

Gunlake Quarry Project



Annual Review
1 July 2022 to 30 June 2023



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ANNUAL REVIEW INFORMATION

Name of Operation	Gunlake Quarry
Name of Operator	Gunlake Quarries Pty Ltd
Development Consent No.	LEC 2017/108663 as modified by LEC 2020/00327172
Name of holder of Development Consents	Gunlake Quarries Pty Ltd
Mining lease #	N/A
Name of holder of mining lease	N/A
Water licence #	WAL42340 and WAL44232
Name of holder of water licence	Gunlake Quarries Pty Ltd
MOP/RMP start date	N/A
MOP/RMP end date	N/A
Annual Review start date	01 Jul 2022
Annual Review end date	30 Jun 2023
This report is the Annual Review for Gunlake Quarry covering the above-mentioned period	
Name of authorised reporting officer	Ed O'Neil
Title of authorised reporting officer	Managing Director
Date	28/9/2023

1. Introduction

Gunlake Quarry (the Quarry) is a hard rock quarry operated by Gunlake Quarries Pty Ltd (Gunlake) and is located approximately 7 km northwest of Marulan, off the Brayton Road as shown on Figure 1, Appendix C. Gunlake is an independent quarry producer and provides aggregates and manufactured sand for its own operations in Sydney as well as other markets. The defined hard rock resource contains material suitable for use in a full range of quarry products including concrete and sealing aggregates, rail ballast, manufactured sand and road base. The quarry has an expected life of over 100 years and approval under the development consent has been obtained for a 25 year period.

This Annual Review has been prepared in accordance with Schedule 5 Condition 10 of LEC Consent 2017/108663 (as modified by LEC 2020/327172, Appendix A) for Gunlake Quarry and covers the operations and environmental monitoring undertaken at Gunlake Quarry for the period 1 July 2022 to 30 June 2023. This Annual Review also outlines the proposed operations for the next reporting period including additional measures that will be implemented to improve the environmental performance of the project. Monitoring locations are shown in Figure 2, Appendix C.

2. ANNUAL REVIEW REQUIREMENTS

By the end of September each year, or other timing as may be agreed by the Secretary, Gunlake must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the secretary. This review must:

- a) describe the development (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year;
- b) include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, which includes a comparison of these results against the:
 - relevant statutory requirements, limits or performances measures/criteria; • requirements of any plan program required under this consent;
 - monitoring results of previous years; and
 - relevant predictions in the documents listed in condition 2(a) of Schedule 2;
- c) identify any non-compliance over the past financial 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 development
- e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- f) describe what measures will be implemented over the current financial year to improve the environmental performance of the development.

The Applicant must ensure that copies of the Annual Review are submitted to Council and the EPA and are available to the Community Consultative Committee and any interested person upon request in accordance with condition 7, Schedule 5 of the LEC Consent.

2.1 Key Personnel

Details of the management personnel at Gunlake Quarry are provided in Table 2.1 below. Additional specialist advice is provided as required by a range of environmental consultants.

Table 2.1 –Quarry Contacts

Role	Name	Contact
Quarry Manager	Vince Matthews	02 4841 1344
Project Manager	David Kelly	02 4841 1344
Director	Ed O'Neil	02 4841 1344

3. APPROVALS

3.1 Project Approval

Gunlake Quarry held Project Approval 07_0074 for the original development of the quarry which was surrendered on 6th August 2018.

3.2 Gunlake Extension Project SSD Development Consent 2017/108663 (as modified)

In April 2016 Gunlake submitted the EIS for the Gunlake Quarry Extension Project to the then DPE. This project was subject to assessment under Division 4.1 of Part 4 of the EP & A Act and represents a State Significant Development.

Development Consent for the Gunlake Extension Project was refused by the NSW Planning Assessment Commission in April 2017, with the determination based primarily on community impacts associated with product transportation. This determination was referred to the Land and Environment Court (LEC), and approval of the Gunlake Extension Project was granted on 30th June 2017 as an outcome of the S34 agreement (Appendix A). This consent (as modified by LEC 2020/327172) is the consent under which the quarry currently operates.

3.3 Gunlake Continuation Project SSD 12469087

the Gunlake Continuation Project was approved by DPE on 2nd March 2023.

