

2017 Annual Review

for the

New Berrima Clay/Shale Quarry Project Approval: PA08_0212

Prepared in Conjunction with:



R.W. CORKERY & CO. PTY LIMITED

February 2018

2017 Annual Review

for the

New Berrima Clay/Shale Quarry

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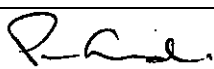
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Title Block

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)LA 26
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	Not Yet Applicable
MOP/RMP end date	Not Yet Applicable
Annual Review start date	1 January 2017
Annual Review end date	31 December 2017
<p>I, Peter Young-Whitford, certify that 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 2017 to 31 December 2017 and that I am authorised to make this statement of behalf of The Austral Brick Company Pty Limited.</p> <p><i>Note.</i></p> <p>a) <i>The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.</i></p> <p>b) <i>The Crimes Act 1900 contains other offences relating to false and misleading information: Section 192G (Intention to defraud by false or misleading statement – maximum penalty 5 years imprisonment); Section 307A, 307B and 307C (false or misleading application/information/documents – maximum penalty 2 years imprisonment or \$22,000, or both).</i></p>	
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 2018

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CONTENTS

	Page
1. STATEMENT OF COMPLIANCE	1
2. INTRODUCTION.....	2
2.1 OVERVIEW OF OPERATIONS	2
2.2 SCOPE AND FORMAT	2
2.3 KEY PERSONNEL CONTACT DETAILS	2
3. APPROVALS	6
4. OPERATIONS SUMMARY	7
4.1 EXTRACTION OPERATIONS	7
4.2 OTHER OPERATIONS	7
4.3 NEXT REPORTING PERIOD	12
5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW	14
6. ENVIRONMENTAL PERFORMANCE.....	15
6.1 INTRODUCTION	15
6.2 METEOROLOGICAL MONITORING.....	16
6.3 AIR QUALITY	16
6.4 ABORIGINAL HERITAGE.....	21
6.5 WASTE MANAGEMENT	22
7. WATER MANAGEMENT	23
7.1 WATER TAKE.....	23
7.2 SURFACE WATER.....	23
8. REHABILITATION	26
8.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD	26
8.2 ACTIONS FOR THE NEXT REPORTING PERIOD	26
9. COMMUNITY	27
9.1 COMMUNITY COMPLAINTS	27
9.2 COMMUNITY LIAISON.....	27
10. INDEPENDENT AUDIT	28
11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD	29
12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD.....	30



CONTENTS

Page

APPENDICES

Appendix 1	Compliance Review of Project Approval 08_0212.....	A1-1
Appendix 2	Compliance Review of Environment Protection Licence 20377	A2-1
Appendix 3	Compliance Review of Mining (Mineral Owners) Lease 6	A3-1
Appendix 4	Meteorological Data Recorded during 2017	A4-1
Appendix 5	DPE Compliance Action Documents	A5-1

FIGURES

Figure 1	Locality Plan	3
Figure 2	Approved Layout – New Berrima Clay/Shale Quarry	4
Figure 3	Surrounding Land Ownership	5
Figure 4	Activities During the 2017 Reporting Period	8
Figure 5	Planned Activities - 2018.....	13
Figure 6	Environmental Monitoring Locations	17
Figure 7	Monthly Wind Roses 2017	18
Figure 8	Deposited Dust Monitoring Results	20

TABLES

Table 1	Statement of Compliance	1
Table 2	Non-compliances	1
Table 3	New Berrima Clay/Shale Quarry – Approvals and Licences	6
Table 4	2017 Production Summary – tonnes.....	7
Table 5	Relevant Environmental Performance Aspects	15
Table 6	Summary of 2017 Temperature and Rainfall Records (On-site Station)	16
Table 7	Deposited Dust Monitoring Results	20
Table 8	Results of Water Quality Testing.....	24
Table 8	Summary of Areas Disturbed and Rehabilitation	26
Table 10	Independent Audit Action Response Plan Status	28

PLATES

Plate 1:	View West of Soil Stockpiles – December 2017	10
Plate 2:	Original Timber Bridge - 2016	10
Plate 3:	Fencing to Restrict Access to Heritage Sensitive Area	10
Plate 4:	New Steel Bridge Span	11
Plate 5:	Crane and Concrete Truck	11
Plate 6:	Completed Bridge	11

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 six non-compliances (four relating to monitoring and two relating to temporary rehabilitation) during the reporting period. The non-compliances recorded during the reporting period are summarised and have been ranked according to the risk matrix included in **Table 2**. Further discussion regarding these non-compliances is provided in Section 11.

Table 1
Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	Yes / No
Project Approval 08_0212	No
Environment Protection Licence 20377	No
Mining (Mineral Owners) Lease 6	Yes

Table 2
Non-compliances

Relevant Approval	Cond #	Condition Description (summary)	Compliance Status	Comment	Where Addressed
PA 08_0212	3(11)	Prepare and implement an Air Quality Management Plan including a monitoring program.	Non-compliant	Deposited dust bottles were not changed over on a monthly cycle between January and April 2017.	6.3, 11
PA 08_0212	3(18)	Prepare and implement a Water Management Plan including a monitoring program.	Non-compliant	Water monitoring did not commence in July 2016 as nominated in the Plan. Monitoring was commenced in May 2017 and has been undertaken monthly since that time.	7.2, 11
PA 08_0212	3(34)	All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time.	Non-compliant	The soil stockpiles created during Physical Commencement in 2016 were not seeded with pasture species within a reasonable timeframe.	11
PA 08_0212	3(35)	Prepare a Landscape Management Plan including measures to ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval.	Non-compliant	The soil stockpiles created during Physical Commencement in 2016 were not seeded with pasture species within a reasonable timeframe.	11
EPL 20377	M2.2	Undertake deposited dust monitoring monthly.	Non-compliant	Deposited dust bottles were not changed over on a monthly cycle between January and April 2017.	6.3, 11
EPL 20377	M3.1	Undertake deposited dust monitoring in accordance with the approved methods.	Non-compliant	Deposited dust bottles were not changed over on a monthly cycle between January and April 2017.	6.3, 11

Compliance Status Key

Risk level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence.
Medium	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> potential for serious environmental consequences, but is unlikely to occur; or potential for moderate environmental consequences, but is likely to occur.
Low	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> potential for moderate environmental consequences, but is unlikely to occur; or potential for low environmental consequences, but is likely to occur.
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions).

2. INTRODUCTION

2.1 OVERVIEW OF OPERATIONS

The New Berrima Clay/Shale 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 was granted on 6 July 2012 and modified on 26 November 2015 and 6 July 2017. The approved layout of the Site is shown in **Figure 2** with surrounding land ownership and residences shown in **Figure 3**. To date, only physical commencement activities have occurred, and full-scale operations have not yet commenced.

2.2 SCOPE AND FORMAT

This Annual Review for the New Berrima Clay/Shale Quarry (“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 second Annual Review submitted for the Quarry and is applicable for the period 1 January to 31 December 2017 (“the reporting period”). The information presented within this Annual Review has been prepared based on information compiled by R.W. Corkery & Co. Pty Limited and provided by Austral.

