2A	BQN2D
Well Type	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep
Date	02/12/22	02/12/22	02/12/22	02/12/22	02/12/22	02/12/22	02/12/22	02/12/22	02/12/22
Time	12:15 PM	12:40 PM	12:33 PM	10:45 AM	10:30 AM	10:55 AM	9:00 AM	10:00 AM	9:10 AM
Recorded Depth 1	20.20	43.26	80.22	4.42	41.53	100.02	29.15	30.10	87.44
Recorded Depth 2	21.20	43.26	80.80	4.49	41.60	100.02	29.95	30.80	87.48
Level Meter Calibrated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Battery Level	57%	57%	57%	57%	57%	58%	57%	58%	57%
Memory Level	84%	84%	84%	84%	81%	84%	78%	87%	84%
Sample Method	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	12-volt submersible pump	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone	Bottom filling Bailer from screen zone	Bottom filling Bailer from screen zone	Hydro sleeve Bailer from screen zone
Odour	Not Present	Yes-sulphur	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Site/Water Observations	Clear water	Clear, some particles	Clear, some particles	Clear water	Clear water	Clear water	Slightly milky	Clear water	Clear water
Fresh Water WQOs	Water Quality Observations								
pH	6.43	8.02	7.90	6.99	8.99	8.48	8.74	7.16	8.80
EC μ S/cm	243.3	1,186.3	1539.0	928.16	1,426.7	1,189.7	1,137.8	308.10	897.13
DO (%)	31.01	34.76	57.10	3.79	41.18	27.12	31.48	85.03	54.75
Temperature ($^{\circ}$ C)	21.91	22.56	22.36	21.19	21.96	22.53	20.79	20.83	21.33
ORP	131.6	-131.1	86.7	-74.6	84.5	-74.6	95.5	111.9	84.6

Appendix B - Calibration certificate for Aquatroll Water Quality Meter

Calibration Report

Instrument Aqua TROLL 500
Serial Number 757823
Created 21/11/2022

Sensor **Turbidity**
Serial Number 754060
Last Calibrated Factory Defaults

Sensor **RDO**
Serial Number 754373
Last Calibrated 10/07/2022

Calibration Details

Slope 1
Offset -0.10 mg/L

Pre Measurement

RDO Concentration 8.74 mg/L

Post Measurement

RDO Concentration 8.75 mg/L

Sensor **pH/ORP**
Serial Number 742301
Last Calibrated 21/11/2022

Calibration Details

Calibration Point 1

pH of Buffer 4.01 pH
pH mV 96.0 mV
Temperature 29.11 °C

Pre Measurement

pH 4.22 pH
pH mV 96.0 mV

Post Measurement

pH 4.01 pH
pH mV 97.4 mV

Calibration Point 2

pH of Buffer 6.99 pH
pH mV -71.3 mV
Temperature 30.21 °C

Pre Measurement

pH 7.11 pH
pH mV -71.8 mV

Post Measurement

pH 6.99 pH
pH mV -72.6 mV

Slope and Offset 1

Slope -56.17 mV/pH
Offset -71.9 mV

ORP

ORP Solution Zobell's
Offset 55.0 mV
Temperature 30.27 °C
Pre Measurement 167.7 mV
Post Measurement 222.2 mV

Sensor **Conductivity**
Serial Number 756927
Last Calibrated 10/07/2022

Calibration Details

TDS Conversion Factor (ppm) 0.65
Cell Constant 0.873
Reference Temperature 20.00 °C

Appendix C - Full List of Sampling Analytes

Field

- pH
- Electrical Conductivity (EC)
- Dissolved Oxygen (DO)
- Temperature
- Oxidation Reduction Potential

Laboratory

- Total Petroleum Hydrocarbons (TPH,) C10-C40
- Benzene, Toluene, Ethylbenzene Xylene (BTEX)
- Total iron
- Total lead
- Dissolved iron
- Dissolved lead
- Total oils and grease -Hexane Extractable
- Major ions (Sulfate, Chloride)
- Major cations (Calcium, Magnesium, sodium, potassium)

Appendix D - Chain of Custody Form

CHAIN OF CUSTODY

 <p>eal Environmental Analysis Laboratory Southern Cross University</p> <p>PO Box 157 (Military Road) LISMORE NSW 2480 P 02 6620 3678 F 02 6620 3957 eal@scu.edu.au, www.scu.edu.au/eal</p>	<p>Submitting Client Details</p> <p>Quote Id: EALQ6821 Job Ref: SMC010-Blakobrook WQ- Groundwater- DEC22 Company Name: Ecoteam Contact Person: [REDACTED] Phone: 66215123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>	<p>Billing Client Details</p> <p>ABN: [REDACTED] Company Name: Ecoteam Contact Person: [REDACTED] Phone: 02 662 15123 Mobile: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ecoteam.com.au Postal Address: 13 Ewing Street, Lismore</p>
	<p>This section will be destroyed after being processed. Only Complete CVV number if you are supplying the original hardcopy to EAL.</p>	

Payment Method:

Purchase Order

Cheque

Invoice (prior approval required)

Credit Card Mastercard / Visa No: _____

Exp. Date: _____ Name on Card: _____ CVV: _____

Relinquished By: [REDACTED] 2.12.22 [REDACTED]

Preservation: None / Ice / Ice bricks / Acidified / Filtered / Other: _____

Received By: _____

Condition on receipt: Ambient / Cool / Frozen / Other: _____

Comments:

DO NOT TEST FOR Ph or EC

Marketing Survey – where did you find us?

Word of mouth Magazine Google search Other

Sample Analysis Request											
Price List Code (e.g. SW-PACK-06)											
Salt Suite- (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104					
X	X	X	X	X	X	X					
X	X	X	X	X	X	X					
X	X	X	X	X	X	X					
X	X	X	X	X	X	X					
X	X	X	X	X	X	X					

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)
1	BQN1-B ✓					Water
2	BQN1-A ✓					Water
3	BQN1-D					Water
4	BQN2-B ✓					Water
5	BQN2-A ✓					Water
6	BQN2-D ✓					Water

EAL Chain of Custody
Issue: V1.1 27/09/2016

EAL Project Reference:

N5279.

QFORM 4.2
Page 1 of 2

CHAIN OF CUSTODY

Comments:

DO NOT TEST FOR Ph or EC

Marketing Survey – where did you find us?
 Word of mouth Magazine Google search Other

Lab Sample No.	Sample ID	Sample Depth	Sampling Date	Your Client	Crop ID	Sample Type (e.g. water, leaf, soil)	Sample Analysis Request										
							Price List Code (e.g. SW-PACK-06)										
							Salt Suite- (no pH or EC) SW-PACK-014	TPH and BTEX SW-PACK-042	TOG SW-SING-001	Dissolved Iron SW-SING103	Dissolved Lead SW-SING103	Total Available Iron SW-SING-104	Total Available Lead SW-SING-104				
7	BQS1-S ✓					Water	X	X	X	X	X	X	X				
8	BQS1-I ✓					Water	X	X	X	X	X	X	X				
9	BQS1-D ✓					Water	X	X	X	X	X	X	X				

Tab through for extra lines

Appendix E - Full Laboratory Results

RESULTS OF WATER ANALYSIS

9 samples supplied by Ecoteam on 2/12/2022. Lab Job No. N5279.

Samples submitted by [REDACTED] Your Job: SMC010-Blakebrooke WQ-Groundwater-Dec 22

13 Ewing Street LISMORE NSW 2480

Parameter	Methods reference	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9
		BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
	<i>Job No.</i>	<i>N5279/1</i>	<i>N5279/2</i>	<i>N5279/3</i>	<i>N5279/4</i>	<i>N5279/5</i>	<i>N5279/6</i>	<i>N5279/7</i>	<i>N5279/8</i>	<i>N5279/9</i>
Bicarbonate (Alkalinity) (mg/L CaCO ₃ equivalent)	** Total Alkalinity - APHA 2320	197	90	123	165	112		117	196	109
Water Hardness (mg/L CaCO ₃ equivalent)	** Using Ca and Mg calculation	149	165	31	101	64	10	65	93	42
Total Oils and Grease (mg/L)	APHA 5520-D (hexane extractable)	4	<2	<2	<2	3	2	2	<2	<2
Sodium (mg/L)	APHA 3125 ICPMS ^{note 1&2}	167	334	271	228	51.4	209	35.0	241	335
Potassium (mg/L)	APHA 3125 ICPMS ^{note 1&2}	3.25	5.40	1.89	5.84	2.92	1.66	2.35	4.24	3.36
Calcium (mg/L)	APHA 3125 ICPMS ^{note 1&2}	28.0	52.8	9.31	29.4	15.5	3.26	15.6	27.8	13.6
Magnesium (mg/L)	APHA 3125 ICPMS ^{note 1&2}	19.2	7.92	1.84	6.73	6.10	0.52	6.40	5.60	1.87
Sodium Absorption Ratio (SAR)	** By calculation	5.9	11.3	21.2	9.8	2.8	28.3	1.9	10.9	22.6
Chloride (mg/L)	APHA 3125 ICPMS ^{note 1&2}	240	577	332	323	53	110	17	310	493
Iron (mg/L)	Total Available - APHA 3125 ICPMS ^{note 1&2}	1.56	1.02	2.14	0.270	0.057	0.060	0.618	0.053	0.231
Lead (mg/L)	Total Available - APHA 3125 ICPMS ^{note 1&2}	<0.001	0.001	<0.001	<0.001	0.001	0.004	0.002	<0.001	0.002
Iron (mg/L)	Dissolved - APHA 3125 ICPMS ^{note 1&2}	0.408	<0.005	<0.005	<0.005	<0.005	<0.005	0.334	0.018	0.006
Lead (mg/L)	Dissolved - APHA 3125 ICPMS ^{note 1&2}	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes:

- Total metals - samples digested with nitric acid; Total available (acid soluble/ extractable) metals - samples acidified with nitric acid to pH <2;
Dissolved metals - samples filtered through 0.45µm cellulose acetate and then acidified with nitric acid prior to analysis
- Metals and salts analysed by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS).
- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion).
- For conductivity 1 dS/m = 1 mS/cm = 1000 µS/cm.
- Analysis performed according to APHA (2017) 'Standard Methods for the Examination of Water & Wastewater', 23rd Edition, except where stated otherwise.
- Analysis conducted between sample arrival date and reporting date.
- ** NATA accreditation does not cover the performance of this service.
- .. Denotes not requested.
- This report is not to be reproduced except in full.
- All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
- Results relate only to the samples tested.
- This draft report was issued on 23/12/2022.



Appendix F - Hydrographs



Blakebrook Quarry- Groundwater Monitoring

Groundwater Hydrographs

December 2022



13 Ewing Street, LISMORE

NSW 2480 Australia

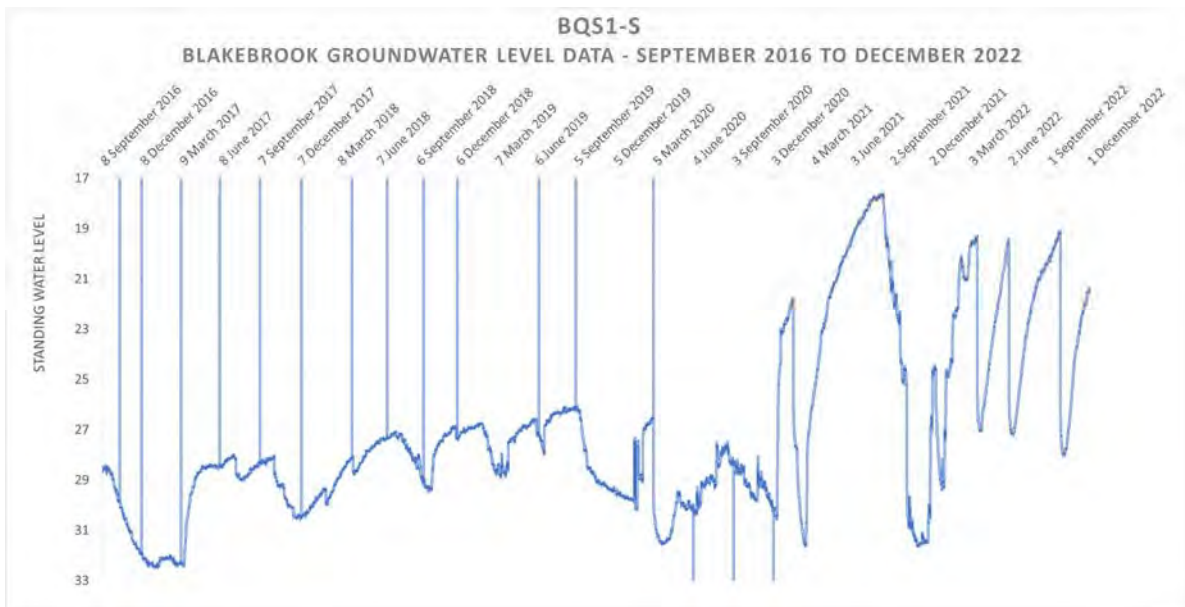
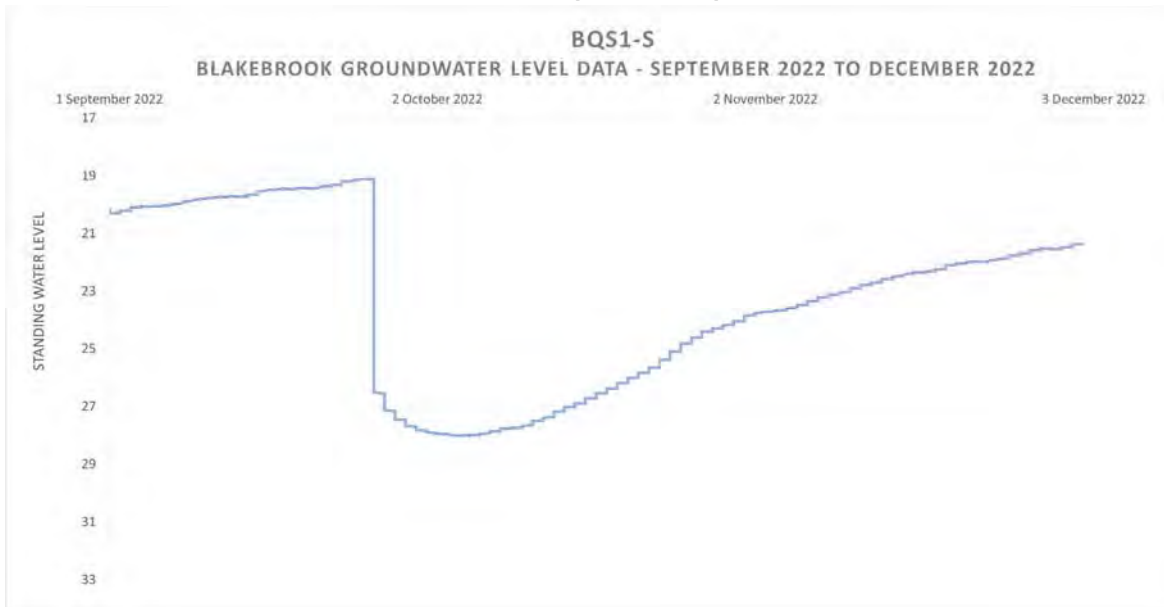
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Fax: (02) 6621 8123