3.4 EPA Environment Protection Licence

The quarry holds Environment Protection Licence 13012 administered by the NSW Environment Protection Authority covering all scheduled activities undertaken at the Quarry (Appendix B).

3.5 Federal Approval EPBC

Prior to its approval, the Gunlake Extension Project was referred to the Federal Department of the Environment and Energy and it was determined that the project comprised a controlled action with impact to threatened species and communities listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The controlled action was subsequently approved under the EPBC Act on 17th November 2017 (EPBC 2015/7557).

3.6 Water Access Licence

Gunlake holds two water access licences (WAL42340 and WAL44232) which combined allow for 72ML annual extraction from the Goulburn Fractured Rock Groundwater Source in the Greater Metropolitan Region Groundwater Source Water Sharing Plan.

4. OPERATIONS SUMMARY

The following sections provide a summary of the works undertaken at Gunlake Quarry during the period 1st July 2022 to 30th June 2023.

4.1 Quarry Operations

4.1.1 Land Preparation

Within the reporting period, land preparation in the approved Gunlake Extension Project pit area continued in the south-western corner of the quarry. The only vegetation cleared for this purpose during the reporting period was approximately 0.4 ha of pasture, which was stripped and retained in the topsoil and stockpiled adjacent to the western overburden emplacement area for future use in rehabilitation. Following vegetation removal and soil stripping activities, overburden was removed progressively to prepare the area for blasting and subsequent resource extraction. Overburden emplacement continued in the Western Overburden Emplacement (WOE) area.

4.1.2 Drilling and Blasting

Drilling and blasting is undertaken by specialist contractor. A total of 43 blasts occurred during the reporting period. All blasts were fully monitored, and neighbours notified of the blasts as outlined in the Noise and Blast Monitoring Program. Results of the blast monitoring are provided in Section 6.7.

Regular drilling and blasting will continue during the next 12 months as required to prepare quarry rock for removal to the crushing and processing plant. The information collected during blasting already undertaken will continue to be used to assist with the design of the regular blasting activities.

4.1.3 Crushing and Processing

Crushing and processing continued during the reporting period within the processing area. A heavy vehicle haul road connects the quarry pit and the processing area, allowing quarried rock to be transported by dump trucks from the extraction area to the processing area. The processing plant features atomised water dust suppression systems at all of the discharge points.

A front end loader is used to load various products into road registered trucks for transport to various market destinations. The processing equipment and saleable products stockpiles area acoustically and visually screened by the overburden emplacement bund wall and also by the nature of the existing topography.

Quarrying and processing activities will continue during the coming reporting period.

4.1.4 Maintenance and Rehabilitation

Maintenance on plant and equipment is scheduled and carried out on a regular basis. Rehabilitation is undertaken on a progressive basis. During the reporting period, final shaping of the completed benches at the northern northwestern end of the WOE was not possible due

to heavy rainfall and prolonged boggy conditions and therefore rehabilitation that was scheduled for the reporting period was not completed. These areas have now been completed and sowing of seed and planting of tubestock is scheduled for Spring 2023. Weed spraying of tussock and blackberry was undertaken by specialist contractors in the biodiversity offset areas.

4.1.5 Hours of Operation

Table 4.1 Hours of Operation

Activity	Permissible Hours
Construction	7am to 6pm Monday to Friday 8am to 1pm Saturday At no time on Sunday or Public Holidays
Blasting	9am to 5pm Monday to Friday At no time on Saturday, Sunday or Public Holidays
Quarrying Operations (excluding overburden removal/ emplacement and drilling)	24 hours a day but not between 6pm Saturday and 2am Monday At no time on Sunday or Public Holidays
Overburden removal/ emplacement and drilling	7am to 6pm Monday to Saturday At no time on Sunday or Public Holidays
Loading and Dispatching	24 hours a day but not between 6pm Saturday and 2am Monday At no time on Sunday or Public Holidays
Transportation on the primary transport route	24 hours a day but not between 6pm Saturday and 2am Monday At no time on Sunday or Public Holidays
Transportation on the secondary transport route	6am to 7pm Monday to Saturday At no time on Sunday or Public Holidays
Maintenance	At any time provided that the activity is not audible at any privately-owned residence

4.2 Traffic and Transportation

Gunlake Quarry operates under an approved Traffic Management Plan (TMP) which was reviewed and updated following approval of Mod 2 - LEC Consent 2020/00327172 and subsequently approved by DPE in December 2022.