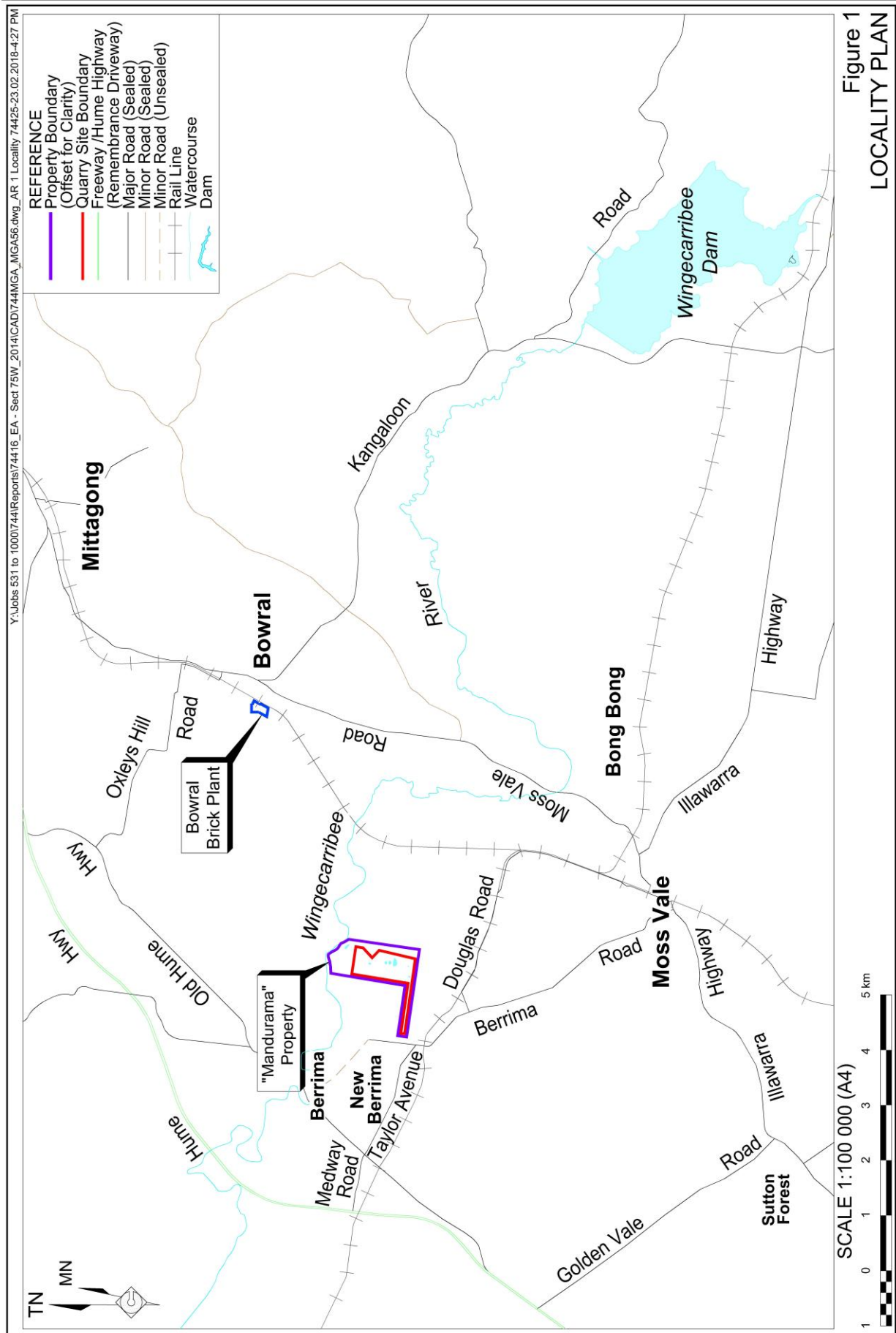
This Annual Review has been compiled in accordance with *Condition 5(4)* of Project Approval 08_0212, generally follows the format and content requirements identified in the *Annual Review Guideline* dated October 2015 and includes relevant information as required by the following conditions of Project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

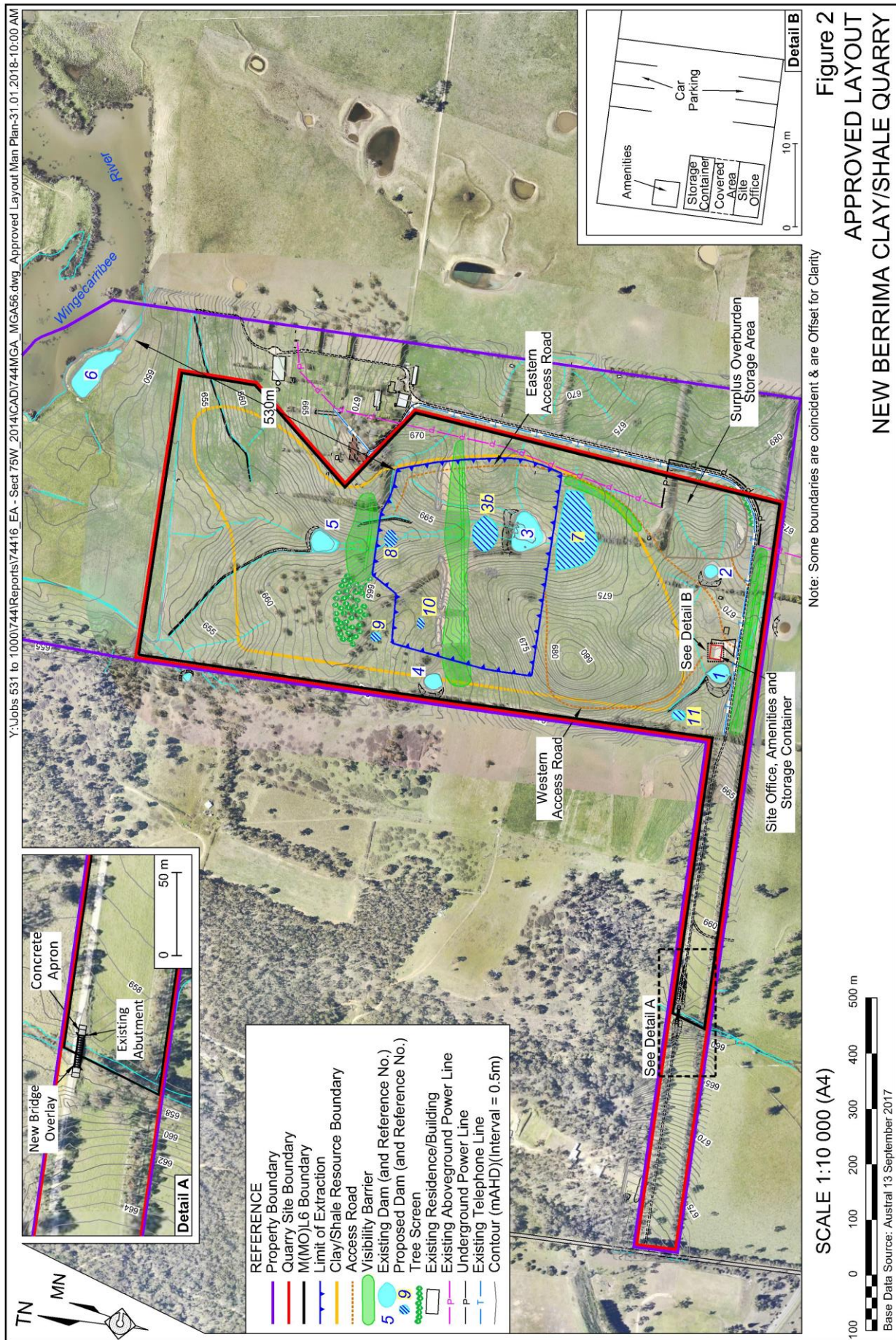
- *Condition 2(15b)*: Production Data.
- *Condition 3(31)*: Waste Management.
- *Condition 5(11a)*: Public Display.