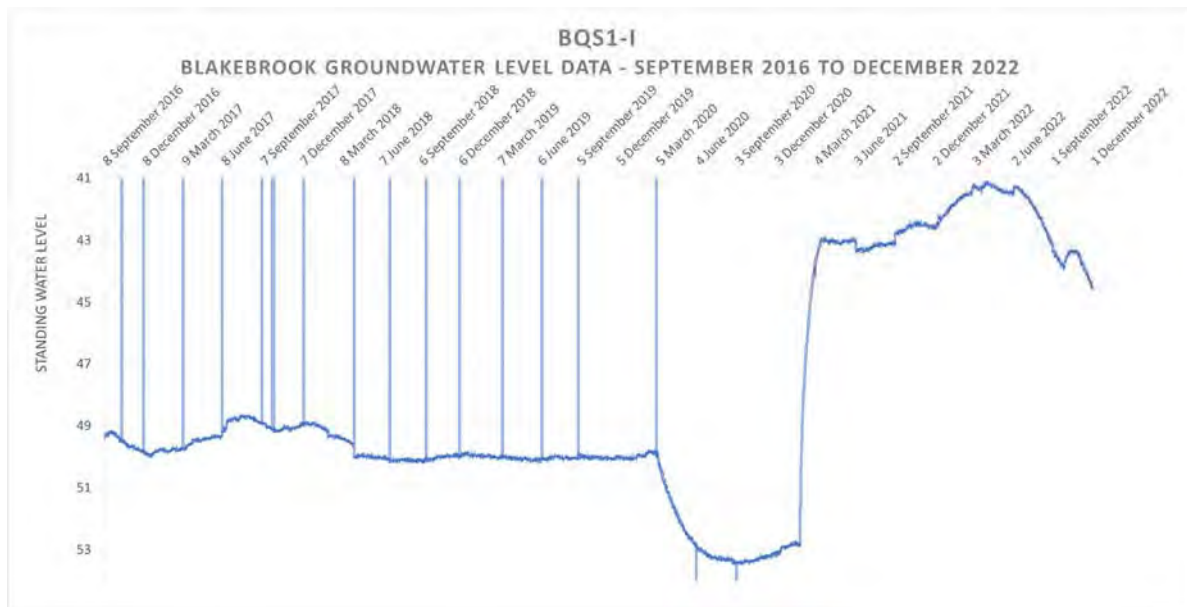
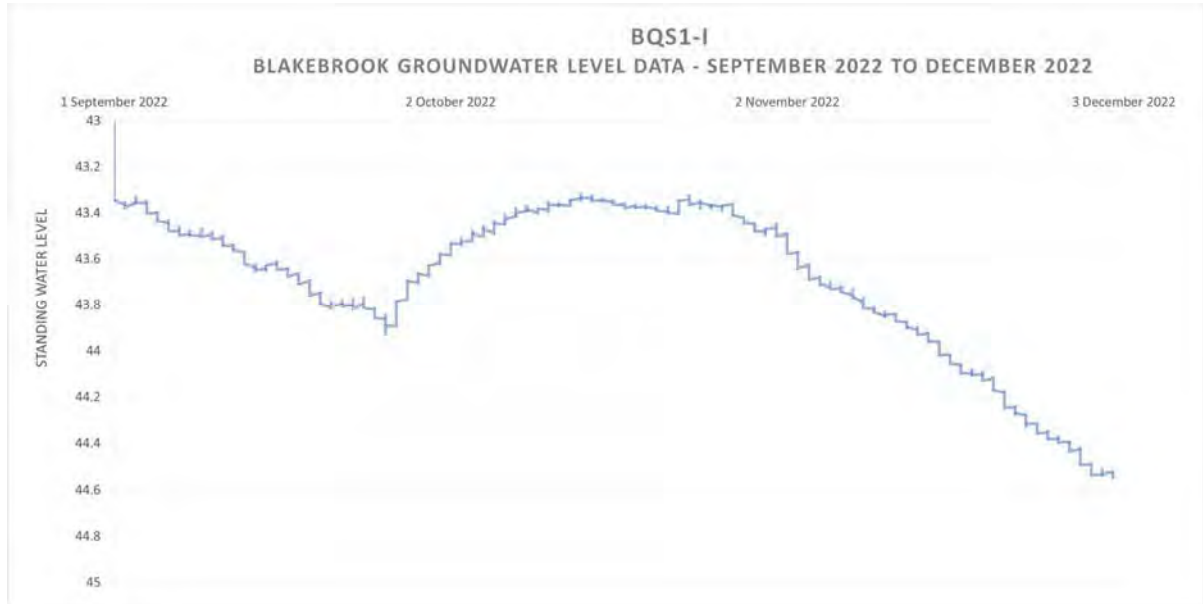
Email: info@ecoteam.com.au

Web: www.ecoteam.com.au

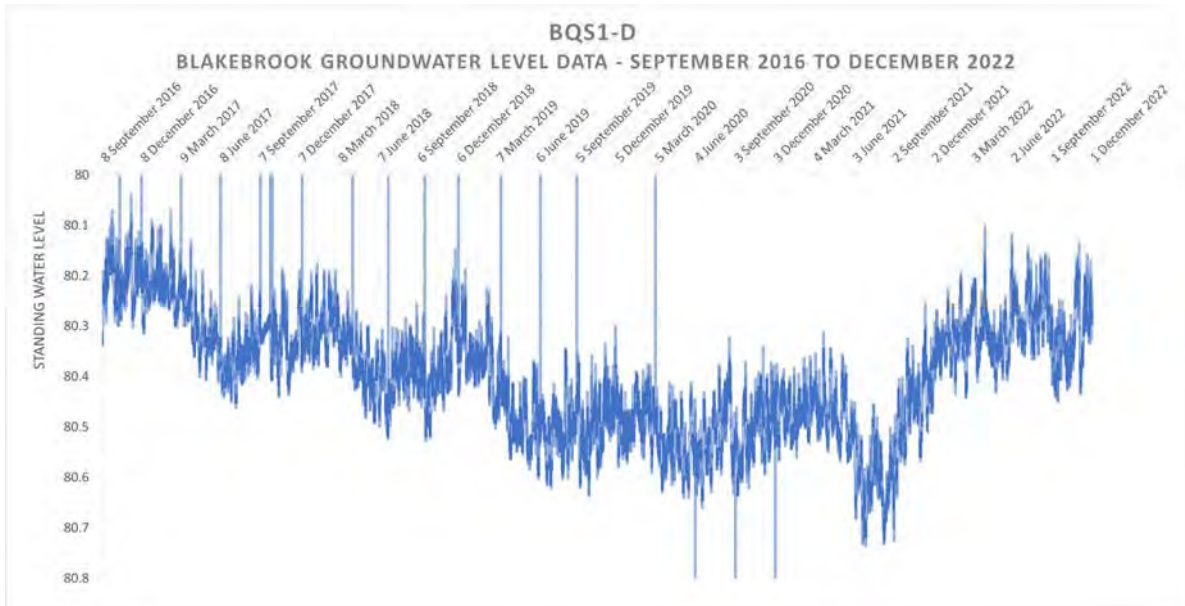
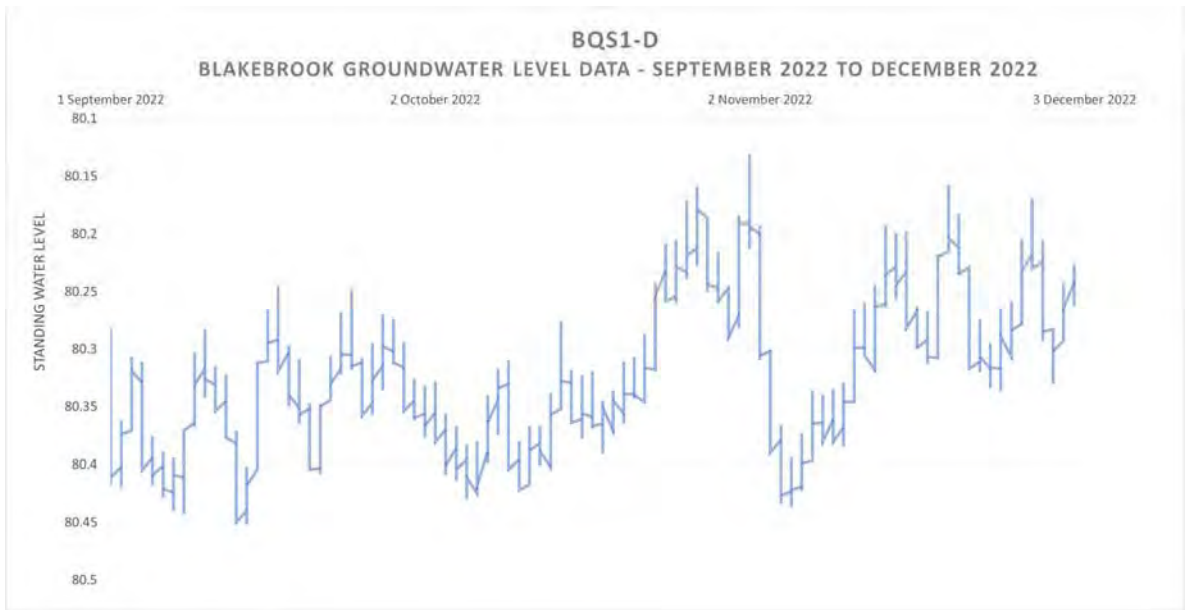
Blakebrook Groundwater Wells – SOUTH 1 BQS1- S (Shallow)