Saleable products are transported by truck from the quarry direct to the Sydney market and to other markets north and south of Marulan. South bound trucks use the Brayton Road to access the purpose built and grade separate Hume Highway interchange at Marulan, and trucks returning from the south continue north along the highway past the Marulan interchange

and turn left onto Red Hills Road intersection to use Ambrose Road to Brayton Road. Trucks heading north use Ambrose Road exiting onto the Hume Highway at the Red Hills Road intersection. Trucks returning from the north cannot make a right hand turn from the Highway at Red Hills Road. They travel further south to the South Marulan Interchange on the Highway and use the grade-separated roundabout intersection to U turn and access the northbound lane in the Hume Highway and return to make a left hand turn into Red Hills Road, and then use Red Hills Road, Ambrose Road and Brayton Road back to the Quarry. Trucks returning from the southern customers travel north along the Hume Highway and utilise Red Hills Road, Ambrose Road and Brayton Road.

4.2.1 Product Transport

The majority of the product from the quarry is transported north towards Sydney via the road network. During the reporting period daily truck movements were limited to an average of 220 inbound movements and 220 outbound movements, including no more than 25 outbound movements on the secondary transport route, per working day (averaged over the working days in each quarter and a maximum of 295 inbound movements and 295 outbound movements, including no more than 38 outbound truck movements on the secondary transport route, per working day.

4.2.2 Council Contributions

Goulburn Mulwaree Council will receive a S94 contribution of approximately \$750,000 for the financial year ending 30th June 2023 from Gunlake. This S94 contribution is for maintenance of the Council roads on the Primary and Secondary Transport Routes. Council has a fully funded road maintenance plan and budget using Gunlake contributions.

4.3 Employment

The workforce at Gunlake Quarries has continued to grow through the reporting period in accordance with the requirements of quarry development.

4.4 Next Reporting Period

During the coming reporting period quarrying will continue in the Gunlake Extension Project extraction area with further bench development widening the floor in the combined south-east and south-west pits. General quarrying operations will continue with:

- pre-stripping of topsoil in the south-west corner of the approved pit area;
- overburden removal and emplacement;
- drill and blast activities;
- resource extraction and hauling;
- crushing, screening and stockpiling operations; and
- maintenance and rehabilitation activities.

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

This Annual Review represents the fifth Annual Review as required under the LEC Consent 2017/108663 (as modified by LEC 2020/00327172). The Previous Annual Review was provided to DPE, Goulburn Mulwarree Council and EPA. Comments were provided by DPE on 25th October which were administrative in nature. The report was updated and resubmitted to DPE and made available on the company website.

6. ENVIRONMENTAL PERFORMANCE

6.1 Environmental Management

Gunlake operates under a series of environmental management plans and monitoring programs to minimise and manage the identified potential environmental impacts associated with the project. These plans include:

- Noise and Blast Management Plan;
- Air Quality Management Plan;
- Soil and Water Management Plan;
- Rehabilitation and Biodiversity Offset Management Plan;
- Aboriginal Heritage Management Plan; and
- Traffic Management Plan.

This section addresses the EIS predictions, performance criteria, operational measures, commitments and management activities that have been defined as relevant for the Gunlake Quarry Extension Project.

The above-mentioned management plans were reviewed in accordance with the Gunlake Extension Project SSD LEC Consent following the Independent environmental audit undertaken for the site in August 2022. The review resulted in an update to the Aboriginal Heritage Management Plan which was provided to Heritage NSW and Registered Aboriginal parties for comment and subsequently to DPE for approval.

The Biodiversity and Rehabilitation Management Plan (BRMP) required by the LEC Consent for the Extension Project was prepared and submitted to DPE in May 2018. Finalisation and approval of the plan was delayed due to pending determination of Mod1 of the LEC Consent. In October 2022 the proposed modification was rejected by the LEC and Gunlake was requested by DPE to finalise the BRMP. The plan was submitted in April 2023 and is pending approval. The Rehabilitation and Biodiversity Offset Management Plan (RBOMP) prepared under Project Approval 07_0074 remains the approved management plan until the BRMP is approved.