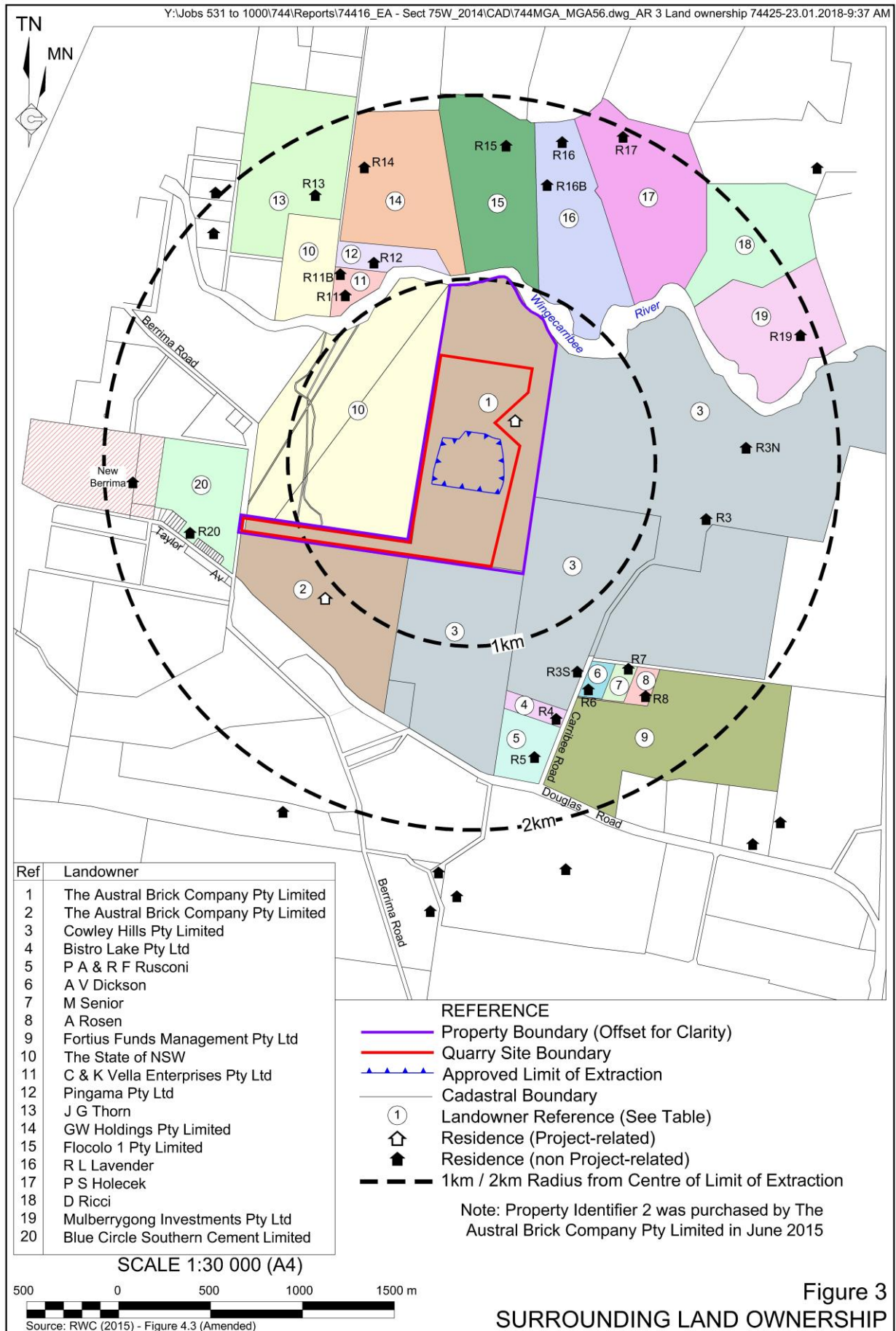
2.3 KEY PERSONNEL CONTACT DETAILS

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

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







3. APPROVALS

The Quarry is required to operate in accordance with the approvals and licences listed in **Table 3**.

Table 3
New Berrima Clay/Shale Quarry – Approvals and Licences

Consent/Lease/Licence	Issue Date	Expiry Date	Details / Comments
Project Approval 08_0212	6/07/2012	31/12/2045	Issued by the (then) Minister for Planning and Infrastructure and last modified 6 July 2017.
Environment Protection Licence 20377	1/08/2016	Renewed annually	Issued by NSW Environment Protection Authority.
Mining (Mineral Owners) Lease 6	27/06/17	27/06/2038	Granted by the Secretary of the Department of Planning and Environment.

During the reporting period, a modification to Project Approval 08_0212 was approved on 6 July 2017. The modification provided for the following minor adjustments within the Quarry Site.

1. Replacement of the bridge over Stony Creek.
2. Re-alignment of the western access road.
3. Repositioning of the site office, amenities and storage container.
4. Installation of underground power and removal of a section of overhead power line.

The modified conditions have been reflected in the compliance review of Project Approval 08_0212 (**Appendix 1**).

There were no variations to Environment Protection Licence (EPL) 20377 during the reporting period. The compliance review of EPL 20377 is presented in **Appendix 2**.

During the reporting period, Mining (Mineral Owners) Lease 6 (M(MO)L 6) was granted by the Department of Planning and Environment (Division of Resources and Geoscience) on 27 June 2017. A compliance review for M(MO)L 6 is presented in **Appendix 3**.

4. OPERATIONS SUMMARY

4.1 EXTRACTION OPERATIONS

No extraction operations were undertaken during the reporting period. **Table 4** provides the production summary.

Table 4
2017 Production Summary – tonnes

Material	Approved limit (specify source)	Previous reporting period (actual)	This reporting period (actual)	Next reporting period (forecast)
Waste Rock / Overburden	Not Specified	0	0	0
ROM ¹	NA	-	-	-
Coarse Reject ¹	NA	-	-	-
Fine Reject ¹	NA	-	-	-
Saleable Product (Extractive Material)	150 000t [PA 08_0212 Condition 2(7)]	0	0	0
Transported Product	150 000t [PA 08_0212 Condition 2(8)]	0	0	0

Notes: 1. The Quarry does not generate 'Run of Mine' material, coarse or fine rejects.

No soil stripping operations were undertaken, and no soil material was spread. A total of approximately 700m³ of topsoil material is currently stockpiled from physical commencement operations undertaken in 2016. The location of these stockpiles is shown on **Figure 4** and a photograph from December 2017 is shown as **Plate 1**.

4.2 OTHER OPERATIONS

During the reporting period, Austral undertook a range of non-extractive activities. A summary of these activities is provided as follows.

Project Approval Modification No. 2

As discussed in Section 3, an application for the modification of Project Approval 08_0212 was submitted to DPE on 19 January 2017. Following public exhibition and response to submissions, the modification was approved on 6 July 2017.

Aboriginal Heritage Survey and Artefact Recovery

Aboriginal heritage surveys were undertaken on 28 March and 6 June 2017 as part of the Modification No. 2 application and monitoring of areas of stripped of soil during the 2016 physical commencement activities. As a result of the surveys, an isolated stone artefact was identified as requiring salvage and reburial which was undertaken on 13 July 2017, in consultation with the Aboriginal community. Further details regarding these surveys and artefact salvage and reburial is provided in Section 6.4.



Independent Audit

An independent audit was undertaken during August 2017. Further details are provided in Section 10.

Management Plan Review and Update

As a result of the Modification 2 Application, Independent Audit and 2016 Annual Review, all management plans were reviewed and updated during 2017 and, excluding the Water Management Plan which was not yet finalised, submitted to DPE for review. The update of the Aboriginal Heritage Management Plan was also undertaken in consultation with the Office of Environment and Heritage and Aboriginal community.

Government agency comments, finalisation and approval of the updated management plans is expected during early 2018.

Replacement of Bridge

The replacement of the bridge crossing Stony Creek was undertaken between August and October 2017. The replacement was undertaken in accordance with the Modification 2 approval and involved the removal of the timber from the existing bridge before the metal trusses were lifted off and onto a flatbed truck using a small crane. All material from the old bridge was removed by Dunsteel for recycling. The new steel bridge span was then lifted onto the existing abutments and concrete pumped onto the span to form the concrete deck and approaches.

All activity was contained to the roadway and immediately adjacent fill batters. This area was defined by the Illawarra Local Aboriginal Land Council as previously disturbed areas not containing potential heritage constraints. All works were completed with a 5t excavator, small crane, flatbed truck and concrete truck. High visibility fencing was installed to ensure accidental access did not occur beyond the 'safe' area defined the Illawarra LALC and sediment fencing placed in case of rain causing wash from the road surface. No disturbance of or access to the creek bed or banks was required. Photographs of these works are provided as **Plates 2 to 6**.

Environmental Monitoring and Community Liaison

Environmental monitoring also continued throughout the reporting period including meteorological, deposited dust and surface water quality monitoring. Results of this monitoring is summarised in Sections 6 and 7.

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





Plate 1: View West of Soil Stockpiles – December 2017
(Foreground: Good Pasture Growth, Background: Pasture Improving)
Source: Austral Bricks

Plate 2: Original Timber Bridge - 2016
Ref: E744Q_049



Plate 3: Fencing to Restrict Access to Heritage Sensitive Area
Source: Austral Bricks

Plate 4: New Steel Bridge Span
Source: Austral Bricks



Plate 5: Crane and Concrete Truck
Source: Austral Bricks

Plate 6: Completed Bridge
Source: Austral Bricks



4.3 NEXT REPORTING PERIOD

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

Land Preparation and Construction

The following land preparation / construction activities are planned to commence in the 2nd or 3rd quarter of the next reporting period.

- Construction / upgrade of the applicable water management structures.
- Construction of the visibility barriers and western access road.
- Upgrade of the site access intersection and sealing of the site access road.
- Installation of site offices, amenities and storage.
- Installation of underground power and removal of a section of overhead power line

Extraction

Clay/shale extraction operations are expected to commence during the 4th quarter of the next reporting period. Extraction will commence within the southeastern part of the extraction area (Stage 1). Excess overburden not required for construction of the visibility barriers will be hauled and placed within the Surplus Overburden Stockpile Area.