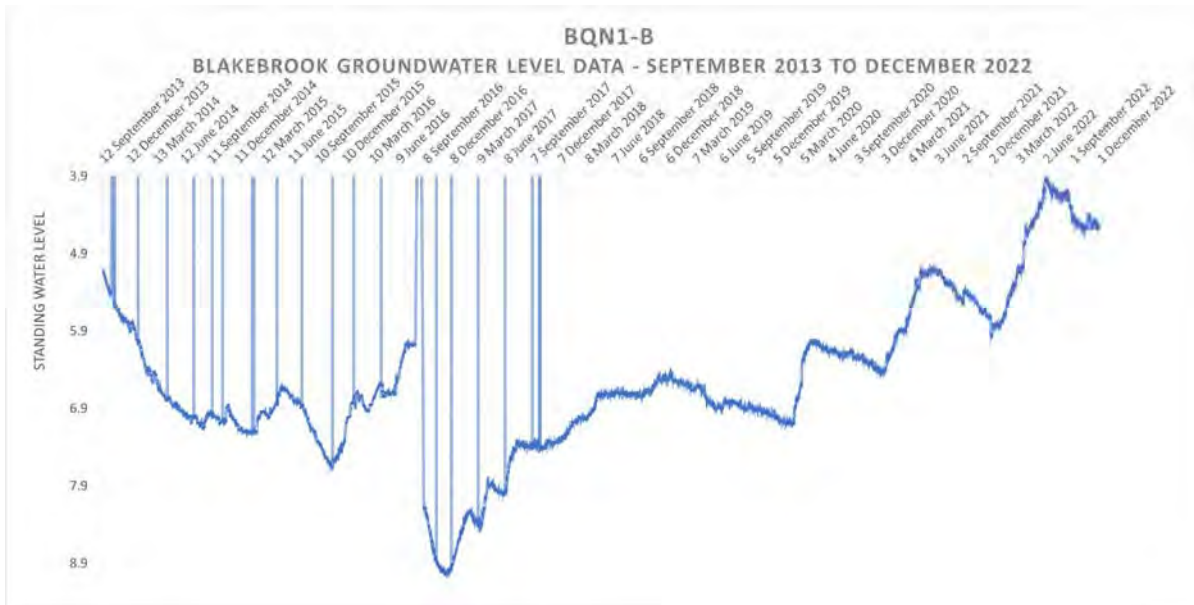
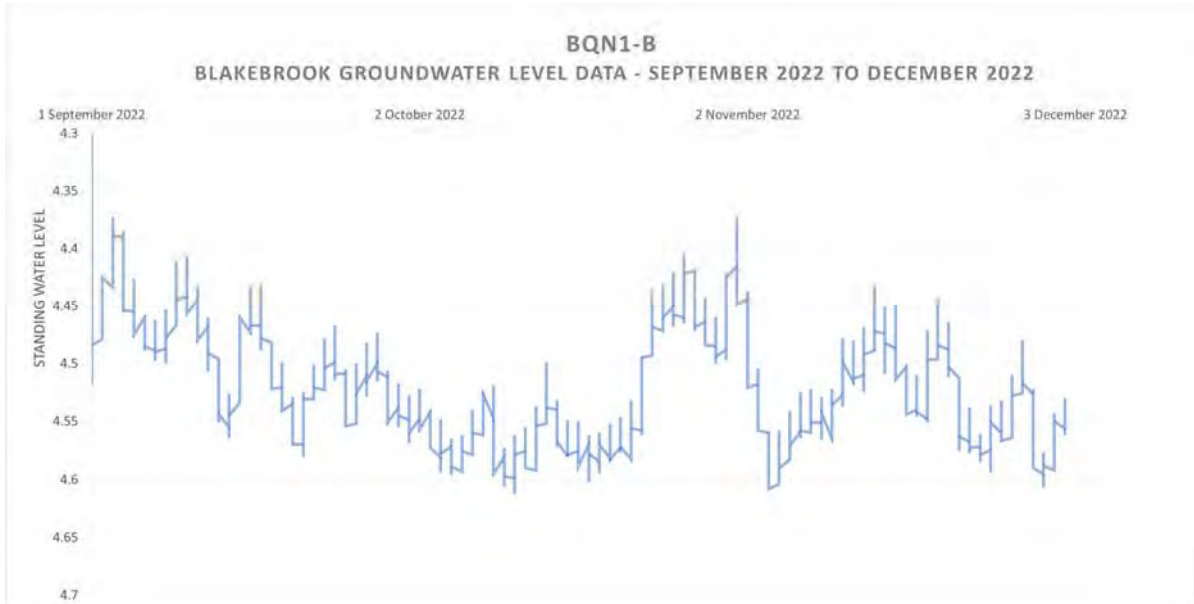
Blakebrook Groundwater Wells – SOUTH 1 BSQS1- I (Intermediate)



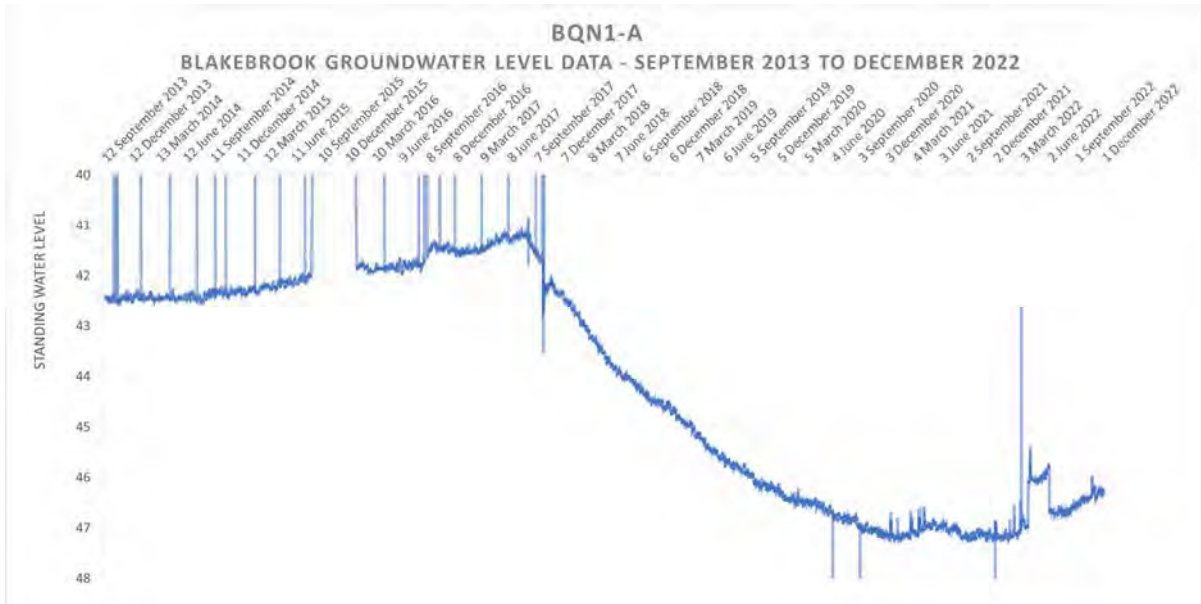
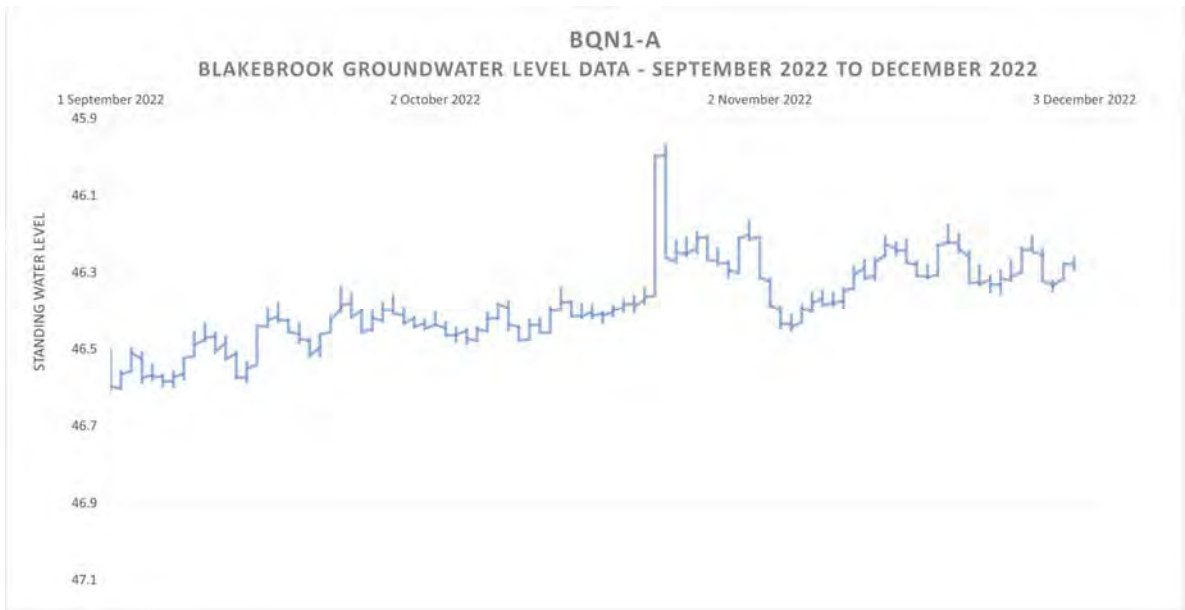
Blakebrook Groundwater Wells -SOUTH 1 BQS1- D (Deep)



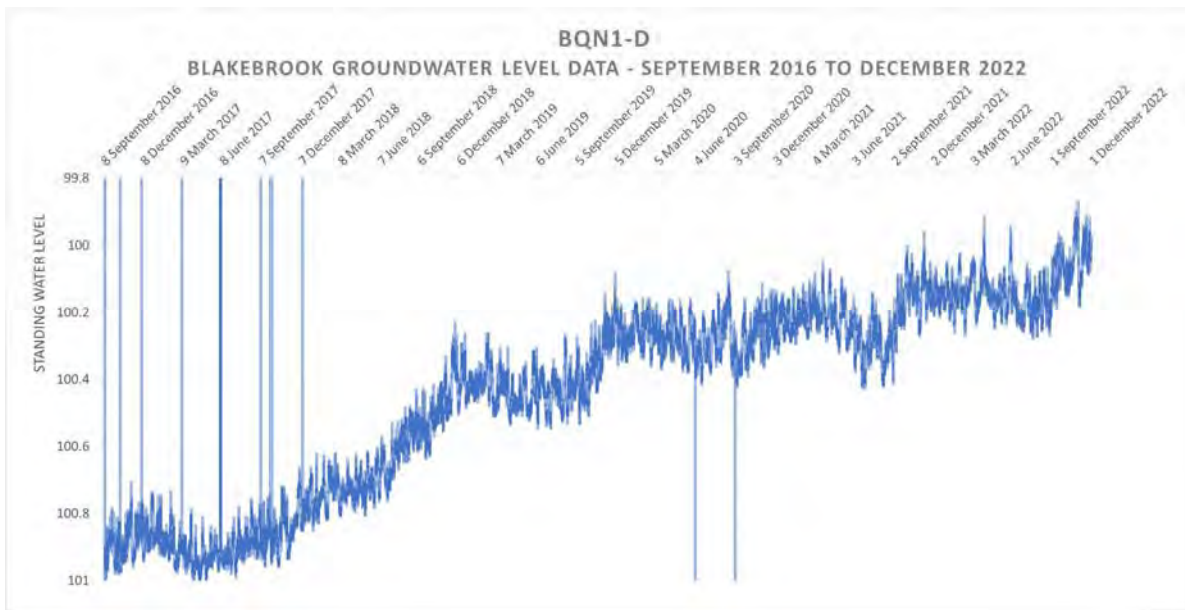
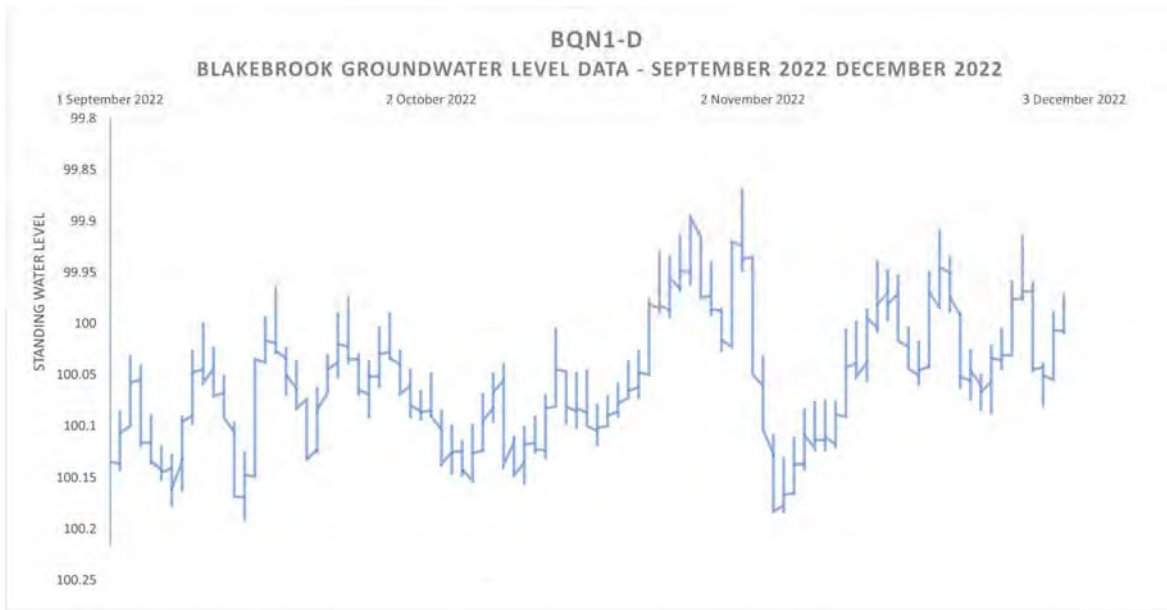
Blakebrook Groundwater Wells -NORTH 1 BQN1- B (Shallow)



Blakebrook Groundwater Wells -NORTH 1 BQN1- A (Intermediate)