6.2 Environmental Constraints

Large parts of NSW experienced extreme drought conditions which began in early 2017 and culminated in late 2019 to early 2020 with the peak drought conditions impacting regionally across the state. This timeframe was characterised by extensive hot dusty and windy conditions and a catastrophic bushfire season due to areas of extremely dry vegetation. The poor air quality and dusty conditions were exacerbated by land degradation, soil erosion and the driest 36 month period on record in Australia.

The drought subsequently broke in early 2020, and following on from the initial rains in February 2020, the region has experienced higher-than-average rainfall over the past three reporting periods. From late February 2022 to July 2023 the region experienced periods of

extremely wet conditions with intense rainfall events that resulted in widespread flooding on a number of occasions in that timeframe. The wet conditions lead to delays in weed spraying and rehabilitation activities but also led to increased growth of existing vegetation which resulted in generally less dusty conditions. The first six months of 2023 have seen slightly drier conditions which has enabled weed spraying and rehabilitation activities to commence.

6.3 Meteorological Monitoring

Gunlake Quarry operates a weather station at site in accordance with condition 18 of Schedule 3 of the LEC Consent. The station provides data for day to day operations and environmental management. The station was upgraded in December 2022.

6.3.1 Rainfall

Table 6.1– Total Monthly Rainfall (mm)

Rainfall 2021/2022												
Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Tot
30.2	70.8	45.4	45.2	183.2	70.6	118	272	272	99.5	56	8.0	1270.9
Number of Rain Days (≥1mm)												
7	9	6	7	15	7	11	8	13	10	9	2	104
Rainfall 2022/2023												
Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Tot
195	63	44	140	111	43	95	84	52	85	23	24	959
Number of Rain Days (≥1mm)												
8	9	6	10	7	4	10	12	8	9	4	4	91

Graph 6.1 – Monthly Rainfall and Number of Rain Days

6.3.2 Temperature

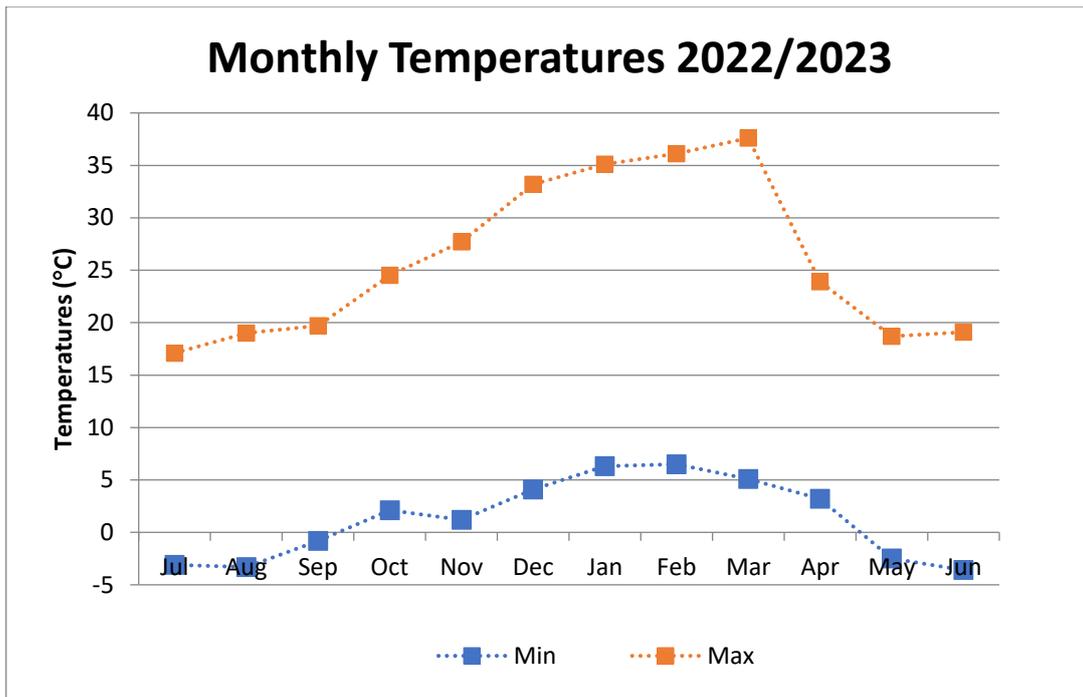
Table 6.2 - Minimum and Maximum Monthly Temperatures (°C)

