austral bricks®

ABN: 52 000 005 550

2021 Annual Review

for the

New Berrima Clay/Shale Quarry

Project Approval PA08_0212
Mining (Mineral Owner) Lease 6

Prepared in Conjunction with:

R.W. CORKERY & CO. PTY. LIMITED

February 2022

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ABN: 52 000 005 550

2021 Annual Review

for the

New Berrima Clay/Shale Quarry

Prepared by:

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Ref No. 744/35

February 2022

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Title Block

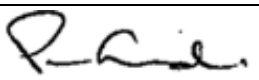
Name of Operation	New Berrima Clay/Shale Quarry
Name of Operator	The Austral Brick Company Pty Limited
Project Approval #	08_0212
Name of holder of Project Approval	The Austral Brick Company Pty Limited
Mining Lease #	M(MO)L6
Name of holder of mining lease	The Austral Brick Company Pty Limited
Water licence #	Not Required
Name of holder of water licence	Not Required
MOP/RMP start date	19 September 2018
MOP/RMP end date	31 August 2025
Annual Review start date	1 January 2021
Annual Review end date	31 December 2021

I, Peter Young-Whitford, certify that to the best of my knowledge this audit report is a true and accurate record of the compliance status of The Austral Brick Company Pty Limited for the period 1 January 2021 to 31 December 2021 and that I am authorised to make this statement of behalf of The Austral Brick Company Pty Limited.

Note.

a) *The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.*

b) *The Crimes Act 1900 contains other offences relating to false and misleading information: Section 192G (Intention to defraud by false or misleading statement – maximum penalty 5 years imprisonment); Section 307A, 307B and 307C (false or misleading application/information/documents – maximum penalty 2 years imprisonment or $22,000, or both).*

Name of authorised reporting officer	Peter Young-Whitford
Title of authorised reporting officer	Raw Materials and Mining Manager
Signature of authorised reporting officer	
Date	28 February 2022

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1 STATEMENT OF COMPLIANCE

The compliance status of relevant approvals was reviewed for the reporting period and is summarised in **Table 1**. It was determined that there were no non-compliances during the reporting period.

Table 1
Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	Yes / No
Project Approval 08_0212	Yes
Mining (Mineral Owners) Lease 6	Yes

2 INTRODUCTION

2.1 OVERVIEW OF OPERATIONS

The New Berrima Clay/Shale Quarry (the "Quarry") is located approximately 1.5km east of New Berrima in the Southern Highlands region of New South Wales (see **Figure 1**). Project Approval 08_0212 (PA 08_0212) was granted on 6 July 2012 and last modified on 6 July 2017. The approved layout is shown in **Figure 2** with surrounding land ownership and residences shown in **Figure 3**.

Project Approval 08_0212 was physically commenced in 2016 with site establishment activities commencing November 2020 and largely completed during this reporting period. Site establishment activities included site access intersection upgrade works, construction of the water management system, establishment of site access roads, construction of the visibility barriers, planting of the northern vegetation screen, and progressive stabilisation / rehabilitation of completed works. The remaining site establishment activities, namely the completion of the site access intersection, sealing the western access road, relocation of powerlines and planting of Shale Woodland tree species on the visibility barriers and southern vegetation screen will be completed during 2022.

2.2 SCOPE AND FORMAT

This Annual Review for the Quarry has been compiled by The Austral Brick Company Pty Limited ("Austral") in conjunction with R.W. Corkery & Co. Pty Limited.

This is the sixth Annual Review submitted for the Quarry and is applicable for the period 1 January 2021 to 31 December 2021 ("the reporting period"). The information presented within this Annual Review has been prepared by R.W. Corkery & Co. Pty Limited through compilation of information provided by Austral.

This Annual Review has been compiled in accordance with *Schedule 5 Condition 4* of PA 08_0212, generally follows the format and content requirements identified in the NSW Government *Annual Review Guideline* dated October 2015 and includes relevant information as required by the following conditions of PA 08_0212.

- *Schedule 2 Condition 15b*: Production Data.
- *Schedule 3 Condition 31*: Waste Management.
- *Schedule 5 Condition 11a*: Public Display.

2.3 KEY PERSONNEL CONTACT DETAILS

The key personnel contact names, position and phone numbers are as follows.

Name	Position	24 Hour Contact
Peter Young-Whitford	Raw Materials and Mining Manager	0412 611 714
Cassandra Steppacher	Environment Manager	0425 341 106

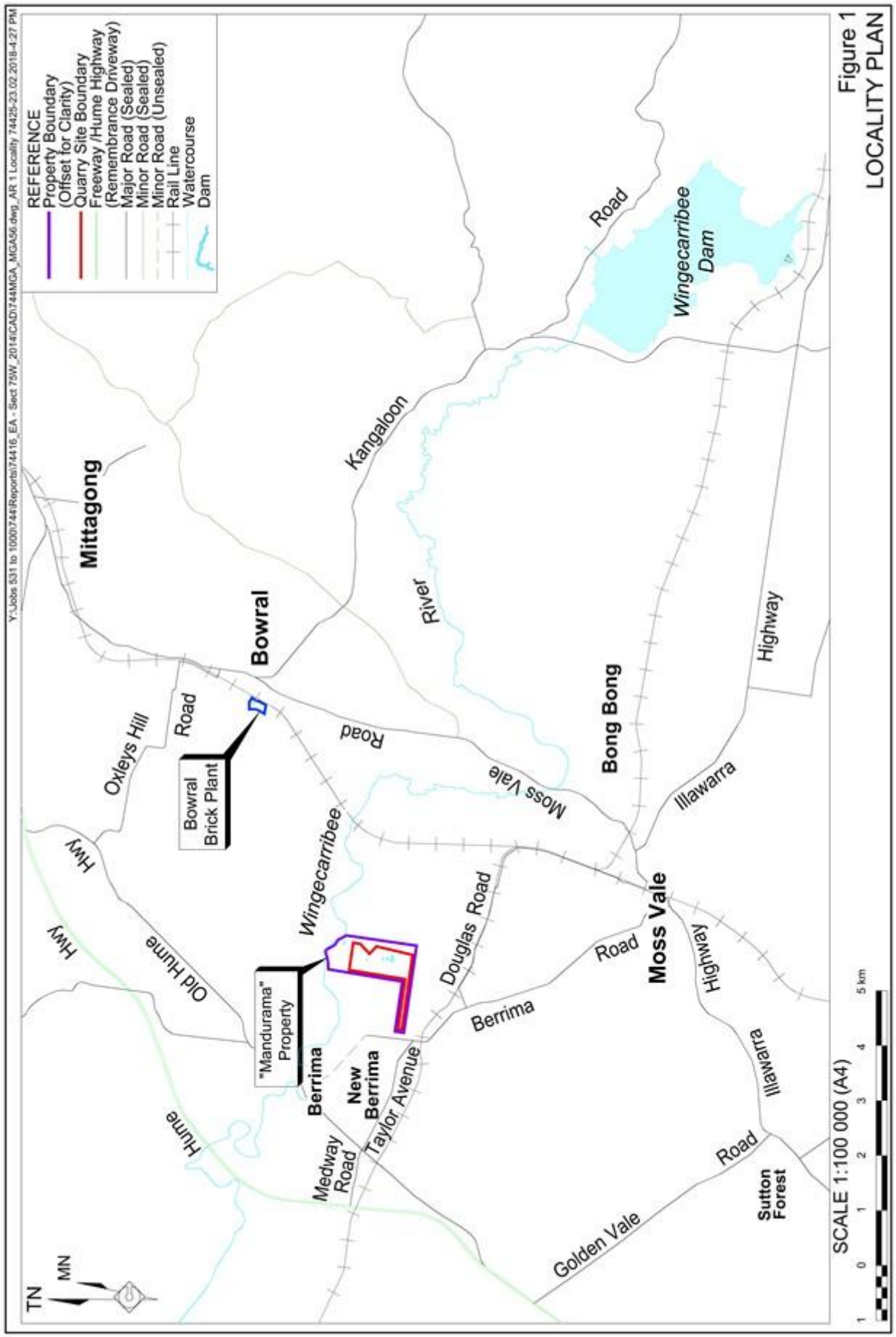
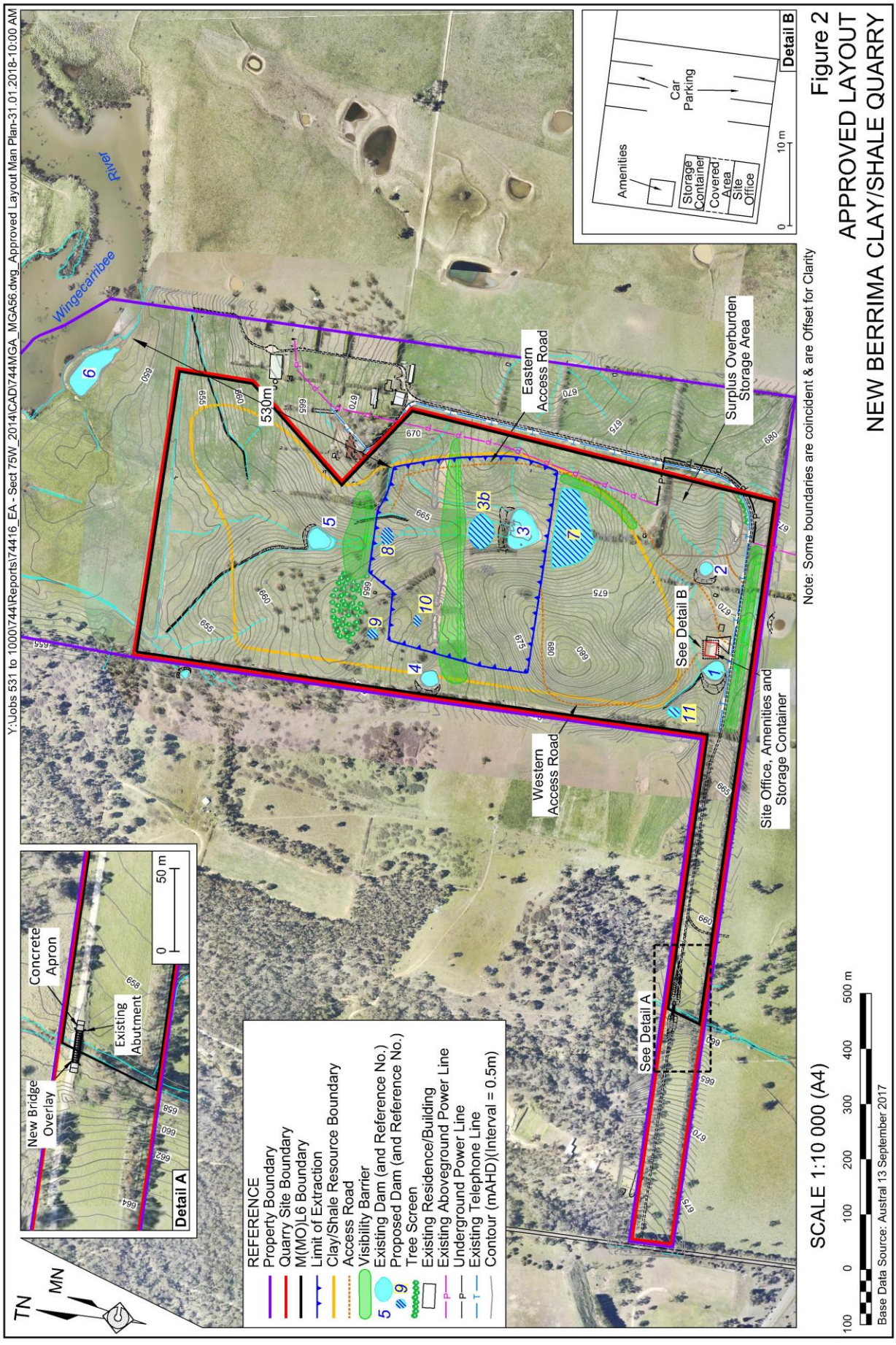


Figure 1
LOCALITY PLAN
REFERENCE
Property Boundary
(Offset for Clarity)
Quarry Site Boundary
Freeway /Hume Highway
(Remembrance Driveway)
Major Road (Sealed)
Minor Road (Sealed)
Minor Road (Unsealed)
Rail Line
Watercourse
Dam
Mittagong
Bowral
Kangaloon
Road
Wingecarribee
Dam
River
Oxleys Hill
Road
Bowral
Brick Plant
Road
Moss Vale
Bong Bong
Illawarra
Highway
Hwy
Old Hume
Hwy
Wingecarribee
"Manduramа"
Property
Douglas Road
Berrima
Road
Moss Vale
Highway
Berrima
New
Berrima
Taylor Avenue
Illawarra
Hume
Medway
Road
Road
Sutton
Forest
Golden Vale
TN
MN
SCALE 1:100 000 (A4)
0 1 2 3 4 5 km


Y:\Jobs 531 to 1000\744\Reports\74416_EA - Sect 75W_2014\CAD\744MGA_MGA56.dwg_Approved Layout Man Plan-31.01.2018-10:00 AM
Figure 2
APPROVED LAYOUT
NEW BERRIMA CLAY/SHALE QUARRY
Note: Some boundaries are coincident & are Offset for Clarity
SCALE 1:10 000 (A4)
100 0 100 200 300 400 500 m
Base Data Source: Austral 13 September 2017
TN
MN
REFERENCE
Property Boundary
Quarry Site Boundary
M(MO)L6 Boundary
Limit of Extraction
Clay/Shale Resource Boundary
Access Road
Visibility Barrier
Existing Dam (and Reference No.)
Proposed Dam (and Reference No.)
Tree Screen
Existing Residence/Building
Existing Aboveground Power Line
Underground Power Line
Existing Telephone Line
Contour (mAHD)(Interval = 0.5m)
Detail A
New Bridge Overlay
Concrete Apron
Existing Abutment
0
50 m
Detail B
Amenities
Car Parking
Storage Container
Covered Area
Site Office
0
10 m
Wingecarribee River
530m
Eastern Access Road
Surplus Overburden Storage Area
Western Access Road
Site Office, Amenities and Storage Container
See Detail A
See Detail B

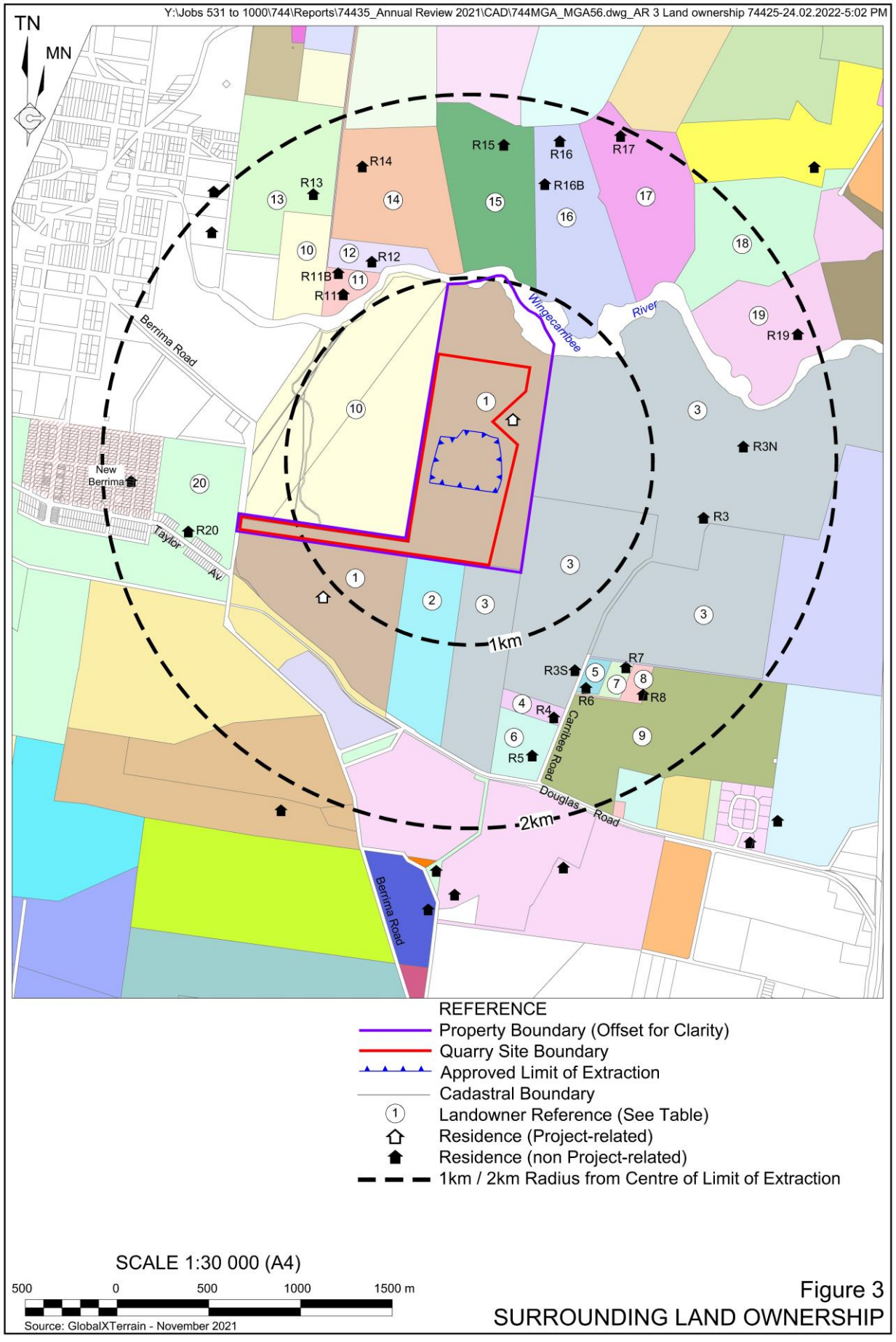


Figure 3
SURROUNDING LAND OWNERSHIP

3 APPROVALS

The Quarry is required to operate in accordance with the approvals and licences listed in **Table 2**.

Table 2
New Berrima Clay/Shale Quarry – Approvals and Licences

Consent/Lease/Licence	Issue Date	Expiry Date	Details / Comments
PA 08_0212	6/07/2012	31/12/2045	Issued by the (then) Minister for Planning and Infrastructure and last modified 6 July 2017.
Mining (Mineral Owners) Lease 6 (M(MO)L6)	27/06/17	27/06/2038	Granted by the Secretary of the (then) Department of Planning and Environment.
Environment Protection Licence 20377 (EPL 20377)	1/08/2016	Renewed annually	Issued by NSW Environment Protection Authority (EPA). Current version dated 29 January 2021.

A variation application for EPL 20377, lodged during the previous reporting period on 1 October 2020, was subsequently finalised on 29 January 2021, i.e. during this reporting period. There were no other modifications or variations to the other approvals or licences listed in **Table 2** during the reporting period.

The compliance reviews for PA 08_0212 and M(MO)L6 included in **Appendices 1** and **2** reflect the conditions relevant as at the end of this reporting period. A separate Annual Return also continued to be submitted to the NSW EPA in accordance with the requirements of EPL 20377 and is not further reported in this document.

A Section 138 Road permit, DA 17/1477, was previously issued by Council 30 August 2018 for an upgrade to the intersection of the Quarry access road and Berrima Road to accommodate B-Double vehicles. The works and requirements of this permit have been managed with and reported directly to Council with no conditions relevant to the ongoing operation of the Quarry.

4 OPERATIONS SUMMARY

4.1 CONSTRUCTION ACTIVITIES

Site establishment operations continued and were largely completed during this reporting period. Principal construction activities that were carried out during the reporting period included the following (see **Figure 4**).

- Completion of water management structures (dams and diversion drains) in accordance with the Water Management Plan approved September 2020.
- Construction and stabilisation of the northern, central and southern visibility barriers utilising overburden recovered from the extraction area.
- Construction of the western access road.
- Extensive upgrades to the sub-surface and sealing of the site access road and part of the western access road. Additional sealing beyond the Stony Creek bridge was also undertaken to the private residence and the Quarry was also undertaken to reduce the potential for dust generation and mud tracking.

4.2 EXTRACTION OPERATIONS

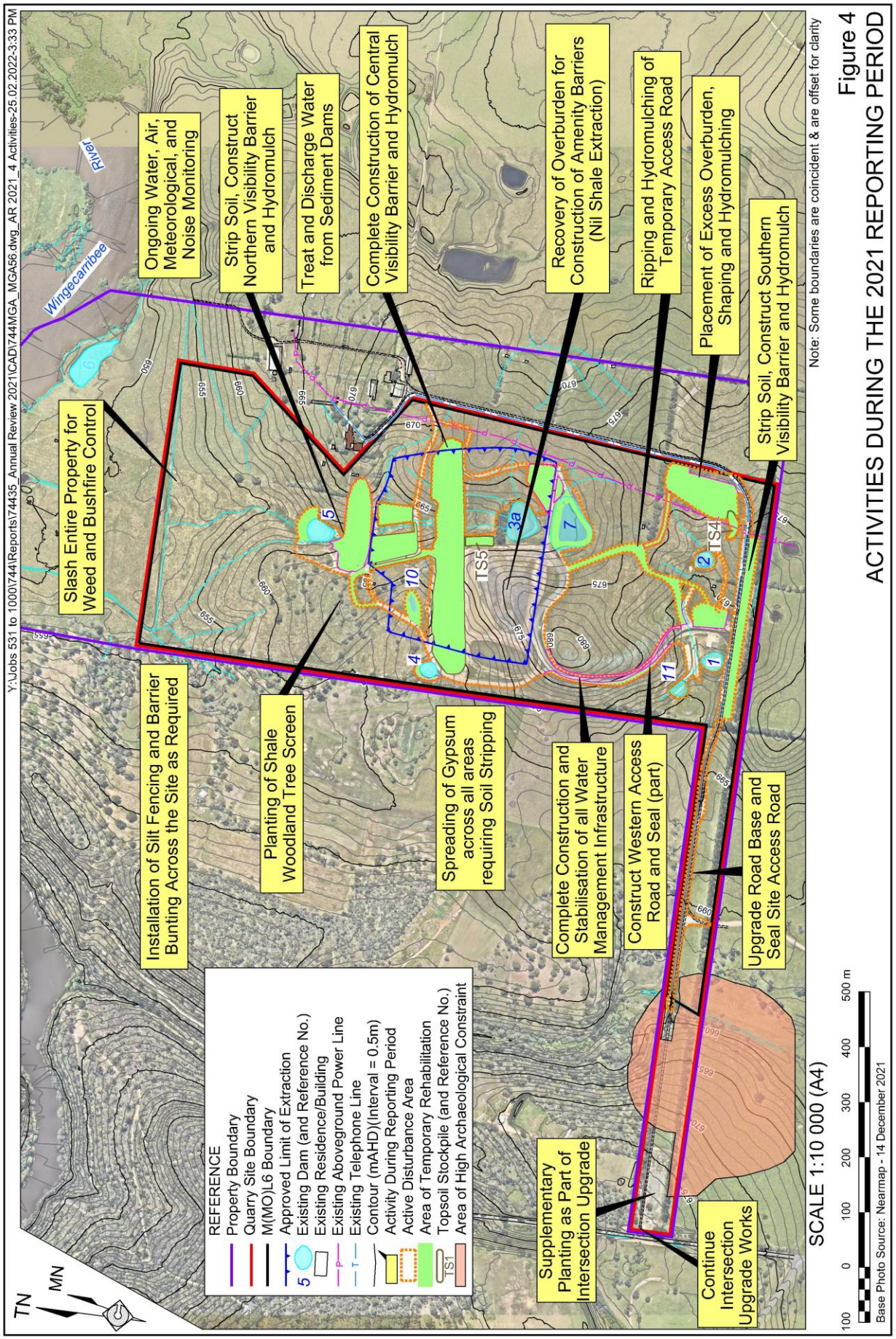
No extraction operations were undertaken during the reporting period. **Table 3** provides the production summary.

Table 3
Production Summary

Material	Units	Approved Limit (Specify Source)	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
Waste Rock / Overburden	bcm	Not Specified	0	0	0
ROM[1]	-	NA	-	-	-
Coarse Reject[1]	-	NA	-	-	-
Fine Reject[1]	-	NA	-	-	-
Saleable Product (Extractive Material)	t	150 000t [PA 08_0212 Condition 2(7)]	0	0	200
Transported Product	t	150 000t [PA 08_0212 Condition 2(8)]	0	0	200
Notes: 1. The Quarry does not generate 'Run of Mine' material, coarse or fine rejects.					

4.3 OTHER OPERATIONS

During the reporting period, Austral undertook a range of non-extractive activities. A summary of these activities is provided as follows and a selection of photographs as **Plates 1** to **8**.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Ongoing Water, Air, Meteorological, and Noise Monitoring
Strip Soil, Construct Northern Visibility Barrier and Hydromulch
Treat and Discharge Water from Sediment Dams
Complete Construction of Central Visibility Barrier and Hydromulch
Recovery of Overburden for Construction of Amenity Barriers (Nil Shale Extraction)
Ripping and Hydromulching of Temporary Access Road
Placement of Excess Overburden, Shaping and Hydromulching
Strip Soil, Construct Southern Visibility Barrier and Hydromulch
Slash Entire Property for Weed and Bushfire Control
Installation of Silt Fencing and Barrier Bunting Across the Site as Required
Planting of Shale Woodland Tree Screen
Spreading of Gypsum across all areas requiring Soil Stripping
Complete Construction and Stabilisation of all Water Management Infrastructure
Construct Western Access Road and Seal (part)
Upgrade Road Base and Seal Site Access Road
Supplementary Planting as Part of Intersection Upgrade
Continue Intersection Upgrade Works
Wingecarribee River
TS1
TS4
TS5
REFERENCE
Property Boundary
Quarry Site Boundary
M(MO)L6 Boundary
Approved Limit of Extraction
Existing Dam (and Reference No.)
Existing Residence/Building
Existing Aboveground Power Line
Existing Telephone Line
Contour (mAHD)(Interval = 0.5m)
Activity During Reporting Period
Active Disturbance Area
Area of Temporary Rehabilitation
Topsoil Stockpile (and Reference No.)
Area of High Archaeological Constraint
TN
MN
SCALE 1:10 000 (A4)
100 0 100 200 300 400 500 m
Base Photo Source: Nearmap - 14 December 2021
Note: Some boundaries are coincident & are offset for clarity
Figure 4
ACTIVITIES DURING THE 2021 REPORTING PERIOD

Plate 1 **Spreading Gypsum Prior to Soil Stripping – Western Access Road Drain**
Source: Austral Bricks
Date: November 2021

Plate 2 **Extraction Area**
Source: Austral Bricks
Date: December 2021

Plate 3 **Northern Visibility Barrier – Soil Spreading in Progress**
Source: Austral Bricks
Date: July 2021

Plate 4 **Central Visibility Barrier – Soil Spreading Complete with Rip Lines for Tree Planting**
Source: Austral Bricks
Date: August 2021

Plate 5 **Northern Vegetation Screen Plantings (Shale Woodland)**
Source: Austral Bricks
Date: August 2021

Plate 6 **Quarry Access Road Upgrade Works**
Source: Austral Bricks
Date: Various 2021

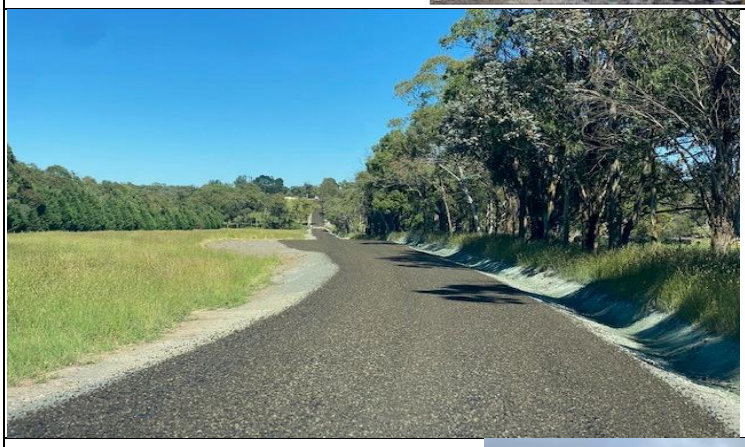


Plate 7 **Sealed Quarry Access Road with Passing Bay and Hydromulched Drain**
Source: Austral Bricks
Date: December 2021

Plate 8 **Dam 5 Water Quality After Treatment and Before Discharge**
Source: Austral Bricks
Date: 02/09/2021

Continued Upgrade of Site Access Intersection

During the reporting period the upgrade works required for the site access intersection continued to be progressed as per the approved Section 138 Road permit plans including road widening and completion of the sub-base and road base ready for asphalting.

Environmental Management, Monitoring, and Community Liaison

Environmental monitoring continued throughout the reporting period including meteorological, deposited dust and surface water and groundwater quality monitoring. Results of this monitoring are summarised in Sections 6 and 7 together with the water management works completed during the reporting period. Maintenance and calibration of the meteorological station was also completed during the reporting period.