Rehabilitation

No areas will become available for final rehabilitation during the next reporting period. However, revegetation of the visibility barriers and planting of the tree screen west of the Northern Visibility Barrier and southeastern periphery of the Surplus Overburden Stockpile Area will 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.

Environmental Monitoring and Community Liaison

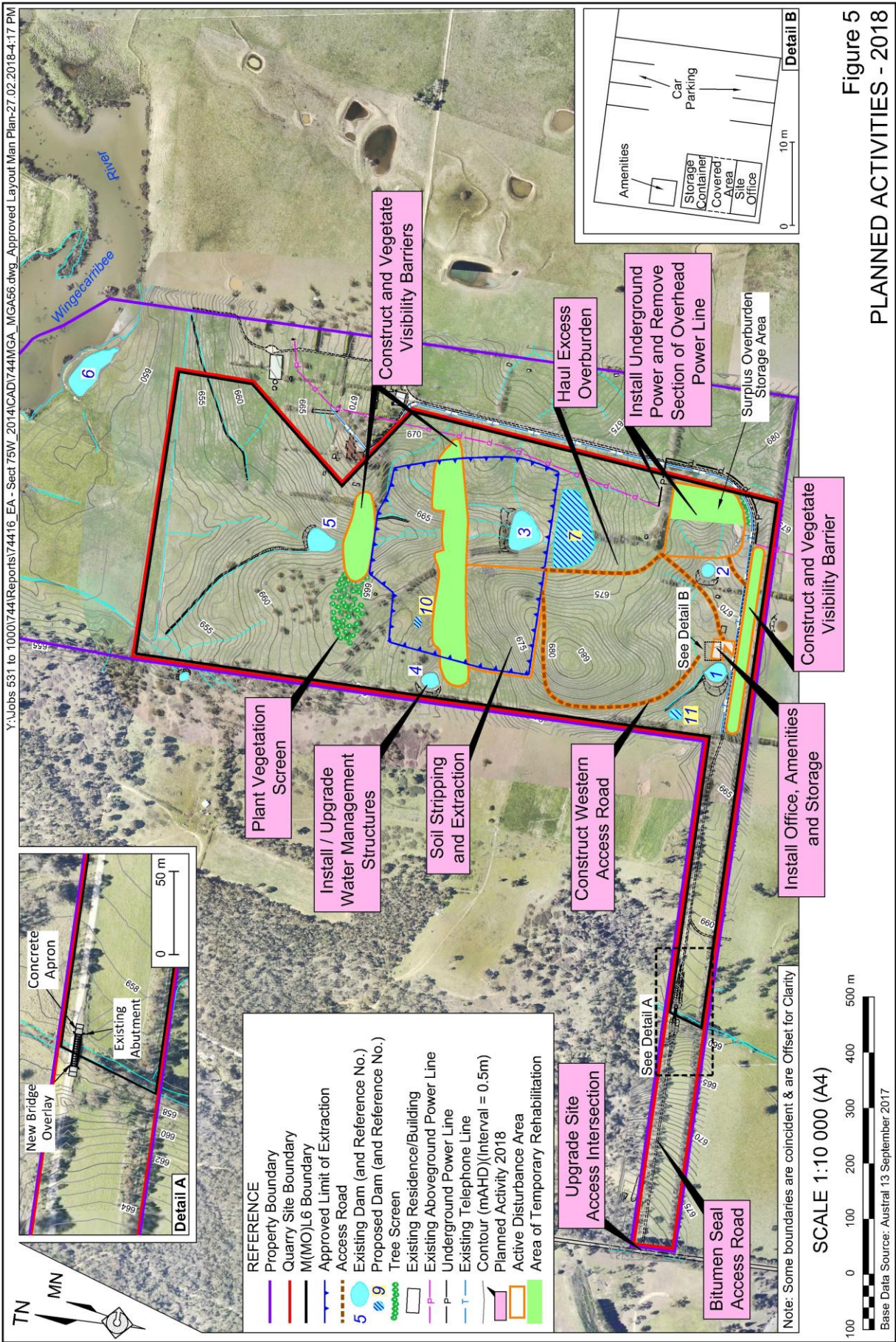
The following monitoring will be conducted during the next reporting period.

- Meteorological conditions.
- Dust deposition.
- Surface water quality.
- 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 and Mining Operations Plan

The review and update process for all management plans will be finalised with approval of DPE. A Mining Operations Plan will also be prepared in accordance with M(MO)L 6 and submitted to the Division of Resources and Geoscience for review and approval.



5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

Comments for the 2016 Annual Review were received from DPE on 19 May 2017 raising a range of matters associated with noise, water, air and heritage monitoring. As a result, an updated 2016 Annual Review was submitted and subsequently approved by DPE on 4 July 2017 with no further actions required.

6. ENVIRONMENTAL PERFORMANCE

6.1 INTRODUCTION

A summary of environmental performance for the principal environmental aspects is provided in **Table 5**. Further detail regarding specific environmental aspects is also provided in the following subsections. Environmental performance relating to water is discussed in Section 7.

Table 5
Relevant Environmental Performance Aspects

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.	No barrier construction activities were undertaken during the reporting period. No complaints and no issues raised through the CCC.	No trends identifiable. Currently no management implications.	No specific management measures implemented or currently proposed. Noise monitoring planned during the construction of the visibility barriers.
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.	No specific management measures implemented or currently proposed. Monthly deposited dust monitoring will continue in accordance with the Air Quality Management Plan.
Biodiversity	No significant impacts predicted.	No operational activities or activities relating to biodiversity aspects occurred.	No trends identifiable. Currently no management implications.	No specific management measures implemented or currently proposed.
Landscape and Visual	Implement Landscape Management Plan.	No complaints or issues raised through the CCC.	Currently no management implications.	Visibility barriers to be constructed and tree screens planted during next reporting period.
Heritage	Implement Aboriginal Cultural Heritage Management Plan.	One isolated artefact identified, recovered and reburied in consultation with registered Aboriginal parties and OEH.	Further topsoil monitoring not recommended by Illawarra Local Aboriginal Land Council.	Update of Aboriginal Heritage Management Plan to remove topsoil monitoring but to include cultural heritage training for Austral personnel.

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 6** whilst **Figure 7** presents the monthly wind roses. Daily rainfall records for the reporting period are presented in **Appendix 4**.

Table 6
Summary of 2017 Temperature and Rainfall Records (On-site Station)

Month	Temperature (°C)			Rainfall (mm)
	Average	Maximum	Minimum	
January	21.2	38.7	12.4	34.8
February	19.9	40.3	6.4	80.8
March	17.0	29.0	8.2	180.6
April	12.1	20.6	3.2	23.4
May	9.7	19.4	-2.1	25.0
June	7.4	15.2	-2.0	19.4
July	7.0	21.0	-4.6	19.4
August	7.4	20.5	-3.4	17.6
September	11.2	30.7	-2.3	2.0
October	14.4	27.8	3.2	39.6
November	14.7	27.0	2.4	88.4
December	19.6	36.9	9.7	33.6
Total	-	-	-	564.6

A total of 564.6mm of rain was recorded from 1 January 2017 to 31 December 2017, well below the long-term (145year) average rainfall of 961.2mm recorded at the nearby BoM Moss Vale (Hoskins St) Station (No. 068045).