2021/2022

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Min	-3.9	-1.8	1.4	2.5	5.6	5.7	10.9	7.7	7.6	6.9	0.3	-2.2
Max	19.7	21.8	22.2	26.9	25.1	30.9	32.6	29.6	27.6	24.4	22.6	14.7

2022/2023

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Min	-3.1	-3.3	-0.8	2.1	1.2	4.1	6.3	6.5	5.1	3.2	-2.5	-3.6
Max	17.1	19.0	19.7	24.5	27.7	33.2	35.1	36.1	37.6	23.9	18.7	19.1

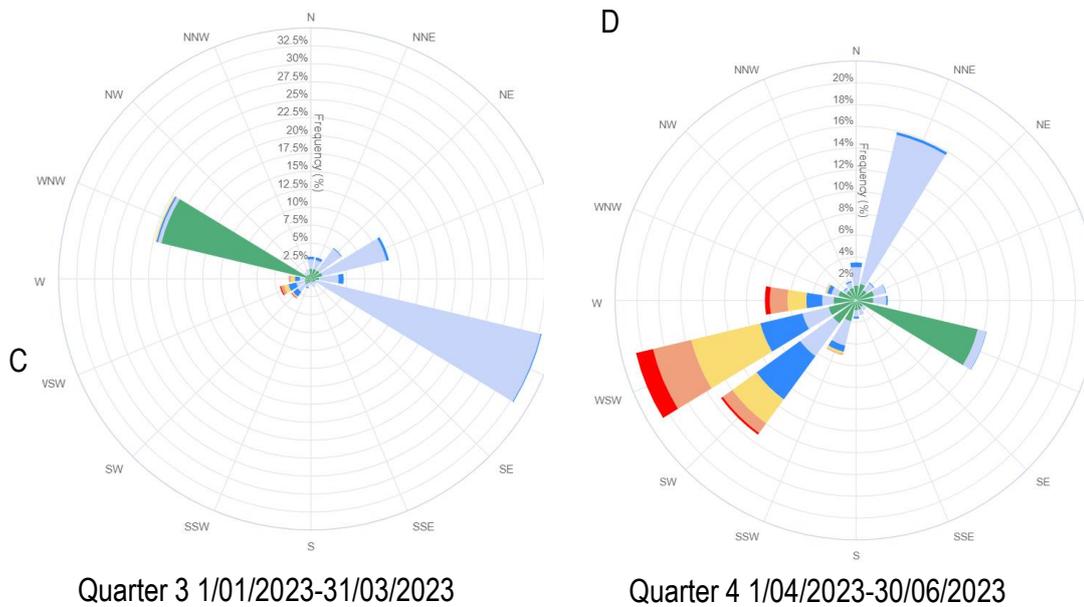
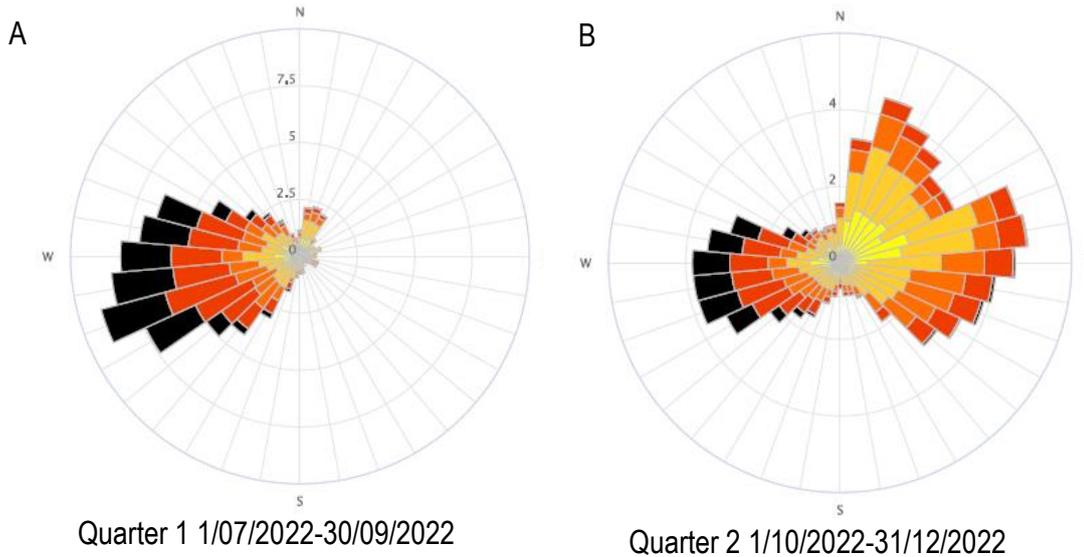