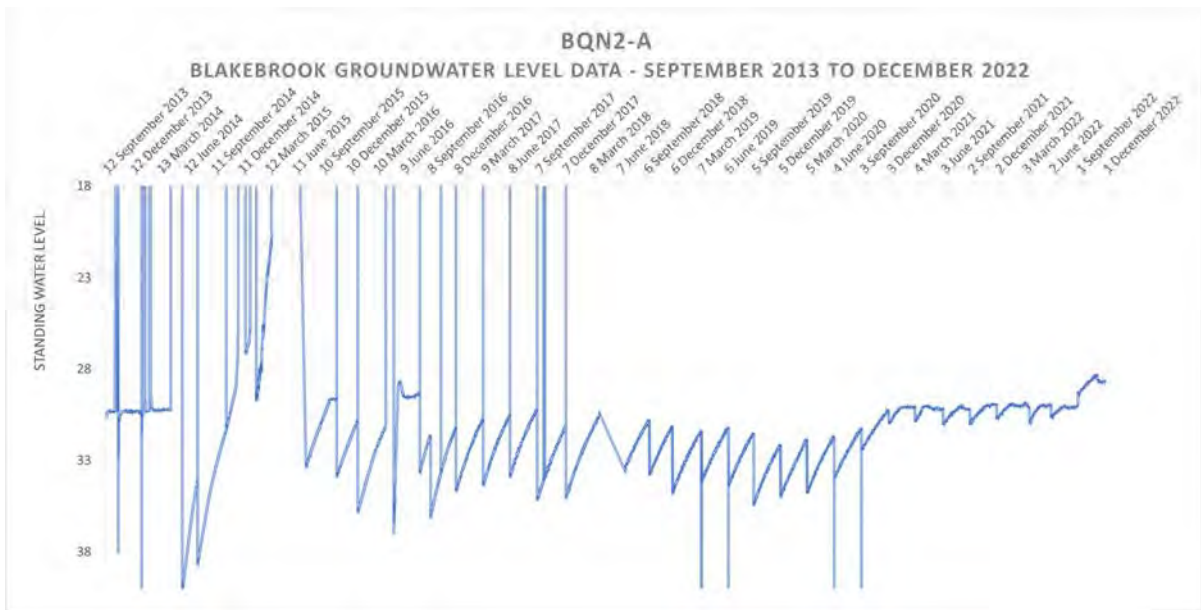
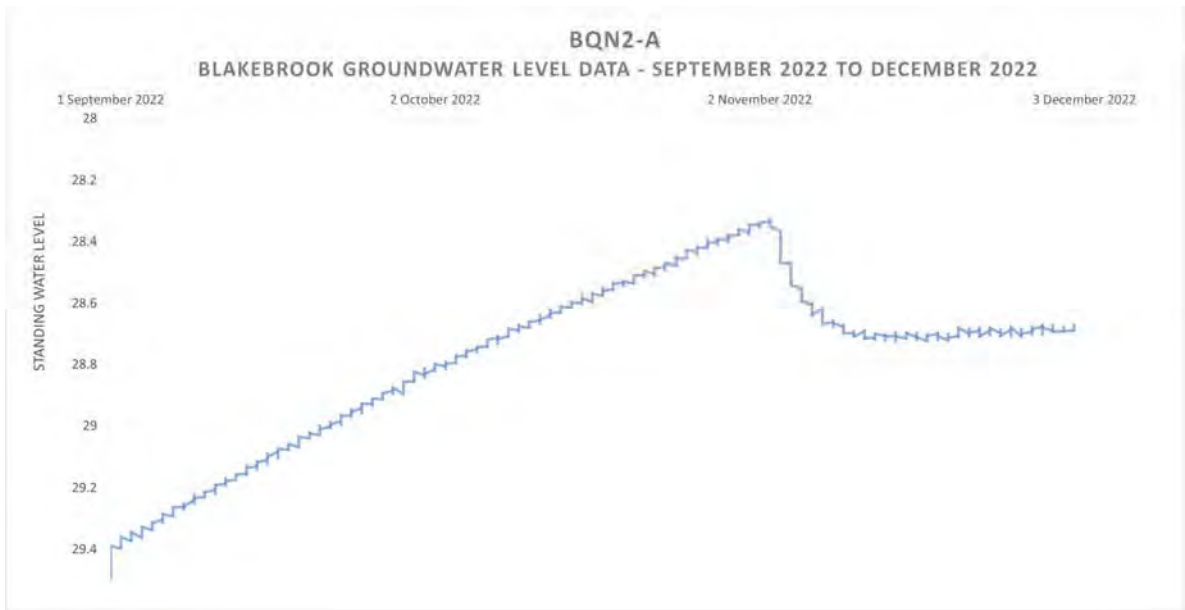
Blakebrook Groundwater Wells -NORTH 1 BQN1- D (Deep)



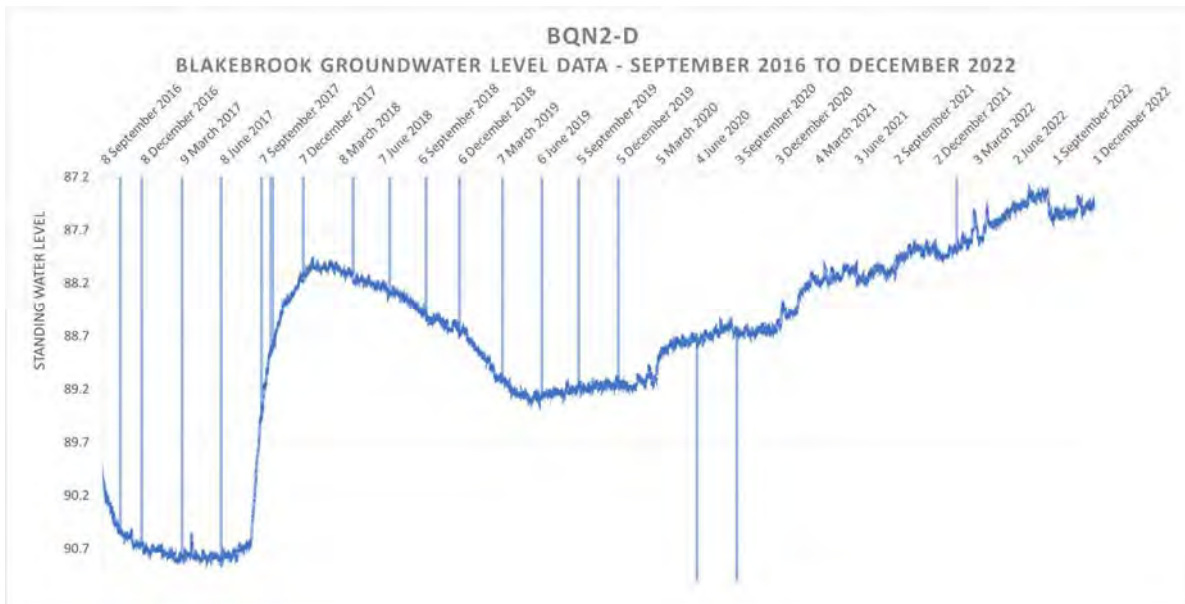
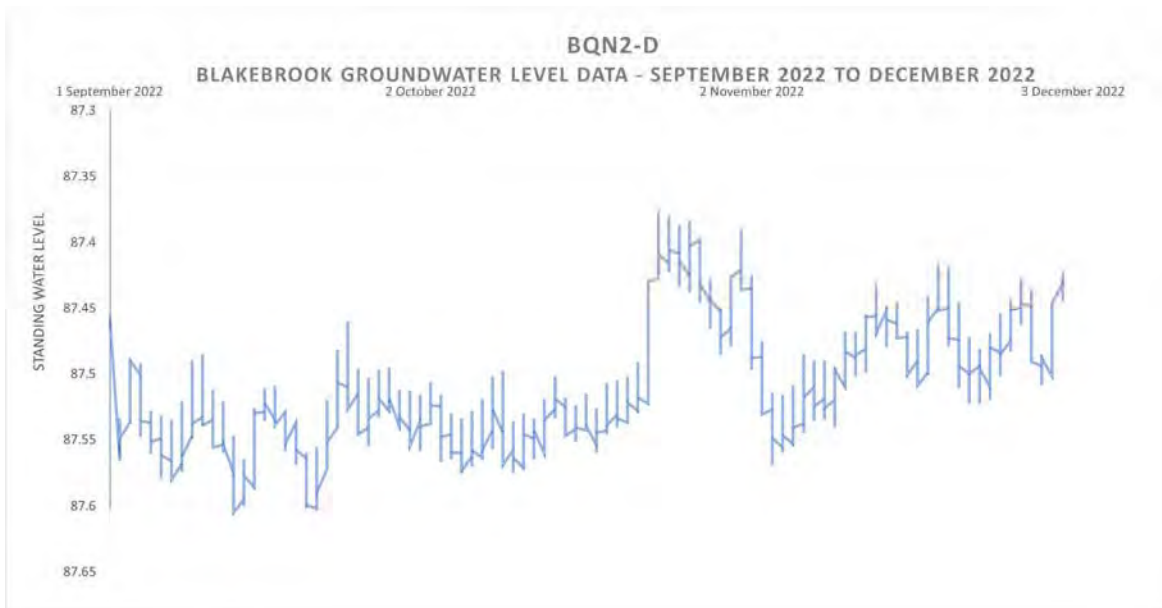
Blakebrook Groundwater Wells -NORTH 2 BQN2- B (Shallow)



Blakebrook Groundwater Wells -NORTH 2 BQN2- A (Intermediate)



Blakebrook Groundwater Wells -NORTH 2 BQN2- D (Deep)





Appendix U

LCC to DPE: Elevated Lead Levels



Our ref: [REDACTED]
Your ref: MP07_0020
Contact: Lismore City Council

8 March 2023

Department of Planning and Environment (DPE)
Planning and Assessment
(Via Major Projects Portal)

Dear DPE

RE: Groundwater Trigger Exceedances Notification – MP07_0020 Blakebrook Quarry Project

In accordance with Schedule 5 Condition 9, Lismore City Council (Council) would like to report the following groundwater exceedances associated with Schedule 3 Condition 19 (iii) – Soil and Water Management Plan.

(iii) *Groundwater Management Plan that includes:*

- *a provision that requires the Proponent to obtain appropriate water licence(s) to cover the volume of any unforeseen groundwater inflows into the quarry from the quarry face or floor; and*
- *a monitoring program to manage potential impacts, if any, on any alluvium and associated surface water source near the proposed extraction area that includes:*
 - *identification of a methodology for determining threshold water level criteria;*
 - *contingency measures in the event of a breach of thresholds; and*
 - *a program to regularly report on monitoring.*

Following analysis of quarterly groundwater monitoring results (and annual grouped review) for Blakebrook Quarry several SWMP interim groundwater trigger limit exceedances have been identified for Electrical Conductivity and Lead. Results are illustrated in Attachment 1. *Blakebrook Quarry Groundwater Analysis 2022.*

These interim groundwater trigger limits represent the 80th percentile values for each parameter based on the results/dataset available for each bore between 2016 to 2018. The SWMP states that an exceedance has a 20% probability per monitoring round (using this approach). As such, results from multiple monitoring events necessarily need to be reviewed as a group against the interim target to determine compliance or otherwise (i.e. one exceedance of the target is not necessarily an indication of non-compliance).

Council has identified several consecutive exceedances in Electrical Conductivity for sampling conducted in March, September and December 2022. Further several minor exceedances in Lead for sampling conducted in June, September and December 2022 (non-consecutive).

The SWMP corrective action states that if the test results for any parameter fail to meet the water quality objectives or identification of a sudden and un-characteristic change in water levels are likely to be attributable to site activities, further investigations will be conducted. This investigation will seek to ascertain if the incident/failure is an anomaly or if a sustained decline in groundwater quality is present. If a trend exists for declining groundwater quality, the likely cause(s) of contamination will be identified and addressed.

As such, Council has engaged a Consultant to further investigate these exceedance occurrences to determine any causes from Blakebrook Quarry operations. This report will be provided to DPE upon completion.

Should you require any further information, please do not hesitate to contact [REDACTED] Compliance Manager on [REDACTED] or via [REDACTED] [@lismore.nsw.gov.au](mailto:[REDACTED]@lismore.nsw.gov.au).

Yours Faithfully,

[REDACTED]

A/ Manager Commercial Services
Lismore City Council

Enclosed
Attachment 1. Blakebrook Quarry Groundwater Analysis 2022



Attachment 1. Blakebrook Quarry Groundwater Analysis 2022

Date of samples

02/12/2022

Parameters	BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
pH	6.99	8.99	8.48	8.74	7.16	8.80	6.43	8.02	7.90
Electrical conductivity (dS/m)	928.160	1426.70	1189.70	1137.80	308.100	897.130	243.300	1186.30	1539.00
Total oils & grease (mg/L)	4	<2	<2	<2	3	2	2	<2	<2
Iron (mg/L)	1.56	1.020	2.14	0.270	0.057	0.060	0.618	0.053	0.231
Lead (mg/L)	<0.001	0.001	<0.001	<0.001	0.001	0.004	0.002	<0.001	0.002
Total BTEX									
Total Recoverable Hydrocarbons (TRH)									
Observations	Clear water	Clear water	Clear water	Slightly milky	Clear water	Clear water	Clear water	Clear, some particles	Clear, some particles

Date of samples

01/09/2022

Parameters	BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
pH	7.53	10.95	8.02	10.60	6.79	8.06	7.08	7.27	8.08
Electrical conductivity (µS/m)	945	2048	1532	1035	345	878	286	1388	1747
Total oils & grease (mg/L)	<2	<2	<2	<2	<2	<2	<3	<2	<2
Total Iron (mg/L)	2.75	0.210	1.99	0.072	0.084	0.096	0.083	0.061	0.108
Total Lead (mg/L)	<0.001	0.001	0.002	0.002	0.007	0.012	0.001	0.001	0.003
Total BTEX	<3	<3	<3	<3	<3	<3	<3	<3	<3
Total Recoverable Hydrocarbons (TRH)									
Observations	Clear water	Clear water	Slightly turbid water	Clear water	Clear water	Clear, some particles	Clear water	Clear water	Clear water

Date of samples

03/06/2022

Parameters	BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
pH	7.01	11.03	8.52	8.57	7.60	8.79	6.54	7.94	8.08
Electrical conductivity (dS/m)	0.988	1.70	1.25	1.27	0.483	0.845	0.260	1.34	1.62
Total oils & grease (mg/L)	<2	3	3	2	<2	<2	<2	<2	<2
Iron (mg/L)	1.73	0.748	5.67	0.199	0.064	0.118	0.503	0.111	0.237
Lead (mg/L)	<0.001	0.004	0.003	0.006	0.001	0.026	0.003	0.002	0.003
Total BTEX									
Total Recoverable Hydrocarbons (TRH)									
Observations	Clear water	Clear water	Slightly turbid water	Clear water	Clear water	Slightly turbid water	Clear water	Clear water	Clear water

Date of samples

22/03/2022

Parameters	BQN1-B	BQN1-A	BQN1-D	BQN2-B	BQN2-A	BQN2-D	BQS1-S	BQS1-I	BQS1-D
pH	7.23	9.62	8.66	10.02	7.42	9.08	7.11	8.05	8.13
Electrical conductivity (dS/m)	998.53	1860.48	1334.95	874.95	305.68	879.12	273.71	1400.37	1718.68
Total oils & grease (mg/L)	6	4	5	<2	<2	6	5	5	7
Iron (mg/L)	1.87	0.794	3.21	0.155	0.141	0.739	0.533	0.203	0.907
Lead (mg/L)	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002
Total BTEX									
Total Recoverable Hydrocarbons (TRH)									
Observations	Clear water	Clear water, some particles	Slightly turbid water	Clear water, some particles	Clear water	Clear water, some particles	Clear water	Clear water	Clear water



Appendix V

Bush Regeneration Plan Monitoring Report

Blakebrook Quarry
Lot 53 & 54 DP 1254990 (previously Lot 201 DP 1227138)
Bush Regeneration Plan
Annual Monitoring Report Four (2022)



Bushland now with low weed density, zone e1, December 2022 [REDACTED]

Prepared by:

[REDACTED]

Botanist

BPISc (UNE); Bush Regeneration Cert 3&4

January 2023 Final



Lismore City Council acknowledges the people of the Bundjalung nation, traditional custodians of the land on which we work.