Temporary rehabilitation through application of hydromulch as well as planting of the Southern Highlands Shale Woodland tree screening adjacent the northern visibility barrier was undertaken during the reporting period and is discussed in Section 8.

The community consultative committee continued to meet during the reporting period. Details of these meetings and other community liaison activities are summarised in Section 9.

4.4 NEXT REPORTING PERIOD

Activities planned to be undertaken during the next reporting period are summarised as follows and displayed on **Figure 5**.

Site Establishment and Construction

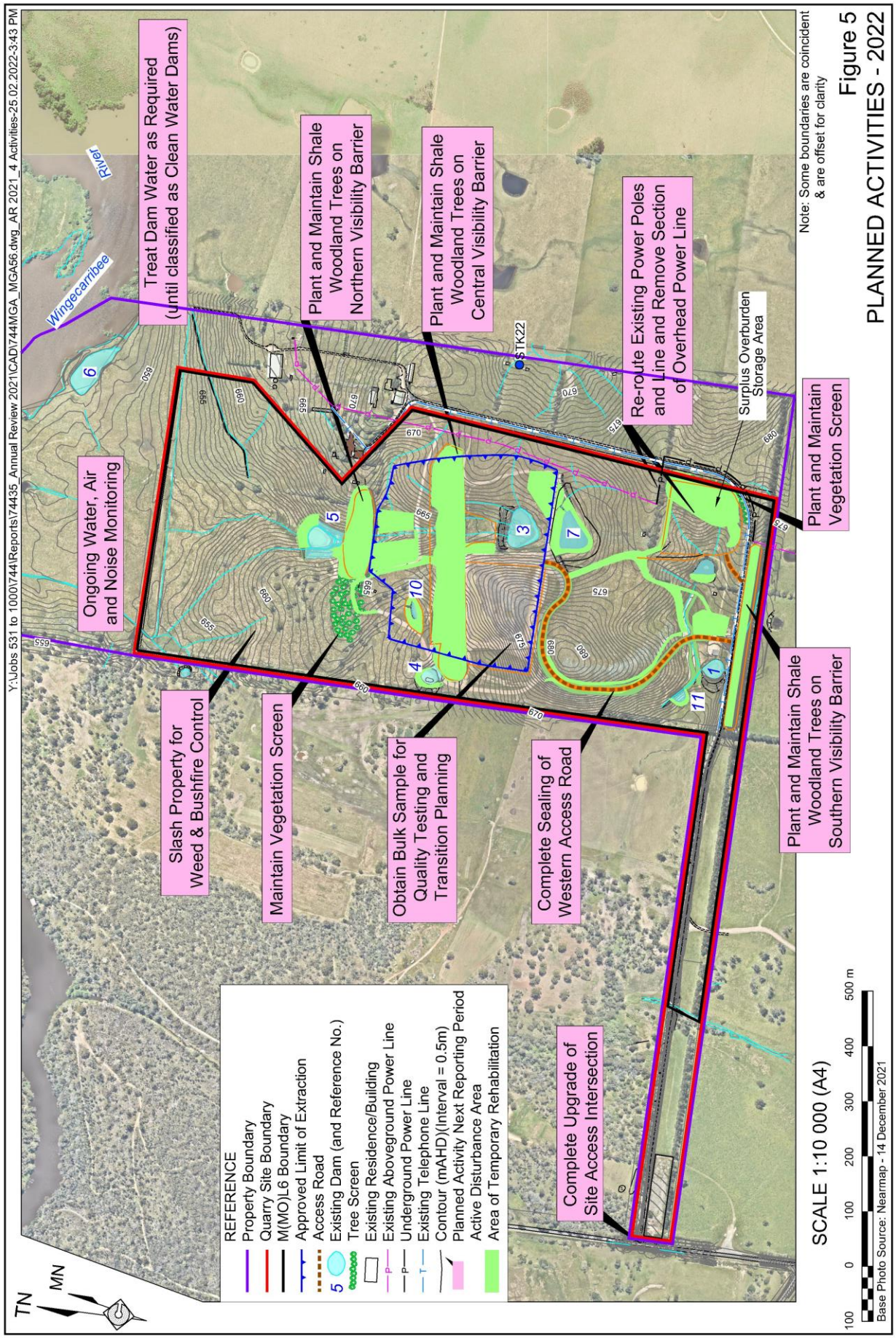
The following construction / land preparation activities are planned to be undertaken / completed during the next reporting period.

- Completion of sealing the western access road.
- Rerouting of the overhead powerlines above the Surplus Overburden Stockpile area.
- Completion of fencing to control stock access to areas of planted Shale Woodland.
- Completion of intersection upgrade works (see below).
- Clean up and recycling/disposal of all materials not required for ongoing operations.

Intersection Upgrade Works

It is planned to complete the site access intersection upgrade works during the first quarter of the next reporting period, including asphalting of road surfaces, line marking, and hydromulching of disturbances on the road verge.

Austral will also continue to consult with Wingecarribee Shire Council in relation to the upgrade works for the Taylor Avenue / Berrima Road intersection. It is anticipated that the intersection upgrade works will either be completed during the reporting period or, subject to Council agreement, appropriate measures implemented for the utilisation of the intersection whilst matters relating to the required works are resolved by Council.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Treat Dam Water as Required (until classified as Clean Water Dams)
Plant and Maintain Shale Woodland Trees on Northern Visibility Barrier
Plant and Maintain Shale Woodland Trees on Central Visibility Barrier
Re-route Existing Power Poles and Line and Remove Section of Overhead Power Line
Surplus Overburden Storage Area
Plant and Maintain Vegetation Screen
Ongoing Water, Air and Noise Monitoring
Slash Property for Weed & Bushfire Control
Maintain Vegetation Screen
Obtain Bulk Sample for Quality Testing and Transition Planning
Complete Sealing of Western Access Road
Plant and Maintain Shale Woodland Trees on Southern Visibility Barrier
Complete Upgrade of Site Access Intersection
Wingecarribee River
STK22
REFERENCE
Property Boundary
Quarry Site Boundary
M(MO)L6 Boundary
Approved Limit of Extraction
Access Road
Existing Dam (and Reference No.)
Tree Screen
Existing Residence/Building
Existing Aboveground Power Line
Underground Power Line
Existing Telephone Line
Contour (mAHD)(Interval = 0.5m)
Planned Activity Next Reporting Period
Active Disturbance Area
Area of Temporary Rehabilitation
TN
MN
SCALE 1:10 000 (A4)
100 0 100 200 300 400 500 m
Base Photo Source: Nearmap - 14 December 2021
Note: Some boundaries are coincident & are offset for clarity
Figure 5
PLANNED ACTIVITIES - 2022

Extraction

Clay/shale extraction operations are note expected to commence during the next reporting period. However, following completion of the site access intersection and resolution of the Taylor Avenue / New Berrima Road intersection upgrade an approximately 200t bulk sample is planned to be obtained from the existing exposed shale. The bulk sample will be transported to the Bowral Brick Plant to undertake a full scale test of shrinkage and colour. This testing will assist in planning for the raw material mix and potential effects on product consistency when transitioning from the existing material sourced from the Bowral Quarry Extension [M(MO)L11] to material sourced from the New Berrima Clay/Shale Quarry.

Rehabilitation

No areas will become available for final rehabilitation during the next reporting period. However, planting of tubestock on the top and northern slopes of the Central and Northern Visibility Barriers and the southern slope of the Southern Visibility Barrier will be undertaken in addition to the pasture already established. Planting of the tree screen on the southeastern periphery of the Surplus Overburden Stockpile Area will also be undertaken in accordance with the measures detailed in the approved Landscape Management Plan and Water Management Plan. General property maintenance, including weed control and slashing, will also be undertaken as required.

Further discussion on planned rehabilitation is provided in Section 8.2.

Environmental Monitoring and Community Liaison

The following monitoring will be conducted during the next reporting period.

- Meteorological conditions.
- Surface water quality.
- Groundwater levels and quality.
- Dust deposition.
- Noise levels.
- General inspections for water management and maintenance.

The community consultative committee will also continue to meet during the next reporting period at intervals determined by the committee.

Management Plans

Following the completion of site establishment and construction a review of the management plans is planned with any aspects not relevant to ongoing operations to be removed. Any learnings from the site establishment and construction phase will also be reflected in the management plans.

5 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

The 2020 Annual Review was submitted to the DPIE and Resources Regulator on 26 February 2021 in accordance with the requirements of PA 08_0212 and M(MO)L6. Copies were also provided to Wingecarribee Shire Council, Water NSW and NRAR.

No formal response or actions were raised by DPIE or the Resources Regulator. Correspondence from Water NSW on 18 March 2021 noted the activities undertaken during the reporting period and confirmed no they had no comments.

6 ENVIRONMENTAL PERFORMANCE

6.1 INTRODUCTION

A summary of environmental performance for the principal environmental aspects is provided in **Table 4**. Further detail regarding specific environmental aspects is also provided in the following subsections. Environmental performance relating to water is discussed in Section 7.

Table 4
Relevant Environmental Performance Aspects

Page 1 of 2

Aspect	Approval criteria/ (EIS prediction)	Performance during the reporting period	Trend/key management implications	Implemented/proposed management actions
Noise (Barrier construction)	43dB(A) during the day at receiver R2. 38dB(A) at all other receivers.	Construction activities were completed during the reporting period with all monitoring results indicating confirming compliance with criteria. No complaints and no issues raised through the CCC.	No trends identifiable. Currently no management implications.	Management measures implemented in accordance with the Noise Management Plan including quarterly noise monitoring during site establishment and construction. Currently no proposed changes.
Noise (operations)	38dB(A) at all receivers.	No complaints and no issues raised through the CCC.	No trends identifiable. Currently no management implications.	No specific management measures implemented or currently proposed. Operational noise monitoring planned following commencement of extraction activities.
Blasting	Blasting is not an approved activity.	No blasting undertaken.	Nil.	Nil.
Air Quality	PM_{10} 24hr = 50µg/m^3 PM_{10} Annual = 30µg/m^3 TSP Annual = 90µg/m^3 Dep Dust Annual = 4g/m^2/month	No exceedances of annual average deposited dust and no complaints or issues raised through the CCC.	No trends identifiable. Currently no management implications.	Management measures implemented and monthly deposited dust monitoring undertaken and will continue in accordance with the Air Quality Management Plan. Currently no proposed changes.
Biodiversity	No significant impacts predicted.	No native vegetation disturbed within the Quarry Site. Planting of Shale Woodland EEC species for northern visual screening. Increased grazing pressure from kangaroos. Permit for reduction in kangaroo numbers sought from NPWS.	Control of kangaroo grazing pressure required.	Completion of planting of Shale Woodland EEC species on visibility barriers and southern visibility screen. Continue to seek permit for control of kangaroos to reduce grazing pressure. Additional fencing to also be installed.
Landscape and Visual	Implement Landscape Management Plan.	Visibility barriers constructed and grassed, and northern visibility screen planted during reporting period.	Currently no management implications.	Irrigation undertaken and will continue as required until vegetation sufficiently established.

Table 4 (Cont'd)
Relevant Environmental Performance Aspects

Aspect	Approval criteria/ (EIS prediction)	Performance during the reporting period	Trend/key management implications	Implemented/proposed management actions
Heritage	Implement Aboriginal Cultural Heritage Management Plan.	Aboriginal heritage content delivered by trained personnel during inductions. Trained personnel also inspected area of soil stripping for additional due diligence. Due diligence fencing of area of high archaeological constraint previously installed to ensure no inadvertent access.	Currently no management implications.	Induction of all employees by Austral personnel trained in accordance with the Aboriginal Heritage Management Plan.

6.2 METEOROLOGICAL MONITORING

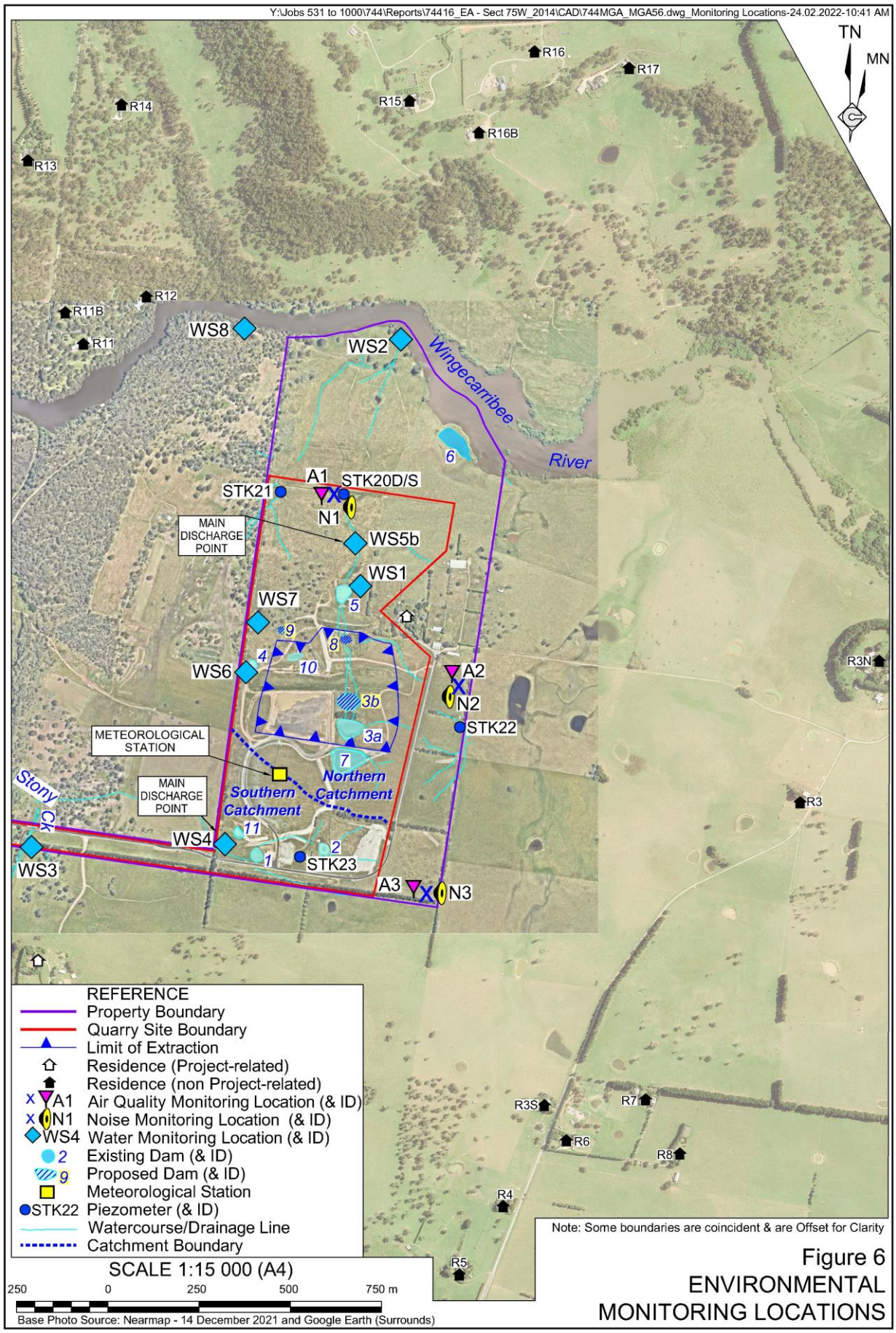
Austral installed a meteorological station (see **Figure 6**) in September 2016. The meteorological station complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.

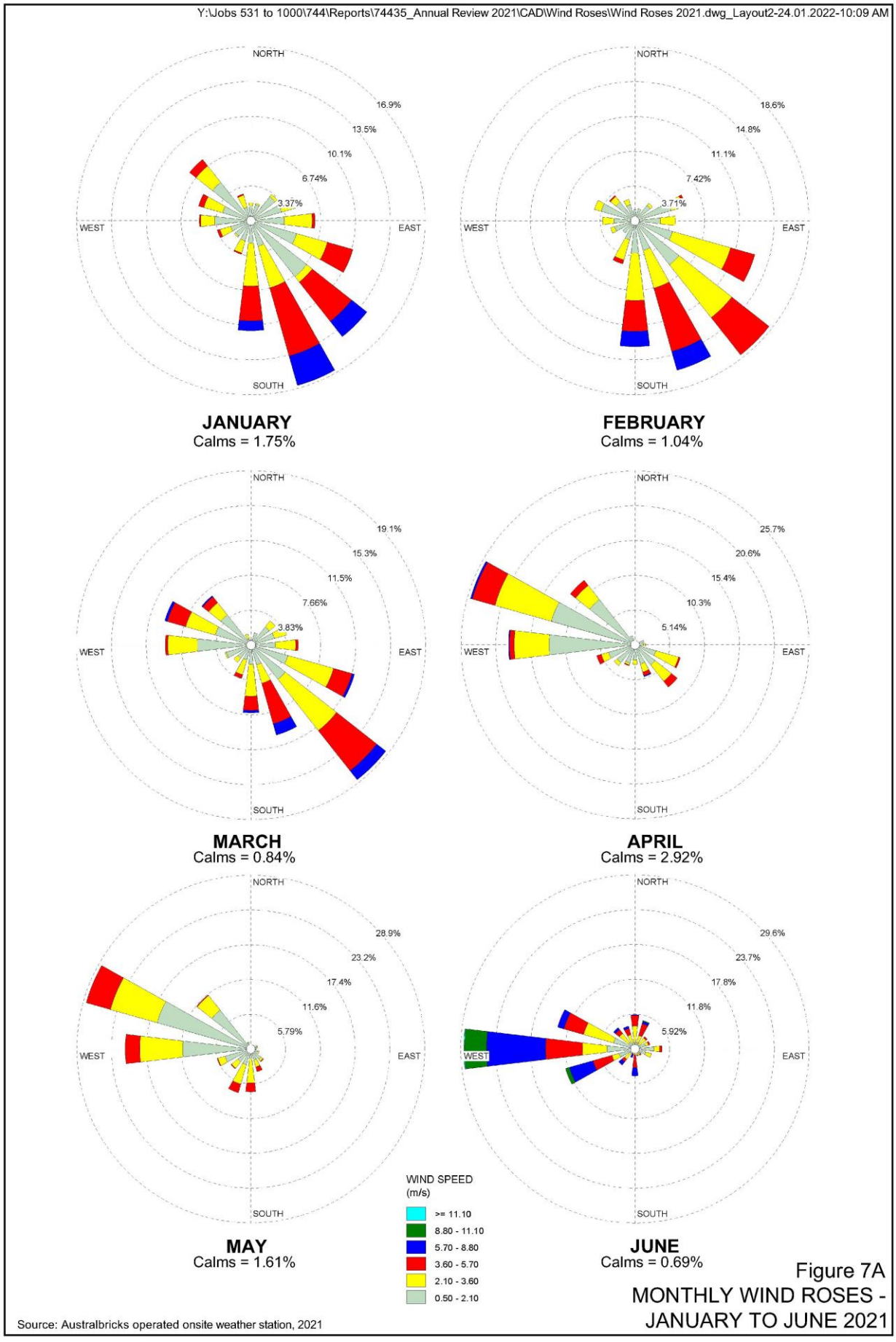
A summary of the temperature and rainfall data for the reporting period is provided in **Table 5** whilst **Figure 7** presents the monthly wind roses. Daily rainfall records for the reporting period are presented in **Appendix 3**.

Table 5
Summary of 2021 Temperature and Rainfall Records (On-site Station)

Month	Temperature (°C)			Rainfall (mm)
	Average	Minimum	Maximum	
January	18.4	8.4	35.6	70.8
February	16.7	10.7	29.1	129.0
March	15.2	4.6	28.8	201.0
April	12.2	-0.2	25.6	6.4
May	9.5	-2.6	20.8	172.0
June	7.3	-3.2	16.4	49.8
July	6.9	-4.6	18.6	22.2
August	8.2	-2.9	21.4	86.2
September	10.6	1.2	22.0	24.4
October	12.3	1.2	26.0	66.8
November	13.5	4.6	24.4	153.0
December	16.0	5.0	31.8	114.0
Total	**-**	**-**	**-**	**1 095.6**

A total of 1 095.6mm of rain was recorded from 1 January 2021 to 31 December 2021, slightly above the long-term (150 year) average rainfall of 958.3mm recorded at the nearby BoM Moss Vale (Hoskins St) Station (No. 068045). The May 2021 rainfall shows a period of high intensity rainfall, during which 160mm of rain was recorded across four days. The highest recorded daily rainfall occurred on 24 August 2021 with 63.4mm of rainfall recorded.


Y:\Jobs 531 to 1000\744\Reports\74416_EA - Sect 75W_2014\CAD\744MGA_MGA56.dwg_Monitoring Locations-24.02.2022-10:41 AM
TN
MN
R16
R17
R15
R14
R16B
R13
R12
R11B
R11
WS8
WS2
Wingecarribee River
6
A1
STK20D/S
STK21
N1
MAIN DISCHARGE POINT
WS5b
WS1
WS7
5
9
8
4
10
WS6
A2
N2
3b
STK22
3a
METEOROLOGICAL STATION
7
Northern Catchment
Southern Catchment
Stony Ck
MAIN DISCHARGE POINT
11
WS4
2
1
STK23
WS3
A3
N3
R3N
R3
R3S
R7
R6
R8
R4
R5
REFERENCE
Property Boundary
Quarry Site Boundary
Limit of Extraction
Residence (Project-related)
Residence (non Project-related)
A1 Air Quality Monitoring Location (& ID)
N1 Noise Monitoring Location (& ID)
WS4 Water Monitoring Location (& ID)
2 Existing Dam (& ID)
9 Proposed Dam (& ID)
Meteorological Station
STK22 Piezometer (& ID)
Watercourse/Drainage Line
Catchment Boundary
SCALE 1:15 000 (A4)
250 0 250 500 750 m
Base Photo Source: Nearmap - 14 December 2021 and Google Earth (Surrounds)
Note: Some boundaries are coincident & are Offset for Clarity
Figure 6
ENVIRONMENTAL MONITORING LOCATIONS



Source: Australbricks operated onsite weather station, 2021

Figure 7A
MONTHLY WIND ROSES -
JANUARY TO JUNE 2021

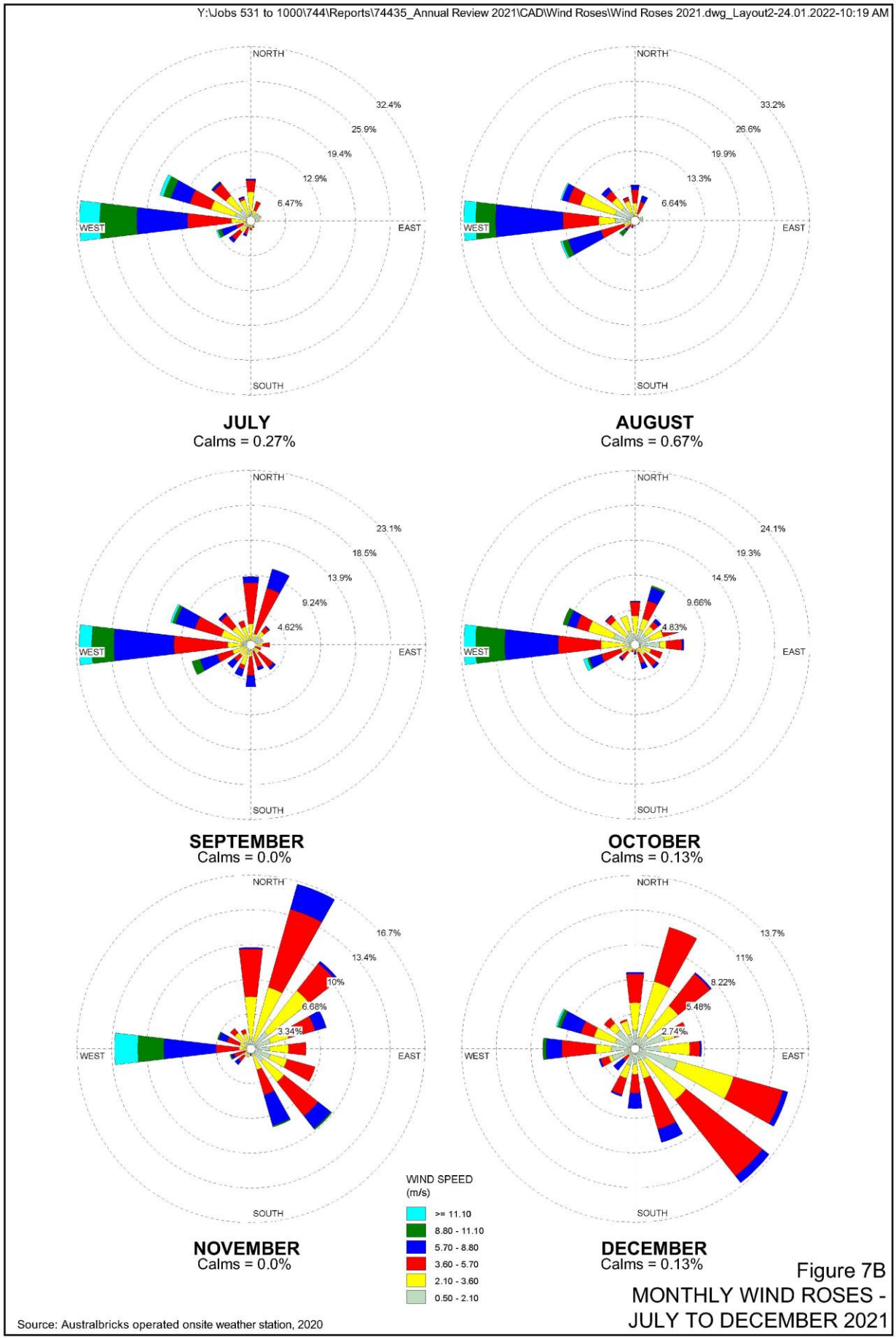


Figure 7B
MONTHLY WIND ROSES -
JULY TO DECEMBER 2021

6.3 AIR QUALITY

Environmental Management

Relevant air quality management measures and monitoring are detailed within the approved Air Quality Management Plan. During the reporting period the principal air quality management measures were daily review of forecast weather conditions to inform likely management requirements and use of a water cart to wet down the site access road and, when required, the soil and earth moved during construction activities. Progressive hydromulching of completed areas was also undertaken, principally for soil stability, but also reducing the area exposed to potential wind erosion.

Environmental Performance

Austral continued to collect air quality samples from three deposited dust gauges, Sites A1, A2 and A3 (see **Figure 6**), throughout the reporting period. The results of the dust monitoring are summarised in **Table 6** and presented graphically in **Figure 8**. The monthly total insoluble solids over the reporting period ranged from 0.1g/m^2/month (Site A2 February and July 2021, Site A3 May 2021) to 1.9g/m^2/month (Site A1 November 2021). The rolling annual average monthly deposition rates for the reporting period were between 0.4g/m^2/month and 2.1g/m^2/month, which is significantly below the criteria of 4g/m^2/month, indicating good air quality with respect to dust deposition.

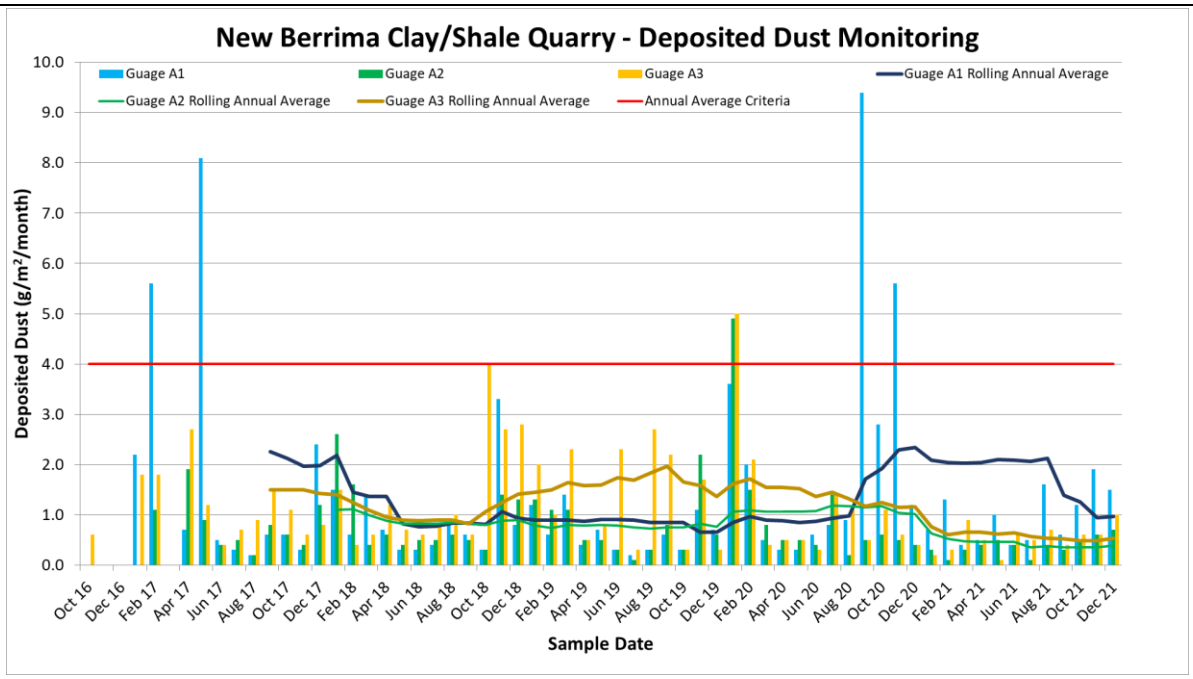


Figure 8
DEPOSITED DUST MONITORING RESULTS

Further data collection is required before any trends can be firmly established, however, between October 2018 to October 2019 the average dust levels at gauge A3 were consistently higher than gauges A1 and A2 and may have been the result of adjacent agricultural activities and use of the property access road. The spike in early 2020 across all three gauges reflects the period of State-wide bush fires experienced during this time. There was also a spike in monthly total insoluble solids at Site A1 during September 2020, however, this was not recorded at the other monitoring locations.