Graph 6.2 – Monthly Minimum and Maximum Temperatures

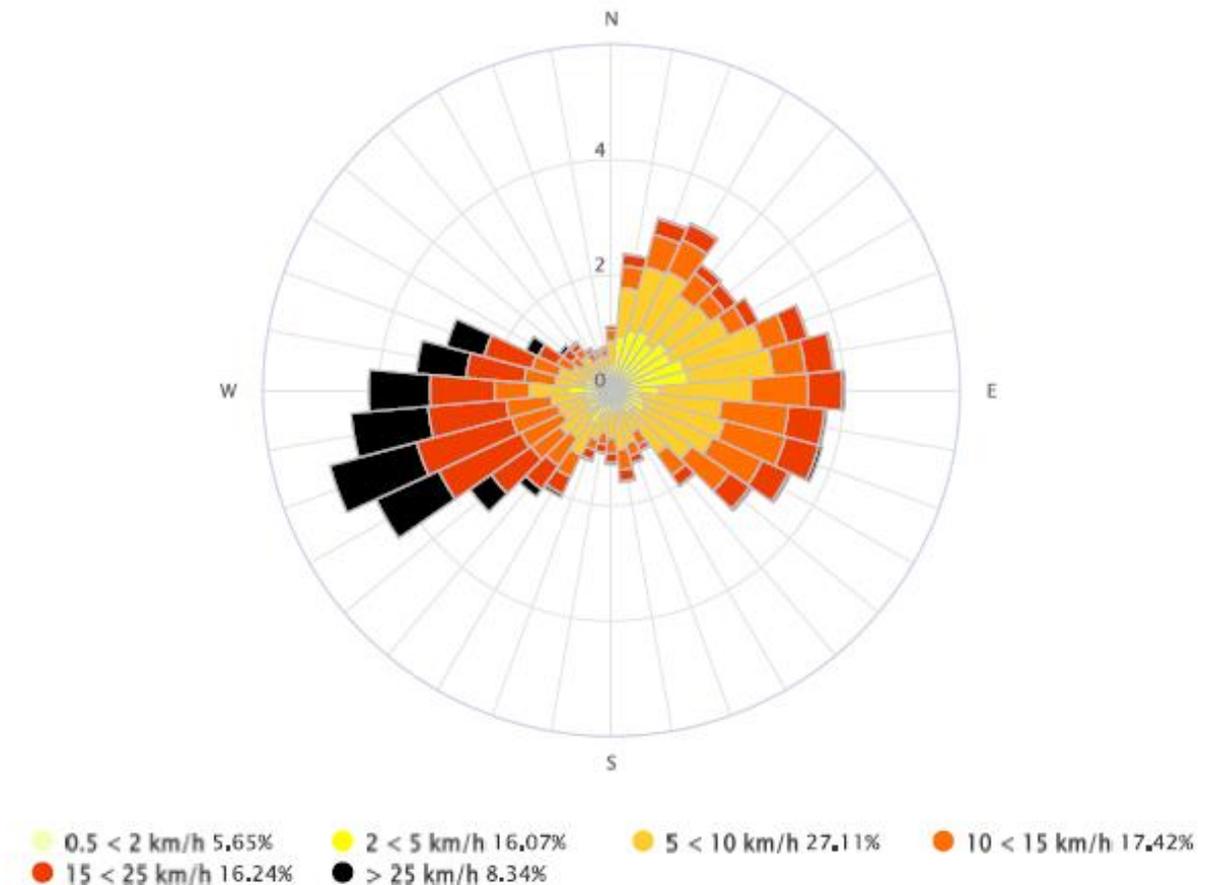
The area is characterised by mild to hot summers and cool to cold winters. The 2022-2023 summer was hotter than the previous year, with a maximum summer temperature of 37.6°C (Graph 6.2). June 2023 was the coldest month with minimum daily temperatures reaching -3.6°C. Table 6.2 shows temperature for the past two reporting periods.