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Introduction

This Bush Regeneration Plan Monitoring Report is the fourth to report on the progress of bush regeneration activities at Blakebrook Quarry and covers the period January to December 2022 (Year Four).

Monitoring framework

The Bush Regeneration Plan (BRP) (Dawson, 2018) and Bush Regeneration Plan Monitoring Addendum (BRPMA) (Dawson, 2019) are contained within Annex B of the Biodiversity Offset Strategy (BOS) (ERM, 2018) which in turn is subject to the Blakebrook Quarry Biodiversity & Rehabilitation Management Plan (BRMP) (ERM, 2018a). The BOS requires the maintenance and monitoring of offset sites (including assisted regeneration) to be integrated into the wider schedule for rehabilitation works provided in Chapter 9, 11 and 13 of the BRMP (ERM, 2018).

Frequency of monitoring

As recommended in the BRPMA, reporting is to be conducted on a bi-annual basis for the first three years following commencement of regeneration works and then annually for the following seven years until the ten-year review. During preparation of the Year One report, it was determined that this was an excessive reporting requirement and that annual external reporting would be adequate. This was considered appropriate due to the ongoing extended dry season of 2020 and 2021. All external reporting for Blakebrook Quarry is to be approved by the Manager of Commercial Services (ERM, 2018).

Monitoring methods

The BOS recommends that a suitably qualified professional be engaged to perform ongoing monitoring of bush regeneration activities against the performance indicators provided in Annex C (ERM, 2018).

Best practice requires adaptive management as a standard monitoring approach for any ecological restoration project (SERA, 2021). This is achieved by an independent and suitably qualified person routinely inspecting the site to determine whether restoration actions assessed against performance indicators are being achieved, using fixed photo points as evidence (SERA, 2021).

Photo points identified by GPS coordinates have been established in each zone prior to work commencing. Baseline photos were provided either by Eco Connections in July 2012 for the on-site work zones (which existed prior to the acquisition of an additional 45ha by council in 2017) or by ██████ in December 2018 for the off-site work zones within the 45ha acquired in 2017. Refer to the BRPMA. Comparison photos were taken in late December 2021, and for this report, December 2022.

Daily Work Records (DWRs) were collated from Roots Down Conservation Contractors and were used to assess the effectiveness of weed control techniques and rates of recruitment of native plant species (DWRs available on request). As stated in the BRPMA, monitoring reports will consist of comparison photos and a brief progress report based on the Key Performance Indicators (KPI's) summarised in Table 2 of the BRPMA (██████, 2019). LCC GIS staff compiled and updated the site map in Figure 1.

Summary of work zone review 2022

- Based on the methods outlined in the introduction, the author is of the opinion that to date all KPI's have been met and work continues to progress as planned and as detailed in the following review by work zone. The status of the current work zones is summarised in Table 1 and mapped in Figure 1.
- As outlined in Monitoring Report Three (refer Page 2) and in accordance with the BRP (Dawson, 2018), the focus in 2022 has consisted of:
 - Ensuring that the maintenance of all zones worked to date is conducted in a planned and timely manner to prevent regression. Work comprised regular spot sprays within the completed northern and eastern zones adjacent to the main pit (n2, n3, e5) and in particular, zone w4 adjacent to the quarry access road. Zone w4 is a challenging and labour-intensive zone with difficult terrain and vigorous exotic and native vines. Maintenance costs are minimised due to the proximity of the northern and eastern zones, as outlined in the BRP (████████, 2018).
 - Primary works in Core Koala Habitat (CEG,2006) zone e1. As at the end of December 2022, primary works in this 7.8ha zone are complete. Follow-up was conducted through Year Four and will continue.
- It was anticipated that by the end of Report Four (2022) the following would be achieved, and this has been the case:
 - Regular maintenance of the completed northern and eastern zones adjacent to the main pit (n2, n3, e5) and adjacent to the quarry access road (w4) to prevent regression.
 - Regular follow-up of recently completed zone e1 to capture any missed weeds during primary works and target the first round of germinating weeds.
 - Commencement of primary works in Core Koala Habitat (CEG,2006) zone e2, which was scheduled to commence in Year Five in the BRP (████████, 2018). It is 80% complete. However, the access issues have required prioritising maintenance of existing works before more primary continues.
- The continued presence of koalas was confirmed by two sightings this year, both on or beside the Quarry access road. Without specific scientific monitoring for Koalas, the number of incidental sightings is not a reliable measure, and it is only assumed Koalas are still utilising the site in some way. Regeneration of primary koala food species Forest Red Gum (*Eucalyptus tereticornis*) and Tallowwood (*E. microcorys*) in addition to a suite of secondary species (*E. amplifolia*, *E. acmenoides*, *E. grandis*, *Lophostemon confertus*) post weed control, and targeting of selected rainforest pioneers is evident within the koala habitat zones (n2, n3, e5, e1)
- Therefore, it is recommended that a koala survey to monitor the population is undertaken in the future as recommended by the final five year Biolink koala monitoring report Pg 4 ("We consider ongoing habitat rehabilitation works that include increasing the densities of the naturally occurring preferred koala food tree species Tallowwood and Forest Red Gum, as

well as measures that could work over the longer-term to improve habitat/landscape connectivity as useful ongoing koala management measures. Ongoing monitoring of the population as undertaken over the time frame of this project also has much to contribute in terms of a long-term ecological monitoring program as well as informing community interest and/or debate on the impacts of quarrying activities on koalas generally.” Biolink (2016)

➤ The key environmental factor in Year Four was the ongoing wet period, brought about by La Nina and record flood events in February and March, with another moderate flood in October 2022. This made access to the site difficult, with access to e1 and e2 impassable from February until close to the end of the year. During that time, prescribed maintenance was conducted in accessible zones.

➤ Work additional to the activities outlined in the BRP is required from time to time, for example, maintenance spot sprays of the newly constructed fence lines (zone s1/s2).

Adaptive Management or 2023

➤ It is the author's opinion that the large area now treated should be the priority for follow up and maintenance treatments so as not to waste the regenerating volunteer plants occurring after the disturbance of primary weed control.

➤ Completion of primary weed control in zones such as e2, that were started but were inaccessible for some of 2022 should be the priority for primary weed control. However, further attempts to 'get ahead' of the primary schedule are not recommended. High rainfall and warm temperatures at the end of 2022 are likely to lead to prolific weed regeneration in worked areas. Therefore, consolidation and detailed follow ups of existing worked areas should be a priority, for most of 2023.

➤ Commencement of primary work in Zone e3 could be undertaken once consolidation and fine tuning of high quality worked areas is well underway.

➤ Reconsider how much time and effort is put into Zone w4. Previous Koala sightings in this zone could indicate it has some habitat value, and it is worth persisting with to some degree, however, with many boulder piles, access road and power lines involved, expectations of healthy forest here may not be a realistic expectation. Monitoring photos do show some growth in pioneer species so continue to monitor this area and treat emerging weeds as necessary. Expectations of 5% weed cover may not stay consistently that low.

Map of work zones, photo points and work zone status

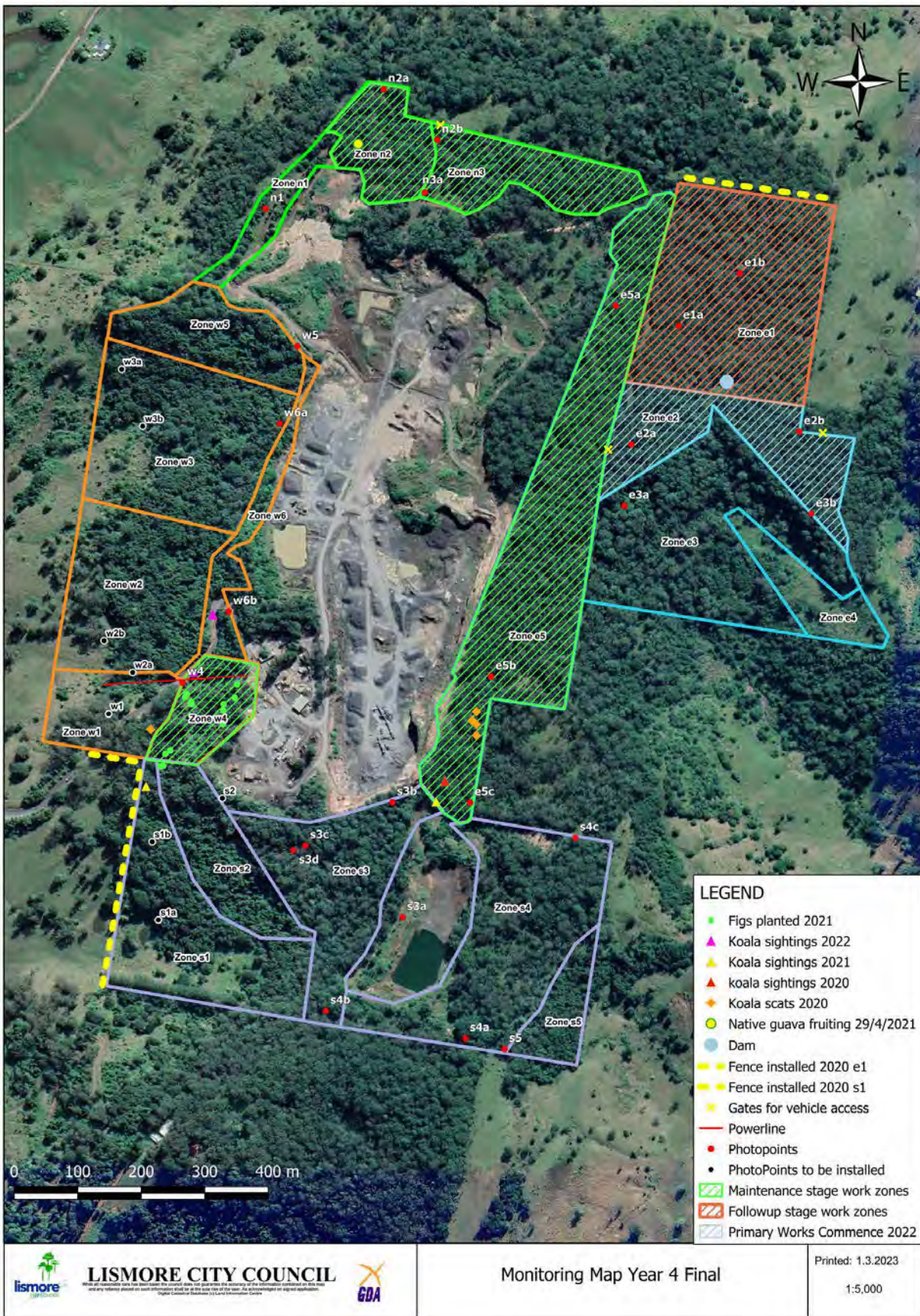


Figure 1 Blakebrook Quarry work zones status as at the end of Year Four (source [redacted] and LCC staff, 01/03/2023)

Table 1 Status of current work zones December 2022

P (primary), FU (follow-up), ANR (assisted natural regeneration), CKH (core koala habitat), DG (disturbed grassland), CF (closed forest),

Onsite (workzones in the original offset area pre acquisition of the 45ha in 2017), offsite (workzones in the 45ha 2017 acquisition), BRP (Bush Regeneration Plan, Table 1)