It is noted that site establishment and construction activities commenced November 2020 with earthworks not commencing until 2 December 2020, i.e. following the elevated results. No conclusive cause for the localised elevated result was evident. Since December 2020, there have been no elevated monthly levels of total insoluble solids at any gauge, although Site A1 continues to regularly record monthly results greater than gauges A2 and A3. This does not appear to correlate with Quarry activities.

Table 6
Summary of 2021 Deposited Dust Monitoring Results

	Monthly[1] Dust Deposition Rate (g/m^2/month)								
	A1			A2			A3		
Sampling Period	Total Insoluble	Rolling Annual Average	Ash	Total Insoluble	Rolling Annual Average	Ash	Total Insoluble	Rolling Annual Average	Ash
01/01/21 to 31/01/21	0.7	2.1	0.6	0.3	0.6	0.3	0.2	0.8	0.2
01/02/21 to 29/02/21	1.3	2.0	0.7	0.1	0.5	0.1	0.3	0.6	0.2
01/03/21 to 30/03/21	0.4	2.0	0.2	0.3	0.5	0.3	0.9	0.7	0.6
31/03/21 to 30/04/21	0.5	2.0	0.2	0.4	0.5	0.2	0.5	0.7	0.2
01/05/21 to 31/05/21	1.0	2.1	0.9	0.5	0.5	0.4	0.1	0.6	0.1
01/06/21 to 30/06/21	0.4	2.1	0.4	0.4	0.5	0.2	0.6	0.6	0.4
01/07/21 to 31/07/21	0.5	2.1	0.2	0.1	0.4	0.1	0.5	0.6	0.2
01/08/21 to 31/08/21	1.6	2.1	1.0	0.4	0.4	0.2	0.7	0.5	0.5
01/09/21 to 30/09/21	0.6	1.4	0.4	0.3	0.4	0.2	0.4	0.5	0.2
01/10/21 to 31/10/21	1.2	1.3	0.6	0.5	0.4	0.3	0.6	0.5	0.3
01/11/21 to 30/11/21	1.9	0.9	0.9	0.6	0.4	0.4	0.6	0.5	0.4
01/12/21 to 31/12/21	1.5	1.0	0.7	0.4	1	0.5	1.5	1.0	0.7
Source: Austral Bricks									

Reportable Incidents and Further Improvements

No complaints were received and no reportable incidents relating to air pollution occurred during the reporting period. Apart from completion of the Quarry road sealing program in early 2022, no further improvements relating to air pollution are currently considered necessary. Whilst results have remained well below the applicable criteria, ongoing review of surrounding activities will be undertaken to determine any correlation with elevated results.

6.4 NOISE

Environmental Management

Noise management was undertaken in accordance with the approved Noise Management Plan as relevant. The principal noise management measures during the reporting period included use of broadband reversing alarms, proper maintenance of equipment and adherence to hours of operation. The completion of the visual barriers will also provide ongoing passive noise mitigation.

Environmental Performance

During the reporting period noise monitoring was undertaken on four occasions, as required by the Noise Management Plan. An overview of the monitoring results for the reporting period is provided in **Table 7** and a copy of the monitoring reports are provided as **Appendix 4**. In summary, total noise levels at all monitoring locations remained below the applicable noise criteria during all monitoring events.

Table 7
Summary of 2021 Noise Monitoring Results

Location	Time	dB(A), Leq	Quarry Contribution dB(A), Leq	Criterion dB(A) Leq	Wind speed (m/s),dir	Identified Noise Sources
13 January 2021						
N1	2:21pm	37	<20	42	5.5 @ 19° (NNE)	Wind, occasional bang
N2	2:48pm	49	33	49	4.2 @ 33° (NNE)	Wind, birds, truck and Exc. revs
N3	3:11pm	45	30	44	6.2 @ 25° (NNE)	Wind, birds, dozers and truck revs
8 April 2021						
N1	12:15pm	40	29	42	2.6 @ 93° (E)	Wind, birds, insects, truck revs
N2	12:38pm	40	34	49	3.7 @ 19° (NNE)	Wind, birds, insects, Exc. & dozer revs, water cart reverse 'squawker'
N3	12:54pm	42	29	44	2.6 @ 65° (ENE)	Wind, birds, insects, dozer revs, train
14 July 2021						
N1	10:40am	37	24	42	3.6 @ 304˚ (NW)	Wind, birds, Hume highway, truck revs, Exc. bucket bangs & broadband reverse alarm
N2	11:04am	44	41	49	4.5 @ 310˚ (NW)	Wind, Exc. & dozer revs, local traffic, Hume highway
N3	11:26am	45	40	44	2.6 @ 313˚ (NW)	Wind, Exc. & dozer revs, Hume highway
8 October 2021						
N1	12:25pm	36	Inaudible	42	5.4 @ 032˚ (NE)	Wind, birds, Hume highway,
N2	12:43pm	35	Inaudible	49	4.5 @ 353˚ (N)	Wind, birds, Hume highway
N3	1:04pm	36	Inaudible	44	5.0 @ 004˚ (N)	Wind, birds, plane, Hume highway
Source: Spectrum Acoustics						

Reportable Incidents and Further Improvements

No complaints were received and no reportable incidents relating to noise occurred during the reporting period. Apart from completion of the Quarry road sealing program in early 2022 (which will limit truck body noise), no further improvements relating to noise are currently considered necessary. Monitoring during operations will continue on an annual basis in accordance with the Noise Management Plan.

6.5 ABORIGINAL HERITAGE

Environmental Management

Four key Austral personnel have previously undertaken Aboriginal heritage induction training in accordance with the Aboriginal Heritage Management Plan. These personnel were responsible for all site inductions and delivered Aboriginal cultural awareness information as part of the induction.

Whilst not a commitment, in addition to the management measures outlined within the Aboriginal Heritage Management Plan, Austral installed suitable fencing during October 2018 to minimise the risk of inadvertent access to the areas identified as being of high archaeological constraint. No additional management measures were required during the reporting period.

Environmental Performance, Reportable Incidents and Further Improvements

In addition to equipment operators being made aware to look for Aboriginal heritage items, particularly when handling soil material, Austral personnel also undertook inspections of topsoil stripping operations. No Aboriginal heritage sites were identified during the reporting period and no further improvements are currently deemed necessary. No reportable incidents occurred during the reporting period.

6.6 BIODIVERSITY

No native vegetation will be disturbed by the Quarry and, as such, there are no specific biodiversity management or performance measures required.

Notwithstanding, during the reporting period, approximately 940 trees were planted as part of the tree screen west of the northern visibility barrier (see **Figure 4**). The trees planted are consistent with the species from the *Southern Highlands Shale Woodland Endangered Ecological Community*. During the next reporting period a further approximately 7000 trees from this endangered community will also be planted on the northern, central and southern visibility barriers and for the southern tree screen (see **Figure 5**).

Whilst not directly related to Quarry activities, in addition to the above, Austral Bricks have partnered with Greening Australia to undertake riparian restoration works along the Wingecarribee River. During the reporting period approximately 800 trees were planted and fencing installed to control stock access. A second riparian planting campaign of approximately 400 trees is expected to commence during the next reporting period together with additional fencing.

Ongoing weed control activities continued to be undertaken across the entire Mandurama property during the reporting, principally through slashing.

During the reporting period approximately 150 to 200 Kangaroo were frequently observed grazing on the Mandurama Property (**Figure 1**), including the recently planted Shale Woodland species and riparian restoration area. Non-lethal control was attempted via scare-shooting by the Quarry property manager but is minimally effective. Austral Bricks has applied to National Parks to control kangaroo numbers.

No incidents or further improvements relating to biodiversity are currently deemed necessary.

6.7 WASTE MANAGEMENT

All general waste and recyclables were collected within waste receptacles located at the site office and removed from site as required by Remondis. Minimal volumes of waste were generated. No scheduled equipment maintenance was undertaken on site, however, minor wastes, including any hydrocarbon waste (e.g. oily rags) was collected by the earthmoving contractor (TRN) and disposed of appropriately at their off-site depot.

The on-site portaloo was maintained and associated waste managed by South Coast Liquid Treatment Pty Limited on a monthly basis.

No additional waste reduction or management measures were required during the reporting period and no specific improvements are planned for the next reporting period.

7 WATER MANAGEMENT

7.1 WATER TAKE

As outlined within the Water Management Plan, the existing and planned water storages on site are either exempt from the harvestable right dam capacity (being for pollution control purposes) or within the harvestable right dam capacity for the property. As a result, water licencing is not required. Notwithstanding, the volume of water utilised for Quarry operations is recorded. During the reporting period a total of approximately 11.92ML was utilised for dust suppression purposes.

It is noted that Water Supply Works and Water Use Approval 10CA102968 and associated Water Access Licence 25683 issued on 1 July 2011 for accessing water from the Wingecarribee River are used solely for irrigation purposes within the Mandurama property. No water was accessed under this licence for Quarry purposes.

7.2 SURFACE WATER

Environmental Management

Relevant surface water management measures and monitoring are detailed within the approved Water Management Plan. During the reporting period the principal surface water management measures included the installation of sediment fencing downslope of all areas of planned disturbance. All remaining components of the site water management system required for Quarry Stages 1 to 4 were also constructed during the reporting period including clean water diversion banks, dirty water catch drains, and dams. Progressive hydromulching of disturbed areas was also completed throughout the reporting period. It is noted that, prior to stripping of soil, gypsum was also spread to improve soil structure and stability and geofabric and gabion rock was utilised to provide immediate stabilisation of the clean water diversion bank and to the spillways of all dams. All soil stockpiles were also stabilised using geofabric and/or hydromulch.

During the reporting period all dirty water dams were maintained with water captured following rainfall events tested and, if required, flocculated and discharged in order to maintain dam capacity.

Austral personnel also undertook site inspections following significant rainfall events. No erosion or sedimentation issues were noted. It is noted that, during significant rainfall events, the extent of earthmoving works were restricted and/or ceased.

Water quality monitoring was carried out in accordance with the Water Management Plan at the eight site locations identified in **Figure 6** and summarised below.

- WS2 represents the upstream Wingecarribee River monitoring location and WS8 represents the downstream location,
- WS1, WS5b, WS6 and WS7 represent monitoring locations within ephemeral drainage lines within the Quarry Site which ultimately report to the Wingecarribee River.
- WS4 is located within an ephemeral drainage line in the southern part of the Quarry Site which reports to Stony Creek.
- WS3 is located within Stony Creek upstream of any Quarry activities.

As the Quarry was undertaking site establishment during the reporting period, monitoring is required to be undertaken at the following frequencies / in the following circumstances.

- Surveillance monitoring at all locations identified above, when water is available for sampling, four times per year.
- Prior to discharge of water from a 'dirty water' dam, or during conditional discharge at licenced discharge points at locations WS4 and WS5b.
- Within 24hrs of wet weather discharge from a 'dirty water' dam (if safe access is available). Wet weather discharge equates to discharge occurring due to rainfall event exceeding 36.2mm in a 5 day period.

Additional due diligence monitoring may also be undertaken.

During the reporting period, monthly surveillance monitoring was undertaken for selected parameters together with four rounds of surveillance monitoring, additional due diligence monitoring, and discharge monitoring.

Environmental Performance

Surveillance and Due Diligence Monitoring

Prior to this reporting period an extensive baseline monitoring program was undertaken with monthly data collected from May 2017 to October 2020 (i.e. prior to commencement of site establishment activities). A summary of baseline monitoring data together with all operational data is provided in **Appendix 5** and a discussion of baseline water quality is presented within the approved Water Management Plan.

Table 8 summarises surveillance and due diligence monitoring undertaken during the reporting period whilst **Figure 9** presents a graphical summary of key water quality parameters for the 2021 reporting period. For context, a graphical summary of long-term monitoring data including both baseline and operational data is also presented in **Figure 10**.

Table 8
Summary of Surveillance and Due Diligence Water Quality Monitoring

Sample Site	*Baseline*			2021			
	Min	***Mean***	***Max***	**Min**	**Mean**	**Max**	**No. Samples**
pH							
WS2	*6.2*	*7.2*	*7.8*	6.6	7.1	7.8	23
WS8	*6.2*	*7.3*	*7.7*	6.7	7.2	7.6	22
WS3	*6.6*	*7.2*	*8.1*	7.1	7.4	7.8	18
Electrical Conductivity (mS/cm)							
WS2	*102*	*250*	*350*	**90**	209	280	23
WS8	*105*	*238*	*390*	**92**	200	265	22
WS3	*215*	*463*	*970*	380	640	790	18
Total Suspended Solids (mg/L)							
WS2	*3*	*15*	*77*	8	21	**89**	23
WS8	*4*	*11*	*250*	2	16	36	22
WS3	*2*	*26*	*380*	4	15	51	18

Source: Austral Bricks **Bold** values beyond the range of baseline results.

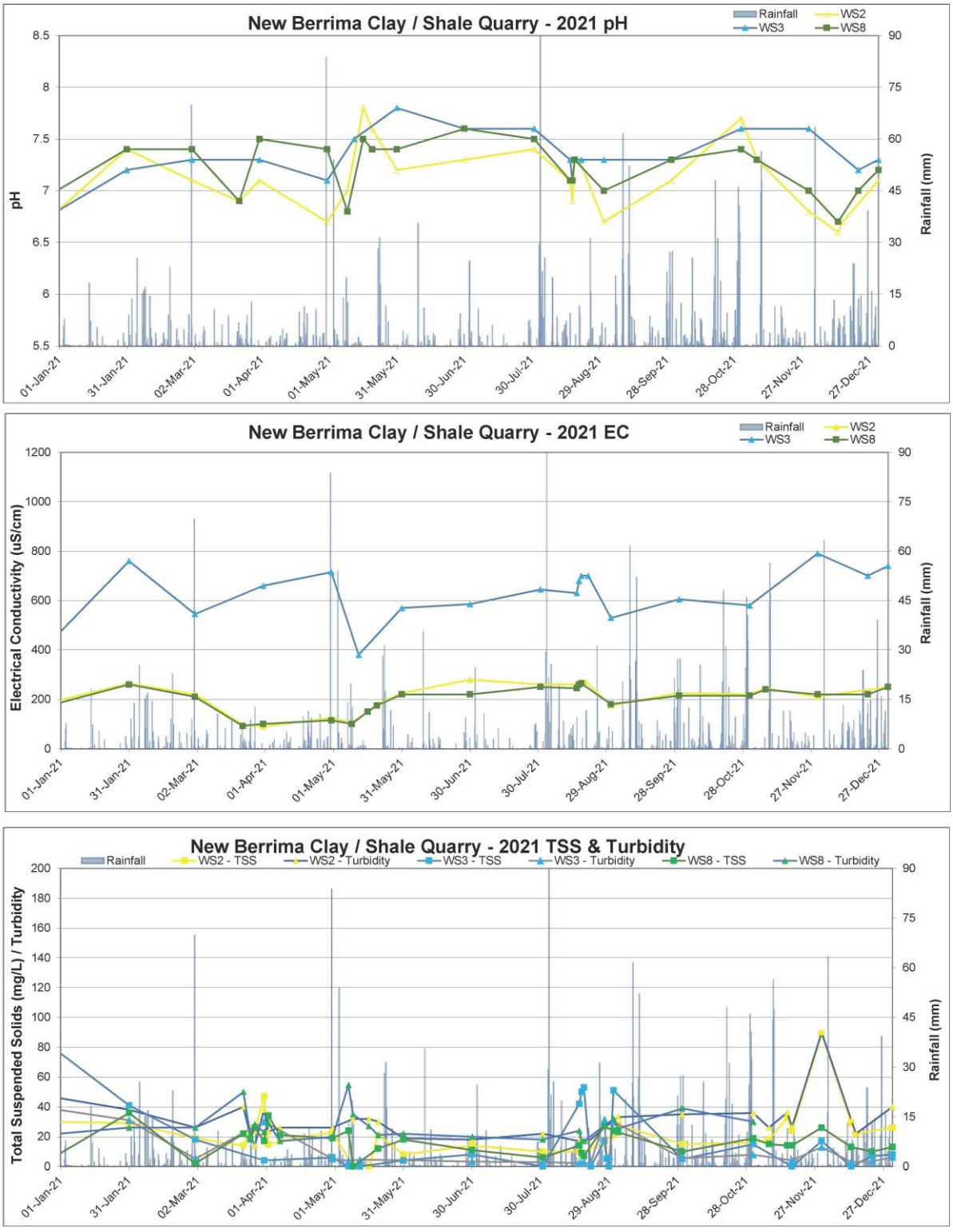
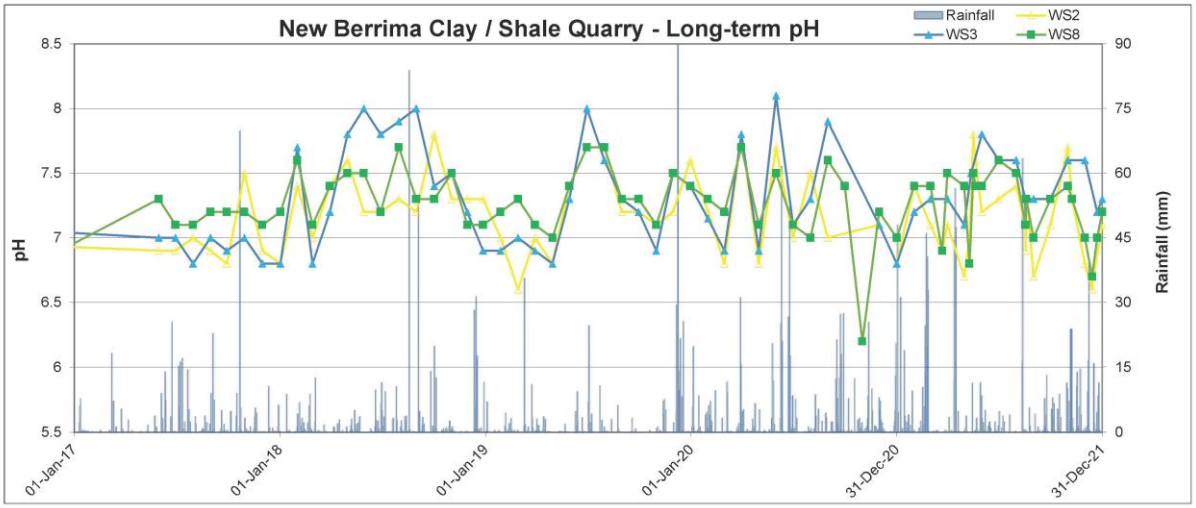
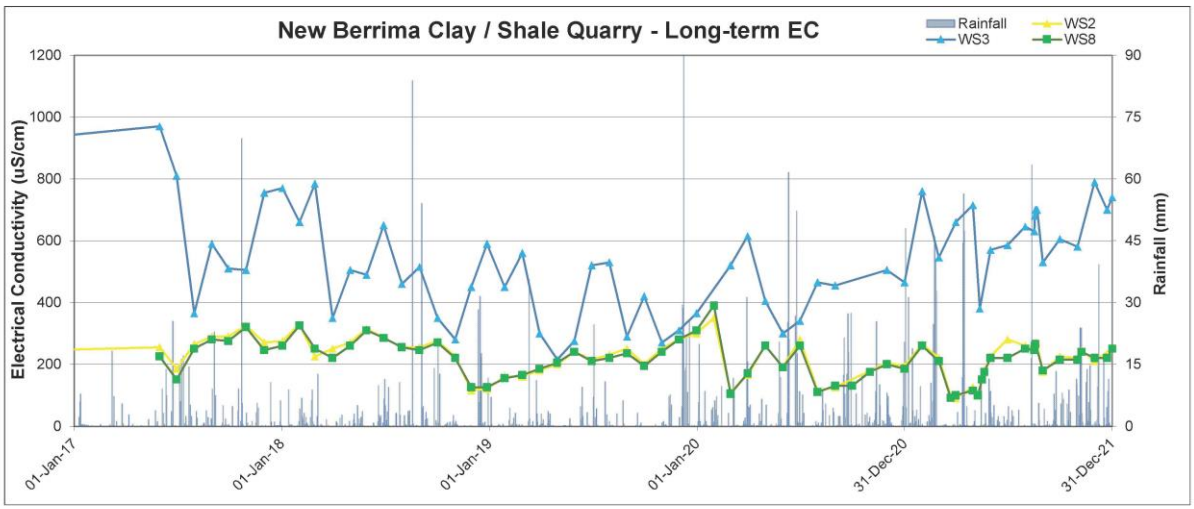


Figure 9
2021 Water Quality Monitoring Results





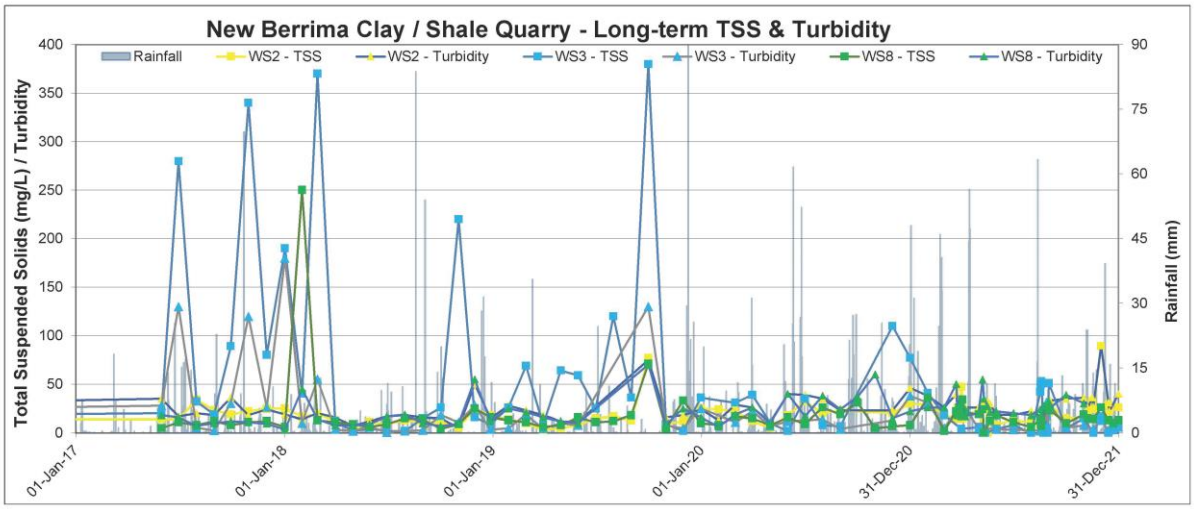


Figure 10
Long-term Water Quality Monitoring Results

During the reporting period, sufficient water was only available within Wingecarribee River (WS2 and WS8) and Stony Creek (WS3). Nil or insufficient water was available for sampling at all other sites during surveillance / due diligence monitoring. This is consistent with the baseline monitoring period. The results for 2021 are generally consistent with the baseline monitoring results with results being within the baseline range except for the minimum electrical conductivity values for Wingecarribee River (both WS2 and WS8) which were slightly below the minimum baseline and the maximum total suspended solids in Wingecarribee River upstream (WS2) which was slightly about the maximum baseline. The results indicate that the Quarry has not had any impact upon off-site water quality during the reporting period. No trends or correlations are currently evident from the data.

Discharge Monitoring

Table 9 presents a summary of the results of water quality monitoring during all conditional and wet weather discharges during the reporting period. In summary, 45 discharges occurred during the reporting period, including:

- 27 conditional discharges that required treating prior to discharge;
- five conditional discharges that did not require treating prior to discharge; and
- 13 wet weather discharges on four separate days (with multiple dams overtopping on each event).

Of the 32 conditional discharges, no exceedances of water quality criteria for pH, TSS or oil and grease were recorded. Although the water quality criteria do not apply to wet weather discharges, of the 13 wet weather discharges, no exceedance of pH or oil and grease were recorded and five of the discharges recorded TSS below the criteria.

It is noted that due diligence monitoring was undertaken within Wingecarribee River during the wet weather discharge on 22 March 2021 (safe access to the river was not possible for the 23 March 2021 wet weather event). At the upstream point WS2 the pH was 6.9 and TSS was 14mg/L. At the downstream point WS8 the pH was also 6.9 and the TSS was 22mg/L indicating that the dam overflows were not having a significant impact upon the Wingecarribee River water quality.

Table 9
Summary of Discharge Water Quality

Page 1 of 2

Date sampled	Sample Point	Discharge Type[1]	Notes	pH	TSS (mg/L)	Oil and Grease
				Criteria[2]		
				6.5 – 8.5	≤50mg/L	Non-visible
5/02/2021	WS5b	Conditional Discharge - Treated	Dam 5	7.2	<5	Non-visible
10/02/2021	WS5b	Conditional Discharge - Treated	Dam 5	7.2	8	Non-visible
22/03/2021	WS4	Wet Weather Discharge	Dam 1 overflowed	7.0	110	Non-visible
22/03/2021	WS6	Wet Weather Discharge	Dam 4 overflowed	7.1	750	Non-visible
22/03/2021	WS7	Wet Weather Discharge	Dam 10 overflowed	7.0	8	Non-visible
23/03/2021	WS4	Wet Weather Discharge	Dam 1 overflowed	7.7	160	Non-visible
23/03/2021	WS5b	Wet Weather Discharge	Dam 5 overflowed	7.7	24	Non-visible

Table 9 (Cont'd)
Summary of Discharge Water Quality

Date sampled	Sample Point	Discharge Type[1]	Notes	pH	TSS (mg/L)	Oil and Grease
				Criteria[2]		
				6.5 – 8.5	≤50mg/L	Non-visible
23/03/2021	WS6	Wet Weather Discharge	Dam 4 overflowed	7.2	56	Non-visible
23/03/2021	WS7	Wet Weather Discharge	Dam 10 overflowed	6.9	18	Non-visible
25/03/2021	WS5b	Conditional Discharge - Treated	Dam 5	7.3	10	Non-visible
27/03/2021	WS5b	Conditional Discharge - Treated	Dam 5	6.71	9	Non-visible
27/03/2021	WS6	Conditional Discharge - Treated	Dam 4	7	<5	Non-visible
2/04/2021	WS5b	Conditional Discharge - Treated	Dam 5	7.9	<5	Non-visible
7/04/2021	WS5b	Conditional Discharge - Treated	Dam 5	7.0	8	Non-visible
7/05/2021	WS6	Wet Weather Discharge	Dam 4 overflowed	NR[3]	374	Non-visible
7/05/2021	WS7	Wet Weather Discharge	Dam 10 overflowed	NR[3]	314	Non-visible
7/05/2021	WS4	Wet Weather Discharge	Dam 1 and 11 overflowed	NR[3]	130	Non-visible
8/05/2021	WS5b	Wet Weather Discharge	Dam 5 overflow	NR[3]	49	Non-visible
8/05/2021	WS7	Wet Weather Discharge	Dam 10 overflowed	NR[3]	64	Non-visible
8/05/2021	WS4	Wet Weather Discharge	Dam 1 and 11 overflow	NR[3]	50	Non-visible
9/05/2021	WS5b	Conditional Discharge - Treated	Dam 5	8.1	5	Non-visible
9/05/2021	WS6	Conditional Discharge - Treated	Dam 4	8.0	<5	Non-visible
10/05/2021	WS4	Conditional Discharge - Treated	Dam 1	7.0	<5	Non-visible
12/05/2021	WS4	Conditional Discharge - Treated	Dam 11	8.0	3	Non-visible
16/05/2021	WS5b	Conditional Discharge - Treated	Dam 5	7.4	4	Non-visible
20/05/2021	WS5b	Conditional Discharge - Treated	Dam 5	8.2	3	Non-visible
16/08/2021	WS4	Conditional Discharge - Untreated	Dam 11	6.7	<2	Non-visible
17/08/2021	WS4	Conditional Discharge - Untreated	Dam 11	7.5	<2	Non-visible
17/08/2021	WS4	Conditional Discharge - Untreated	Dam 2	7.9	<2	Non-visible
18/08/2021	WS4	Conditional Discharge - Untreated	Dam 1	7.2	<2	Non-visible
18/08/2021	WS5b	Conditional Discharge - Untreated	Dam 5 – am	7.2	<2	Non-visible
18/08/2021	WS5b	Conditional Discharge - Untreated	Dam 5 - pm	7.1	2	Non-visible
27/08/2021	WS5B	Conditional Discharge - Treated	Dam 5	7.5	<5	Non-visible
27/08/2021	WS6	Conditional Discharge - Treated	Dam 4	7.3	10	Non-visible
28/08/2021	WS4	Conditional Discharge - Treated	Dam 11	6.8	<5	Non-visible
29/08/2021	WS4	Conditional Discharge - Treated	Dam 1	7.2	<5	Non-visible
2/09/2021	WS5B	Conditional Discharge - Treated	Dam 5	7.5	8	Non-visible
06/11/21	WS5B	Conditional Discharge - Treated	Dam 5	7.1	6	Non-visible
15/11/21	WS5B	Conditional Discharge - Treated	Dam 5	6.8	<5	Non-visible
17/11/2021	WS6	Conditional Discharge - Treated	Dam 4	7.05	<5	Non-visible
17/11/2021	WS4	Conditional Discharge - Treated	Dam 1	7.58	7	Non-visible
13/12/21	WS5B	Conditional Discharge - Treated	Dam 5	7.2	2	Non-visible
13/12/21	WS4	Conditional Discharge - Treated	Dam 1	6.7	<2	Non-visible
15/12/21	WS6	Conditional Discharge - Treated	Dam 4	7.0	5	Non-visible
22/12/21	WS7	Conditional Discharge - Treated	Dam 10	7.4	3	Non-visible
22/12/21	WS4	Conditional Discharge - Treated	Dam 1	7.3	6	Non-visible

1. Untreated = Sampling indicated water was suitable for discharge without treatment.
2. Does not apply during Wet Weather Discharge 3. NR = Not Recorded – Laboratory testing error.