6.3.3 Wind

Quarterly wind roses representing the four seasons and an annual wind rose showing wind speed and direction data recorded by the Gunlake weather station are shown in Graph 6.3 (A-D) and Graph 6.4 respectively. The annual recorded wind pattern consists of strong, high speed west-southwest to west-north-westerly between April and December, however lower speed air flow is predominant from northeast to southeast from October to March (Graph 6.3 B, C).



Graph 6.3 Quarterly Wind Roses from Gunlake Quarry Station 2022/23



Graph 6.4 Annual Wind Rose Gunlake Quarry Weather Station

The winter months are characterised by strong, dominant west to south-westerly winds with speeds above 25km/hr approximately 20% of the time. Winds from October through to December show a shift from the strong westerly winds to the calmer easterly and north-easterly winds which are more dominant over this period. The summer and autumn months are characterised by dominant calmer north-east to south-easterly winds with occasional strong west-south-west winds. The long term average recorded wind speed is 3.5 m/s, and calm conditions were less frequent than the previous year with a frequency of wind speeds less than 0.6 m/s just 5.6% of the time (Graph 6.4).

6.4 Air Quality

Gunlake Quarry operates under an approved Air Quality Management Plan (AQMP), which documents the control measures and management initiatives to control dust generation from the site.

There are three broad dust sources which may be measured as part of the monitoring program, which are:

- Background sources such as from traffic on unsealed local roads and agricultural activities,
- Dust generated from land disturbance such as topsoil stripping and overburden emplacement; and

- Dust generated from material processing and handling, such as crushing, screening and conveying product.

For the purposes of this Annual Review, the monitoring data, assessment criteria and predictions made in the Air Quality Impact Assessment prepared for the Gunlake Extension Project Mod 2 Application will be compared to determine Gunlake's performance over the reporting period.

6.4.1 Dust Control Measures

A summary of the dust mitigation strategy is provided in Table 6.3. In addition to the below controls, during adverse meteorological conditions when wind speed exceeds 8m/s the Quarry Manager may limit or stop specific activities being undertaken in the Quarry in order to reduce dust emissions.

A dry baghouse dust collection system is utilised on the main tertiary plant to reduce dust emissions. Maintenance was carried out on the system during the reporting period to increase efficiency of the system to capture more dust. Dust suppression on the haul roads has increased with the use of an environmentally friendly and biodegradable dust suppressant designed to keep unsealed surfaces wetter for longer and thus minimise the volume of water required for dust suppression.

Table 6.3 - Air Quality and Dust Management Measures

Activity	Control
Stripping, transport, and emplacement/stockpiling of topsoil	Minimise clearing ahead of extraction activities Avoid stripping in high wind conditions Revegetation of completed surfaces
Removal, transport and placement of overburden	Water cart used on haul roads
Drilling activities	Dust apron on drill rig
Blasting activities	Blast design to minimise fine particles
Face loading	Water cart used on hardstand areas and extraction benches
Hauling raw product on internal haul roads	Water truck Speed limit
Conveyors and transfer points	Water sprays
Crushing, screening	Water sprays
Product stockpiles	Located in nominated areas with topographic shielding
Product loading and dispatch	Use of minimal heights when loading Water cart used on hardstand areas Road registered trucks equipped with automatic tarps Use of bypass road avoids residential areas of Marulan
Internal haul roads	Water truck, chemical suppressants
General on-site activities	Water truck Alarm on weather station when wind speeds exceed 8 m/s

6.4.2 Air Quality Monitoring Program

The Gunlake AQMP contains assessment criteria, reporting protocol and compliance checking procedures and monitoring program to enhance the management of any potential air quality impacts associated with the Project. In addition to the assessment criteria, Gunlake have made specific commitments and the LEC Consent contains a number of conditions aimed at minimising air quality impacts.