Offset area	Workzone name	Photopoints in work zone	Veg type	Strategy	Status or Priority	Start year per BRP	Completion year per BRP	Photopoints Report 3	Photopoints Report 4	Status @ 31/12/2022	Primary & follow-up work to do	Area (ha)	Note
Onsite	n2	n2a, n2b	CKH	ANR	Completed	2	End Yr 2 (completed ahead of schedule but see e5)	n2a, n2b	n2a, n2b	Primary work completed in 2019 apart from small area of follow-up (Lantana to overspray and Jacararanda to drill on northern boundary) delayed as conditions were too dry until early 2020. At maintenance stage.	-	2.0	
Onsite	n3	n3a	CKH	ANR	Completed	work started prior to BRP	n/a (completed prior to Year 1)	n3a	n3a	Primary works completed. At maintenance stage.	-	2.9	
Onsite	e5	e5a, e5b, e5c	CKH	ANR	Completed	1 (60% worked prior to BRP)	End Yr 1 (completed behind schedule but see n2)	e5a, e5b, e5c	e5a, e5b, e5c	Primary and follow-up work completed mid-2020 after work moved to n2 in 2019 due to dry windy conditions. At maintenance stage.	-	6.2	
Offsite	e1	e1a, e1b	CKH	ANR	High	3	End Yr 4	e1a, e1b	e1a, e1b	Primary work completed Year 4. Follow-up continue into Year 5.	1% P, 50% FU	7.8	200m fencing & gate installed 2020
Offsite	e2	e2a, e2b	CKH	ANR	High	5	End Yr 5	-	e1a, e1b	Primary works 80% complete in 2022 (Year 4). Area east of gate in e2 needs more work to complete primary treatment	20% P/FU	3.5	fencing per BRP not necessary per LCC Jan 2022
Offsite	w4	w4	DG/CF	ANR	High	2	End Yr 2 (follow-up Year 3)	w4	w4	Primary and follow-up work completed end Year 3. Vigilant maintenance required to prevent regression of this challenging rocky zone.	-	1.7	
Offsite	s1	not yet installed	CKH linkage	ANR	Medium	9	End Yr 10	-	-	Minor primary work along northern boundary adjacent to w4 to maintain fenceline.	-	5.7	360m fencing & gate installed 2020

Work zone review 2022

Zone n2 (photo points n2a, n2b)

Off-site zone	Area	Description & status	Value	Objective	Performance Indicator	Actions
n2	2ha	Tall Open Forest – Tall Open Forest/Woodland, moderate condition <i>Maintenance</i>	Core Koala Habitat	Enhance koala habitat by removing weeds in mid and ground strata which prevent germination of natives, particularly Eucalypts	All strata 95% natives, Eucalypt species germinating	<ul style="list-style-type: none"> ➤ Weed control (working in lines from east to west from the eastern vehicle track adjacent to completed zone n3) Primary: clear around natives, hand weed/cut & paint/overspray Lantana, cut & paint/drill Privet & Camphor & Jacaranda, cut & paint/drill or spot spray Devil's Fig, Tobacco & exotic vines. Spot spray Crofton. Follow-up: spot spray as required/to prevent seeding. ➤ Remove rainforest pioneers ➤ Slash vehicle trails

- As this zone is at maintenance stage, the focus of works during 2022 was ensuring that regular spot sprays were conducted in a planned and timely manner to prevent regression.
- KPI's are achieved with less than 1% weeds in the mid and upper strata and approximately 5% exotic grasses in the ground stratum (refer comparison and general photos below). The targeted removal of rainforest pioneers has resulted in an increase in eucalypt germination, particularly Tallowood and Forest Red Gum, both primary food species for the koala (refer general photos below).

Comparison Photo points (source [redacted], December 2022)



2022 North to boundary and bund, north western corner of zone n2



2022 East along northern boundary bund of zone n2



2022 South into zone n2



2022 West into north western corner of zone n2

Comparison photos zone n2b (Source [REDACTED], December 2022)



2022 North to boundary gate along access track between zone n2 and n3



2022 East into zone n3



2022 South along eastern boundary of zone n2



2022 West into northern portion of zone n2

General photos zone n2 (Source [REDACTED], 2021)



Zone n2 From Monitoring Report Two: northern boundary near photo point n2a looking south. Lantana patch treatment delayed due to extended dry period in 2019 and completed early 2020.



Zone n2 same view at the end of 2021 with regenerating Red Kamala, Macaranga and Red Ash



Native Guava (listed as Critically Endangered in NSW due to Mrytle Rust) fruiting in zone n2. Sample sent to Royal Botanic Gardens, Sydney for DNA testing May 2021.



Zone n2 Adjacent to monitoring point n2a, evidence of transition with regenerating Forest Red Gum in an area comprised of exotic grasses (Rhodes Grass) prior to treatment. Although approximately 5% exotic grasses remain, this area is now dominated by native grasses (Blady Grass and Kangaroo Grass), following regular maintenance spot sprays.



Zone n2 Looking southwest along the eastern edge of the zone at regenerating Forest Red Gum and Tallowwood post weed control and targeted removal of rainforest pioneers.

Zone n3 (photo point n3a)

Off-site zone	Area	Description & status	Value	Objective	Performance Indicator	Actions
n3	2.9ha	Tall Open Forest – Tall Open Forest/Woodland, moderate condition <i>Maintenance</i>	Core Koala Habitat	Enhance koala habitat by removing weeds in mid and ground strata which prevent germination of natives, particularly Eucalypts	All strata 95% natives, Eucalypt species germinating	<ul style="list-style-type: none"> ➤ Weed control (working in lines from west to east in a southerly direction): Primary: clear around natives, hand weed/cut & paint/overspray Lantana, cut & paint/drill Privet & Camphor, cut & paint/drill or spot spray Devil’s Fig, Tobacco & exotic vines. Spot spray Crofton. Follow-up: spot spray as required/to prevent seeding. ➤ Remove rainforest pioneers in patches/adjacent to eucalypts to improve eucalypt recruitment ➤ Slash vehicle trails

- As this zone is at maintenance stage, the focus of works during 2022 was ensuring that regular spot sprays were conducted in a planned and timely manner to prevent regression.
- KPI’s continue to be achieved into 2022 with less than 5% weeds in all strata apart from exotic grasses on the southern access track edge originating from the perimeter of the mine pit.
- Zone n3 comprises dense patches of native grasses Kangaroo Grass (*Themeda australis*), Blady Grass (*Imperata cylindrica*), Tall Sedge (*Carex appressa*) particularly along the southern boundary, previously dominated by exotic species.

Comparison photos zone n3a (Source [REDACTED], December 2022)



2022 North from southern portion of access track between zone n2 and n3



2022 East into southern portion of zone n3



2022 South towards southern boundary zone n2



2022 West into southern portion of zone n2

Zone e5 (photo points e5a, e5b & e5c)

Off-site zone	Area	Description & status	Value	Objective	Performance Indicator	Actions
e5	10.4ha	Tall Open Forest, moderate condition <i>Maintenance</i>	Core Koala Habitat	Enhance koala habitat by removing weeds in mid and ground strata which prevent germination of natives, particularly Eucalypts	All strata 95% natives, Eucalypt species germinating	<ul style="list-style-type: none"> ➤ Weed control (working in lines from west to east in a southerly direction): Primary: clear around natives, hand weed/cut & paint/overspray Lantana, cut & paint/drill Privet & Camphor, cut & paint/drill or spot spray Devil's Fig, Tobacco & exotic vines. Spot spray Mistflower & Paspalum. Follow-up: spot spray as required/to prevent seeding. ➤ Remove rainforest pioneers in patches/adjacent to eucalypts to improve eucalypt recruitment. ➤ Slash vehicle trails

- Zone e5 is now at maintenance stage, hence the focus of works during 2022 was ensuring that regular spot sprays were conducted in a planned and timely manner to prevent regression. Comparison of current and baseline (2012) photo points confirm that KPI's are achieved with less than 5% weeds in all strata. Eucalypt regeneration (seedlings and saplings) was observed by the author throughout this zone (refer comparison and general photos below), with Kangaroo Grass and Blady Grass dominating the eastern boundary.
- A patch of the recently declared Threatened Species, Native Guava (*Rhodomyrtus psidioides*) was observed coppicing on the ground along the eastern boundary late in 2020 (refer Report Two) and these seedlings continue to grow. The lack of parent trees in the vicinity of this patch may indicate that the seedlings originate from birds perching on a large overhanging Tallowood. This patch will be monitored by the regeneration crew.
- Cumulative koala and scat sightings observed by the regeneration crew predominantly in zone e5:
 - Koala sighting Aug 2021 (18/8/2021) (refer general photos e5 following)
 - Koala sighting May 2020 (18/5/2020) (refer Monitoring Report Two)
 - Scats April 2020 (refer Monitoring Report Two)
 - Scats Jan 2020 (refer Monitoring Report Two)

In addition to zone e5, a koala sighting in zone s1 has now been recorded twice (18/5/2020 and 6/5/2021). As zone s1 works have not yet commenced, this zone has not been reported on in the monitoring report to date). A koala sighting was also documented by Quarry staff (refer to Monitoring Report Two) at the south pit on the 18/5/2020, but none were recorded in the current year. See Figure 1 for all mapped observations.

Comparison photos zone e5a (Source [REDACTED], Dec 2022)



2022 North along north western boundary of e5



2022 East into north eastern portion of zone e5



2022 South along western boundary of zone e5



2022 West towards western boundary of zone e5

Comparison photos zone e5b (Source [REDACTED], Dec 2022)



2022 North into lower mid-section of zone e5



2022 East along access track eastern boundary of zone e5



2022 South along eastern boundary of zone e5



2022 West into lower mid-section of zone e5

Comparison photos zone e5c (Source [REDACTED], Dec 2022)



2022 North along southern end of eastern boundary access track zone e5



2022 East towards old cattle infrastructure on adjacent property outside of work zones



2022 South towards future zone s4



2022 West into southern section of zone e5

General photos zone e5 (Source [REDACTED], [REDACTED], 2021)



Regenerating Cabbage Gum along the eastern boundary of zone e5, adjacent to the vehicle track



Koala changing trees early morning 18/8/2021 zone e5 (D de Nardi)

Zone e1 (photo point e1a, e1b)

Off-site zone	Area	Description & status	Value	Objective	Performance Indicator	Actions
e1	7.8ha	Tall Open Forest, good condition <i>Primary work 95% completed end of Year 3, follow-up Year 4</i>	Core Koala Habitat	Enhance existing koala habitat by removing weeds in mid and ground strata which prevent germination of natives, particularly Eucalypts	All strata 95% natives, Eucalypt species germinating	<ul style="list-style-type: none"> ➤ Weed control (working in lines from west to east in a southerly direction): Primary: clear around natives, hand weed/cut & paint/overspray Lantana, cut & paint/drill Privet & Camphor, cut & paint/drill or spot spray Devil's Fig, Tobacco & exotic vines. Spot spray Mistflower & Paspalum but ensure fringing native vegetation around dam is encouraged to prevent cane toad access. Follow-up: spot spray as required/to prevent seeding ➤ Remove rainforest pioneers in patches/adjacent to eucalypts to improve eucalypt recruitment ➤ Replace existing gate on western boundary for improved access ➤ Install fencing and gate on northern boundary to exclude cattle (approx. 200m) just prior to commencement of work with wildlife friendly fencing, continued evidence of cattle access into site ➤ Control minor scattered Lantana north of new fence as gesture of good will or liaise with landowner to ensure controlled ➤ Resolve adjoining landowner () cattle water access needs

- Bush regeneration work in zone e1 commenced in December 2020, at the dam situated on the boundary of zone e1 and e2, working in lines from west to east in a northerly direction. During the year, as works progressed, the northern end adjacent to the new fence and gate became the base for the regeneration crew (refer general photos zone e1 below). As at the end of Year Four, the primary works are complete and follow-up will continue into Year Five.
- Refer to the BRPMA (Dawson, 2019) for 2018 baseline photos of monitoring point e1a and e1b. Following the removal of scattered Lantana patches and clumps of Privet and Camphor, the mid stratum has regenerated with shrubs typical of wet sclerophyll communities such as Hairy Psychotria (*Psychotria loniceroides*), Mock olive (*Notelaea spp.*), Poison Peach (*Trema aspera*) and Myrsine (*Myrsine variabilis*), including rainforest pioneers such as Macaranga (*Macaranga tanarius*) some of which have been selectively and successfully targeted to encourage eucalypt regeneration (refer general photos below). The ground stratum has a diverse range of herbs and ferns including Prickly Rasp Fern (*Doodia aspera*), Showy Violet (*Viola betonicifolia*), Common Fringe Lily (*Thysanotus tuberosus*), Blue Trumpet (*Brunoniella australis*) and Austral Bugle (*Ajuga australis*). See Table 2 for additional species identified on site.