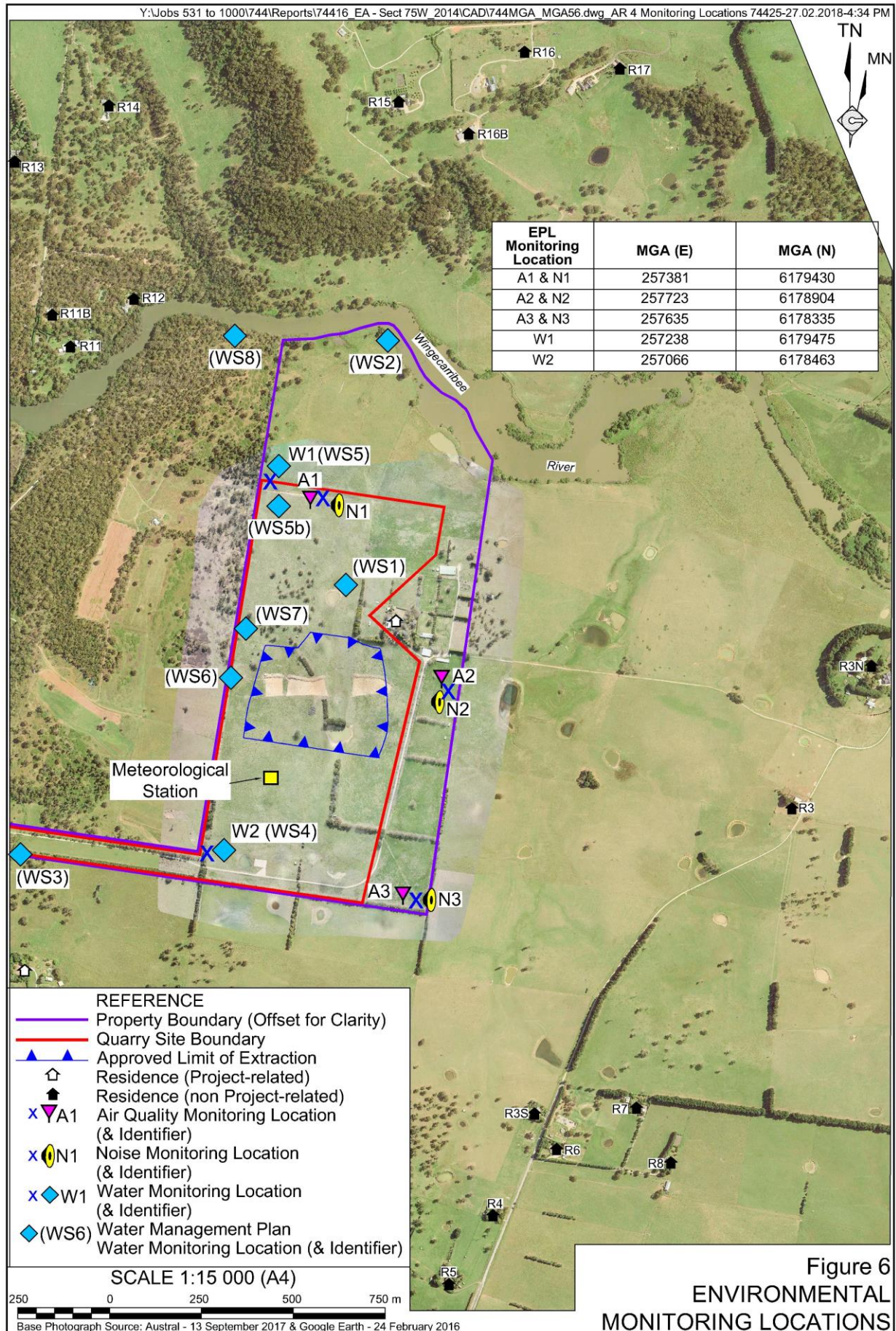
6.3 AIR QUALITY

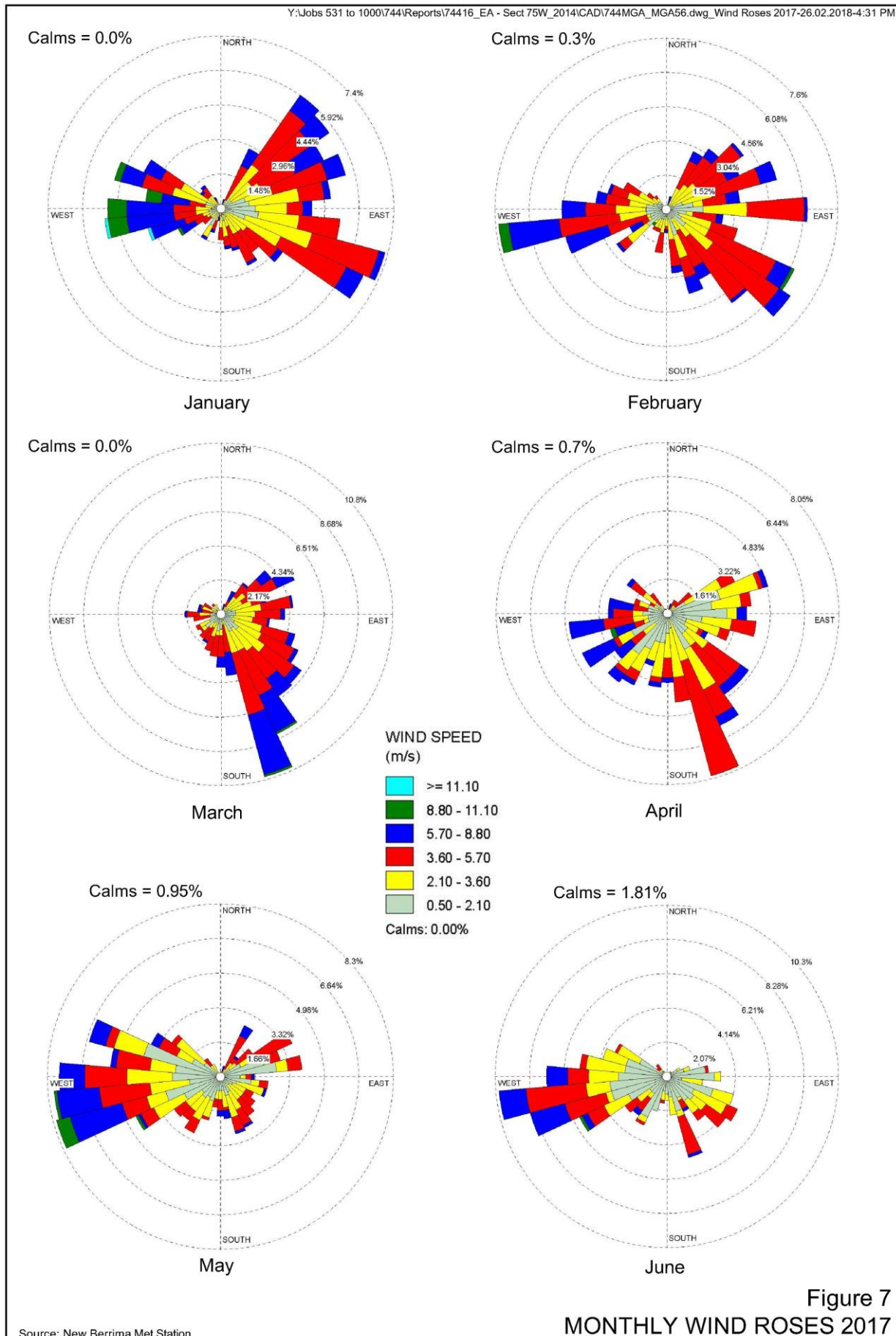
Environmental Management

As no earthmoving or extraction activities occurred during the reporting period, no specific dust mitigation measures were required.

Environmental Performance

Austral continued to collect air quality samples from three deposited dust gauges, at Sites A1, A2 and A3 (see **Figure 6**) throughout the reporting period. The results of the dust monitoring are summarised in **Table 7** and presented graphically in **Figure 8**. The monthly insoluble solids over the period ranged from 0.2g/m²/month to 8.1g/m²/month. The highest monthly insoluble solids of 8.1g/m²/month was recorded at Site A1 during May 2017. Winds were predominantly from the west-southwest and given the location of Site A1 (see **Figure 6**) this indicates that the elevated dusts resulted from activities to the west-southwest of the Quarry.