Reportable Incidents and Further Improvements

No reportable incidents or other issues arose during the reporting period.

No specific improvements are planned during the next reporting period other than the completion of the review of the Water Management Plan and submission for approval. Given the high degree of success in rehabilitating disturbed areas and the good quality of water recorded in many of the water management dams, it is also planned to complete a formal review of the catchments for the dams to confirm their change in status from 'dirty water' to 'clean water' dams (where applicable).

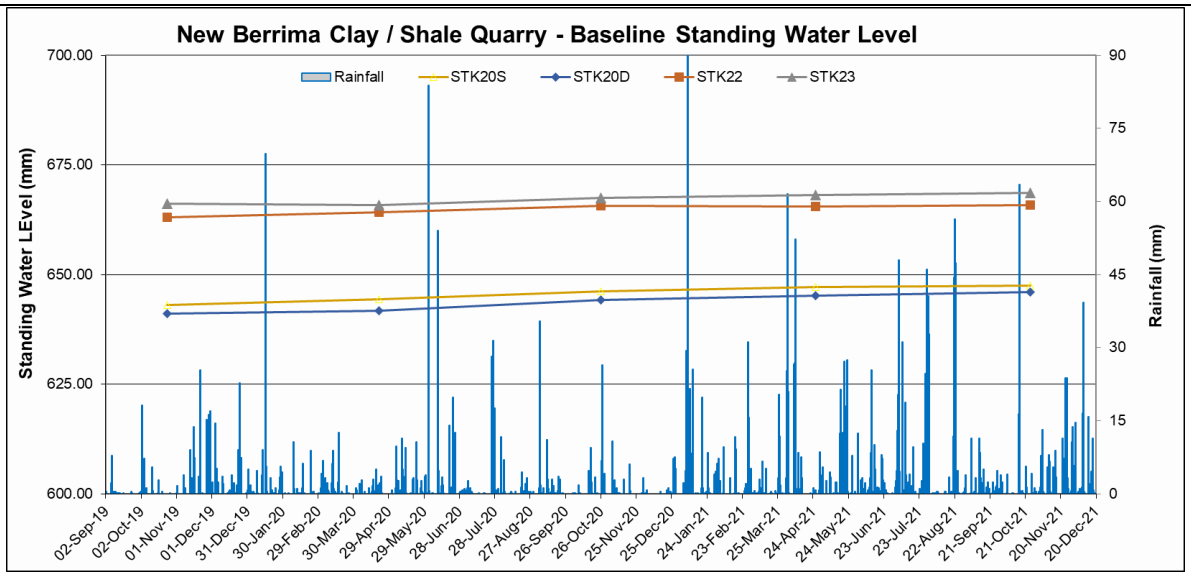
The results from ongoing water quality monitoring will continue to be reviewed to identify any trends in operational data.

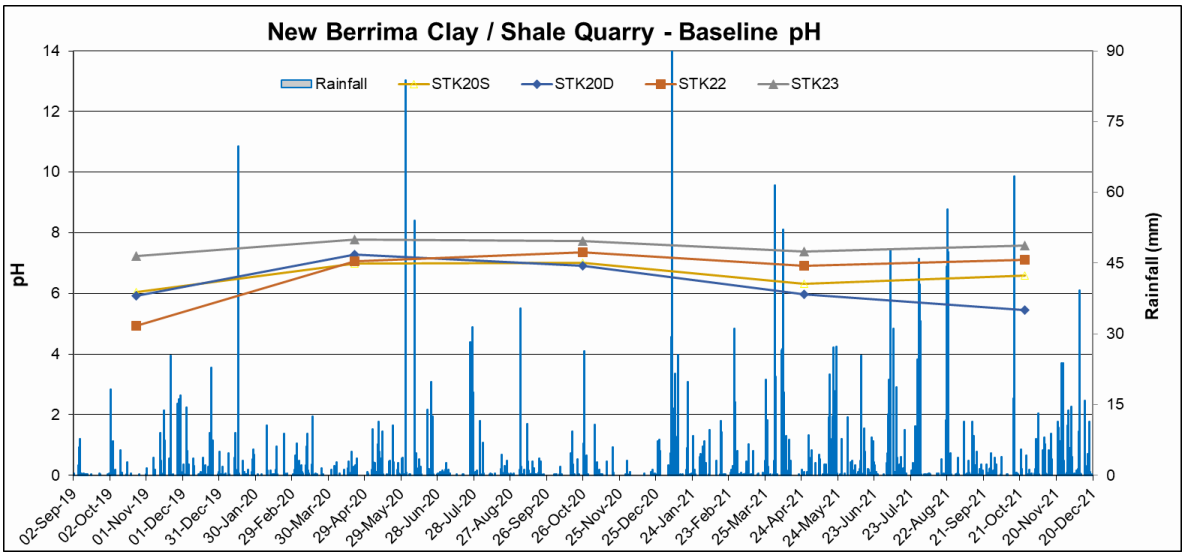
7.3 GROUNDWATER

No operations were undertaken that would encounter groundwater and groundwater monitoring bores are not required to be installed until extraction operations reach 660m AHD. Notwithstanding, during July 2019 four groundwater monitoring bores were installed (see **Figure 6**) to establish baseline groundwater data. Since installation 5 rounds of monitoring have been completed, all of which represent baseline data. The results of the baseline monitoring to date are summarised in **Table 10** with key analytes presented graphically in **Figure 11**.

Further monitoring is required to provide an adequate description of baseline water quality. However, initial monitoring indicates the groundwater is slightly brackish to brackish with an acidic to neutral pH. Nitrogen and phosphorous levels have been slightly elevated but are generally consistent with the concentrations recorded within surface water. Aluminium and iron level have been slightly elevated during some monitoring events at some locations particularly at monitoring location STK20D and STK22.

There were no reportable incidents and no further improvements are currently planned.





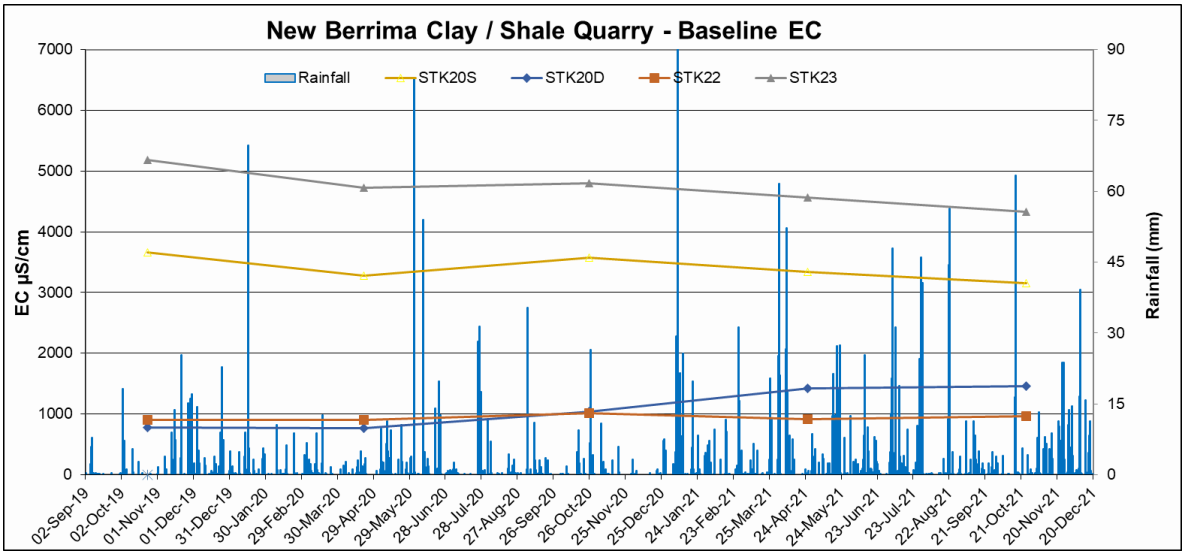


Figure 11
Baseline Groundwater Monitoring (2019-2021)

Table 10
Baseline Groundwater Quality Summary

Parameter	Units	STK20S		STK20D		STK22		STK23	
		Min	Max	Min	Max	Min	Max	Min	Max
		Median		Median		Median		Median	
Physical Parameters									
Standing Water Level	m AHD	643.03	651.88	641.01	651.53	663.05	665.86	665.80	668.57
		646.65		644.75		665.50		667.40	
pH		6.1	7.0	5.5	7.3	4.9	7.4	7.2	7.8
		6.6		6.0		7.1		7.6	
EC	µS/cm	3150	3660	768	1460	896	1010	4330	5180
		3340		1040		919		4720	
Major Anions and Cations									
Sodium	mg/L	197	258	60	68	97	113	226	296
		235		67		103		245	
Potassium	mg/L	6	8	4	16	17	19	14	35
		6		10		17		17	
Calcium	mg/L	88	129	21	69	28	42	278	316
		104		37		36		293	
Magnesium	mg/L	170	215	26	66	24	26	226	263
		199		48		25		237	
Chloride	mg/L	810	1160	154	504	137	157	1060	1420
		927		240		146		1230	
Sulfate	mg/L	20	199	1	4	2	14	33	122
		145		3		2		48	
Bicarbonate	mg/L	72	973	5	409	103	254	455	1690
		136		118		229		527	
Fluoride	mg/L	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2
		0.1		0.1		0.2		0.2	
Nutrients									
Nitrate	mg/L	0.03	0.61	0.06	0.07	0.01	0.06	0.01	0.26
		0.27		0.06		0.01		0.10	
Total Ammonia	mg/L	0.04	0.58	0.12	1.30	0.20	2.25	0.03	0.33
		0.14		0.85		1.07		0.14	
TKN	mg/L	0.40	2.10	0.20	9.30	11.70	17.50	0.10	0.90
		0.70		2.20		12.70		0.30	
Total Phosphorus	mg/L	0.04	4.43	0.05	0.96	0.14	2.68	0.01	0.19
		0.31		0.07		0.31		0.02	
Reactive Phosphorus	mg/L	0.00	0.00	0.03	0.03	0.01	0.18	0.00	0.00
		below LOR		0.03		0.03		below LOR	

Table 10 (Cont'd)
Baseline Groundwater Quality Summary

Parameter	Units	STK20S		STK20D		STK22		STK23	
		Min	Max	Min	Max	Min	Max	Min	Max
		Median		Median		Median		Median	
Metals									
Aluminium	mg/L	0.000	0.000	0.050	0.520	0.430	1.260	0.010	0.020
		below LOR		0.205		0.640		0.015	
Arsenic	mg/L	0.002	0.017	0.002	0.004	0.004	0.006	0.002	0.060
		0.010		0.004		0.006		0.031	
Cadmium	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		below LOR		below LOR		below LOR		below LOR	
Chromium	mg/L	0.000	0.000	0.002	0.004	0.005	0.010	0.002	0.003
		below LOR		0.003		0.007		0.003	
Cobalt	mg/L	0.016	0.049	0.002	0.003	0.002	0.006	0.004	0.004
		0.033		0.003		0.004		0.004	
Copper	mg/L	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000
		0.002		0.002		below LOR		below LOR	
Lead	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
		below LOR		below LOR		below LOR		0.002	
Manganese	mg/L	0.963	3.080	0.941	2.420	0.814	0.930	0.011	0.239
		1.370		1.504		0.874		0.194	
Nickel	mg/L	0.031	0.079	0.001	0.007	0.003	0.012	0.003	0.003
		0.039		0.002		0.007		0.003	
Selenium	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		below LOR		below LOR		below LOR		below LOR	
Zinc	mg/L	0.009	0.033	0.011	0.019	0.010	0.014	0.007	0.023
		0.011		0.012		0.012		0.015	
Iron	NTU	0.7	58.4	21.2	31.4	1.2	19.6	0.1	6.9
		13.6		22.4		11.0		3.5	

8 REHABILITATION

8.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD

Figures 4 and **5** show the disturbance and rehabilitation status of the Quarry Site at the end of this reporting period and predicted at the end of the next reporting period. **Table 11** provides a summary of the disturbance and rehabilitation areas and **Plates 9** to **17** present examples of rehabilitation activities during the reporting period.

Table 11
Summary of Areas Disturbed and Rehabilitation

Quarry Area Type	Previous Reporting Period (Actual) Year 4 (ha)	This Reporting Period (Actual) Year 5 (ha)	Next Reporting Period (Forecast) Year 6 (ha)
Total Quarry footprint	5.06[1]	16.8[2]	16.8[2]
Total active disturbance	5.06[1]	16.8[2]	16.8[2]
Land being prepared for rehabilitation	0	0	0
Land under active rehabilitation	0	0	0
Completed rehabilitation	0	0	0

Notes: 1. Includes approximately 1.43ha of temporary rehabilitation.
2 Includes approximately 7.3ha of temporary rehabilitation and areas of limited disturbance between site components.

Topsoil stripped during the reporting period was respread over completed dam embankments and the completed visibility barriers. Additional soil not required for these rehabilitation activities has been retained for future rehabilitation. A total of approximately 750m^3 of topsoil remains within topsoil stockpiles TS4 and TS5 (see **Figure 4** and **5**). It is noted that soil material was placed more thickly on the northern and central visibility barriers in order ensure optimum growth of vegetation and better maintain the biological value of the soil material. As the visibility barriers will ultimately be deconstructed and utilised in the rehabilitation of the extraction area, this soil will similarly be recovered at that time for final rehabilitation of the extraction area.

During the reporting period, internal access road no longer required were ripped and hydromulched. All remaining disturbed areas not required for ongoing operations were also hydromulched. In particular, the visibility barriers were covered with a premium hydromulch and a travelling irrigator utilised to ensure establishment of grass cover.

It should be noted that, as the areas which have been rehabilitated may be disturbed into the future for either operations or final rehabilitation works, all areas of rehabilitation have been classified as temporarily rehabilitation. As such, no final rehabilitation has been undertaken to date.

8.2 ACTIONS FOR THE NEXT REPORTING PERIOD

Rehabilitation planned during the next reporting period will principally involve hydromulching a limited number of additional areas following completion of the remaining site establishment works. These works will be (have been) completed in early 2022.

Plate 9 **Central Visibility Barrier: Before Stabilisation**
Source: Austral Bricks
Date: 22 September 2021

Plate 10 **Central Visibility Barrier: After Stabilisation**
Source: Austral Bricks
Date: 29 October 2021

Plate 11 **Travelling Irrigator on Central Visibility Barrier**
Source: Austral Bricks
Date: 15 September 2021

Plate 12 **Sealed Roads and Stabilised Diversion Drains**
Source: Austral Bricks
Date: 20 December 2021

Plate 13 Western Access Road – Batter Hydromulched
Source: Austral Bricks
Date: 20 December 2021

Plate 14 Internal Access Road – Closed, Ripped and Hydromulched
Source: Austral Bricks
Date: 21 December 2021

Plate 15 Internal Access Road – Width Reduced
Source: Austral Bricks
Date: 21 December 2021

Plate 16 Overburden – Shaped and Hydromulched
Source: Austral Bricks
Date: 21 December 2021

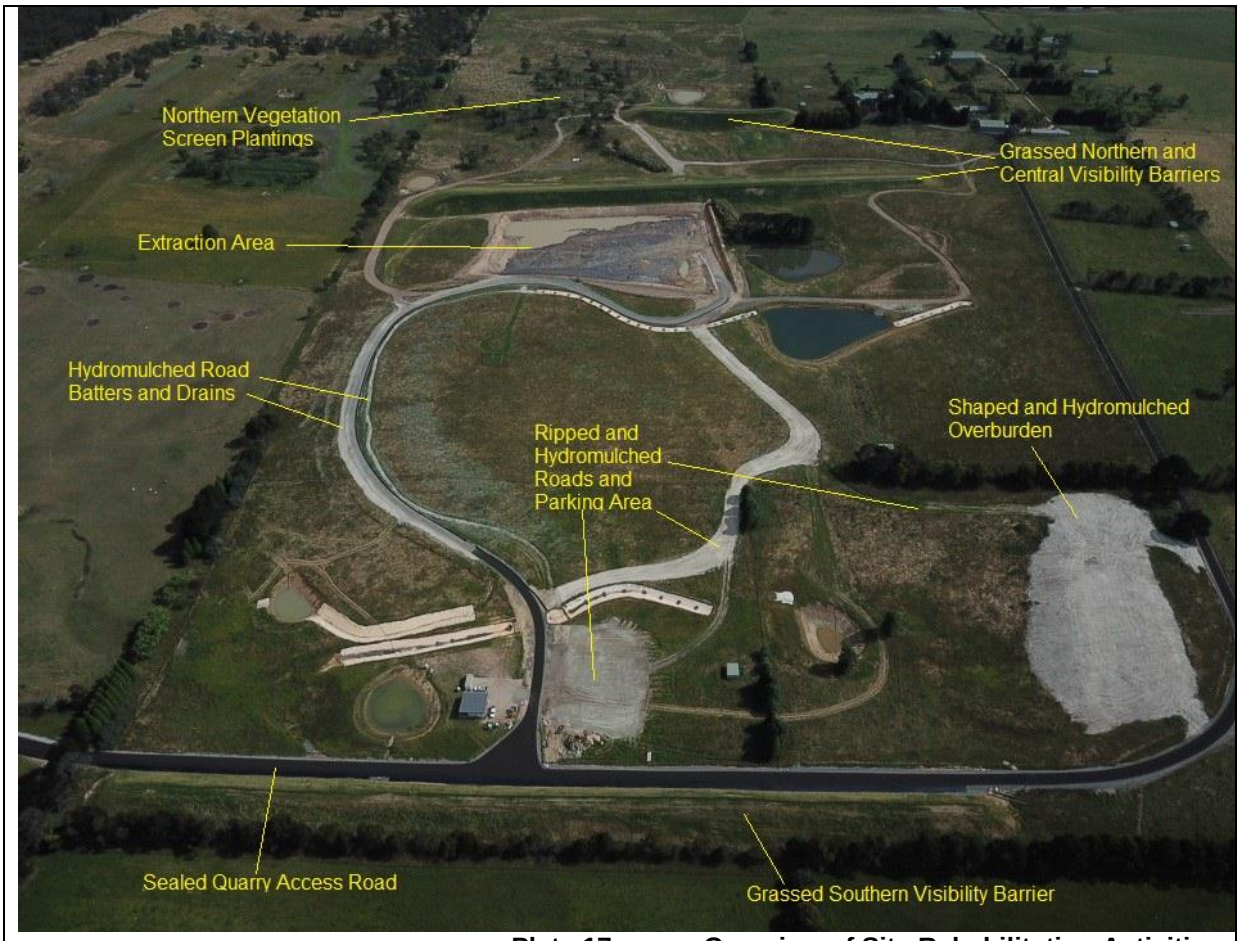


Plate 17 Overview of Site Rehabilitation Activities

Source: Austral Bricks
Date: December 2021

As outlined in Section 6.5, planting of Shale Woodland tree species will also be undertaken on visibility barriers and to create the southern vegetation screen. These works are for the purpose of visual amenity, however, they will also be of biodiversity value. The travelling irrigator will continue to be utilised as required to ensure successful establishment of the planted trees on the visibility barriers.

All areas rehabilitated during the current reporting period will be maintained throughout the next reporting period.

9 COMMUNITY

9.1 COMMUNITY COMPLAINTS

No complaints were received during the reporting period and no complaints have been received in previous reporting periods.

9.2 COMMUNITY LIAISON

The key community liaison activity during the reporting period continued to be through engagement with the Community Consultative Committee (CCC) and the committee meetings held. Three meetings of the CCC were held in 2021, namely on 03 March, 11 August and 13 October. A copy of the CCC meeting minutes are posted on Austral's website (https://australbricks.com.au/environmental-documentation/) under "New Berrima (NSW)".

These meetings continue to provide the opportunity for the Company to provide updates to the CCC members and for the members to ask questions regarding the status of operations activities. The chairperson's annual report notes that these community members are motivated and seek relevant up-to date information from the Company. The CCC meetings during March and October were able to be held on site and included site inspections by CCC members.

Additional community engagement not specifically related to Quarry activities also occurred during the reporting period. As part of the riparian restoration project along the Wingecarribee River being undertaken in partnership between Austral and Greening Australia, on 15 and 16 November 2021 a number of local community members participated in tree planting together with Austral and Greening Australia personnel.

Austral also sponsored a threatened species conservation education program for local schools (including Berrima Public School and Bowral Public School) which included a presentation from Feathered Friends Wildlife Sanctuary.

10 INDEPENDENT AUDIT

Two independent environmental audits (IEAs) of the Quarry have been conducted to date in accordance with *Schedule 5 Condition 9* of PA 08_0212. These were undertaken during August 2017 and October 2020.

All recommendations from the August 2017 audit have now been completed (see **Table 12**).

Table 12
2017 Independent Audit Action Response Plan Status

Audit Recommendation	Action / Response	Status Update
It is recommended that the environmental management plans be reviewed and the management measures and monitoring programs revised if necessary to address implementation matters and accommodate the delayed commencement of works on the Quarry site.	The six environmental management plans and Environmental Management Strategy (EMS) required by PA 08_0212 are to be reviewed in light of the: • 2017 Independent Environmental Audit; • 2016 Annual Review and associated DPE comments; and • Modification 2 of PA 08_0212.	Completed AQMP, EMS, NMP, TMP, LMP updated and submitted for review 10/11/2017. Approved 28/09/2018. AHMP Updated and submitted for review 21/09/2019. Approved 9/11/18. WMP Updated and submitted for review 31/01/2018. Four updates following review by agencies. WMP Rev 2.5 approved by DPIE 08/10/2020.
It is recommended that the environmental monitoring programs be reviewed and time for commencement and the frequency of monitoring be revised if necessary to meet the delayed commencement of works on the Quarry site, resulting from the timeframe change resulting from the requirement for the bridge works over Stony Creek (Project Approval 08_0212 MOD 2).	Update relevant monitoring program components within the management plans.	
Ensure dust deposition gauge bottle collection and analysis conforms with the monthly monitoring regime in the Air Quality Management Plan section 11.6 and AS 3580.10.1-2003.	Designation of alternative Austral personnel to complete collection and changeover of dust deposition gauge bottles.	Completed Primary collector –Environmental Manager. Secondary collector – Raw Materials & Mining Manager.
	Include confirmation of dust bottle collection and receipt of results into monthly checklist. *Note: The monthly checklist will also include confirmation of all applicable monitoring as outlined within the updated Management Plans.*	Completed The Raw Materials & Mining Manager maintains a monitoring calendar / planner and collection is completed in accordance with the Standard Operating Procedure for the site.
Progressive rehabilitation had not been implemented on the topsoil stockpiles in the area of the Central Visibility Barrier at the date of this audit and it is recommended that the implementation of Statement of Commitment occur to address the requirements of Project Approval 08_0212 Schedule 3 conditions 34 and 35.	The soil stockpiles have naturally regenerated with no further action required however future soil stockpiles will be seeded as they are formed.	Completed Stockpiles were inspected during the 2020 audit and were noted to still have a vegetation covering.
	Include requirement to seed long-term soil stockpiles in future contractual agreements with earthmoving contractor.	Completed The capital expenditure program for the site establishment works includes allowance for hydromulching of soil and disturbed areas.

As a result of the 2020 audit one recommendation was made in relation to a non-compliance with the timeframe for submission of the 2017 independent audit (further discussed in Section 11). A summary of the audit recommendation, the proposed action/response and current status is presented in **Table 13**.

Table 13
2020 Independent Audit Action Response Plan Status

Audit Recommendation	Action / Response	Status Update
Austral Bricks should ensure that the Independent Audit Reports are submitted within 12 weeks of commencement of each audit	Ensure that 2020 IEA (and response) is submitted within the 12 week timeframe per Condition 5(9A) not the 3 month timeframe per Condition 5(10).	The 2020 IEA and response was submitted on 20 October 2020, <10 weeks from commencement of the 2020 IEA on 13 August 2020.
	During a future modification application for PA 09_0212 request removal of Condition 5(10) to reduce potential for confusion of required submission dates.	Not yet applicable. Specific timing is not applicable / action will be opportunistic based on any future modification applications lodged for other purposes.

11 INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

During the reporting period there were no:

- reportable incidents or exceedances;
- official cautions, warning letters, penalty notices or prosecution proceedings; or
- non-compliances with PA 08_0212 or M(MO)L6.

12 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

Activities planned to be completed during the next reporting period are outlined in Section 4.3 and planned improvements in environmental management practices in Sections 6 and 7. In summary, the key activities planned for the next reporting period are as follows.

- Completion of the site access intersection upgraded (sealing and line marking).
- Construction of the upgrades to the intersection of Taylor Avenue and New Berrima Road.
- Planting of Shale Woodland trees species on the visibility barriers and the southern tree screen.
- Continued environmental monitoring.
- Continued community consultation, principally through the CCC.
- Formal review of the catchments for relevant on-site dams to confirm change in status from ‘dirty water’ to ‘clean water’ dams.

A further review and update, where necessary, to the management plans will also be completed during the next reporting period given the completion of site establishment activities with any aspects not relevant to ongoing operations to be removed. Any learnings from the site establishment and construction phase will also be reflected in the management plans.