Comparison photos e1a (Source [redacted] Dec 2022)



2022 North into north western portion of zone e1



2022 East into zone e1



2022 South into south western portion of zone e1



2022 West towards western boundary and access track of zone e1

Comparison photos e1b (Source [REDACTED], Dec 2022)



2022 North into northern portion of zone e1



2022 East into eastern portion of zone e1



2022 South into southern portion of zone e1



2022 West towards western portion of zone e1

General photos zone e1 (Source [REDACTED], 2021)



Northern end of zone e1 post primary works with upper stratum of Tallowwood, Blackbutt, White Mahogany, Cabbage Gum and Pink Bloodwood, mid stratum Poison Peach, ground stratum Blady Grass



Mid-section zone e1 during primary works targeting Lantana. The overall condition of this zone was classified as good and cost low in the Bush Regeneration Plan (Dawson, 2018)



Regenerating Tallowwood and Bloodwood, zone e1 to the west of monitoring point e1b, post weed control and targeted removal of rainforest pioneers

Zone w4 (photo point w4)

Off-site zone	Area	Description & status	Value	Objective	Performance Indicator	Actions
w4	1.7ha	Degraded rocky slope and powerlines above plateau of Closed Forest (Lowland Rainforest) <i>Primary Year 2, Follow-up Year 3, Maintenance Year 4</i>	EEC TS	Restore EEC by treating weed infestations and prevent dispersal to other zones. Protect and expand TS	All strata 95% natives TS maintained and expanded	<ul style="list-style-type: none"> ➤ Weed control: (utilizing area under powerlines for access with general work direction north and south outwards. Zone w1 may provide access in parts). Primary: Flag and hand weed/cut & paint a buffer zone around TS. Arrowhead is entangled in Lantana below the top edge. Hand pull larger woody Coral Berry, spot spray smaller plants. Skirt the Balloon vine (spray regrowth), clear around natives, cut & paint/drill Privet, overspray Lantana. Overspray smaller Devil's Fig. Drill taller Devil's Fig. Follow up: spot spray as required/to prevent seeding particularly Coral Berry and Balloon Vine. Ensure powerlines slashed. ➤ Identify western and northern boundary with flagging tape

- Much of the crew's work in 2022 has focused on follow-up in this zone with regular spot sprays to ensure that the exotic seed bank is depleted and that vigorous vines (both native and weed) do not inhibit regeneration. The southern boundary adjoining zone s1/s2 where the new fence had been installed in 2020 also required maintenance.
- Zone w4 is problematic and challenging with very rocky terrain, which is difficult to traverse. It contains powerlines above weed infestations not receiving any visits by the powerline maintenance crew and the threatened species Arrowhead Vine (*Tinospora tinosporoides*) tangled up in exotic vines. In addition, the bulk of this zone comprises a very steep slope of large, unstable boulders. Monitoring Report Two indicated that the principle of adaptive management may require plantings of supplementary figs to secure the boulders on the slope into the future. Approximately 20 Rusty Figs (*Ficus rubignosa*) were propagated by [REDACTED], from seed sourced from Firewheel Rainforest Nursery and planted in Autumn 2021 into a variety of rocky areas, on boulders and within drilled camphors and privets (Refer Figure 1). As indicated in the BRP ([REDACTED], 2018), this species also occurs on large boulders in zone w3. 90% success rate with Figs establishing
- This zone is approaching the KPI of less than 5% weeds in all strata apart from exotic grasses along the road edge due to its proximity to weed sources from adjacent unworked zones. Refer Table 2 for additional species identified in this zone.

Comparison photos w4 (Source [REDACTED], Dec 2022)



2022 North along main vehicle access road into quarry zone w4



2022 East into western portion of zone w4 looking upslope



2022 South zone w4



2022 West towards main vehicle access road into quarry zone w4

General photos zone w4 (Source [REDACTED], 2021)



Zone w4 General view of the progress of zone w4 previously dominated by exotic vines and dense patches of Lantana post two years of primary and follow-up. Exotic grasses on the roads edge (Rhodes Grass) are due to proximity to weed source from adjacent unworked zones.



Zone w4 One of approximately 20 Rusty Figs planted in rocky areas, on boulders and in drilled camphors and privets to stabilise the terrain

Table 2 Additional species identified post BRP (source [REDACTED])

Zone w4, 2020	Family	Scientific name	Common name	TS	
TREES & SHRUBS	Apocynaceae	<i>Carissa spinarum</i>	Carissa		
	Asteliaceae	<i>Cordyline spp.</i>	Palm Lily spp.		
	Atherospermataceae	<i>Daphnandra apetala</i>	Socketwood		
	Cannabaceae	<i>Aphananthe philippinensis</i>	Rough leaved Elm		
	Cannabaceae	<i>Trema tomentosa</i>	Poison Peach		
	Ebenaceae	<i>Diospyros australis</i>	Black Plum		
	Ebenaceae	<i>Diospyros pentamera</i>	Myrtle Ebony		
	Fabaceae	<i>Parachidendron pruinosum</i>	Snow Wood		
	Fabaceae	<i>Pedleya acanthoclada</i>	Thorny Pea	y	
	Lauraceae	<i>Cryptocarya laevigata</i>	Glossy laurel		
	Lauraceae	<i>Cryptocarya obovata</i>	Pepperberry		
	Lauraceae	<i>Endiandra muerelli sp.</i>	Green-leaved Rose Walnut		
	Lauraceae	<i>Endiandra pubens</i>	Hairy Walnut		
	Meliaceae	<i>Dysoxylum mollissimum</i>	Red Bean		
	Meliaceae	<i>Dysoxylum rufum</i>	Hairy Rosewood		
	Meliaceae	<i>Toona ciliata</i>	Red Cedar		
	Moraceae	<i>Ficus fraseri</i>	Sandpaper Fig		
	Moraceae	<i>Ficus rubignosa</i>	Rusty Fig		
	Moraceae	<i>Streblus brunonianus</i>	Whalebone		
	Pittosporaceae	<i>Pittosporum multiflorum</i>	Orange Thorn		
	Putranjivaceae	<i>Drypetes deplanchei</i>	Grey Boxwood		
	Rubiaceae	<i>Ixora beckleri</i>	Native Ixora		
	Rutaceae	<i>Acronychia oblongifolia</i>	White Aspen		
	Rutaceae	<i>Citrus australasica</i>	Finger lime		
	Rutaceae	<i>Pentaceras australe</i>	Bastard Crow's Ash		
	Sapindaceae	<i>Diploglottis australis</i>	Native tamarind		
	Sapindaceae	<i>Elattostachys nervosa</i>	Green tamarind		
	Sapindaceae	<i>Harpullia pendula</i>	Tulipwood		
	Urticaceae	<i>Dendrocnide photinophylla</i>	Shiny-leaved Stinging Tree		
	Urticaceae	<i>Pipterus argenteus</i>	White Nettle		
	VINES	Apocynaceae	<i>Hoya australis</i>	Native Hoya	
		Apocynaceae	<i>Parsonsia straminea</i>	Common Silkpod Vine	
		Arecaceae	<i>Calamus muelleri</i>	Lawyer Vine	
		Aristolochiaceae	<i>Aristolochia praevenosa</i>	Birdwing Butterfly Vine	
Bignoniaceae		<i>Pandorea pandorana</i>	Wonga Vine		
Fabaceae		<i>Austrosteenisia sp.</i>	Blood Vine		
Fabaceae		<i>Derris involuta</i>	Native Derris		
Flagellariaceae		<i>Flagellaria indica</i>	Whip Vine		
Menispermaceae		<i>Sarcopetalum harveyanum</i>	Pearl Vine		
Menispermaceae		<i>Tinospora tinosporoides</i>	Arrow-head Vine	y	
Vitaceae		<i>Cissus hypoglauca</i>	Five-leaved Water Vine		
Vitaceae		<i>Cissus antartica</i>	Water Vine		

Zone e1, 2021

	Family	Scientific name	Common name	TS
TREES & SHRUBS	Rutaceae	<i>Acronychia baeuerlenii</i>	Byron Bay Acronychia	
HERBS	Acanthaceae	<i>Brunoniella australis</i>	Blue Trumpet	
	Asparagaceae	<i>Thysanotus tuberosus</i>	Common Fringe Lily	
	Convolvulaceae	<i>Polymeria calycina</i>	Slender Bindweed	
	Lamiaceae	<i>Ajuga australis</i>	Austral Bugle	
	Violaceae	<i>Viola betonicifolia</i>	Showy Violet	

References

Conacher Environmental Group (CEG). (2006). *Blakebrook Quarry: Koala Plan of Management*. Lismore, NSW

██████████. (2018). *Blakebrook Quarry Bush Regeneration Plan (Lot 201 DP 1227138)*. Lismore City Council

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ERM. (2018). *Blakebrook Quarry Biodiversity Offset Strategy*.

Standards Reference Group SERA. (2021). *National Standards for the Practice of Ecological Restoration in Australia Edition 2.2*. Society for Ecological Restoration Australasia. Retrieved from URL: www.seraustralasia.org



Appendix W

LCC to DPE: Property Investigation Reporting

Our ref: [REDACTED]

Your ref: MP07-0020

Contact: [REDACTED]

3 August 2022

Mr [REDACTED]
Planning and Assessment
Department of Planning and Environment
(Via Major Projects Portal)

Dear [REDACTED]

Blast Complaint Investigation – Blakebrook Quarry MP07-0020

Lismore City Council (Council) provides the following information in response to your correspondence of 15 July 2022 in relation to complainant blast concerns at Blakebrook Quarry (Quarry).

Schedule 4, Condition 3 and 4:

- *Was a property inspection to establish baseline conditions undertaken at [REDACTED] Blakebrook in accordance with the above conditions?*
- *If so, when was it undertaken and was the landowner provided a copy of the property inspection report?*

A review of Council's archived records indicates that an assessment at [REDACTED] was completed and provided to the landholder in 2012 (refer to Attachments 1 and 2).

Council received a blast complaint in December 2021 and subsequently engaged a building consultant to inspect the property and report on structural damage on 20 January 2022, noting there was a Christmas shut down period for the Quarry and Council staff during this period. At this time the distance between the blast and the complainant's residence was measured and was more than 2km. As a result, Council was of the understanding that Schedule 4 Condition 3 or 4 had not been triggered. Furthermore, Council did not receive a written request under this condition by the complainant to conduct a property inspection. Therefore Council did not seek written endorsement for this consultant by the Department of Planning and Environment (DPE).

- *Does the project have a list of what properties had property inspection completed in reference to the above conditions?*

Yes, please refer to Attachment 2.

Schedule 4, Condition 5:

- *The department has been highlighted by a local resident of two blasting events being December 21 and March 22 that raised concerns relating to alleged damage to property at [REDACTED].*
- *Is the project team aware of these concerns or any other complaints?*
- *Did the local resident raise these concerns with the project team?*

Council received a total of two complaints from the landholder residing at [REDACTED] (Complainant) regarding blasting events on 13 December 2021 and 18 March 2022. Council engaged a building consultant to investigate and document structural damage at the complainant's property on 20 January 2022, with a report due by 13 March 2022. This report was delayed due to major flooding across the region in February/March. The consultant's office and files were destroyed, requiring a second inspection and rewrite of the report. The report was provided to the property owner upon Council receipt on 27 April 2022 (refer to Attachment 3). Please also refer to attached Customer Request Management records for further detail (Attachments 4 and 5). There have been no further complaints or issues raised with Council, even from those with closer proximity to the Quarry.

- *If so, did the project commission a suitably qualified person approved by DPE on behalf of the Secretary to investigate the claims and prepare a property investigation report?*
- *If so, was the landowner provided a copy of the report?*

Following the second complaint in March 2022 and with the return of the Compliance Manager from maternity leave, the distance between the complainant and the blast was re-assessed. Council contacted DPE to discuss the measurement from the residence affected or the resident's rural property boundary. It was determined that the measurement from the property boundary would be utilised, resulting in a distance of just less than 2km, thus triggering Schedule 4 Condition 4 requirements. Following this, Council self-reported their non-compliance with Schedule 4 Condition 4 timeframes (refer to attachment 6).

Council proceeded to engage a third-party consultant Saros (specialised blast expert) on 18 May 2022 to conduct additional monitoring and to review the structural report and blast circumstances. Endorsement by the DPE for the third-party consultant was received on 21 June 2022 (refer to Attachments 7a and 7b). This consultant conducted independent monitoring, including at the complainant's residence during the blast executed on 31 May 2022. This consultant undertook an independent review of blasting activities and results between 13 December 2021 and 31 May 2022, with consideration to the original property inspection report and latest structural damage report for [REDACTED]. Council provided this report to the property owner upon receipt on 28 July 2022 (refer to Attachments 8a and 8b), just more than five weeks after receiving Saros' DPE endorsement.

The department is aware that [REDACTED] of Saros (International) Pty Ltd was engaged to undertake some monitoring of a blast event in May 22.

- *Was Saros Pty Ltd engaged to undertake a property investigation report in relation to any complaints received?*

As discussed above, Saros was engaged following the receipt of two complaints to comply with Schedule 4 Condition 4.

Figure 2-2 of the Annual Review shows 3 blast monitoring locations, but the data only appears to record 2 sets.

- *Is there any additional information that can highlight the required number of blast monitoring locations?*
- *If possible is there any information available regarding why these locations were chosen?*

Council's Blast Contractor at the time misunderstood the requirements to monitor three primary locations. This has since been rectified and subsequent blasts have included monitoring at three primary locations and also the complainant's location. Council is currently involved in a legal contract dispute with this Blast Contractor. It is important to note that the primary location not monitored is situated on the east side of the Quarry, the opposite side to the complainants' property.

It is interesting to note that some previous complaints were received in 2012 regarding blast concerns, then nothing for nearly 10 years.

- *Has there been any changes onsite that may have created new concerns for the surrounding community?*

The Quarry operations footprint remains within the North Pit. Blasting and crushing activities continue to be undertaken by external contractors. There have been no significant changes to operations or staff during the time of the complaints.

It may also be relevant to note that Council is responding to this complainant's concerns as promptly as possible. All monitoring results have been below prescribed licence limits. Further, the Property Inspection Report concluded that it was highly unlikely that blasting activities from the Blakebrook Quarry would have resulted in any adverse impacts including cosmetic and/or structural damage to the residence at [REDACTED]. As the DPE is aware, Council and the Consultant were severely impacted by major flooding in February and March, causing some setbacks to delivery timeframes.

This complainant has been kept informed regularly but has continued to contact Council and is now approaching Councillors alleging misconduct and non-compliance of Quarry operation and staff. There is the potential this particular complainant will continue to make complaints to both the Environment Protection Agency and Department of Planning Industry and Environment.

From the above responses and through Council's internal review of the chronology of action in response to this resident's concerns, it is evident that Council has acted in good faith and has exercised its responsibilities in a reasonable manner given the circumstances.

Should you require any further information, please do not hesitate to contact [REDACTED], Compliance Manager on [REDACTED] or via [REDACTED] [@lismore.nsw.gov.au](mailto:[REDACTED]@lismore.nsw.gov.au).