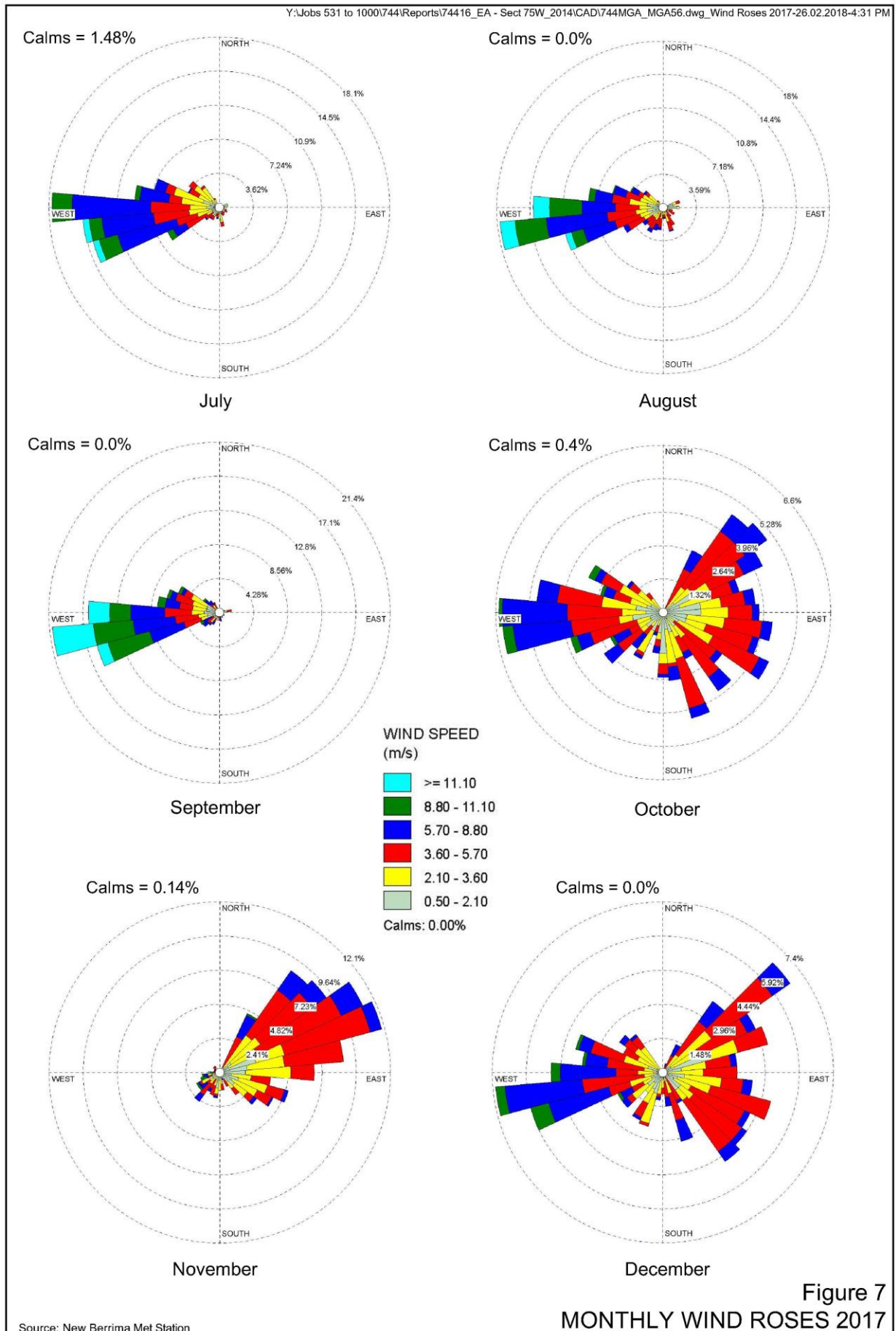


Figure 7
MONTHLY WIND ROSES 2017

Table 7
Deposited Dust Monitoring Results

SAMPLING PERIOD			Period (days)	Monthly ¹ Dust Deposition Rate (g/m ² /month)								
				A1			A2			A3		
				Insoluble	Rolling Annual Average	Ash	Insoluble	Rolling Annual Average	Ash	Insoluble	Rolling Annual Average	Ash
20/09/16	to	21/01/17	121	2.2	-	0.5	NM	NM	NM			
20/09/16	to	08/11/16	48				NM	NM	NM	0.6	-	0.3
08/11/16	to	21/01/17	73				NM	NM	NM	1.8	-	1.1
22/01/17	to	8/03/17	46	5.6	-	4.5	1.1	-	0.8	1.8	-	1.3
9/03/17	to	5/05/17	56	0.7	-	0.5	1.9	-	1.4	2.7	-	1.8
6/05/17	to	31/05/17	25	8.1	-	7.2	0.9	-	0.7	1.2	-	0.9
1/06/17	to	30/06/17	29	0.5	-	0.4	0.4	-	0.2	0.4	-	0.2
1/07/17	to	31/07/17	30	0.3	-	2.0	0.5	-	0.3	0.7	-	0.5
1/08/17	to	31/08/17	30	0.2	-	0.2	0.2	-	0.2	0.9	-	0.7
1/09/17	to	29/09/17	28	0.6	2.3	0.3	0.8	-	0.5	1.5	1.5	0.8
30/09/17	to	30/10/17	30	0.6	2.1	0.3	0.6	-	0.3	1.1	1.5	0.6
31/10/17	to	30/11/17	30	0.3	2.0	0.3	0.4	-	0.3	0.6	1.5	0.5
1/12/17	to	29/12/17	28	2.4	2.0	1.3	1.2	-	0.6	0.8	1.4	0.5

1. Rate calculated by ALS using the number of days of sampling and converting to a monthly rate.
2. NM = No result due to invalidated sample or damaged gauge

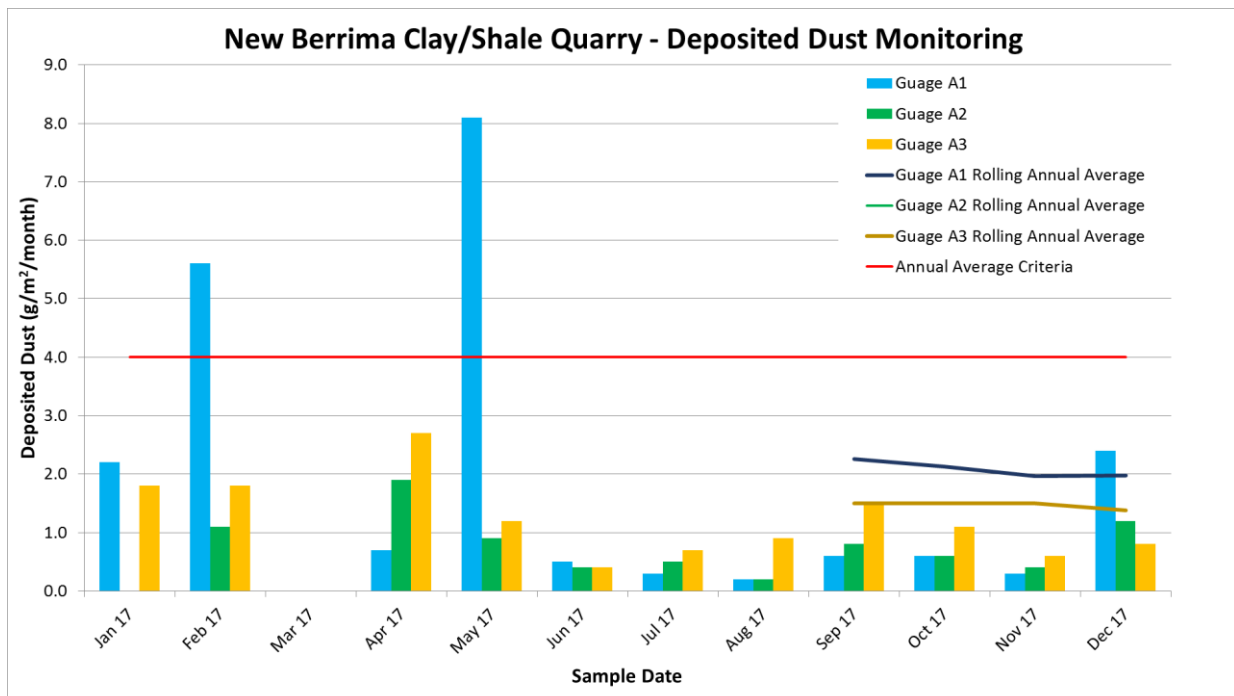


Figure 8
Deposited Dust Monitoring Results

Notwithstanding this result, the annual average monthly deposition rates for the reporting period were between 1.4g/m²/month and 2.3g/m²/month, which is significantly below the criteria of 4g/m²/month, indicating good air quality with respect to dust deposition. Currently there are no discernible trends.

Reportable Incidents and Further Improvements

No complaints were received and no reportable incidents relating to air pollution occurred during the reporting period. However, as evident from **Table 7**, the bottles for deposited dust monitoring were not changed monthly. This was partly due to miscommunication with the laboratory resulting in incorrect bottles, funnels and plugs being supplied to Austral and a focus of meeting requirements for physical commencement. As noted in Section 1 and discussed in Section 11, this is considered a non-compliance with the required monitoring frequency. However, improvements in air quality monitoring practices were implemented in May 2017 with monthly sample changes occurring since that time.

Therefore, no further improvements relating to air pollution are currently planned or considered necessary. However, focus will be placed on continuing to ensure that dust gauge bottles are changed monthly. Additionally, with to the planned commencement of earthmoving and extractive activities, management controls during the next reporting period will be implemented consistent with the approved Air Quality Management Plan.