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Appendices

(Total No. of pages including blank pages = 118)

Appendix 1 Compliance Review of Project Approval 08_0212 (32 pages)

Appendix 2 Compliance Review of M(MO)L6 (6 pages)

Appendix 3 Meteorological Data Recorded during 2021 (4 pages)

Appendix 4 Noise Monitoring Reports (62 pages)

Appendix 5 Summary of Water Quality Data (12 pages)

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Appendix 1

Compliance Review of Project Approval 08_0212

(Total No. of pages including blank pages = 32)

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Table A1-1
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 2: ADMINISTRATION CONDITIONS				
OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT				
2/1	In addition to meeting the specific performance criteria established under this approval, the Proponent must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the project.	Compliant	All reasonable and feasible measures to minimise potential for harm during the reporting period were implemented.	A, D
TERMS OF APPROVAL				
2/2	The Proponent must carry out the project generally in accordance with the: a) EA; b) EA (MOD 1); and c) EA (MOD 2).	Compliant	Activities during the reporting period are considered to be generally consistent these documents.	D, A
2/2A	The Proponent must carry out the project in accordance with the Project Plans, statement of commitments, and the conditions of this consent. *Notes:* a) *The Project Plans are shown in Appendix A; and* b) *The statement of commitments is reproduced in Appendix B.*	Compliant	Activities during the reporting period are considered to be generally consistent these conditions and commitments.	D, A
2/3	If there is any inconsistency between the documents in Condition 2, 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.	Noted	-	-
2/4	The Proponent must comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of: a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted in accordance with this approval; and b) the implementation of any actions or measures contained in these documents.	Not Applicable	No specific requirements from the Secretary arose during the reporting period.	A

* = Basis for assessment of compliance
D = Documentation Sighted A = Advised by Austral Employee O = Observation

Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 2: ADMINISTRATION CONDITIONS (Cont'd)				
LIMITS ON APPROVAL				
Quarrying Operations				
2/5	Consent shall lapse 31 December 2045. *Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of the Secretary or DRG. Consequently, this approval will continue to apply in all other respects other than the right to conduct quarrying operations until the rehabilitation of the site and those undertakings have been carried out to a satisfactory standard.*	Noted	-	-
Extractive Material Extraction				
2/6	The Proponent must not carry out any development in the extraction area below a level of 640m AHD. *Note: This condition does not apply to the construction of any bores approved by DPI – Water or pollution and sediment control structures described in the EA or EA (MOD 1).*	Compliant	The current depth of extraction (to recover overburden for site establishment) is 661.4m AHD.	D, A
2/7	The Proponent must not extract more than 150 000 tonnes of extractive materials from the site in any calendar year.	Not Yet Applicable	Transportation operations yet to commence.	D, A
Extractive Material Transport				
2/8	The Proponent must not transport more than:			
	a) 150 000 tonnes of product from the site in any calendar year;	Not Yet Applicable	Transportation operations yet to commence.	D, A
	b) 68 laden trucks from the site in a day; and	Not Yet Applicable	Transportation operations yet to commence.	D, A
	c) 8 laden trucks from the site in an hour.	Not Yet Applicable	Transportation operations yet to commence.	D, A
2/9	The Proponent must only transport extractive material on the haul route.	Not Yet Applicable	Transportation operations yet to commence.	D, A
STRUCTURAL ADEQUACY				
2/10	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.	Not Yet Applicable	No buildings, structures, etc. which the BCA applies have been constructed to date.	D, A

* = Basis for assessment of compliance

D = Documentation Sighted A = Advised by Austral Employee O = Observation

Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 2: ADMINISTRATION CONDITIONS (Cont'd)				
STRUCTURAL ADEQUACY (Cont'd)				
	Notes: • Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works. • Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.			
DEMOLITION				
2/11	The Proponent must ensure that all demolition work on site is carried out in accordance with AS 2601-2001: The Demolition of Structures, or its latest version.	Not Applicable	Other than removal of some farm fencing (not a structure), no demolition undertaken during the reporting period.	D, A
PROTECTION OF PUBLIC INFRASTRUCTURE				
2/12	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.	Compliant	Applications were lodged to provide for the relocation of a Telstra line and two survey marks. These were relocated during the reporting period at the expense of Austral.	D, A
OPERATION OF PLANT AND EQUIPMENT				
2/13	The Proponent must ensure that all plant and equipment used at the site is: a) maintained in a proper and efficient condition; and b) operated in a proper and efficient manner.	Compliant	The earthmoving contractor maintained and operated all mobile equipment properly. This was aided through completion of operator pre-start checklists and visual checks of operational activities by the Austral Raw Materials and Mining Manager.	A, D
STAGED SUBMISSION OF ANY STRATEGY, PLAN OR PROGRAM				
2/14	With the approval of the Secretary, the Proponent may submit any strategy, plan or program required by this approval on a progressive basis. *Notes:* • While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times; and	Not Applicable	The Management Plans prepared relate to all stages of operations.	D

* = Basis for assessment of compliance

D = Documentation Sighted A = Advised by Austral Employee O = Observation

Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 2: ADMINISTRATION CONDITIONS (Cont'd)				
STAGED SUBMISSION OF ANY STRATEGY, PLAN OR PROGRAM (Cont'd)				
2/14 (Cont'd)	• 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 to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.			
PRODUCTION DATA				
2/15	The Proponent must: a) provide annual quarry production data to DRG using the standard form for that purpose; and	Compliant	Extraction operations yet to commence. Notwithstanding, a 'nil' return was submitted 15/10/21.	D, A
	b) include a copy of this data in the Annual Review (see Condition 4 of Schedule 5).	Compliant	Table 4 of this Annual Review summarises the production data – confirming there has been nil to date.	D
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS				
IDENTIFICATION OF BOUNDARIES				
3/1	Prior to carrying out any development on site under this approval, the Proponent must: a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction; and b) submit a survey plan of these boundaries to the Secretary.	Compliant	Plans submitted on 18 March 2016.	D
3/2	During the project, the Proponent must ensure that these boundaries are clearly marked at all times in a permanent manner that allows operating staff and inspecting officers to clearly identify the limits of extraction.	Compliant	All relevant boundaries are marked with posts at nominated locations. These markers were retained throughout the reporting period.	A, O
NOISE				
Bund Construction				
3/3	The Proponent must construct the Visibility Barriers prior to carrying out any quarrying operations on site under this approval to the satisfaction of the Secretary. This condition does not prohibit the winning of extractive material on site to be used in the construction of the Visibility Barriers. *Note: Visibility Barriers are shown on the project layout plans in Figure 1 of APPENDIX A.*	Not Yet Applicable	Extraction operations have not yet commenced. The construction of the Northern, Central and Southern Visibility Barriers, including stabilisation, was completed during the reporting period.	D, A, O

* = Basis for assessment of compliance
D = Documentation Sighted A = Advised by Austral Employee O = Observation

Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

<table>
<tr><th>Condition No.</th><th>Requirement</th><th>Compliance</th><th>Comment</th><th>Basis*</th></tr>
<tr><td colspan="5">SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)</td></tr>
<tr><td colspan="5">NOISE (Cont'd)</td></tr>
<tr><td colspan="5">Visibility Barrier and Stockpile Dimensions</td></tr>
<tr><td>3/3A</td><td>The Visibility Barriers and surplus overburden stockpile (refer Figure 1 Appendix A) must be constructed to meet the dimensions specified in Table 1A, unless the Secretary agrees otherwise.</td><td>Compliant</td><td>The Visibility Barriers have been constructed to meet the minimum dimensions specified / the approved site layout. It is noted that the Southern Barrier length is ~339m which is consistent with the length shown on the approved site layout. The maximum length of the barrier is constrained to the west by existing tree line and east by the powerline easement. Table 1A will require update in future modification to be consistent with Figure 1 of Appendix A). The existing overburden stockpile maximum elevation is 682.0m AHD.</td><td>D, A</td></tr>
<tr><td colspan="5">Table 1A: Visibility Barriers and Surplus Overburden Stockpile Dimensions
<table>
<tr><th>Structure</th><th>Height</th><th>Base Width (m)</th><th>Length (m)</th><th>Surface Area (ha)</th></tr>
<tr><td>Central Barrier (minimum)</td><td>675 (m AHD)</td><td>30 - 45</td><td>420</td><td>1.5</td></tr>
<tr><td>Northern Barrier (minimum)</td><td>672 (m AHD)</td><td>35 - 50</td><td>160</td><td>0.7</td></tr>
<tr><td>Southern Barrier (minimum)</td><td>4 metres above the natural land surface</td><td>20</td><td>350</td><td>0.7</td></tr>
<tr><td>Overburden Stockpile (maximum)</td><td>683 (m AHD)</td><td>-</td><td>-</td><td>-</td></tr>
</table></td></tr>
<tr><td colspan="5">Noise Criteria – Bund Construction</td></tr>
<tr><td>3/4</td><td>During the construction of the Visibility Barriers, the Proponent must ensure that the noise generated on site does not exceed the criteria in Table 1.</td><td>Compliant</td><td>Quarterly independent noise monitoring was undertaken during the reporting period which encompassed the construction of the Visibility Barriers. No exceedances to any noise criteria were recorded. Furthermore, no complaints have been received.</td><td>D, A</td></tr>
<tr><td colspan="5">Table 1 – Noise Criteria – Bund Construction
<table>
<tr><th>Receiver</th><th>$L_{Aeq\ (15\ min)}$ dB(A)</th></tr>
<tr><td>R2</td><td>43</td></tr>
<tr><td>All other receivers</td><td>38</td></tr>
</table>
Notes:

Receiver locations are shown in Figure 4 of APPENDIX A.
Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.
</td></tr>
<tr><td colspan="5">Noise Criteria</td></tr>
<tr><td>3/5</td><td>Except for the period when the Visibility Barriers are being constructed, the Proponent must ensure that the noise generated by the project does not exceed 38dB(a) LAeq (15min) at any residence on privately-owned land.</td><td>Compliant</td><td>Quarterly independent noise monitoring was undertaken during the reporting period which encompassed significant site establishment operations. No exceedances to any noise criteria were recorded. Furthermore, no complaints have been received.</td><td>D, A</td></tr>
<tr><td colspan="5">* = Basis for assessment of compliance
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Table A1-1 (Cont'd)
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Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
NOISE (Cont'd)				
Noise Criteria (Cont'd)				
3/5 (Cont'd)	However, this criterion does not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.			
Hours of Operations				
3/6	The Proponent must comply with the operating hours in Table 2. *Table 2 – Operating Hours* ***Day*** / ***Transport*** / ***Quarrying Operations*** / ***Construction*** Monday – Friday / 7 am to 4 pm / 7 am to 5 pm / 7 am – 5 pm Saturday / 8 am to 1 pm / 8 am to 1 pm / 8 am – 1 pm Sundays and Public Holidays / None / None / None *Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residences.*	Compliant	No construction activities were undertaken outside of the approved hours of operation.	A
Operating Conditions				
3/7	The Proponent must:			
	a) implement best practice noise management to minimise the construction, operational, low frequency and traffic noise of the project;	Compliant	Management measures included checks to ensure all mobile equipment fitted with broadband reversing alarms, proper maintenance (no rattles, etc.) – through daily pre-start checks, checks of forecast weather conditions etc. No noise management issues arose during the reporting period.	A
	b) minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply;	Not Yet Applicable	Applicable conditions have not yet occurred during periods of site activity.	A
	c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; and	Compliant	As above for item a).	A
	d) regularly assess noise monitoring data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval,	Not Yet Applicable	No data yet assembled. Noise monitoring to commence following this reporting period. No issues with noise have arisen to date and no complaints have been received.	A
	to the satisfaction of the Secretary.			
Noise Management Plan				
3/8	The Proponent must prepare a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:	Compliant	The Plan was submitted to the Secretary on 18 March 2016 and approved on 13 May 2016. The Plan was last updated and approved 28 September 2018.	D

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
NOISE (Cont'd)				
Noise Management Plan (Cont'd)				
3/8 (Cont'd)	a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the construction of the Visibility Barriers; b) describe the measures that would be implemented to ensure: • best management practice is being employed on site; • the noise impacts of the project are minimised during meteorological conditions when the noise limits in this approval do not apply; and • compliance with the relevant conditions of this approval; c) describe the proposed noise management system in detail; and d) include a monitoring program that: • is capable of evaluating the performance of the project; • includes a protocol for determining exceedances of the relevant conditions in this approval; and • evaluates and reports on the effectiveness of the noise management system on site. The Proponent must implement the approved management plan as approved from time to time by the Secretary.			
AIR QUALITY				
Air Quality Criteria				
3/9	The Proponent must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated on site do not exceed the criteria in Table 3, Table 4 and Table 5 at any residence on privately-owned land, or on more than 25% of any privately-owned land. *Table 3 – Long-Term Impact Assessment Criteria for Particulate Matter* **Pollutant** / **Averaging period** / **[d] Criterion** Total suspended particulates (TSP) / Annual / [a] 90 µg/m^3 Particulate matter < 10 µm (PM_{10}) / Annual / [a] 30 µg/m^3	Compliant	Dust suppression during the reporting period has included regular use of the water cart and hydromulching of disturbance areas no longer required. Deposited dust monitoring to date also indicates compliance with the applicable criteria.	D, A

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<tr><th>Condition No.</th><th>Requirement</th><th>Compliance</th><th>Comment</th><th>Basis*</th></tr>
<tr><td colspan="5">SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)</td></tr>
<tr><td colspan="5">AIR QUALITY (Cont'd)</td></tr>
<tr><td colspan="5">Air Quality Criteria (Cont'd)</td></tr>
<tr><td>3/9 (Cont'd)</td><td colspan="3">Table 4 – Short Term Impact Assessment Criteria for Particulate Matter
<table>
<tr><th>Pollutant</th><th>Averaging period</th><th>[d] Criterion</th></tr>
<tr><td>Particulate matter < 10 µm (PM_{10})</td><td>24 hour</td><td>[a] 50 µg/m^3</td></tr>
</table>
Table 5 – Long-Term Impact Assessment Criteria for Deposited Dust
<table>
<tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr>
<tr><td>[c] Deposited dust</td><td>Annual</td><td>[b] 2 g/m^2/month</td><td>[a] 4 g/m^2/month</td></tr>
</table>
Notes to Tables:

a Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources);
b Incremental impact (i.e. incremental increase in concentrations due to the project on its own);
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, illegal activities or any other activity agreed by the Secretary in consultation with EPA.
e "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in Conditions 10, 11 and 12 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.
</td><td></td></tr>
<tr><td colspan="5">Operating Conditions</td></tr>
<tr><td>3/10</td><td>The Proponent must:
a) implement best management practice to minimise the dust emissions of the project;</td><td>Compliant</td><td>Air quality controls have included regular use of the water cart, hydromulching completed areas, use of bunting and sediment fencing and site traffic control plan to minimise trafficked areas.</td><td>A</td></tr>
<tr><td></td><td>a) regularly assess air quality monitoring data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval,</td><td>Compliant</td><td>Deposited dust monitoring data complies with nominated criteria.</td><td>D</td></tr>
<tr><td></td><td>b) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see Note d under Table 5 above);</td><td>Compliant</td><td>Operations were suspended on 2 days due to high wind conditions.</td><td>A</td></tr>
<tr><td></td><td>c) minimise any visible off-site air pollution; and</td><td>Compliant</td><td>The use of the water cart sufficiently controlled visible dust, which was regularly assessed by the earthmoving contractor and Raw Materials and Mining Manager.</td><td>A</td></tr>
</table>

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
AIR QUALITY (Cont'd)				
Air Quality Management Plan				
3/11	d) minimise the surface disturbance of the site generated by the project.	Compliant	Disturbances have been limited and completed areas hydromulched to reduce the area subject to wind (and water) erosion.	A, D
	The Proponent must prepare an Air Quality Management Plan for the project to the satisfaction of the Secretary. This plan must: a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the construction of the Visibility Barriers b) describes the measures that would be implemented to ensure: • best management practice is employed; • the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events; and • compliance with the relevant conditions of this approval; c) describes the proposed air quality management system; and d) includes 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; • adequately supports the air quality management system; and • evaluates and reports of the adequacy of the air quality management system. The Proponent must implement the approved management plan as approved from time to time by the Secretary.	Compliant	The Plan was submitted to the Secretary on 18 March 2016 and approved on 13 May 2016. The Plan was last updated and approved 28 September 2018.	D
METEOROLOGICAL MONITORING				
3/12	During the life of the project, the Proponent must ensure that there is a suitable meteorological station 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.	Compliant	A station was established on site on 19 September 2016 and remains operational.	D, O

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
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Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
SOIL AND WATER				
	Note: The Proponent is required to obtain the necessary water licences for the project under the Water Act 1912 and/or Water Management Act 2000.	Not Yet Applicable	No water licences currently required.	D
Riparian Buffer Distance				
3/13	The Proponent must maintain a minimum buffer distance of 515 metres (measured from the top of bank) between extraction area and Wingecarribee River.	Compliant	No extraction activities occurred within the nominated buffer during the reporting period.	D, A
Surface Water Discharging				
3/14	The Proponent must ensure that all surface water discharges from the site comply with section 120 of the POEO Act or, if an EPL has been issued regulating water discharges from the site, the discharge limits (both volume and quality) set for the project in the EPL.	Compliant	No exceedances were reported during any conditional discharges (see Section 7.2 of this Annual Review).	A
Surface Water Supply				
3/15	The Proponent must ensure it has sufficient water for all stages of the project, and if necessary, adjust the scale of quarrying operations on site to match its available supply.	Compliant	Dirty water captured within the sump and water management dams has provided sufficient water for dust suppression.	D, A
On-Site Sewerage Management				
3/16	The Proponent must manage on-site sewage to the satisfaction of Council and EPA.	Compliant	A porta-loo is retained on site and managed by a licenced contractor. Satisfaction of Council and EPA has not been determined.	A
Storage of Chemicals & Petroleum Products				
3/17	The Proponent must ensure all chemicals and/or petroleum products on site are stored in accordance with Australian Standard AS1940-2004, The Storage and Handling of Flammable and Combustible Liquids, and in appropriately bunded areas with impervious flooring and of sufficient capacity to contain 110% of the largest container stored within the bund. The flooring and bund(s) must be designed in accordance with: • the requirements of relevant Australian Standards; and • DECC's Storing and Handling Liquids: Environmental Protection – Participants Manual.	Compliant	Refuelling of the mobile equipment was undertaken using a road-registered mobile refuelling truck. A bunded pallet within the storage container was used for storage of minor volumes of oils and grease.	A

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Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
SOIL AND WATER (Cont'd)				
Water Management Plan				
3/18	The Proponent must prepare a Water Management Plan for the project to the satisfaction of the Secretary. This plan must be prepared in consultation with the EPA, WaterNSW and DPI – Water by suitably qualified and experienced persons whose appointment has been approved by the Secretary, and be submitted to the Secretary for approval prior to the construction the Visibility Barriers on site. In addition to the standard requirements for management plans (see Condition 3 of Schedule 5), this plan must include a: a) Site Water Balance that: • includes details of: – sources and security of water supply, including contingency planning for future reporting periods; – water use on site; – water management on site; – reporting procedures, including comparisons of the site water balance each calendar year; and • describes the measures that would be implemented to minimise clean water use on site; b) Surface Water Management Plan, that includes: • detailed baseline data on surface water flows and quality in the water-bodies that could be affected by the project; • a detailed description of the surface water management system on site, including the: – clean water diversion systems; – erosion and sediment controls; and – water storages. • a plan for identifying, extracting, handling, and the long-term storage of potentially acid forming material on site;	Compliant	The Plan was submitted to the Secretary on 18 March 2016 and approved on 9 June 2016. The Plan was updated and approved 8 October 2020.	D

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Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
SOIL AND WATER (Cont'd)				
Water Management Plan (Cont'd)				
3/18 (Cont'd)	• detailed plans, including design objectives and performance criteria, for: • the water storage dams; and – reinstatement of drainage lines on the rehabilitated areas of the site; – control of water pollution from rehabilitated areas of the site; • performance criteria for surface water quality attributes relevant to water quality impacts on biological diversity and aquatic ecological integrity, including salinity, heavy metals, sediment load, pH, hardness and biological oxygen demand; • a program to monitor: – the effectiveness of the water management system; – surface water flows and quality in local water ways; and – ecosystem health of local water ways; • a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project; and c) Groundwater Management Plan, which includes: • detailed baseline data on groundwater levels, yield and quality in the area, that could be affected by the project; • groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts; • a program to monitor: – groundwater inflows to the quarrying operations; – the impacts of the project on: o local alluvial aquifers; o any groundwater bores on privately-owned land that could be affected by the project;			

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Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
SOIL AND WATER (Cont'd)				
Water Management Plan (Cont'd)				
3/18 (Cont'd)	○ the seepage/leachate from water storages or backfilled voids on site; and ○ groundwater dependent ecosystems; • a plan to respond to any exceedances of the groundwater assessment criteria; The Proponent must implement the approved management plan as approved from time to time by the Secretary.			
Groundwater Monitoring				
3/18A	The Proponent must install 3 pairs of nested piezometers prior to the quarry pit floor reaching 660m AHD, in consultation with DPI – Water and to the satisfaction of the Secretary.	Compliant	Whilst extraction operations have not yet reached the 660m AHD level, acceptance of the monitoring approach was received from NRAR on 27 May 2019 and the piezometers installed during July 2019.	D
VISUAL				
Establishment of Effective Vegetative Screens				
3/19	The Proponent must vegetate (with grasses, shrubs and trees) the Visibility Barriers as soon as practicable after the completion of the construction of the bunds, to the satisfaction of the Secretary.	Not Yet Applicable	Hydromulching of Visibility Barriers completed during reporting period with significant grass cover achieved. Native trees and shrubs will be planted on the barriers early in the 2022 reporting period.	D, A
3/19A	Prior to transporting any product from the site, the Proponent must establish a 0.68ha tree screen adjacent to the Northern Visibility Barrier, as shown on Figure 1 in Appendix A. The screen must include native plant species from the *Southern Highlands Shale Woodland Endangered Ecological Community.*	Compliant	Whilst product transportation has not occurred to date, the northern vegetation screen has been planted with native plant species from the Shale Woodland EEC.	A, D
Advertising				
3/20	The Proponent must not erect or display any advertising structure(s) or signs on the site without the written approval of the Secretary. *Note: This condition does not require approval for any business identification, traffic management, and/or safety or environmental signs.*	Not Yet Applicable	No advertising structures are required or have been erected for the quarry.	D, A

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Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
VISUAL (Cont'd)				
Operating Conditions				
3/21	The Proponent must: a) implement all reasonable and feasible measures to minimise the visual impacts and any off-site lighting impacts of the project; and	Not Yet Applicable	No lighting was required to be used on-site during the reporting period.	A
	b) maintain and improve the effectiveness of the bunds and vegetative screens over the life of the project.	Compliant	Visibility Barriers completed during reporting period. Travelling irrigators installed during reporting period to help establishment of vegetation on Visibility Barriers.	D, A
3/22	Deleted	-	-	-
TRANSPORT				
Road Upgrades (Local Roads)				
3/23	Prior to transporting any extractive material from the site, the Proponent must:	Not Yet Applicable	No product transportation has occurred to date.	A
	a) construct the junction of the site access road with Berrima Road to Basic Right Turn and Basic Left Turn Treatment standard for a 19m semi-trailer;	Not Yet Applicable	Construction is well advanced with road sealing and line marking to be completed in early 2022.	A, D
	b) construct a raised concrete median in Berrima Road on the south bound approach to its junction with MR372;	Not Yet Applicable	As above.	A, D
	c) provide appropriate traffic signage and line-marking, in accordance with AUSTROADS *Guide to Road Design* and to the satisfaction of the Council.	Not Yet Applicable	As above.	A, D
Road Upgrades (Main Roads)				
3/24	Prior to transporting any extractive material from the site, the Proponent must: a) construct the Berrima Road/Taylor Avenue junction to give priority to MR372 incorporating Rural BA Left and Right turn treatments for a 19m semi-trailer; b) provide appropriate traffic signage and line-marking, in accordance with AUSTROADS *Guide to Road Design* and to the satisfaction of the Council and the RMS.	Note Yet Applicable	No product transportation has occurred to date. Austral has continued to consult with Council regarding the resolution of matters required to enable the upgrade works to be completed.	A

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SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
TRANSPORT (Cont'd)				
Road Upgrades (Main Roads) (Cont'd)				
3/24 (Cont'd)	If the Council undertakes or proposes to undertake a superior treatment of this intersection upgrade, then this condition may be fulfilled by the Proponent paying a monetary contribution to the Council equivalent to the cost of the upgrades specified under this condition, as assessed by a qualified independent valuer or quantity surveyor appointed by the Secretary. The costs of the valuation are to be paid by the Proponent. Any dispute over the interpretation of this condition or a satisfactory valuation can be referred by any party to the Secretary for resolution. The decision of the Secretary in any such dispute shall be final.			
Transport Route				
3/25	The Proponent must ensure heavy vehicles associated with the Project travel along haulage routes specified in the EA and the haulage route diagram in Figure 3 of APPENDIX A to this approval to the satisfaction of the Secretary.	Not Yet Applicable	Despatch of clay/shale has not yet commenced.	A
Road Maintenance Contribution				
3/26	The Proponent must pay to Council an annual contribution of 91.2 cents per cubic metre of extractive material exported from the site (indexed annually to Consumer Price Index) for the life of the Project. The volume of extractive material exported from the site must be established by way of a volumetric survey of the site carried out by a registered surveyor. Each annual volumetric survey must be provided to Council to allow verification of the contribution amount. The first annual payment falls due 12 months from the commencement of operation. *Note: The Proponent must provide a base-line survey of the site to the Council prior to the commencement of operations.*	Not Yet Applicable	Despatch of clay/shale has not yet commenced.	A

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Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
TRANSPORT (Cont'd)				
Parking				
3/27	The Proponent must provide sufficient parking for all project-related traffic, in accordance with Council's parking code.	Compliant	Dedicated parking areas are available on site with no on-street parking required.	A
Operating Conditions				
3/28	The Proponent must ensure that: a) vehicles on site do not exceed a speed limit of 30 kilometres per hour;	Compliant	Company policy nominates a speed limit of 30kph on site.	A
	b) all loaded vehicles entering or leaving the site have their loads covered; and	Not Yet Applicable	Despatch of clay/shale has not yet commenced.	A
	c) all loaded vehicles leaving the site are cleaned of sand and other materials before they leave the site so they do not track dirt onto the public roads.	Not Yet Applicable	Despatch of clay/shale has not yet commenced.	A
Transport Management Plan				
3/29	The Proponent must prepare a Transport Management Plan for the project to the Secretary. This plan must: a) be submitted prepared in consultation with the RMS and Council, and submitted to the Secretary for approval prior to carrying out any quarrying operations on site; b) include a drivers' code of conduct for the project; c) describe the measures that would be implemented to ensure: • establishing a CB radio communication protocol with the local bus companies, to improve driver awareness of quarry truck and school bus locations along haulage routes; • the drivers of project-related vehicles comply with the drivers' code of conduct for the project; and • compliance with the relevant conditions of this approval; and d) include a program to monitor the effectiveness of the implementation of these measures.	Compliant	The Plan was submitted to the Secretary on 18 March 2016 and approved on 13 May 2016. The Plan was last updated and approved 28 September 2018. Transport operations have not yet commenced.	D, A

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SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
TRANSPORT (Cont'd)				
Transport Management Plan (Cont'd)				
3/29 (Cont'd)	The Proponent must implement the approved management plan as approved from time to time by the Secretary.			
3/30	Should the Traffic Management Plan (TMP) for the proposed works require a reduction of the speed limit on Berrima Road and/or Taylor Avenue, a Speed Zone Authorisation must be obtained from RMS Traffic Operations Unit (TOU) prior to commencing work within the road reserve.	Not Yet Applicable	Authorisation not currently required.	A
WASTE				
3/31	The Proponent must:			
	a) monitor the amount of waste generated by the project;	Compliant	Information on waste volume provided in Section 6.6 of this document.	D
	b) investigate ways to minimise waste generated by the project;	Compliant	All contractors are required to remove their own waste from site.	A
	c) implement reasonable and feasible measures to minimise waste generated by the project;	Compliant	All contractors are required to remove their own waste from site.	A
	d) ensure that all waste generated by the project is lawfully disposed of to an appropriate facility; and	Compliant	All contractors are required to dispose of all wastes lawfully.	A
	e) report on waste management and minimisation in the annual review,	Compliant	See Section 6.6 of this document.	D
	to the satisfaction of the Secretary.			
ABORIGINAL HERITAGE				
Aboriginal Heritage Management Plan				
3/32	The Proponent must prepare an Aboriginal Heritage Management Plan for the project to the satisfaction of the Secretary. This plan must: a) be prepared in consultation with OEH and the relevant Local Aboriginal Land Council; b) be submitted to the Secretary for approval prior to any ground disturbance; and c) include a: • protocol for the engagement of an Aboriginal Site Officer for any necessary ground disturbance monitoring;	Compliant	The Plan was submitted to the Secretary on 18 March 2016 and approved on 13 May 2016. The Plan was last updated and approved 28 September 2018. A further administrative update was approved 9 November 2018.	D

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
ABORIGINAL HERITAGE (Cont'd)				
Aboriginal Heritage Management Plan (Cont'd)				
3/32 (Cont'd)	• program for the recording, notifying, salvage and surface collection of any Aboriginal objects/sites that may be encountered within the project area; • description of the measures that would be implemented if any Aboriginal skeletal remains are discovered during the project; and • protocol for the ongoing consultation and involvement of the Aboriginal community in the conservation and management of the Aboriginal heritage of the objects/sites. The Proponent must implement the approved management plan as approved from time to time by the Secretary.			
3/32A	If any item or object of potential Aboriginal heritage significance is identified during works associated with the project, the Proponent must ensure that: a) all work in the immediate vicinity of the potential Aboriginal item or object ceases immediately; b) a 10m buffer area around the potential item or object is cordoned off; and c) the OEH 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*.	Not Applicable	No Aboriginal heritage objects or objects suspected of being of Aboriginal origin were located during the reporting period.	D, A
LANDSCAPE				
Rehabilitation Objectives				
3/33	The Proponent must rehabilitate the site to the satisfaction of the DRG. This rehabilitation must be consistent with the proposed rehabilitation strategy in the EA (MOD 1), and comply with the objectives in Table 6.	Not Yet Applicable	No areas of final rehabilitation have yet become available. During the reporting period temporary rehabilitation was undertaken on available / completed areas.	D, A