Yours faithfully

[REDACTED]
Director Infrastructure Services



Appendix X

CCC Meeting Minutes

Present: Chairperson, Commercial Services Manager, Quarry Operations
Coordinator, Compliance Manager, Compliance Officer, Compliance
Support Officer

Community Committee Members: [REDACTED]
[REDACTED]

Apologies: Chief Operating Officer, [REDACTED]

WELCOME

The meeting was opened at 4.00pm by the Chairperson and all members welcomed.

PREVIOUS MINUTES

Overview of previous meeting and minutes were accepted as being true and correct.

BUSINESS ARISING FROM MINUTES OF PREVIOUS MEETING

Excavated Public Road Material – Nimbin Road – self-reported to EPA in December 2021. Road profilings from Nimbin Road were brought into Quarry as there was not adequate stockpiling area within the verge, whilst road repairs were undertaken. EPA were satisfied with process proposed by LCC and reporting is ongoing until all product has been removed (approx. 73% to date).

Nimbin Road Culvert – affected resident has stated that when that section of Nimbin Road was realigned a number of years ago, the camber of the road was altered hence causing water to pond on his side of the road more so than in the past. This is an engineering issue connected with road design and LCC Works has been advised accordingly.

Boundary Fence – siting fence on NW boundary line is difficult due to terrain being very steep and rocky. Barbed wire fence currently installed (by neighbour) alongside Quarry entrance road to prevent neighbours' cattle entering. This is an effective solution at present. Council will revisit permanent boundary fencing at a later date.

CORRESPONDENCE

- Request for information (RFI) from EPA regarding sediment basin discharge on site. EPA are currently reviewing the licence condition wording to clarify meaning around different types of discharge. No further action at this time.
- Request for information (RFI) from DPE and EPA regarding blast complaints from a resident. A considerable amount of time was required to provide large amounts of information, submissions made to both agencies. No further action at this time.
- Request for an Addendum Property Investigation Report from DPE. Requiring a structural engineer and blast specialist (as one consultant) with endorsement from DPE. This skill set is extremely rare which created difficulties in ascertaining a consultant, generating some delays. Council have kept DPE informed, and this work is in progress.

- Request for information (RFI) from EPA regarding a dust complaint from a resident. Monitoring reports and information were provided as requested. No further action at this time.
- Letter received from community member regarding Koala survey data. Council noted correspondence and will respond accordingly. Council will respond.

A resident voiced [REDACTED] concerns regarding a blast on 13 December 2021 and 18 March 2022, where [REDACTED] stated their residence had been damaged. The resident expressed concerns that the blast was close to the 5mm/s ground vibration limit within the EPA licence. These concerns were in connection with the above-mentioned property investigation report.

The resident expressed several grievances against monitor calibration, content of one consultant's report, quarry blast reports and locations and Council staff conduct. Claiming Council staff were providing false and misleading information to consultants and in reports, which included the recent AERM and IEA. This resident also outlined that her residence had been damaged in the past and Council had paid for repairs. The Compliance Manager was unable to confirm this as no Council records existed to support this. It was stated that even if this was the case in the past, she would not be able to honour these arrangements. That she was required to follow Council and Department processes and further responsible for budget spend aligned with Council's approved operational plan.

Further comments were raised from the resident regarding no reference to the complaints register in the Noise & Blast Management Plan (NBMP). The NBMP states *"Quarry and Asphalt complaints must be received via telephone to LCC's Contact Centre 1300 878 387. The details of the complaint will be passed on to the Quarry Compliance division. Complaints must be made through the correct channel to the LCC Customer Contact Centre in order to ensure correct record keeping and response."* The EPA licence stipulates the Quarry must operate a telephone complaints line during operating hours.

A second resident voiced her concerns regarding the blast on 31 May 2022. She commented that her call to the LCC Contact Centre was in fact a complaint, however, was not clearly identified as such and was not identified on the complaints register for May. Council staff advised that the audio recording had been retrieved and it was discovered that her phone call was considered an enquiry. The resident advised she was not informed that her call was being recorded. Council informed the resident that all calls are recorded and there is an automated message at the beginning of the call advising of this. Further, since becoming aware of the resident's phone call intention. Council staff have manually entered the complaint into the customer contact centre system which captures it in the complaint register online. The resident advised she was not happy that the date reflected was the entry date. Council advised they are unable to backdate entries in the system, however, Council agreed at the meeting to clearly note on the complaint register online that this relates to the May blast.

The second resident asked if the CCC Guidelines could be distributed to each neighbour. Council agreed to provide as an attachment to the minutes.

She also stated she would like a monitor set up at their residence ([REDACTED] Keerrong Road) during the next blast. Council agreed to action this for the next scheduled blast.

Residents stated that several nearby residents were not notified of the CCC meeting or blasts. Council advised that immediate neighbours and residents within approximately 2km of Quarry are notified each time. Several residents over time have requested not to be contacted, as they are not concerned with the blasting/not interested in the CCC meeting. Should additional nearby residents want to be included Council would be more than happy to oblige.

Resident expressed a desire to have more frequent CCC meetings to improve communication considering the above issues. Council agreed to run an additional CCC meeting in early 2023.

The Compliance Manager attempted to respond to all points made. However, the Chairperson suggested, and it was agreed between the members present to hold another meeting in February to address each of the concerns and to provide context so as to assist in understanding and working towards a better relationship.

GENERAL BUSINESS

- Quarry Operation and Production:
 - The Quarry is heavily regulated through an EPA licence, the Resources Regulator (Mines) and being licenced as a State Significant Project (CoA) means additional reporting and compliance requirements which has resulted in significant increases to costs.
 - Crushing operations are performed by a contractor on site – significant demand for products due to road repairs in the Shire following the devastating floods, has greatly increased site operations, production and planning.
 - Drill & Blast – Four (4) blasts have occurred in 2022, with one (1) scheduled before COB in December. One (1) environmental exceedance has occurred on 26 September 2022 (over 5 mm/s but within 10 mm/s threshold of EPA licence). The Compliance Manager noted that there had been a minor vibration exceedance at monitor location 8 during the September blast. Which had been self-reported to the relevant agencies.
- Asphalt Plant lease arrangement – under negotiation with RPQ.
- Council organisational structure – a restructure has been outlined prompted by Council elections in 2021. This will take effect over next 12 months as new executives are transitioned into their roles. Current GM will not apply for permanent position post February 2023.
- Unsolicited proposal – enquiry only at this stage. No formal proposal has been offered. Discussions continuing.
- Project to dismantle old Asphalt Plant:
 - Stage 1 – complete (install GPT system). Stage 2 – complete (decommission and remove old tanks). Stage 3 – complete (install new fuel tank, resurface area, expand sed basin).
- Customer feedback on product:
 - Customer survey sent out each month via online platform for anonymous feedback. Positive feedback received so far (with some months no response). No Complaints.

ANNUAL ENVIRONMENTAL MONITORING REPORT (AEMR)

The 2021 AEMR was completed and submitted to the Department of Planning and Environment (DPE) for review on 23 June 2022. The DPE has responded to Council advising it has accepted this report in line with requirements of the Approval. The report can be found on Council's website.

- Two (2) non-compliances:
 - Excavated Public Road Material – as above
 - Submission of Property Investigation Report within CoA timeframes - delayed due to flooding and difficulty in meeting specialist qualifications.

INDEPENDENT ENVIRONMENTAL AUDIT (IEA) – 3 Yearly

Consultant endorsed by DPE. The 2019-2021 audited conducted in May 2022 and report submitted to DPE on 18 July 2022 with one (1) non-compliance. Report accepted by DPE noting:

- Driver Induction to include wording for company signage and clean of material.

Auditor comments were: *“The overall outcome of the Audit indicated that compliance is proactively tracked and demonstrated by the Proponent. Compliance records were very well organised and available during this Audit. Relevant environmental and compliance monitoring records were collected and reported as required to provide verification of compliance to MP07-0020 and Environmental Protection License (EPL).”*

SITE MAINTENANCE

Wild Dog Baiting

- There was little interest for a community bait for 2022 dog baiting campaign, only two (2) neighbouring properties participated.
- Baiting commenced in September 2022 with Notification period of 6 months (ending March 2023). Two (2) rounds of baits have been put out with 100% uptake.
- Resident noted that there were difficulties in participating in campaign dog baiting due to roaming domesticated dogs. She advised that she had contacted Council ranger but had not received a response. Council advised they would try and follow-up but outlined that staff were positioned in a different division. Resident also stated it would be good to have some Local Land Services information shared by Council for the community.

Weed Control

- Regular weed control is undertaken in biodiversity areas by the Quarry's Bush Regeneration contractors. In accordance with Bushland Regeneration Plan and Biodiversity Offset Strategy.
- \$65,000 per year allocated to Bush Regen activities. Slightly ahead of schedule overall. All work zones are progressing as planned.
- Koala populations still present on site. Any koala sightings are recorded.
- Zones n2, n3, e5a, e5b, e5c, w4 – in maintenance stage.
- Zone e1 – in follow up stage.
- Bush Regen Monitoring Report Year Three 2021 – completed. Year Four (4) due Jan 2023.
- Rehabilitation Bond – revised & submitted to DPE 18 Oct 2022 (following Independent Environmental Audit).

Additional Other Business

- External audit for ISO certification 22nd and 23rd November 2022:
 - Conducted online.
 - Auditor very happy with management of system and processes.
 - No NCR, 1 minor observation.
 - Best audit result ever achieved

The meeting closed at 6.00 pm. Meetings are scheduled annually, due by December 2023.

ACTION	ACTION OUTCOME	BY WHOM & WHEN
Follow up meeting to address concerns raised on 1 Dec 2022	Additional CCC Meeting Scheduled – 16 February 2023 Objective of this meeting is to enable identified issues to have a mechanism to be addressed	Quarry – February 2023
Nimbin Road Roadworks Material	Progressive reporting to EPA until stockpile removed from site	Council – January 2023
CCC Guidelines	Council to distribute with CCC minutes	Council – February 2023
Development of Addendum Property Investigation Report (notwithstanding consultancy delays)	Council to complete to satisfaction of DPE	Council – 28 February 2023
Additional Vibration Monitoring at [REDACTED] Keerrong Road at request of resident	Completed (Dec & Feb Blast)	Council – February 2023
Wild Dog Baiting	To continue until Notification period lapses	Quarry staff – March 2023
Domesticated Dog Roaming Management	Council to liaise with Council Rangers	Council – February 2023
Complaint Register	Council to amend online complaints register to reference May 2022 Blast	Council – February 2023
Koala Data Request from [REDACTED]	Council to review and respond to community member with available data – response provided	Council – February 2023



Appendix Y

Access to information

Information to be provided on LCC website as per Schedule 5 Condition 14

Schedule 5 Condition 14 Description	Available on LCC Website 03/03/2023?
<i>(Reference) Document Title</i>	
<i>the documents listed in condition 2(a) of Schedule 2;</i>	
Environmental Assessment ¹	Y
Environmental Assessment (Mod 1) ²	Y
<i>current statutory approvals for the project;</i>	
Part 3A Approval No.07_0020 (Mod 3)	Y
EPA Licence 3384	Y
<i>all approved strategies, plans and programs required under the conditions of this approval;</i>	
(Sch 3.Cond. 5) Noise Management Plan	Y
(Sch. 3 Cond. 9) Blast Management Plan	Y
(Sch. 3 Cond. 9) Mine Safety Management Plan	Y
(Sch. 3 Cond. 12) Air Quality Management Plan	Y
(Sch. 3 Cond. 19) Soil and Water Management Plan	Y
(Sch. 3 Cond. 19) Groundwater Monitoring and Management Sub Plan	Y
(Sch. 3 Cond. 19) Pollution Response Management Plan	Y
(Sch. 3 Cond. 23) Traffic Management Plan	Y
(Sch. 3 Cond. 24) Aboriginal Heritage Management Plan	Y
(Sch. 3 Cond. 28) Biodiversity and Rehabilitation Management Plan	Y
(Sch. 3 Cond. 28) Biodiversity Strategy	Y
(Sch. 5 – Cond. 1) Environmental Management Strategy	Y
<i>a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs;</i>	
Blast Reports – 2022	Y
Noise Monitoring Reports – 2022	Y
Dust Monitoring Summary Results – 2022	Y
Ground Water Monitoring Results – 2022	Y
Surface Water Monitoring Results – 2022	Y
Water Discharge Report – 2022	N
<i>a complaints register, updated monthly;</i>	Y
<i>the annual reviews of the project;</i>	
Annual Environmental Monitoring Report 2012	Y
Annual Environmental Monitoring Report 2013	Y
Annual Environmental Monitoring Report 2014	Y
Annual Environmental Monitoring Report 2015	Y
Annual Environmental Monitoring Report 2016	Y
Annual Environmental Monitoring Report 2017	Y



Annual Environmental Monitoring Report 2018	Y
Annual Environmental Monitoring Report 2019	Y
Annual Environmental Monitoring Report 2020	Y
Annual Environmental Monitoring Report 2021	Y
<i>any independent environmental audit as described in condition 12;</i>	Y
<i>the Proponent's response to the recommendations in any audit;</i>	Y
<i>any other matter required by the Secretary; and</i>	
Truck Dispatch Times	Y
Community Consultative Committee meeting minutes	Y
(b) keep this information up-to-date, to the satisfaction of the Secretary.	

¹ *Blakebrook Quarry Expansion, Environmental Assessment Report, Final Report*, January 2009, and the Proponent's response to submissions titled *Blakebrook Quarry Expansion, Response to Submissions, Final Report*, August 2009

² Environmental Assessment titled *Blakebrook Quarry Modification Application*, August 2017