6.4 ABORIGINAL HERITAGE

Environmental Management

A heritage survey was undertaken by Mr Alexander Beben, a Senior Archaeologist from Biosis, on 28 March 2017 as part of the modification application for PA 08_0212 which included replacement of the bridge crossing over Stony Creek and installation of underground power. Further survey of the bridge crossing and areas of soil stripped as part of physical commencement activities was also undertaken on 6 June 2017 by Mr Beben and a representative from the Illawarra LALC.

As a result of that survey, an isolated stone artefact (New Berrima IS01) was identified as requiring salvage and reburial. Consultation was undertaken with the Illawarra LALC, Wodi Wodi Elders Corporation and Korewal Elouera, Jerrungarugh in relation to the artefact and suitable reburial location. On 13 July 2017, the isolated stone artefact was recovered by Mr Beben in conjunction with representatives from the Illawarra LALC and Wodi Wodi Elders. Jerrungarugh was also contacted but declined to attend. The artefact was reburied on site in the agreed reburial location. For security purposes, the reburial location is not included on publicly available figures. Notification of New Berrima IS01 was made to OEH by Austral Bricks and site cards were lodged by Biosis with the Aboriginal Heritage Information Management System (AHIMS) for New Berrima IS01 and its reburial location "New Berrima Reburial Site". The New Berrima Reburial Site will be used for any artefactual material that is discovered as part of the Quarry operations.

Environmental Performance and Further Improvements

The predictive statements for the Quarry Site indicate that low archaeological potential exists, with some potential for isolated objects to be present. The discovery of New Berrima IS01 is therefore consistent with this predictive statement.

Despite the discovery, the Illawarra LALC, suggested that it is not necessary for an Aboriginal heritage representative to be present during future soil stripping activities. Biosis confirmed that further monitoring is unlikely to be an efficient method of managing harm to Aboriginal objects. Rather, the most efficient means of managing any Aboriginal objects discovered is through the chance finds procedure as detailed in the Aboriginal Heritage Management Plan (AHMP).

As a result, the AHMP was reviewed and updated in consultation with the three registered Aboriginal parties and the OEH. Based on further discussions with the Illawarra LALC a further training component and promotion of cultural awareness was also included within the AHMP. Pending its approval, the management measures within the updated AHMP will be implemented during future reporting periods.

6.5 WASTE MANAGEMENT

The only wastes removed from the Quarry Site during the reporting period were the old bridge span and limited lunch wastes generated by personnel involved in the replacement of the bridge span. The bridge timbers and trusses were removed by truck to Dunsteel for recycling. Lunch wastes were removed from site by the personnel generating the waste.

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

7. WATER MANAGEMENT

7.1 WATER TAKE

During the reporting period, no water was accessed or obtained for the purpose of facilitating Quarry operations. As outlined within the Water Management Plan, the existing and planned water storages on site will either be 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 will be reported within the respective AEMRs.

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

As earthmoving and extraction activities did not occur during the reporting period, the principal management measure involved the maintenance of sediment fencing downslope of the soil stockpiles created in 2016. Sediment fencing was also installed downslope of the bridge replacement activities in case of any sediment wash from the road surface.

Environmental Performance and Further Improvements

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, WS5, WS6 and WS7 represent monitoring locations within ephemeral drainage lines within the Quarry Site which ultimately report to the Wingecarribee River. WS5 is also located on the confluence with drainage lines from the property west of the Quarry Site. As a result, future monitoring is proposed to be undertaken at monitoring location WS5b, which is located upstream of this confluence and will not be affected by water runoff from the adjacent property.
- 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.

A summary of the monitoring results is provided in **Table 8**. This data has been collected as baseline water quality data in addition to the samples collected in 2008. Baseline data will continue to be collected until earthmoving and extractive activities commence in the next reporting period.

Table 8
Results of Water Quality Testing

Parameter	Units	WS1		WS2		WS3		WS4		WS5		WS6		WS7		WS8	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
		Mean		Mean		Mean		Mean		Mean		Mean		Mean		Mean	
pH		7.7	7.7	6.8	7.5	6.8	7.8	NS		6.4	6.7	NS		NS		7.1	7.3
		7.7		6.9		7.0				6.6					7.2		
EC	µS/cm	393	393	102	325	365	970			120	135				150		320
		393		251		590				128					255		
Sodium	mg/L	26.9	26.9	10.0	32.0	10.0	80.0			17.0	18.0				13.0		31.0
		26.9		22.6		31.0				17.5					22.0		
Potassium	mg/L	27.1	27.1	1.2	7.2	4.5	26.0			2.1	4.8				2.4		6.5
		27.1		4.8		8.4				3.5					4.8		
Calcium	mg/L	13.6	13.6	4.0	19.0	34.6	87.0			3.9	4.6				9.5		20.0
		13.6		15.0		71.0				4.3					17.0		
Magnesium	mg/L	7.9	7.9	2.9	11.0	6.8	28.0			2.3	2.8				6.2		9.3
		7.9		8.1		12.0				2.6					8.4		
Chloride	mg/L	60	60	15	48	42	195			35	37				27		50
		60		37		55				36					39		
Sulfate	mg/L	2	2	13	37	24	84			0	0				10		36
		2		25		28				< LOR					22		
Bicarbonate	mg/L	NT	NT	55	77	135	280			12	21				38		74
		NT		67		210				17					63		
Phosphate	mg/L	NT	NT	0.1	0.2	0.1	1.3			0.1	0.1				0		0
		NT		0.1		0.1				0.1					< LOR		
Fluoride	mg/L	NT	NT	0.1	0.4	0.1	0.3			0.0	0.0				0.1		0.4
		NT		0.2		0.2				< LOR					0.1		
Nitrate	mg/L	NT	NT	0.3	2.1	0.1	0.9			0.0	0.0				0.3		2.1
		NT		1.2		0.3				< LOR					1.2		
Total Ammonia	mg/L	NT	NT	0.0	1.6	0.1	3.3			0.3	0.3				0.1		0.2
		NT		0.5		0.3				0.3					0.1		
TKN	mg/L	7.3	7.3	0.2	3.8	0.6	17.0			1.5	1.7				0.1		1.2
		7.3		1.4		4.3				1.6					1.0		
Total Phosphorus	mg/L	0.2	0.2	0.0	0.5	0.0	1.6			0.2	0.8				0.1		0.1
		0.2		0.2		0.5				0.5					0.1		
TSS	mg/L	32	32	11	34	4	340			61	290				5		12
		32		21		80				176					10		
Turbidity	NTU	NT	NT	17.0	36.0	2.6	180.0			80.0	180.0				3.5		18.0
		NT		23.4		29.0				130.0					10.5		

NS = No Sample
NT = Not Tested

General conclusions that can be drawn from the baseline water quality monitoring to date are as follows.

- Water has not been present at WS4, WS6 and WS7 during any monitoring events and has not been present at WS1 since the August 2008 sampling event. As these are ephemeral drainage lines located in well vegetated catchments, run off events will be limited to short periods following adequate rainfall.
- At WS2 and WS8, water has been present during all monitoring events., As would be expected given their location within Wingecarribee River, the results for most parameters are very similar between these locations with near neutral pH ranging from 6.8 to 7.5 and low electrical conductivities ranging from 102µS/cm to 325µS/cm. Whilst generally low, total suspended solids (TSS) and turbidity tends to be slightly higher at WS2 (upstream) ranging from 11mg/L to 34mg/L and 17NTU to 36NTU respectively.

- At WS3 (Stony Creek upstream), water has also been present during all monitoring events and, similar to Wingecarribee River, has near neutral pH ranging from 6.8 to 7.8. However, the electrical conductivity, TSS and turbidity are higher, ranging from 365 μ S/cm to 970 μ S/cm, 4mg/L to 340mg/L and 2.6NTU to 180NTU and is likely reflective of agricultural and industrial activities further upstream.
- At WS5, sufficient water was present in June and July 2017 to collect samples for analysis. The pH values were also near neutral at 6.4 and 6.7 and electrical conductivity was low at 120 μ S/cm and 135 μ S/cm. Similar to WS3, TSS and turbidity were elevated, at 61mg/L and 290mg/L and 80NTU and 180NTU respectively.