* = Basis for assessment of compliance

D = Documentation Sighted A = Advised by Austral Employee O = Observation

Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

<table>
<tr><th>Condition No.</th><th>Requirement</th><th>Compliance</th><th>Comment</th><th>Basis*</th></tr>
<tr><td colspan="5">SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)</td></tr>
<tr><td colspan="5">LANDSCAPE (Cont'd)</td></tr>
<tr><td colspan="5">Rehabilitation Objectives (Cont'd)</td></tr>
<tr><td>3/33 (Cont'd)</td><td colspan="3">Table 6 – Rehabilitation Objectives
<table>
<tr><th>Feature</th><th>Objective</th></tr>
<tr><td>Site (as a whole)</td><td>Safe, stable & non-polluting</td></tr>
<tr><td>Surface Infrastructure</td><td>To be decommissioned and removed, unless the DRG agrees otherwise</td></tr>
<tr><td>Quarry Walls</td><td>Final slopes of 1:3 (vertical : horizontal), except the southwestern wall of Bench 1
Vegetated with native endemic flora species to be consistent with surrounding landscape and to minimise visual impacts</td></tr>
<tr><td>Quarry Pit Floor</td><td>Suitable for grazing or other agricultural activities</td></tr>
<tr><td>Other Land affected by the project</td><td>Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of:
• local native species: and
• a landform consistent with the surrounding environment</td></tr>
</table></td><td></td></tr>
<tr><td colspan="5">Progressive Rehabilitation</td></tr>
<tr><td>3/34</td><td>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 rehabilitation strategies must be employed when areas prone to dust generation cannot yet be permanently rehabilitated.</td><td>Compliant</td><td>During the reporting period hydromulching was undertaken to stabilise disturbances as soon as practicable after their completion. Monitoring indicates dust generation has not been adverse.</td><td>D, A</td></tr>
<tr><td colspan="5">Landscape Management Plan</td></tr>
<tr><td>3/35</td><td>The Proponent must prepare a Landscape Management Plan for the project to the satisfaction of the Secretary. This plan must:
a) be prepared in consultation with OEH and Council, and submitted to the Secretary for approval prior to carrying out any development on site under this approval;
b) describe the short, medium and long term measures that would be implemented to:
• manage the remnant vegetation and habitat on site;
• rehabilitate the riparian land adjacent to the Wingecarribee River on site; and
• ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;</td><td>Compliant</td><td>The Plan was submitted to the Secretary on 18 March 2016 and approved on 13 May 2016. The Plan was last updated and approved 28 September 2018.</td><td>D</td></tr>
</table>

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
LANDSCAPE (Cont'd)				
Landscape Management Plan (Cont'd)				
3/35 (Cont'd)	c) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, including triggering remedial action (if necessary); d) include a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for: • ensuring compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval; • enhancing the quality of existing vegetation and fauna habitat; • restoring native endemic vegetation and fauna habitat within the biodiversity areas and rehabilitation area; • maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse in the enhancement of the biodiversity areas or rehabilitation area; • collecting and propagating seed; • minimising the impacts on fauna on site, including undertaking pre-clearance surveys; • controlling weeds and feral pests; • controlling erosion; • managing grazing and agriculture on site; • controlling access; and • bushfire management; e) a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;			

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS (Cont'd)				
LANDSCAPE (Cont'd)				
Landscape Management Plan (Cont'd)				
3/35 (Cont'd)	f) identify the potential risks to successful implementation of the rehabilitation of the site, and include a description of the contingency measures that would be implemented to mitigate against these risks; and g) include details of who would be responsible for monitoring, reviewing, and implementing the plan. The Proponent must implement the approved management plan as approved from time to time by the Secretary.			
3/36	Deleted.			
3/37	Deleted.			
SCHEDULE 4: ADDITIONAL PROCEDURES				
NOTIFICATION OF LANDOWNERS				
4/1	As soon as practicable after obtaining monitoring results showing an:			
	a) exceedance of any relevant criteria in Schedule 3, the Proponent must notify affected landowners in writing of the exceedance, and provide regular monitoring results to each of affected landowner until the project is again complying with the relevant criteria; and	Not Yet Applicable	No exceedances have occurred to date.	D
	b) an exceedance of the relevant 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/or existing tenants of the land.	Not Yet Applicable	No exceedances have occurred to date.	D
INDEPENDENT REVIEW				
4/2	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.	Not Applicable	No requests for an independent review are known to have been submitted to date.	A

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 4: ADDITIONAL PROCEDURES (Cont'd)				
INDEPENDENT REVIEW (Cont'd)				
4/2 (Cont'd)	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 expert, 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 the measures that could be implemented to ensure compliance with the relevant criteria; 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.			
4/3	If the independent review determines that the project is complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Secretary. If the independent review determines that the project is not complying with the relevant criteria in Schedule 3, then the Proponent must: a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent expert, and conduct further monitoring until the project complies with the relevant criteria; or b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Secretary.	Not Applicable	No requests for an independent review are known to have been submitted to date.	A

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING				
ENVIRONMENTAL MANAGEMENT				
Environmental Management Strategy				
5/1	The Proponent must prepare and an Environmental Management Strategy for the project to the satisfaction of the Secretary. The strategy must: a) be submitted for approval to the Secretary prior to the commencement of construction activities; 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 that would be implemented to: • keep the local community and relevant agencies informed about the operation and environmental performance of the project; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the project; • respond to any non-compliance; and • respond to emergencies; and f) include: • copies of the various strategies, plans and programs that are required under the conditions of this approval once they have been approved; and • a clear plan depicting all the monitoring to be carried out in relation to the project. The Proponent must implement the approved strategy as approved from time to time by the Secretary.	Compliant	The Plan was submitted to the Secretary on 18 March 2016 and approved on 13 May 2016. The Strategy was last updated and approved 28 September 2018.	D

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING (Cont'd)				
ENVIRONMENTAL MANAGEMENT (Cont'd)				
Adaptive Management				
5/2	The Proponent must assess and manage project-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this approval and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.	Not Yet Applicable	No exceedances of criteria have occurred to date.	A
	Where any exceedance of these criteria and/or performance measures has occurred, the Proponent must, at the earliest opportunity: a) take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur;	Not Yet Applicable	No exceedances of criteria have occurred to date.	A
	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	Not Yet Applicable	No exceedances of criteria have occurred to date.	A
	c) implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary.	Not Yet Applicable	No directions received from the Secretary during the reporting period.	D
Management Plan Requirements				
5/3	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;	Compliant	All management plans were prepared as required by the Project Approval and approved by the Secretary. The updated management plans submitted also address these matters, as applicable.	D

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING (Cont'd)				
ENVIRONMENTAL MANAGEMENT (Cont'd)				
Management Plan Requirements (Cont'd)				
5/3 (Cont'd)	c) a description of the measures that would 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; 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.*			
Annual Review				
5/4	By the end of December 2016, and annually thereafter, the Proponent must review the environmental performance of the project to the satisfaction of the Secretary. This review must: a) describe the development (including rehabilitation) that was carried out in the previous calendar year, and the works that are proposed to be carried out over the next year;	Compliant	The first Annual Review was prepared for 2016 and the report updated as directed by the Secretary. This Annual Review has been prepared in accordance with this condition.	D

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING (Cont'd)				
ENVIRONMENTAL MANAGEMENT (Cont'd)				
Annual Review (Cont'd)				
5/4 (Cont'd)	b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against: • the relevant statutory requirements, limits or performance measures/criteria; • the monitoring results of previous years; and • the relevant predictions in the documents listed in Condition 2 of Schedule 2; c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; d) identify any trends in the monitoring data over the life of the project; e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and f) describe what measures will be implemented over the next year to improve the environmental performance of the project.			
Revision of Strategies, Plans and Programs				
5/5	Within 3 months of the submission of an: a) annual review under Condition 4 above: b) incident report under Condition 7 below; c) audit report under Condition 9 below; and d) any modifications to this approval, the Proponent must review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Secretary.	Compliant	A review of the management plans was undertaken following the 2020 IEA and the DPIE notified (19 January 2021) that no updates were required at that time. All management plans were further reviewed following the preparation of the 2020 Annual Review and the DPIE notified of the review. All management plans planned to be further reviewed following completion of site establishment.	D, A

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING (Cont'd)				
ENVIRONMENTAL MANAGEMENT (Cont'd)				
Revision of Strategies, Plans and Programs (Cont'd)				
	Within 4 weeks of conducting any such review, the Proponent must advise the Secretary of the outcomes of the review, and provide any revised documents to the Secretary for review and approval. *Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.*			
Community Consultative Committee				
5/6	The Proponent must establish and operate a CCC for the project to the satisfaction of the Secretary. This CCC must be operated in general accordance with the Department's *Community Consultative Committee (CCC) Guidelines for State Significant Projects* (November 2016, or its latest version), and be operating prior to any development being carried out on site under this approval.	Compliant	The first meeting of the CCC was held on 7 September 2016. The CCC has been operated in accordance with the guidelines and as directed by the committee (see Section 9 of this document).	D
	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 guideline, the Committee should comprise an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.			
REPORTING				
Incident Reporting				
5/7	The Proponent must notify, at the earliest opportunity, the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the project, the Proponent must notify the Secretary and any other relevant agencies as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	Not Yet Applicable	No reportable incidents occurred during the reporting period.	A

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING (Cont'd)				
ENVIRONMENTAL MANAGEMENT (Cont'd)				
Regular Reporting (Cont'd)				
5/8	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.	Compliant	Any relevant information is posted on the Austral website.	D, A
INDEPENDENT ENVIRONMENTAL AUDIT				
5/9	Within a year of the commencement of development on site under this 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 conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; b) include consultation with the relevant agencies; c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL and/or Water License (including any assessment, plan or program required under these approvals); d) review the adequacy of any approved strategy, plan or program required under these approvals; e) recommend measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under these approvals; and f) be conducted and reported to the satisfaction of the Secretary. *Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Secretary.*	Compliant	The initial independent audit was undertaken in August 2017 (i.e. within 1 year following physical commencement). The latest independent audit was undertaken by AQUAS (approved by DPIE 27/07/20) and commenced 13 August 2020. The audit addressed the required aspects.	D

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Table A1-1 (Cont'd)
Compliance Review of PA 08_0212
for New Berrima Clay/Shale Quarry for the Reporting Period

Condition No.	Requirement	Compliance	Comment	Basis*
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING (Cont'd)				
INDEPENDENT ENVIRONMENTAL AUDIT (Cont'd)				
5/9A	Within 12 weeks of commencing each audit, unless the Secretary agrees otherwise, the Proponent must submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of any measures proposed to address the recommendations.	Compliant	The audit was submitted 20 October 2020 with the response action plan (i.e. within the required 12 week period).	D
5/10	Within 3 months of commissioning this audit, or as otherwise agreed by the Secretary, the Proponent must submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report.	Compliant	The 2020 audit was commissioned following approval of the auditor on 27 July 2020 and the final audit report and response submitted 20 October 2020, i.e. within the 3 month period.	D
ACCESS TO INFORMATION				
5/11	Following the commencement of development on site under this approval, the Proponent must: a) make the following information publicly available on its website: • the documents listed in Condition 2 of Schedule 2; • current statutory approvals for the project; • approved strategies, plans or programs; • a summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval; • a complaints register, updated on a quarterly basis; • minutes of CCC meetings; • copies of any annual reviews (over the last 5 years); • any independent environmental audit, 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.	Compliant	The required documentation is maintained on the Austral website and appears up to date.	D

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Appendix 2

Compliance Review of M(MOL)6

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Table A
Compliance Review – M(MO)L 6

Cond. No.	Conditional Requirement	Compliance	Comments	Basis*
General Conditions				
1. Rehabilitation				
	Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.	Not Yet Applicable	No areas have become available for final rehabilitation. Notwithstanding, extensive temporary rehabilitation has been undertaken of available areas.	D, A
2. Mining Operations Plan				
(a)	The leaseholder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The leaseholder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.	Compliant	The MOP for M(MO)L6 was approved by the Resources Regulator on 19 September 2018 with further approval received 24 May, 8 and 12 July 2019 providing for drilling of both piezometers and quality control holes. Activities during the reporting period remained in accordance with the approved MOP.	D, A
(b)	The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which: i) Identifies areas that will be disturbed; ii) Details the staging of specific mining operations, mining purposes and prospecting; iii) Identifies how the mine will be managed and rehabilitated to achieve the post mining land use; iv) Identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and v) Reflects the conditions of approval under: – the *Environmental Planning and Assessment Act 1979*; – the *Protection of the Environment Operations Act 1997*; and – any other approvals relevant to the development including the conditions of this mining lease.	Compliant	MOP Plan 5 identifies the ultimate extent of disturbance and rehabilitation. MOP Section 2 outlines the mining operations during the MOP term and includes an indicative yearly production summary. Plans 3A to 3G also provided indicative annual 'staging'. MOP Sections 5 to 8 outline the rehabilitation phases, completion criteria and activities during and following the MOP term. Environmental management measures are principally outlined in MOP Section 3. Relevant conditional requirements for other approvals are outlined within MOP Section 4.1.	D
(c)	The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines*.	Compliant	MOP Section 1.1 confirms the MOP has been prepared in accordance with these guidelines. Section headings and information presented are also generally consistent with ESG3.	D

Yes# No# - Complied / not complied with. Compliance no longer required to be assessed
* = Basis for assessment of compliance A = Advised by Company Employee
D = Documentation sighted O = Observation during inspection

Table A (Cont'd)
Compliance Review – M(MO)L 6

Cond. No.	Conditional Requirement	Compliance	Comments	Basis*
General Conditions (Cont'd)				
(d)	The leaseholder may apply to the Minister to amend an approved MOP at any time.	Not Yet Applicable	No MOP amendments have been sought to date (as the original MOP provided for drilling activities subject to receipt of activity approval).	D, A
3. Annual Rehabilitation Report				
(a)	The leaseholder must submit an Annual Rehabilitation Report which includes, but is not limited to the following: i) A plan, or plans, which identifies the location (including coordinates) of all disturbance areas that are the subject of previous, current or future rehabilitation activities. ii) A brief description of all surface disturbing activities carried out during the report period. The location and size (in hectares) of each of the disturbance areas is to be identified on a plan. iii) A brief description of rehabilitation undertaken during the reporting period (for example, area reshaped and seeded for pasture). The location and size (in hectares) of the rehabilitation areas are to be identified on a plan. iv) A description of rehabilitation monitoring programs and analysis of results of rehabilitation monitoring programs, including a summary of whether rehabilitation is trending towards meeting the objectives and completion criteria. v) A brief description of the rehabilitation care and maintenance works to be undertaken over the next 12 months to address the outcomes of the monitoring program. vi) A brief description of the rehabilitation forecast for the next 12 months. The location and size (in hectares) of the proposed rehabilitation areas are to be identified on a plan. vii) Photographs of each disturbance area including those areas where rehabilitation activities have been conducted.	Compliant	Correspondence from the Resources Regulator dated 19 June 2018 confirm that the Annual Review (as required by Project Approval 08_0212) can be accepted in lieu of an Annual Rehabilitation Report. The 2020 Annual Review was submitted on 26 February 2020 (i.e. within the required timeframe).	D
(b)	The Annual Rehabilitation Report must be submitted within 90 days of the grant anniversary date, unless otherwise approved by the Secretary.	Compliant	As above.	D

Yes# No# - Complied / not complied with. Compliance no longer required to be assessed
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Table A (Cont'd)
Compliance Review – M(MO)L 6

Cond. No.	Conditional Requirement	Compliance	Comments	Basis*
General Conditions (Cont'd)				
4. Non-compliance and Incident Reporting				
(a)	The leaseholder must notify the Department immediately after becoming aware of any of the following: i) Any breaches of the conditions of this mining lease or breaches of the Act or Regulation. ii) Any breaches of environment protection legislation causing or threatening material harm to the environment, arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. iii) Any notification made under section 148 of the *Protection of the Environment Operations Act 1997* arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.	Not Applicable	No breaches of this lease or breaches causing or threatening environmental harm and no notifications under S148 of the POEO Act occurred during the reporting period.	D, A
(b)	Notifications must be provided through the Department's website.	Not Applicable	As above.	D, A
5. Environmental Incident Report				
(a)	The leaseholder must submit an Environmental Incident Report to the Department within seven (7) days of: i) All breaches referred to in condition 4(a)(i) that caused or threatened material harm to the environment; ii) All breaches referred to in condition 4(a)(ii).	Not Applicable	As above.	D, A
(b)	The Environmental Incident Reporting must include the following: i) The details of the mining lease; ii) Contact details for the leaseholder; iii) A map identifying the location of the incident and where material harm to the environment has or is likely to occur; iv) A description of the nature of the incident or breach, likely causes and consequences; v) A timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in condition 5(a);	Not Applicable	As above.	D, A

Yes# No# - Complied / not complied with. Compliance no longer required to be assessed
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Table A (Cont'd)
Compliance Review – M(MO)L 6

Cond. No.	Conditional Requirement	Compliance	Comments	Basis*
General Conditions (Cont'd)				
5. Environmental Incident Report (Cont'd)				
(b) (Cont'd)	vi) Summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations; and vii) Mining purposes and prospecting operations under this mining lease.			
6. Security				
	The leaseholder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future.	Compliant	A bond of $10,000 was paid on 11 April 2017. Following receipt of a Notice of Assessed Deposit dated 19 September 2018 (in response to the submitted MOP and Rehabilitation Cost Estimate), a bank guarantee for $489,000 was established (dated 17 October 2018).	A
(a)	Amount: $10,000.			
(b)	Licence holder's entitlement to interest: none.			

Yes[#] No[#] - Complied / not complied with. Compliance no longer required to be assessed
* = Basis for assessment of compliance A = Advised by Company Employee
D = Documentation sighted O = Observation during inspection

Appendix 3

Meteorological Data Recorded during 2021

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Table A3-1

2021 Daily Rainfall Records – New Berrima Clay/Shale Quarry Weather Station

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.6	48	0	0.2	0	0	2.4	0	0	4	0	0.4
2	8	4.6	0	0	0.2	0.2	0	0.2	0	13.2	0	0
3	5.2	0	0	0.2	0.2	11.4	1	4	0	0.4	0	0
4	7.2	0	0	0.2	11.8	0.2	0	0	5.6	0.2	11.4	1
5	2.8	0	0	0	44.4	0	0	0	1.4	0	10.2	0.4
6	0.4	31.2	0	0.4	56.4	0	0	0	0	0	0	0.4
7	2.2	0	0	0.4	47.4	0.2	0	0	0	0	7.2	1.4
8	0.6	0.6	1	0.2	0.2	0.4	0	0	0	0	2.6	9.4
9	0.8	0.8	0	0	0	0.2	0.2	0	0	0	0.2	16.6
10	0.2	0	0	0	0.2	3.2	2.4	0	0	5.4	23.8	39.2
11	0	0	2.6	0	4.8	0.6	0.6	0	0	5.2	16	0.4
12	0.2	18.8	0	0	0.2	0	0.2	0.2	0	8	23.8	0.2
13	0	3.8	1.2	0	0.2	0	0	0.2	4.2	3.6	3.2	0
14	0	0.2	10.4	0	0	0	0.2	0	0.2	6.6	1	0
15	0	0.6	0.2	0	0	0.2	1.4	0	0.2	0.4	0.2	0
16	0	2.4	2	0	0	11.4	1.6	0	0.2	0.2	0	0
17	0	1.2	6	0	0	0.4	4.8	0	0	0	0	0
18	0	1	24.6	0	0	8.4	0	0	1.2	0	0	15.8
19	0	4	13.6	0.4	0	3.2	0	0	0	0	0.6	2
20	0	0.2	46	0	0.2	0.2	0	0	0	5.4	10.6	0
21	0.2	0	19.8	0.4	0.2	2.2	1	0	0.4	0.4	13.8	0
22	0	1.6	40.6	0	0.4	0.4	0.2	0	0	1.4	1	0.6
23	0	0	32.8	0	1.2	0	3.8	16.4	0	8.8	1.4	4.6
24	0	0.2	0.2	0	3.8	5	0	63.4	0	0.2	5.8	0.4
25	0	9.6	0	0	0.2	0.2	2.4	0.6	0	3.4	1	8.4
26	1.4	0.2	0	3.4	0	0	0	0	0.4	0	14.6	11.4
27	2.6	0	0	0.2	0	0	0	0	0.2	0	4	0.8
28	4.8	0.4	0	0	0	0	0	0.6	1.4	0	0.2	0.2
29	13		0.2	0	0	1.4	0	0.4	7.8	0	0	0
30	20.4		0	0.4	0	0.4	0	0.2	1.2	0	0	0.2
31	0.2		0		0		0	0		0		
Total	70.8	129.4	201.2	6.4	172	49.8	22.2	86.2	24.4	66.8	152.6	113.8

Table A3-2

Monthly Rainfall Records – New Berrima Clay/Shale Quarry Weather Station

Year / Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2016	-	-	-	-	-	-	-	-	-	35.0	33.0	49.8	-
2017	34.8	80.8	180.6	24.2	25.0	19.4	19.4	17.6	2.0	39.6	88.4	33.6	565.4
2018	55.2	95.6	20.0	21.2	15.8	52.2	4.4	17.0	10.2	57.8	119.0	71.0	539.4
2019	54.6	7.0	115.4	9.0	13.6	61.4	9.6	21.0	43.0	18.8	10.4	1.2	365.0
2020	27.8	257.2	55.6	49.2	67.6	18.8	150.4	146.0	21.4	100.4	70.4	66.0	1030.8
2021	70.8	129	201	6.4	172	49.8	22.2	86.2	24.4	66.8	153	114	1095.6
Minimum	***27.8***	***7***	***20***	***6.4***	***13.6***	***18.8***	***4.4***	***17***	***2***	***18.8***	***10.4***	***1.2***	***365***
Average	***48.6***	***113.9***	***114.5***	***22.0***	***58.8***	***40.3***	***41.2***	***57.6***	***20.2***	***53.1***	***79.0***	***55.9***	***719.2***
Maximum	***70.8***	***257.2***	***201***	***49.2***	***172***	***61.4***	***150.4***	***146***	***43***	***100.4***	***153***	***114***	***1095.6***
* Weather station commissioned 18/09/2016													

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Appendix 4

Noise Monitoring Reports

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Document No: 08421/9212

ATTENDED CONSTRUCTION NOISE MONITORING – January 2021
New Berrima Clay/Shale Quarry
New Berrima, NSW

Prepared for:
The Austral Brick Company Pty Ltd
Wallgrove Road
Horsley Park NSW 2164
PO Box 6550
Wetherill Park NW 1851

Author:

……
Neil Pennington
B. Sc., B.Math. (Hons) MAIP, MAAS, MASA
Principal / Director

March 2021

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APPENDIX B Noise Limits

APPENDIX C Calibration Certificate

EXECUTIVE SUMMARY

Attended noise monitoring has been carried out for the New Berrima Clay/Shale Quarry (NBCSQ) on 13th January 2021. Monitoring was carried out in accordance with requirements of EPL20377, Project Approval 08_0212, the New Berrima Clay/Shale Quarry Noise Management (NBCSQ) Plan and other relevant Australian Standards and guidelines.

The NBCSQ was in full operation during the entire monitoring period.

The site-specific operational criteria was not exceeded at any location or at any time throughout the monitoring period.

Data from those times where noise from NBCSQ operations was audible and measurable were analysed using Bruel & Kjaer *"Evaluator"* software. This analysis showed the noise did not contain any tonal, impulsive and low frequency components as per definitions of "modifying factor corrections" in the NSW Noise Policy for Industry.

NBCSQ was compliant with Environmental Protection Licence (EPL) 20377 and New Berrima Clay/Shale Quarry Project Approval 08_0212 conditions for January 2021.

1.0 INTRODUCTION

This report presents the results of attended noise compliance monitoring and measurements conducted for the New Berrima Clay/Shale Quarry (NBCSQ) on 13th January 2021. Monitoring was undertaken in accordance with requirements of the NBCSQ Noise Management Plan (NMP) dated September 2018. The noise monitoring programme and procedures in the NMP have been developed in accordance with the NBCSQ Environmental Protection Licence (EPL) no 20377, and the Project Approval (PA 08_0212). To aid in the understanding of this report a description of acoustical terms is attached as **Appendix A**.

1.1 Noise Monitoring Locations

The NMP (Section 3.2) contains a table (Table 4) detailing the on-site locations for attended noise monitoring as reproduced below in **Table 1**. On-site monitoring locations are adopted as proxies for off-site receivers. Compliance with the limits at the on-site locations implies compliance with the (lower) criteria at off-site receivers. The monitoring locations are shown on **Figure 1**.

Table 1
NBCSQ Noise Monitoring Locations

Monitoring Point	Description
N1	North of the extraction area
N2	East of the extraction area
N3	South east of the extraction area

The NBCSQ has a meteorological station installed on site with all meteorological data available through an online portal. This data is used to supplement the attended noise monitoring data.

1.2 Monitoring Frequency and Duration

The NMP indicates that attended monitoring is to be conducted quarterly at each location during construction activities, and annually once extraction activities begin. Each survey is to consist of one 15 minute measurement at each location. For the purposes of attended noise monitoring, operating hours are defined in the NMP as being 7:00am - 5:00pm Monday to Friday and 8:00am – 1:00pm Saturdays, with no operations commencing on Sundays or Public Holidays. Monitoring is conducted as required in Condition L2.1 of the EPL.

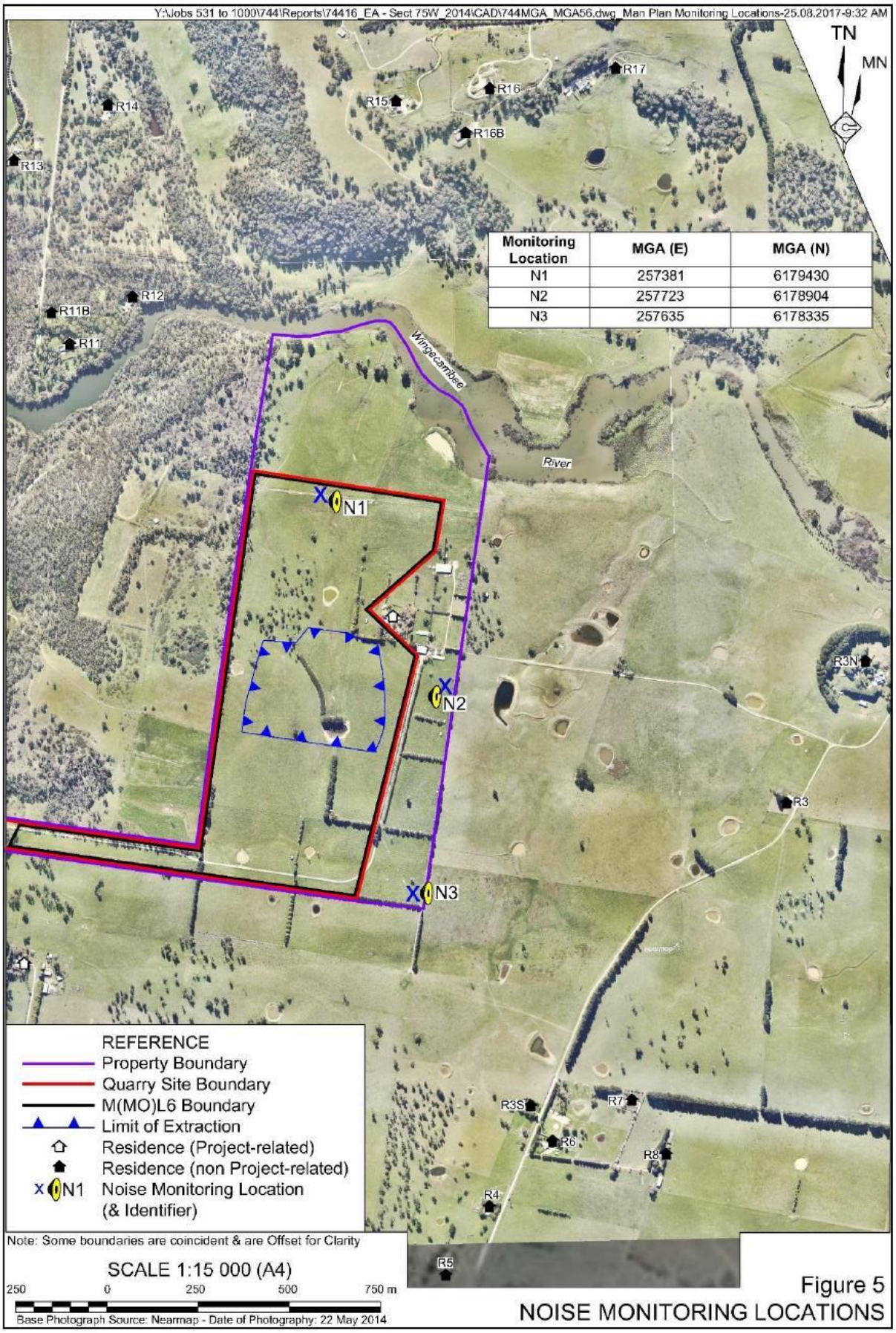

Figure 1: Noise Monitoring Locations

2.0 CRITERIA AND CONDITIONS

2.1 Noise Assessment Criteria

The noise assessment criteria are detailed in Condition L2.1 of the EPL and Table 4 of the NMP. The criteria vary for each receiver monitoring location and are shown in **Table 2**. Noise criteria for all residences listed in the EPL and NMP are shown in **Appendix B**.