Water quality is generally consistent with ANZECC guidelines for lowland rivers in NSW except for exceedances of the 50mg/L TSS objective. As noted above, elevated TSS and turbidity levels in samples taken at WS3 and WS5 were likely the result of extraneous upstream sources.

In light of these results, consideration was given to the location of the monitoring points. As WS5 was designated as a discharge monitoring location for the Quarry but has been determined to be located on the confluence with drainage lines from the property west of the Quarry Site, an alternate monitoring location has been proposed. This location, WS5b, is located upstream of the drainage line confluences and will not be affected by water runoff from the adjacent property. The alternate monitoring location has been included within the updated Water Management Plan and monitoring at this location will commence during the next reporting period.

No incidents or other issues arose during the reporting period.

8. REHABILITATION

8.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD

Figure 4 shows the status of the Quarry Site at the end of this reporting period whilst **Table 8** provides a summary of the disturbance and rehabilitation areas.

Table 9
Summary of Areas Disturbed and Rehabilitation

Quarry Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	Year 1 (ha)	Year 2 (ha)	Year 3 (ha)
Total Quarry footprint	2.0	2.0 ¹	9.3 ²
Total active disturbance	2.0	2.0 ¹	9.3 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 1.9ha of temporary rehabilitation.			
2. Includes approximately 4.4ha of temporary rehabilitation (estimated).			

Disturbance on site currently consists of the previously created preliminary topsoil stockpiles from soil removal from sections of the central visibility barrier, adjacent to the Quarry entrance and to surplus overburden stockpile area. It was identified during the reporting period that pasture cover was not establishing on the topsoil stockpiles due to grazing by cattle (who were selectively grazing the new grass growth). The cattle were removed to enable the pasture to better regenerate.

During the reporting period four small pads (approximately 2m x 2m) were also levelled on the existing access road and road batter to provide level footing for the crane to remove the existing bridge span across Stony Creek and place the new span. The pads were smoothed immediately following use of the crane with no further rehabilitation required.

8.2 ACTIONS FOR THE NEXT REPORTING PERIOD

Rehabilitation planned during the next reporting period will principally depend upon the progress of the visibility barrier construction. It is expected that the barrier construction will be completed during the next reporting period with soil stripped from the footprint of the barriers spread over the barriers and seeded with pasture species for temporary rehabilitation. Additionally, whilst not strictly a rehabilitation activity, planting of the vegetative screens is also planned to take place (see **Figure 5**). Temporary rehabilitation and stabilisation will be undertaken in accordance with the Landscape Management Plan and Water Management Plan.

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

With the exception of continued engagement with the Community Consultative Committee (CCC) and the committee meetings held, no specific community engagement activities or actions occurred during the reporting period.

Two meetings of the CCC were held in 2017, namely on 29 March 2017 and 26 July 2017. A copy of the CCC meeting minutes are posted on Austral's website (<http://australbricks.com.au/environmental-monitoring-data/>) under "New Berrima (NSW)". These meetings continued to provide the opportunity for the Company to update the CCC members and the members to ask questions on the status of the Modification No. 2 application, heritage survey activities being undertaken, the receipt of M(MO)L6 and plans for future site establishment and operational activities. A site inspection was also undertaken during the March 2017 meeting.

10. INDEPENDENT AUDIT

The first independent environmental audit of the Quarry was undertaken in August 2017, in accordance with *Schedule 5 Condition 9* of PA 08_0212. As a result, of the audit, four recommendations were provided. A summary of the audit recommendations, proposed action/response and status update is presented in **Table 10**.

Table 10
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: <ul style="list-style-type: none"> • 2017 Independent Environmental Audit; • 2016 Annual Review and associated DPE comments; and • Modification 2 of PA 08_0212. 	The draft management plans were submitted to DPE with DPE comments addressed during January 2018. The draft Aboriginal Heritage Management Plan was provided to OEH and the Registered Aboriginal Parties for comment. Awaiting final OEH comment.
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.	The draft Water Management Plan was provided to Water NSW and Lands and Water for comment. Finalisation and approval of all management plans is expected during early 2018.
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 – Compliance & Environmental Coordinator. Secondary collector – Raw Materials & Mining Manager.
	Include confirmation of dust bottle collection and receipt of results into monthly checklist. <i>Note: The monthly checklist will also include confirmation of all applicable monitoring as outlined within the updated Management Plans.</i>	Monthly checklist to be finalised early 2018 (prior to commencement of site establishment). Regular internal checks of sample collection continue in the interim.
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 condition 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.	No further action currently required (no further soil stripping occurred during the reporting period). Soil stripping and stockpiling is planned during the next reporting period with seeding to be undertaken in accordance with the approved Water Management Plan.
	Include requirement to seed long-term soil stockpiles in future contractual agreements with earthmoving contractor.	Not yet applicable – no soil stripping undertaken during the reporting period. This will be undertaken prior to commencement of further soil stripping activities.

The next Independent Environmental Audit is due to be undertaken by August 2020.

11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

During the reporting period, two show cause notices were received from DPE dated 19 May 2017 and 8 December 2017. Copies of these notices and resulting correspondence and cautions are provided in **Appendix 5**.

The 19 May 2017 show cause notice related to noise monitoring, baseline water monitoring and monitoring of soil stripping for Aboriginal heritage. These matters were addressed in the updated 2016 Annual Review and in a response letter provided to DPE on 14 June 2017 (see **Appendix 5**). In short, Austral contends that no non-compliance occurred in relation to noise monitoring but acknowledges that the water and heritage monitoring did not occur as proposed within the management plans. As a result, three official cautions were issued by DPE (see **Appendix 5**).

The 8 December 2017 show cause notice related to air quality monitoring and failure to sow pasture species on the soil stockpiles created during the 2016 physical commencement activities. A full response to the notice was provided to DPE on 19 January 2018 which confirmed that monthly air quality monitoring has been completed since May 2017 and that grass establishment on the soil stockpiles had been impeded by cattle grazing but had been addressed during August 2017, following the Independent Environmental Audit (see Section 10). As a result, the DPE confirmed that no further action is to be taken at this time.

As a result of these matters, the compliance review for the reporting period (see Section 1 and **Appendices 1 to 3**) determined that six conditions were non-compliant. Three of these non-compliances arose due to the failure to change the deposited dust bottles on a monthly cycle between January and April 2017 as required by PA 08_0212 *Condition 3(11)* and EPL 20377 *Conditions M2.2 and M3.1*. One non-compliance arose due to the baseline water quality monitoring not commencing as specified within the Water Management Plan, therefore causing non-compliance with PA 08_0212 *Condition 3(18)*. The remaining two non-compliances related to the failure to sow pasture species on the soil stockpiles within a reasonable timeframe resulting in non-compliance with PA 08_0212 *Conditions 3(34) and 3(35)*.

As discussed above and outlined in Austral's responses, actions were taken as soon as Austral became aware of these issues. Austral takes their compliance obligations very seriously and acted in good faith at all times. Whilst the non-compliances did not result in environmental harm or the potential for harm, and notwithstanding the actions taken immediately following identification of the non-compliances, Austral is continuing to work on improving procedures and management documentation to minimise the risk of any future non-compliance. This has included a full review and update of the management plans for the Quarry. Internal checklists will also be developed and implemented prior to the commencement of construction of the visibility barriers (planned during 2018).

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 initial site establishment and construction activities, including construction of the visibility barriers, access roads, intersections, offices and amenities.
- Commencement of extraction and transportation.
- Planting of the visual tree screens.
- Temporary rehabilitation of the visibility barriers and completed stockpiles.
- Continued environmental monitoring.
- Continued community consultation, principally through the CCC.

Key environmental improvements planned during the next reporting period including the following.

- Preparation of internal checklists to assist in ensuring that all required activities and actions are completed within required timeframes – to be completed prior to barrier construction activities.
- Commencement of surface water monitoring at location WS5b to removing potentially confounding influences of inflows from the adjacent property – planned to be commenced from March 2018.
- Completion of cultural heritage training by key Austral personnel (as proposed within the updated Aboriginal Heritage Management Plan) – to be completed prior to further soil stripping activities.

Investigation of automated monitoring and notification systems will also be undertaken, including use of water level sensors and telemetry services, to assist with environmental monitoring and management.

No further updates to the management plans are expected to be required as a result of these measures or the preparation of this Annual Review. However, in addition to the management plans, a Mining Operations Plan, as required by M(MO)L 6, will be prepared for approval of the Division of Resources and Geoscience prior to the commencement of barrier construction or any extraction activities.