Table 2
Noise Criteria, dB(A),Leq(15min)

Location	Noise Limit at any time - dB(A),Leq(15min)
N1	42
N2	49
N3	44

2.2 Applicable Meteorological Conditions

The noise limits apply under all meteorological conditions except for any one of the following;

1. Wind speeds greater than 3m/s at 10m above ground level; or
2. Stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or
3. Stability category G temperature inversion conditions.

2.3 Other Conditions

To determine compliance with the Leq (15 min) operational noise criteria the modification factors detailed in Fact Sheet C of the NSW Noise Policy for Industry must be applied, as appropriate, to the measured noise levels.

3.0 NOISE MONITORING PROCEDURE

3.1 Monitoring Equipment

Attended noise monitoring was conducted with a Brüel & Kjær Type 2250 Precision Sound Analyser. This instrument has Class 1 characteristics as defined in AS IEC61672.1-2004 and has current NATA calibration. Calibration certificates are included in Appendix C. Field calibration is carried out at the start and end of each monitoring period.

A-weighted noise levels were measured over the 15-minute monitoring periods with data acquired at 1 or 2 second statistical intervals and the meter set to “fast” response. Each 1 or 2 second measurement is accompanied by a third-octave band spectrum from 20 - 20k Hz which is required for analysing INP ‘modifying factors’. Time based field notes allow for determination of the relative contributions to the overall noise level of all significant noise sources.

3.2 Measurement Analysis

The 15 minute Leq noise level for each monitoring period is shown in the tables below. Where the noise from NBCSQ was audible, Bruel & Kjaer "Evaluator" analysis software was used to quantify the contributions of NBCSQ and other significant noise sources to the overall noise level. Both the total measured noise level and the noise contribution from the NBCSQ operations are shown in the tables.

3.3 Meteorological Data

Meteorological data used in this report were taken from the weather station at the NBCSQ.

4.0 RESULTS AND DISCUSSION

4.1 Measured Noise Levels

4.1.1 NBCSQ Operations

Measured noise levels for each monitoring location are summarised in **Table 3**.

Table 3
NBCSQ Operational Noise Monitoring Results – 13th January 2021

Location	Time	dB(A), Leq	NBCSQ Contribution dB(A), Leq	Criterion dB(A) Leq	Wind speed (m/s),dir	Identified Noise Sources
N1	2:21 pm	37	<20	42	5.5 @ 19° (NNE)	Wind, occasional bang
N2	2:48 pm	49	33	49	4.2 @ 33° (NNE)	Wind, birds, truck and Exc. revs
N3	3:11 pm	45	30	44	6.2 @ 25° (NNE)	Wind, birds, dozers and truck revs

4.2 Discussion of Results

The results in Table 3 show that, under the operating and meteorological conditions at the times, for the 15 minute compliance measurement periods, the noise from the NBCSQ operations was audible at all monitoring locations but well below compliance limits.

Data from where NBCSQ noise was measurable were analysed using Bruel & Kjaer *"Evaluator"* software. This analysis showed the noise did not contain any tonal or impulsive components as per definitions of "modifying factor corrections" in Section 4 of the NSW Noise Policy for Industry.

APPENDIX A

DESCRIPTION OF ACOUSTICAL TERMS

Table A1

Definition of acoustical terms

Term	Description
dB(A)	The quantitative measure of sound heard by the human ear, measured by the A-Scale Weighting Network of a sound level meter expressed in decibels (dB).
SPL	Sound Pressure Level. The incremental variation of sound pressure above and below atmospheric pressure and expressed in decibels. The human ear responds to pressure fluctuations, resulting in sound being heard.
STL	Sound Transmission Loss. The ability of a partition to attenuate sound, in dB.
Lw	Sound Power Level radiated by a noise source per unit time re 1pW.
Leq	Equivalent Continuous Noise Level - taking into account the fluctuations of noise over time. The time-varying level is computed to give an equivalent dB(A) level that is equal to the energy content and time period.
L1	Average Peak Noise Level - the level exceeded for 1% of the monitoring period.
L90	"Background" Noise Level - the level exceeded for 90% of the monitoring period.

APPENDIX B

NOISE LIMITS

EPL 20377

L2 Noise limits

L2.1 Noise from the premises must not exceed the noise limits in the table below:

Identification Point	Noise Limit at any time - dB(A) LAeq(15 minute)	Location
N1	42	North of the quarry void and labelled N1 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N2	49	East of the quarry void and labelled N2 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N3	44	South east of the quarry void and labelled N3 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).

PA 08_0212

Noise Criteria – Bund Construction

4. During the construction of the Visibility Barriers, the Proponent must ensure that the noise generated on site does not exceed the criteria in Table 1.

Table 1- Noise Criteria - Bund Construction

Receiver	***$L_{Aeq\ (15\ min)}$ dB(A)***
R2	43
All other receivers	38

Notes:

- *Receiver locations are shown in Figure 4 of APPENDIX A.*
- *Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

Noise Criteria

5. Except for the period when the Visibility Barriers are being constructed, the Proponent must ensure that the noise generated by the project does not exceed 38dB(a) $L_{Aeq\ (15min)}$ at any residence on privately-owned land.

However, this criterion does not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

APPENDIX C

CALIBRATION CERTIFICATE

Brüel & Kjær

Australian Calibration Laboratory
Suite 2, 6-10 Talavera Road, North Ryde NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301

NATA
WORLD RECOGNISED ACCREDITATION

CERTIFICATE OF CALIBRATION

Certificate No: CAU1901071 Page 1 of 12

CALIBRATION OF:

Sound Level Meter:	Bruel & Kjaer	2250	No: 2747794
Microphone:	Bruel & Kjaer	4189	No: 2733511
Preamplifier:	Bruel & Kjaer	ZC-0032	No: 15339
Supplied Calibrator:	Bruel & Kjaer	None	No: N/A
Software version:	BZ7224 Version 4.6.0	Pattern Approval:	PTB
Instruction manual:	BE1712-22	Identification:	N/A

CUSTOMER:

Spectrum Acoustics Pty Ltd
30 Veronica Street
Cardiff NSW 2285

CALIBRATION CONDITIONS:

Preconditioning:	4 hours at 23 °C
Environment conditions:	*see actual values in **Environmental conditions** sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 8.0 - DB: 8.00) and test procedure 2250-4189.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
X	Calibration without repair/adjustment		Calibration after repair/adjustment

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 05/11/2019

Sajeeb Tharayil
Calibration Technician

Certificate issued: 05/11/2019

Craig Patrick
Approved signatory

Document No: 08421/9276

ATTENDED CONSTRUCTION NOISE MONITORING – April 2021
New Berrima Clay/Shale Quarry
New Berrima, NSW

Prepared for:
The Austral Brick Company Pty Ltd
Wallgrove Road
Horsley Park NSW 2164
PO Box 6550
Wetherill Park NW 1851

Author:

.....
Neil Pennington
B. Sc., B.Math. (Hons) MAIP, MAAS, MASA
Principal / Director

May 2021

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APPENDIX B Noise Limits

APPENDIX C Calibration Certificate

EXECUTIVE SUMMARY

Attended noise monitoring has been carried out for the New Berrima Clay/Shale Quarry (NBCSQ) on 8th April 2021. Monitoring was carried out in accordance with requirements of EPL20377, Project Approval 08_0212, the New Berrima Clay/Shale Quarry Noise Management (NBCSQ) Plan and other relevant Australian Standards and guidelines.

The NBCSQ was in full operation during the entire monitoring period. The below equipment was operating throughout the monitoring period:

- Volvo A40D Dump Truck
- Volvo A40F Dump Truck
- Volvo A30C Dump Truck
- Cat D8T Bulldozer
- Volvo EC4800 Excavator
- Sumitomo SH350 Excavator
- Barfort
- Komatsu 13.5T

The site-specific operational criteria were not exceeded at any location or at any time throughout the monitoring period.

Data from those times where noise from NBCSQ operations was audible and measurable were analysed using Bruel & Kjaer *"Evaluator"* software. This analysis showed the noise did not contain any tonal, impulsive and low frequency components as per definitions of "modifying factor corrections" in the NSW Noise Policy for Industry.

NBCSQ was compliant with Environmental Protection Licence (EPL) 20377 and New Berrima Clay/Shale Quarry Project Approval 08_0212 conditions for April 2021.

1.0 INTRODUCTION

This report presents the results of attended noise compliance monitoring and measurements conducted for the New Berrima Clay/Shale Quarry (NBCSQ) on 8th April 2021. Monitoring was undertaken in accordance with requirements of the NBCSQ Noise Management Plan (NMP) dated September 2018. The noise monitoring programme and procedures in the NMP have been developed in accordance with the NBCSQ Environmental Protection Licence (EPL) no 20377, and the Project Approval (PA 08_0212). To aid in the understanding of this report a description of acoustical terms is attached as **Appendix A**.

1.1 Noise Monitoring Locations

The NMP (Section 3.2) contains a table (Table 4) detailing the on-site locations for attended noise monitoring as reproduced below in **Table 1**. On-site monitoring locations are adopted as proxies for off-site receivers. Compliance with the limits at the on-site locations implies compliance with the (lower) criteria at off-site receivers. The monitoring locations are shown on **Figure 1**.

Table 1
NBCSQ Noise Monitoring Locations

Monitoring Point	Description
N1	North of the extraction area
N2	East of the extraction area
N3	South east of the extraction area

The NBCSQ has a meteorological station installed on site with all meteorological data available through an online portal. This data is used to supplement the attended noise monitoring data.

1.2 Monitoring Frequency and Duration

The NMP indicates that attended monitoring is to be conducted quarterly at each location during construction activities, and annually once extraction activities begin. Each survey is to consist of one 15 minute measurement at each location. For the purposes of attended noise monitoring, operating hours are defined in the NMP as being 7:00am - 5:00pm Monday to Friday and 8:00am – 1:00pm Saturdays, with no operations commencing on Sundays or Public Holidays. Monitoring is conducted as required in Condition L2.1 of the EPL.

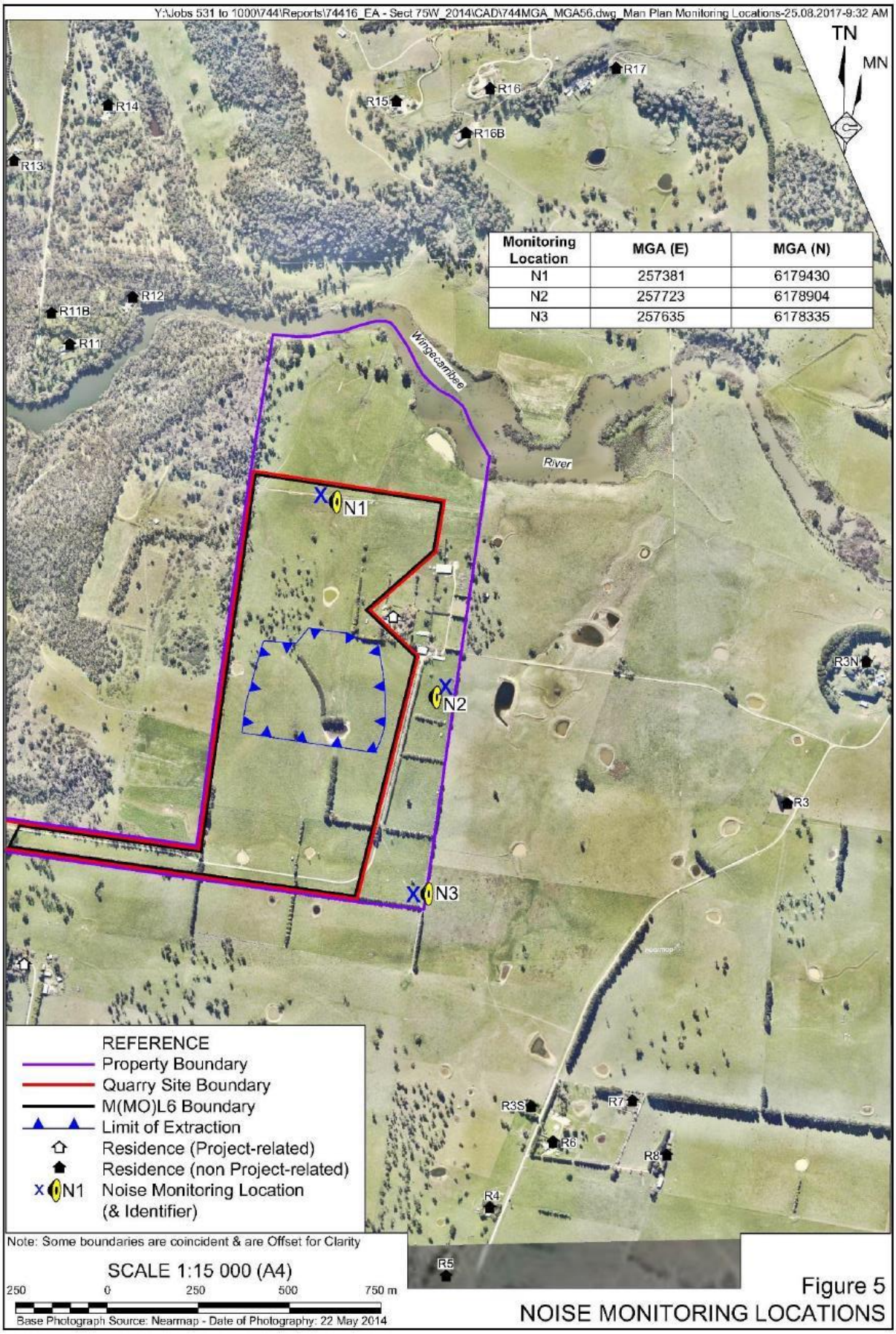

Figure 1: Noise Monitoring Locations

2.0 CRITERIA AND CONDITIONS

2.1 Noise Assessment Criteria

The noise assessment criteria are detailed in Condition L2.1 of the EPL and Table 4 of the NMP. The criteria vary for each receiver monitoring location and are shown in **Table 2**. Noise criteria for all residences listed in the EPL and NMP are shown in **Appendix B**.

Table 2
Noise Criteria, dB(A),Leq(15min)

Location	Noise Limit at any time - dB(A),Leq(15min)
N1	42
N2	49
N3	44

2.2 Applicable Meteorological Conditions

The noise limits apply under all meteorological conditions except for any one of the following;

1. Wind speeds greater than 3m/s at 10m above ground level; or
2. Stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or
3. Stability category G temperature inversion conditions.

2.3 Other Conditions

To determine compliance with the Leq (15 min) operational noise criteria the modification factors detailed in Fact Sheet C of the NSW Noise Policy for Industry must be applied, as appropriate, to the measured noise levels.

3.0 NOISE MONITORING PROCEDURE

3.1 Monitoring Equipment

Attended noise monitoring was conducted with a Brüel & Kjær Type 2250 Precision Sound Analyser. This instrument has Class 1 characteristics as defined in AS IEC61672.1-2004 and has current NATA calibration. Calibration certificates are included in Appendix C. Field calibration is carried out at the start and end of each monitoring period.

A-weighted noise levels were measured over the 15-minute monitoring periods with data acquired at 1 or 2 second statistical intervals and the meter set to “fast” response. Each 1 or 2 second measurement is accompanied by a third-octave band spectrum from 20 - 20k Hz which is required for analysing INP ‘modifying factors’. Time based field notes allow for determination of the relative contributions to the overall noise level of all significant noise sources.

3.2 Measurement Analysis

The 15 minute Leq noise level for each monitoring period is shown in the tables below. Where the noise from NBCSQ was audible, Bruel & Kjaer "Evaluator" analysis software was used to quantify the contributions of NBCSQ and other significant noise sources to the overall noise level. Both the total measured noise level and the noise contribution from the NBCSQ operations are shown in the tables.

3.3 Meteorological Data

Meteorological data used in this report were taken from the weather station at the NBCSQ.

4.0 RESULTS AND DISCUSSION

4.1 Measured Noise Levels

4.1.1 NBCSQ Operations

Measured noise levels for each monitoring location are summarised in **Table 3**.

Table 3
NBCSQ Operational Noise Monitoring Results – 8th April 2021

Location	Time	dB(A), Leq	NBCSQ Contribution dB(A), Leq	Criterion dB(A) Leq	Wind speed (m/s),dir	Identified Noise Sources
N1	12:15 pm	40	29	42	2.6 @ 93° (E)	Wind, birds, insects, truck revs
N2	12:38 pm	40	34	49	3.7 @ 19° (NNE)	Wind, birds, insects, Exc. & dozer revs, water cart reverse 'squawker'
N3	12:54 pm	42	29	44	2.6 @ 65° (ENE)	Wind, birds, insects, dozer revs, train

4.2 Discussion of Results

The results in Table 3 show that, under the operating and meteorological conditions at the times, for the 15 minute compliance measurement periods, the noise from the NBCSQ operations was audible at all monitoring locations but well below compliance limits.

Data from where NBCSQ noise was measurable were analysed using Bruel & Kjaer *"Evaluator"* software. This analysis showed the noise did not contain any tonal or impulsive components as per definitions of "modifying factor corrections" in Section 4 of the NSW Noise Policy for Industry.

APPENDIX A

DESCRIPTION OF ACOUSTICAL TERMS

Table A1

Definition of acoustical terms

Term	Description
dB(A)	The quantitative measure of sound heard by the human ear, measured by the A-Scale Weighting Network of a sound level meter expressed in decibels (dB).
SPL	Sound Pressure Level. The incremental variation of sound pressure above and below atmospheric pressure and expressed in decibels. The human ear responds to pressure fluctuations, resulting in sound being heard.
STL	Sound Transmission Loss. The ability of a partition to attenuate sound, in dB.
Lw	Sound Power Level radiated by a noise source per unit time re 1pW.
Leq	Equivalent Continuous Noise Level - taking into account the fluctuations of noise over time. The time-varying level is computed to give an equivalent dB(A) level that is equal to the energy content and time period.
L1	Average Peak Noise Level - the level exceeded for 1% of the monitoring period.
L90	"Background" Noise Level - the level exceeded for 90% of the monitoring period.

APPENDIX B

NOISE LIMITS

EPL 20377

L2 Noise limits

L2.1 Noise from the premises must not exceed the noise limits in the table below:

Identification Point	Noise Limit at any time - dB(A) LAeq(15 minute)	Location
N1	42	North of the quarry void and labelled N1 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N2	49	East of the quarry void and labelled N2 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N3	44	South east of the quarry void and labelled N3 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).

PA 08_0212

Noise Criteria – Bund Construction

4. During the construction of the Visibility Barriers, the Proponent must ensure that the noise generated on site does not exceed the criteria in Table 1.

Table 1- Noise Criteria - Bund Construction

Receiver	***$L_{Aeq\ (15\ min)}$ dB(A)***
R2	43
All other receivers	38

Notes:

- *Receiver locations are shown in Figure 4 of APPENDIX A.*
- *Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

Noise Criteria

5. Except for the period when the Visibility Barriers are being constructed, the Proponent must ensure that the noise generated by the project does not exceed 38dB(a) $L_{Aeq\ (15min)}$ at any residence on privately-owned land.

However, this criterion does not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

APPENDIX C

CALIBRATION CERTIFICATE

Brüel & Kjær

Australian Calibration Laboratory
Suite 2, 6-10 Talavera Road, North Ryde NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301

NATA
WORLD RECOGNISED ACCREDITATION

CERTIFICATE OF CALIBRATION

Certificate No: CAU1901071 Page 1 of 12

CALIBRATION OF:

Sound Level Meter:	Bruel & Kjaer	2250	No: 2747794
Microphone:	Bruel & Kjaer	4189	No: 2733511
Preamplifier:	Bruel & Kjaer	ZC-0032	No: 15339
Supplied Calibrator:	Bruel & Kjaer	None	No: N/A
Software version:	BZ7224 Version 4.6.0	Pattern Approval:	PTB
Instruction manual:	BE1712-22	Identification:	N/A

CUSTOMER:

Spectrum Acoustics Pty Ltd
30 Veronica Street
Cardiff NSW 2285

CALIBRATION CONDITIONS:

Preconditioning:	4 hours at 23 °C
Environment conditions:	*see actual values in **Environmental conditions** sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 8.0 - DB: 8.00) and test procedure 2250-4189.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
X	Calibration without repair/adjustment		Calibration after repair/adjustment

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 05/11/2019

Sajeeb Tharayil
Calibration Technician

Certificate issued: 05/11/2019

Craig Patrick
Approved signatory

Document No: 08421/9349

ATTENDED CONSTRUCTION NOISE MONITORING – July 2021
New Berrima Clay/Shale Quarry
New Berrima, NSW

Prepared for:
The Austral Brick Company Pty Ltd
Wallgrove Road
Horsley Park NSW 2164
PO Box 6550
Wetherill Park NW 1851

Author:

.....
Neil Pennington
B. Sc., B.Math. (Hons) MAIP, MAAS, MASA
Principal / Director

July 2021

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4.2 Discussion of Results 5

APPENDIX A Description of Acoustical Terms

APPENDIX B Noise Limits

APPENDIX C Calibration Certificate

EXECUTIVE SUMMARY

Attended noise monitoring has been carried out for the New Berrima Clay/Shale Quarry (NBCSQ) on 14th July 2021. Monitoring was carried out in accordance with requirements of EPL20377, Project Approval 08_0212, the New Berrima Clay/Shale Quarry Noise Management (NBCSQ) Plan and other relevant Australian Standards and guidelines.

The NBCSQ was in full operation during the entire monitoring period. The below equipment was operating throughout the monitoring period:

- Volvo A40D Dump Truck
- Volvo A40F Dump Truck
- Hitachi AH400 Dump Truck
- Cat D8T Bulldozer
- Volvo EC4800 Excavator
- Barfort
- Cat CS-563E Smooth Drum Roller
- Cat 140M Grader
- Kobelco 13T Excavator
- Cat CR-563C Pad Foot Roller

The site-specific operational criteria were not exceeded at any location or at any time throughout the monitoring period.

Data from those times where noise from NBCSQ operations was audible and measurable were analysed using Bruel & Kjaer *"Evaluator"* software. This analysis showed the noise did not contain any tonal, impulsive and low frequency components as per definitions of "modifying factor corrections" in the NSW Noise Policy for Industry.

NBCSQ was compliant with Environmental Protection Licence (EPL) 20377 and New Berrima Clay/Shale Quarry Project Approval 08_0212 conditions for July 2021.

1.0 INTRODUCTION

This report presents the results of attended noise compliance monitoring and measurements conducted for the New Berrima Clay/Shale Quarry (NBCSQ) on 14th July 2021. Monitoring was undertaken in accordance with requirements of the NBCSQ Noise Management Plan (NMP) dated September 2018. The noise monitoring programme and procedures in the NMP have been developed in accordance with the NBCSQ Environmental Protection Licence (EPL) no 20377, and the Project Approval (PA 08_0212). To aid in the understanding of this report a description of acoustical terms is attached as **Appendix A**.

1.1 Noise Monitoring Locations

The NMP (Section 3.2) contains a table (Table 4) detailing the on-site locations for attended noise monitoring as reproduced below in **Table 1**. On-site monitoring locations are adopted as proxies for off-site receivers. Compliance with the limits at the on-site locations implies compliance with the (lower) criteria at off-site receivers. The monitoring locations are shown on **Figure 1**.

Table 1
NBCSQ Noise Monitoring Locations

Monitoring Point	Description
N1	North of the extraction area
N2	East of the extraction area
N3	South east of the extraction area

The NBCSQ has a meteorological station installed on site with all meteorological data available through an online portal. This data is used to supplement the attended noise monitoring data.

1.2 Monitoring Frequency and Duration

The NMP indicates that attended monitoring is to be conducted quarterly at each location during construction activities, and annually once extraction activities begin. Each survey is to consist of one 15 minute measurement at each location. For the purposes of attended noise monitoring, operating hours are defined in the NMP as being 7:00am - 5:00pm Monday to Friday and 8:00am – 1:00pm Saturdays, with no operations commencing on Sundays or Public Holidays. Monitoring is conducted as required in Condition L2.1 of the EPL.

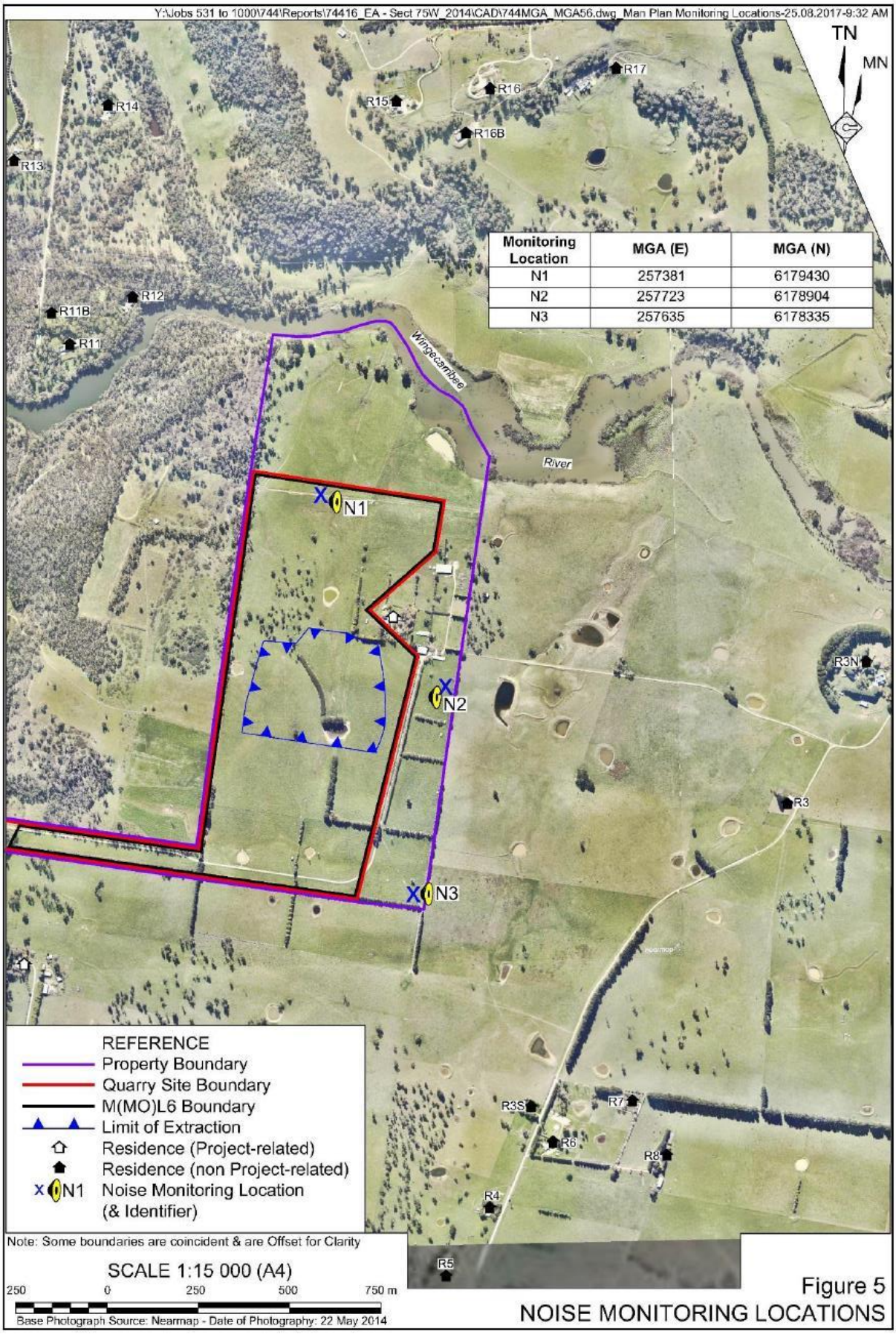

Figure 1: Noise Monitoring Locations

2.0 CRITERIA AND CONDITIONS

2.1 Noise Assessment Criteria

The noise assessment criteria are detailed in Condition L2.1 of the EPL and Table 4 of the NMP. The criteria vary for each receiver monitoring location and are shown in **Table 2**. Noise criteria for all residences listed in the EPL and NMP are shown in **Appendix B**.

Table 2
Noise Criteria, dB(A),Leq(15min)

Location	Noise Limit at any time - dB(A),Leq(15min)
N1	42
N2	49
N3	44

2.2 Applicable Meteorological Conditions

The noise limits apply under all meteorological conditions except for any one of the following;

1. Wind speeds greater than 3m/s at 10m above ground level; or
2. Stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or
3. Stability category G temperature inversion conditions.

2.3 Other Conditions

To determine compliance with the Leq (15 min) operational noise criteria the modification factors detailed in Fact Sheet C of the NSW Noise Policy for Industry must be applied, as appropriate, to the measured noise levels.

3.0 NOISE MONITORING PROCEDURE

3.1 Monitoring Equipment

Attended noise monitoring was conducted with a Brüel & Kjær Type 2250 Precision Sound Analyser. This instrument has Class 1 characteristics as defined in AS IEC61672.1-2004 and has current NATA calibration. Calibration certificates are included in Appendix C. Field calibration is carried out at the start and end of each monitoring period.

A-weighted noise levels were measured over the 15-minute monitoring periods with data acquired at 1 or 2 second statistical intervals and the meter set to “fast” response. Each 1 or 2 second measurement is accompanied by a third-octave band spectrum from 20 - 20k Hz which is required for analysing INP ‘modifying factors’. Time based field notes allow for determination of the relative contributions to the overall noise level of all significant noise sources.

3.2 Measurement Analysis

The 15 minute Leq noise level for each monitoring period is shown in the tables below. Where the noise from NBCSQ was audible, Bruel & Kjaer "Evaluator" analysis software was used to quantify the contributions of NBCSQ and other significant noise sources to the overall noise level. Both the total measured noise level and the noise contribution from the NBCSQ operations are shown in the tables.

3.3 Meteorological Data

Meteorological data used in this report were taken from the weather station at the NBCSQ.

4.0 RESULTS AND DISCUSSION

4.1 Measured Noise Levels

4.1.1 NBCSQ Operations

Measured noise levels for each monitoring location are summarised in **Table 3**.

Table 3
NBCSQ Operational Noise Monitoring Results – 14th July 2021

Location	Time	dB(A), Leq	NBCSQ Contribution dB(A), Leq	Criterion dB(A) Leq	Wind speed (m/s),dir	Identified Noise Sources
N1	10:40am	37	24	42	3.6 @ 304˚ (NW)	Wind, birds, Hume highway, truck revs, Exc. bucket bangs & broadband reverse alarm
N2	11:04am	44	41	49	4.5 @ 310˚ (NW)	Wind, Exc. & dozer revs, local traffic, Hume highway
N3	11:26am	45	40	44	2.6 @ 313˚ (NW)	Wind, Exc. & dozer revs, Hume highway

4.2 Discussion of Results

The results in Table 3 show that, under the operating and meteorological conditions at the times, for the 15 minute compliance measurement periods, the noise from the NBCSQ operations was audible at all monitoring locations but below compliance limits.

Data from where NBCSQ noise was measurable were analysed using Bruel & Kjaer *"Evaluator"* software. This analysis showed the noise did not contain any tonal or impulsive components as per definitions of "modifying factor corrections" in Section 4 of the NSW Noise Policy for Industry.

APPENDIX A

DESCRIPTION OF ACOUSTICAL TERMS

Table A1

Definition of acoustical terms

Term	Description
dB(A)	The quantitative measure of sound heard by the human ear, measured by the A-Scale Weighting Network of a sound level meter expressed in decibels (dB).
SPL	Sound Pressure Level. The incremental variation of sound pressure above and below atmospheric pressure and expressed in decibels. The human ear responds to pressure fluctuations, resulting in sound being heard.
STL	Sound Transmission Loss. The ability of a partition to attenuate sound, in dB.
Lw	Sound Power Level radiated by a noise source per unit time re 1pW.
Leq	Equivalent Continuous Noise Level - taking into account the fluctuations of noise over time. The time-varying level is computed to give an equivalent dB(A) level that is equal to the energy content and time period.
L1	Average Peak Noise Level - the level exceeded for 1% of the monitoring period.
L90	“Background” Noise Level - the level exceeded for 90% of the monitoring period.

APPENDIX B

NOISE LIMITS

EPL 20377

L2 Noise limits

L2.1 Noise from the premises must not exceed the noise limits in the table below:

Identification Point	Noise Limit at any time - dB(A) LAeq(15 minute)	Location
N1	42	North of the quarry void and labelled N1 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N2	49	East of the quarry void and labelled N2 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N3	44	South east of the quarry void and labelled N3 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).

PA 08_0212

Noise Criteria – Bund Construction

4. During the construction of the Visibility Barriers, the Proponent must ensure that the noise generated on site does not exceed the criteria in Table 1.

Table 1- Noise Criteria - Bund Construction

Receiver	***$L_{Aeq\ (15\ min)}$ dB(A)***
R2	43
All other receivers	38

Notes:

- *Receiver locations are shown in Figure 4 of APPENDIX A.*
- *Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

Noise Criteria

5. Except for the period when the Visibility Barriers are being constructed, the Proponent must ensure that the noise generated by the project does not exceed 38dB(a) $L_{Aeq\ (15min)}$ at any residence on privately-owned land.

However, this criterion does not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

APPENDIX C

CALIBRATION CERTIFICATE

Brüel & Kjær

Australian Calibration Laboratory
Suite 2, 6-10 Talavera Road, North Ryde NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301

NATA
WORLD RECOGNISED ACCREDITATION

CERTIFICATE OF CALIBRATION

Certificate No: CAU1901071 Page 1 of 12

CALIBRATION OF:

Sound Level Meter:	Bruel & Kjaer	2250	No: 2747794
Microphone:	Bruel & Kjaer	4189	No: 2733511
Preamplifier:	Bruel & Kjaer	ZC-0032	No: 15339
Supplied Calibrator:	Bruel & Kjaer	None	No: N/A
Software version:	BZ7224 Version 4.6.0	Pattern Approval:	PTB
Instruction manual:	BE1712-22	Identification:	N/A

CUSTOMER:

Spectrum Acoustics Pty Ltd
30 Veronica Street
Cardiff NSW 2285

CALIBRATION CONDITIONS:

Preconditioning:	4 hours at 23 °C
Environment conditions:	*see actual values in **Environmental conditions** sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 8.0 - DB: 8.00) and test procedure 2250-4189.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
X	Calibration without repair/adjustment		Calibration after repair/adjustment

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 05/11/2019

Sajeeb Tharayil
Calibration Technician

Certificate issued: 05/11/2019

Craig Patrick
Approved signatory

Document No: 08421/9434

ATTENDED CONSTRUCTION NOISE MONITORING – October 2021
New Berrima Clay/Shale Quarry
New Berrima, NSW

Prepared for:
The Austral Brick Company Pty Ltd
Wallgrove Road
Horsley Park NSW 2164
PO Box 6550
Wetherill Park NW 1851

Author:

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Neil Pennington
B. Sc., B.Math. (Hons) MAIP, MAAS, MASA
Principal / Director

November 2021

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APPENDIX A Description of Acoustical Terms

APPENDIX B Noise Limits

APPENDIX C Calibration Certificate

EXECUTIVE SUMMARY

Attended noise monitoring has been carried out for the New Berrima Clay/Shale Quarry (NBCSQ) on 8th October 2021. Monitoring was carried out in accordance with requirements of EPL20377, Project Approval 08_0212, the New Berrima Clay/Shale Quarry Noise Management (NBCSQ) Plan and other relevant Australian Standards and guidelines.

The NBCSQ was in full operation during the entire monitoring period. The below equipment was operating throughout the monitoring period:

- Cat 740 Water Truck
- Barfort
- Cat CS-563E Smooth Drum Roller
- Cat 140M Grader
- Kobelco 13T Excavator
- Cat CR-563C Pad Foot Roller

The site-specific operational criteria were not exceeded at any location or at any time throughout the monitoring period.

Noise from NBCSQ operations was inaudible at all locations throughout the monitoring period.

NBCSQ was compliant with Environmental Protection Licence (EPL) 20377 and New Berrima Clay/Shale Quarry Project Approval 08_0212 conditions for October 2021.

1.0 INTRODUCTION

This report presents the results of attended noise compliance monitoring and measurements conducted for the New Berrima Clay/Shale Quarry (NBCSQ) on 8th October 2021. Monitoring was undertaken in accordance with requirements of the NBCSQ Noise Management Plan (NMP) dated September 2018. The noise monitoring programme and procedures in the NMP have been developed in accordance with the NBCSQ Environmental Protection Licence (EPL) no 20377, and the Project Approval (PA 08_0212). To aid in the understanding of this report a description of acoustical terms is attached as **Appendix A**.

1.1 Noise Monitoring Locations

The NMP (Section 3.2) contains a table (Table 4) detailing the on-site locations for attended noise monitoring as reproduced below in **Table 1**. On-site monitoring locations are adopted as proxies for off-site receivers. Compliance with the limits at the on-site locations implies compliance with the (lower) criteria at off-site receivers. The monitoring locations are shown on **Figure 1**.

Table 1
NBCSQ Noise Monitoring Locations

Monitoring Point	Description
N1	North of the extraction area
N2	East of the extraction area
N3	South east of the extraction area

The NBCSQ has a meteorological station installed on site with all meteorological data available through an online portal. This data is used to supplement the attended noise monitoring data.

1.2 Monitoring Frequency and Duration

The NMP indicates that attended monitoring is to be conducted quarterly at each location during construction activities, and annually once extraction activities begin. Each survey is to consist of one 15 minute measurement at each location. For the purposes of attended noise monitoring, operating hours are defined in the NMP as being 7:00am - 5:00pm Monday to Friday and 8:00am – 1:00pm Saturdays, with no operations commencing on Sundays or Public Holidays. Monitoring is conducted as required in Condition L2.1 of the EPL.

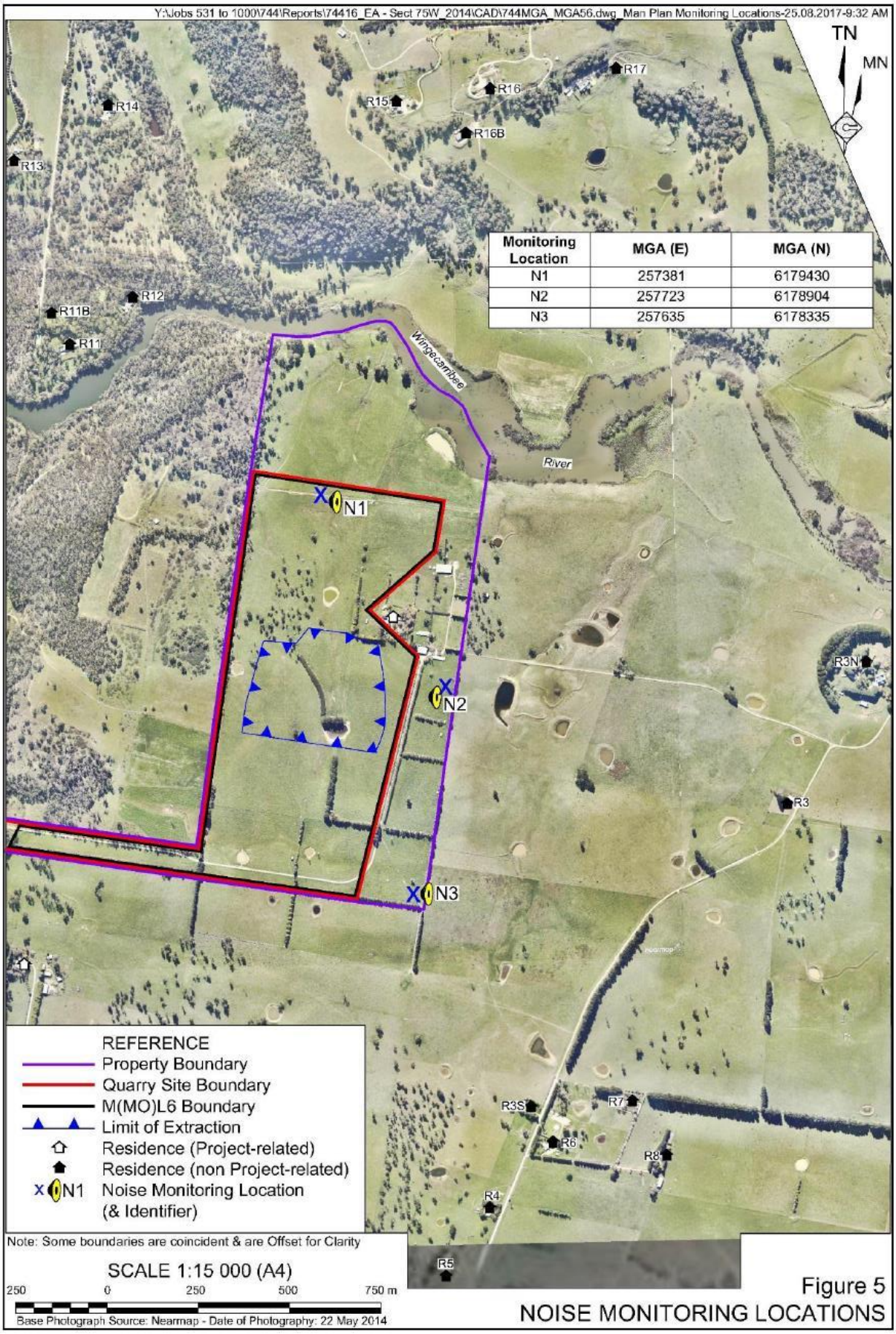

Figure 1: Noise Monitoring Locations

2.0 CRITERIA AND CONDITIONS

2.1 Noise Assessment Criteria

The noise assessment criteria are detailed in Condition L2.1 of the EPL and Table 4 of the NMP. The criteria vary for each receiver monitoring location and are shown in **Table 2**. Noise criteria for all residences listed in the EPL and NMP are shown in **Appendix B**.

Table 2
Noise Criteria, dB(A),Leq(15min)

Location	Noise Limit at any time - dB(A),Leq(15min)
N1	42
N2	49
N3	44

2.2 Applicable Meteorological Conditions

The noise limits apply under all meteorological conditions except for any one of the following;

1. Wind speeds greater than 3m/s at 10m above ground level; or
2. Stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or
3. Stability category G temperature inversion conditions.

2.3 Other Conditions

To determine compliance with the Leq (15 min) operational noise criteria the modification factors detailed in Fact Sheet C of the NSW Noise Policy for Industry must be applied, as appropriate, to the measured noise levels.

3.0 NOISE MONITORING PROCEDURE

3.1 Monitoring Equipment

Attended noise monitoring was conducted with a Brüel & Kjær Type 2250 Precision Sound Analyser. This instrument has Class 1 characteristics as defined in AS IEC61672.1-2004 and has current NATA calibration. Calibration certificates are included in Appendix C. Field calibration is carried out at the start and end of each monitoring period.

A-weighted noise levels were measured over the 15-minute monitoring periods with data acquired at 1 or 2 second statistical intervals and the meter set to “fast” response. Each 1 or 2 second measurement is accompanied by a third-octave band spectrum from 20 - 20k Hz which is required for analysing INP ‘modifying factors’. Time based field notes allow for determination of the relative contributions to the overall noise level of all significant noise sources.

3.2 Measurement Analysis

The 15 minute Leq noise level for each monitoring period is shown in the tables below. Bruel & Kjaer "Evaluator" analysis software was used to identify the contributing significant noise sources to the overall noise level. Both the total measured noise level and the identified noise contributing sources are shown in the tables.

3.3 Meteorological Data

Meteorological data used in this report were taken from the weather station at the NBCSQ.

4.0 RESULTS AND DISCUSSION

4.1 Measured Noise Levels

4.1.1 NBCSQ Operations

Measured noise levels for each monitoring location are summarised in **Table 3**.

Table 3
NBCSQ Operational Noise Monitoring Results – 8th October 2021

Location	Time	dB(A), Leq	NBCSQ Contribution dB(A), Leq	Criterion dB(A) Leq	Wind speed (m/s),dir	Identified Noise Sources
N1	12:25 pm	36	Inaudible	42	5.4 @ 032˚ (NE)	Wind, birds, Hume highway,
N2	12:43 pm	35	Inaudible	49	4.5 @ 353˚ (N)	Wind, birds, Hume highway
N3	1:04 pm	36	Inaudible	44	5.0 @ 004˚ (N)	Wind, birds, plane, Hume highway

4.2 Discussion of Results

The results in Table 3 show that, under the operating and meteorological conditions at the times, for the 15 minute compliance measurement periods, the noise from the NBCSQ operations was inaudible at all monitoring locations.

APPENDIX A

DESCRIPTION OF ACOUSTICAL TERMS

Table A1

Definition of acoustical terms

Term	Description
dB(A)	The quantitative measure of sound heard by the human ear, measured by the A-Scale Weighting Network of a sound level meter expressed in decibels (dB).
SPL	Sound Pressure Level. The incremental variation of sound pressure above and below atmospheric pressure and expressed in decibels. The human ear responds to pressure fluctuations, resulting in sound being heard.
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Leq	Equivalent Continuous Noise Level - taking into account the fluctuations of noise over time. The time-varying level is computed to give an equivalent dB(A) level that is equal to the energy content and time period.
L1	Average Peak Noise Level - the level exceeded for 1% of the monitoring period.
L90	"Background" Noise Level - the level exceeded for 90% of the monitoring period.

APPENDIX B

NOISE LIMITS

EPL 20377

L2 Noise limits

L2.1 Noise from the premises must not exceed the noise limits in the table below:

Identification Point	Noise Limit at any time - dB(A) LAeq(15 minute)	Location
N1	42	North of the quarry void and labelled N1 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N2	49	East of the quarry void and labelled N2 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).
N3	44	South east of the quarry void and labelled N3 on map titled "Environmental Monitoring Locations" dated 20 November 2015 (DOC16/206245).

PA 08_0212

Noise Criteria – Bund Construction

4. During the construction of the Visibility Barriers, the Proponent must ensure that the noise generated on site does not exceed the criteria in Table 1.

Table 1- Noise Criteria - Bund Construction

Receiver	***$L_{Aeq\ (15\ min)}$ dB(A)***
R2	43
All other receivers	38

Notes:

- *Receiver locations are shown in Figure 4 of APPENDIX A.*
- *Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

Noise Criteria

5. Except for the period when the Visibility Barriers are being constructed, the Proponent must ensure that the noise generated by the project does not exceed 38dB(a) $L_{Aeq\ (15min)}$ at any residence on privately-owned land.

However, this criterion does not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

APPENDIX C

CALIBRATION CERTIFICATE

Brüel & Kjær

Australian Calibration Laboratory
Suite 2, 6-10 Talavera Road, North Ryde NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301

NATA
WORLD RECOGNISED ACCREDITATION

CERTIFICATE OF CALIBRATION

Certificate No: CAU1901071 Page 1 of 12

CALIBRATION OF:

Sound Level Meter:	Bruel & Kjaer	2250	No: 2747794
Microphone:	Bruel & Kjaer	4189	No: 2733511
Preamplifier:	Bruel & Kjaer	ZC-0032	No: 15339
Supplied Calibrator:	Bruel & Kjaer	None	No: N/A
Software version:	BZ7224 Version 4.6.0	Pattern Approval:	PTB
Instruction manual:	BE1712-22	Identification:	N/A

CUSTOMER:

Spectrum Acoustics Pty Ltd
30 Veronica Street
Cardiff NSW 2285

CALIBRATION CONDITIONS:

Preconditioning: 4 hours at 23 °C
Environment conditions: *see actual values in **Environmental conditions** sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 8.0 - DB: 8.00) and test procedure 2250-4189.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
X	Calibration without repair/adjustment		Calibration after repair/adjustment

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 05/11/2019

Sajeeb Tharayil
Calibration Technician

Certificate issued: 05/11/2019

Craig Patrick
Approved signatory

Appendix 5

Summary of Water Quality Data

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Table 1 Baseline Data (2008 – October 2020)

Parameter	Units	WS1 Min	WS1 Max	WS2 Min	WS2 Max	WS3 Min	WS3 Max	WS4 Min	WS4 Max	WS5 Min	WS5 Max	WS5b Min	WS5b Max	WS6 Min	WS6 Max	WS7 Min	WS7 Max	WS8 Min	WS8 Max
		WS1 Median		WS2 Median		WS3 Median		WS4 Median		WS5 Median		WS5b Median		WS6 Median		WS7 Median		WS8 Median	
pH		7.7	7.7	6.2	7.8	6.6	8.1			6.4	6.7							6.2	7.7
		7.7		7.2		7.2				6.6								7.3	
EC	µS/cm	393	393	102	350	215	970			120	135							105	390
		393.0		250.0		462.5				127.5								237.5	
Sodium	mg/L	26.9	26.9	8.2	44.0	10.0	80.0			17.0	18.0							8.0	45.0
		26.9		23.0		27.0				17.5								22.0	
Potassium	mg/L	27.1	27.1	1.2	10.0	1.8	26.0			2.1	4.8							2.1	13.0
		27.1		5.1		6.9				3.5								5.0	
Calcium	mg/L	13.6	13.6	3.6	23.0	24.0	92.0			3.9	4.6							5.0	26.0
		13.6		14.0		58.5				4.3								15.0	
Magnesium	mg/L	7.9	7.9	2.3	11.0	5.7	28.0			2.3	2.8							2.6	9.4
		7.9		6.1		9.6				2.6								6.0	
Chloride	mg/L	60	60	15	53	19	195			35	37							18	53
		60.0		33.0		50.5				36.0								32.5	
Sulfate	mg/L	2	2	2	82	3	285			2	2							4	83
		2.0		24.0		27.0				2.0								31.0	
Bicarbonate	mg/L	NT	NT	29	82	17	315	NS		12	21	NS		NS		NS		8	79
		NT		51.5		180.0				16.5								48.5	
Phosphate	mg/L	NT	NT	0.1	0.3	0.1	1.3			0.1	0.1							0.1	0.3
		NT		0.1		0.1				0.1								0.1	
Fluoride	mg/L	NT	NT	0.1	1.7	0.1	0.3			0.1	0.1							0.1	0.4
		NT		0.1		0.2				0.1								0.1	
Nitrate	mg/L	NT	NT	0.1	4.6	0.1	4.7			0.1	0.1							0.1	4.4
		NT		1.2		0.1				0.1								1.2	
Total Ammonia	mg/L	NT	NT	0.0	1.6	0.1	3.3			0.1	0.3							0.1	0.3
		NT		0.1		0.1				0.2								0.1	
TKN	mg/L	7.3	7.3	0.1	3.8	0.1	17.0			1.5	1.7							0.1	2.4
		7.3		1.1		1.2				1.6								1.2	
Total Phosphorus	mg/L	0.2	0.2	0.0	2.0	0.0	2.5			0.2	0.8							0.0	0.2
		0.2		0.1		0.4				0.5								0.1	
TSS	mg/L	32	32	3	77	2	380			61	290							4	250
		32.0		15.0		26.0				175.5								11.0	
Turbidity	NTU	NT	NT	5.3	75.0	0.6	180.0			80.0	180.0							3.5	70.0
		NT		18.0		10.0				130.0								16.0	

NS = No Sample NT = Not Tested

Note: No samples were taken between 2008 and May 2017. 2008 represented by single sample only.

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Table 2 Operational Data – 2020 Reporting Period

Parameter	Units	WS1	WS2		WS3		WS4		WS5		WS6		WS7		WS8	
		Min / Max / Median	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
pH			6.8	7.1	6.8	7.1									7.0	7.2
			7.0		7.0										7.1	
EC	µS/cm		195	205	465	505									185	200
			200.0		485.0										192.5	
Sodium	mg/L		17.0	18.0	35.0	36.0									15.0	16.0
			17.5		35.5										15.5	
Potassium	mg/L		4.6	5.2	16.0	20.0									4.5	4.9
			4.9		18.0										4.7	
Calcium	mg/L		13.0	15.0	41.0	47.0									14.0	15.0
			14.0		44.0										14.5	
Magnesium	mg/L		6.8	7.8	12.0	13.0									6.9	7.7
			7.3		12.5										7.3	
Chloride	mg/L		30	32	72	72									28	32
			31.0		72.0										30.0	
Sulfate	mg/L		12	14	5	30									57	63
			13.0		17.5										60.0	
Bicarbonate	mg/L	NS	60	62	160	175	NS		NS		NS		NS		12	13
			61.0		167.5										12.5	
Phosphate	mg/L		0.0	0.0	0.3	0.3									0.0	0.0
			below LOR		0.3										below LOR	
Fluoride	mg/L		0.2	0.2	0.3	0.3									0.1	0.1
			0.2		0.3										0.1	
Nitrate	mg/L		0.8	1.0	0.0	0.0									0.6	1.0
			0.9		below LOR										0.8	
Total Ammonia	mg/L		0.1	0.1	0.8	1.0									0.0	0.0
			0.1		0.9										below LOR	
TKN	mg/L		0.1	0.1	0.5	1.0									1.1	1.8
			0.1		0.7										1.5	
Total Phosphorus	mg/L		1.3	1.5	2.5	7.1									0.1	0.1
			1.4		4.8										0.1	
TSS	mg/L		20	30	77	110									7	8
			25.0		93.5										7.5	
Turbidity	NTU		23.0	46.0	13.0	38.0									15.0	22.0
			34.5		25.5										18.5	

NS = No Sample NT = Not Tested LOR = Limit of Reaction (Detection)

Note: Operational period commenced November 2020 and is represented by two samples only (November and December 2020).

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Table 3 Operational Data – 2021 Reporting Period

Parameter	Units	WS1	WS2	WS3	WS4	WS5b	WS6	WS7	WS8
		Min / Max / Median	Min / Max / Median	Min / Max / Median	Min / Max / Median	Min / Max / Median	Min / Max / Median	Min / Max / Median	Min / Max / Median
Physical Parameters									
pH		NS	6.6 / 7.8 / 7.1	7.1 / 7.8 / 7.3	NS	NS	NS	NS	6.7 / 7.6 / 7.3
EC	µS/cm		90 / 280 / 225	380 / 790 / 660					100 / 265 / 220
TSS	mg/L		8 / 89 / 21	4 / 53 / 12					2 / 36 / 16
Turbidity	NTU		14 / 90 / 26	2 / 32 / 5					17 / 55 / 25
Dissolved Oxygen	mg/lL		8 / 9 / 8	8 / 9 / 9					6 / 9 / 9
Hardness	mg/L		2 / 89 / 78	140 / 275 / 238					2 / 89 / 70
Total Organic Carbon	mg/lL		14 / 16 / 15	21 / 21 / 21					0 / 0 / below LOR
Major Anions and Cations									
Sodium	mg/L	NS	8 / 29 / 18	7 / 54 / 39	NS	NS	NS	NS	8 / 30 / 20
Potassium	mg/L		2 / 6 / 4	6 / 83 / 16					3 / 7 / 4
Calcium	mg/L		7 / 19 / 14	16 / 89 / 61					8 / 20 / 14
Magnesium	mg/L		4 / 11 / 9	10 / 110 / 16					4 / 11 / 8
Chloride	mg/L		12 / 52 / 38	49 / 215 / 91					13 / 52 / 37
Sulfate	mg/L		4 / 25 / 12	5 / 130 / 37					4 / 25 / 12
Bicarbonate	mg/L		33 / 89 / 59	54 / 285 / 173					35 / 76 / 56
Fluoride	mg/L		0.1 / 0.2 / 0.1	0.1 / 0.8 / 0.2					0.1 / 0.2 / 0.1
Nutrients									
Nitrate	mg/L	NS	0.27 / 2.10 / 1.55	0.70 / 1.20 / 0.95	NS	NS	NS	NS	0.27 / 2.20 / 1.40
Total Ammonia	mg/L		0.10 / 0.20 / 0.10	0.90 / 8.60 / 8.40					0.10 / 0.20 / 0.10
TKN	mg/L		1.30 / 1.90 / 1.50	0.70 / 6.40 / 1.25					0.80 / 1.90 / 1.40
Total Phosphorus	mg/L		0.10 / 0.33 / 0.17	0.10 / 1.50 / 0.20					0.10 / 0.35 / 0.15
Phosphate	mg/L		0.12 / 0.12 / 0.12	0.18 / 0.24 / 0.21					0.10 / 0.18 / 0.10

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Table 3 Operational Data – 2021 Reporting Period (Cont'd)

Parameter	Units	WS1	WS2		WS3		WS4		WS5b		WS6		WS7		WS8	
		Min / Max / Median	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
			Median		Median		Median		Median		Median		Median		Median	
Metals																
Aluminium	mg/L	NS	0.000	0.000	0.000	0.000	NS		NS		NS		NS		0.000	0.000
			0.000		0.000										below LOR	
Arsenic	mg/L		0.000	0.000	0.000	0.000									0.000	0.000
			0.000		0.000										below LOR	
Cadmium	mg/L		0.000	0.000	0.000	0.000									0.000	0.000
			0.000		0.000										below LOR	
Chromium	mg/L		0.000	0.000	0.000	0.000									0.000	0.000
			0.000		0.000										below LOR	
Cobalt	mg/L		0.000	0.000	0.000	0.000									0.000	0.000
			0.000		0.000										below LOR	
Copper	mg/L		0.590	1.200	0.000	0.080									0.770	0.780
			0.895		0.070										0.775	
Lead	mg/L		0.000	0.000	0.000	0.000									0.000	0.000
			0.000		0.000										below LOR	
Manganese	mg/L		0.000	0.000	0.000	0.000									0.010	0.010
			0.000		0.000										0.010	
Zinc	mg/L		0.000	0.000	0.000	0.000									0.000	0.000
			0.000		0.000										below LOR	
Iron	mg/L		0.0	0.0	0.0	0.2									0.1	0.5
			0.0		0.0										0.2	

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