The approved air quality monitoring program for the Gunlake Extension Project comprises the following:

- Three dust deposition gauges located to the northeast, south and northwest of the quarry operations as shown on Figure 2;
- Two high volume air samplers located at R1 to the east of the quarry (PM₁₀ and PM_{2.5}) and one high volume air sampler at R4 (PM₁₀) located to the northwest of the quarry; and
- Automatic weather station located adjacent to the site offices;

The air quality monitoring activities are summarised in Table 6.4 below.

Table 6.4 –Air Quality Monitoring Program

Monitoring Site	Parameter	Timing
DDG1	Deposited Dust	Monthly (30 days +/- 2 days)
DDG2	Deposited Dust	Monthly (30 days +/- 2 days)
DDG3	Deposited Dust	Monthly (30 days +/- 2 days)
R1 (HVAS)	Particulate Matter (PM _{2.5})	One day in six cycle
R1 (HVAS)	Particulate Matter (PM ₁₀)	One day in six cycle
R4 (HVAS)	Particulate Matter (PM ₁₀)	One day in six cycle
Weather Station	Meteorological Parameters	Continuous

6.4.3 Background Dust Concentrations

As part of the Air Quality Impact Assessment for the Gunlake Extension Project Mod 2 Application, monitoring data from the quarry as well as regional datasets was used to determine background air quality concentrations at the nearest residential receptors. These are shown in Table 6.5 below and are considered low in comparison to typical agricultural environments.

Table 6.5 – Background Air Quality Concentrations

Parameter	Concentration
24-hour average PM ₁₀	Varies daily (2.8 ug/m ³ to 74.7 ug/m ³)
Annual average PM ₁₀	14.5 ug/m ³
24-hour average PM _{2.5}	Varies daily (1.5 ug/m ³ to 25.1 ug/m ³)
Annual Average PM _{2.5}	6.9 ug/m ³
Annual average TSP	29.5 ug/m ³
Combined Annual Average Dust Deposition	2.8 g/m ² /month

6.4.4 Air Quality Assessment Criteria and Predictions

Table 6.6 defines the short term and long term impact assessment criteria for particulate matter and Table 6.7 defines the long term impact assessment criteria for deposited dust.

Table 6.6 Short Term and Long Term Particulate Matter Impact Assessment Criteria

Pollutant	Averaging Period	^d Criterion
Total Suspended Particulate matter (TSP)	Annual	^{a,d} 90 ug/m ³
Particulate Matter < 10um (PM ₁₀)	Annual	^{a,d} 25 ug/m ³
	24 Hour	^b 50 ug/m ³
Particulate Matter < 2.5um (PM _{2.5})	Annual	^{a,d} 8 ug/m ³
	24 Hour	^b 25 ug/m ³

Table 6.7 Long term Assessment Criteria for Deposited Dust

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level
^c Deposited dust	Annual	^b 2g/m ² /month	^{a,d} 4g/m ² /month

Notes to Tables 6.6 and 6.7:

- Cumulative impact (i.e. increase in concentrations due to the development plus background concentrations due to all other sources);
- Incremental impact (i.e. incremental increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development);
- 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; and
- Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, or any other activity agreed by the Secretary.

6.4.5 Dust Deposition Monitoring Results

Table 6.8 includes the dust fallout data for the reporting period which is shown graphically in Graph 6.5 with the annual rolling average shown in Graph 6.6. Dust deposition levels are monitored by Gunlake at three locations in the vicinity of the quarry. Dust Deposition Gauge 1 (DDG1) is located to the northeast of the quarry, DDG2 to the south and DDG3 to the northwest. Monitoring has been undertaken on a monthly basis continually since 2007 and the locations of the monitoring sites are shown on Figure 2.

The Gunlake property is predominantly grassland with patches of well vegetated areas with tall trees. Sources of particulate matter in the area would include quarrying activities from both Gunlake and neighbouring operations, traffic on unsealed roads, local building and construction activities, and agricultural activities.

Table 6.8 Dust Monitoring Results – Insoluble Solids (g/m²/month)

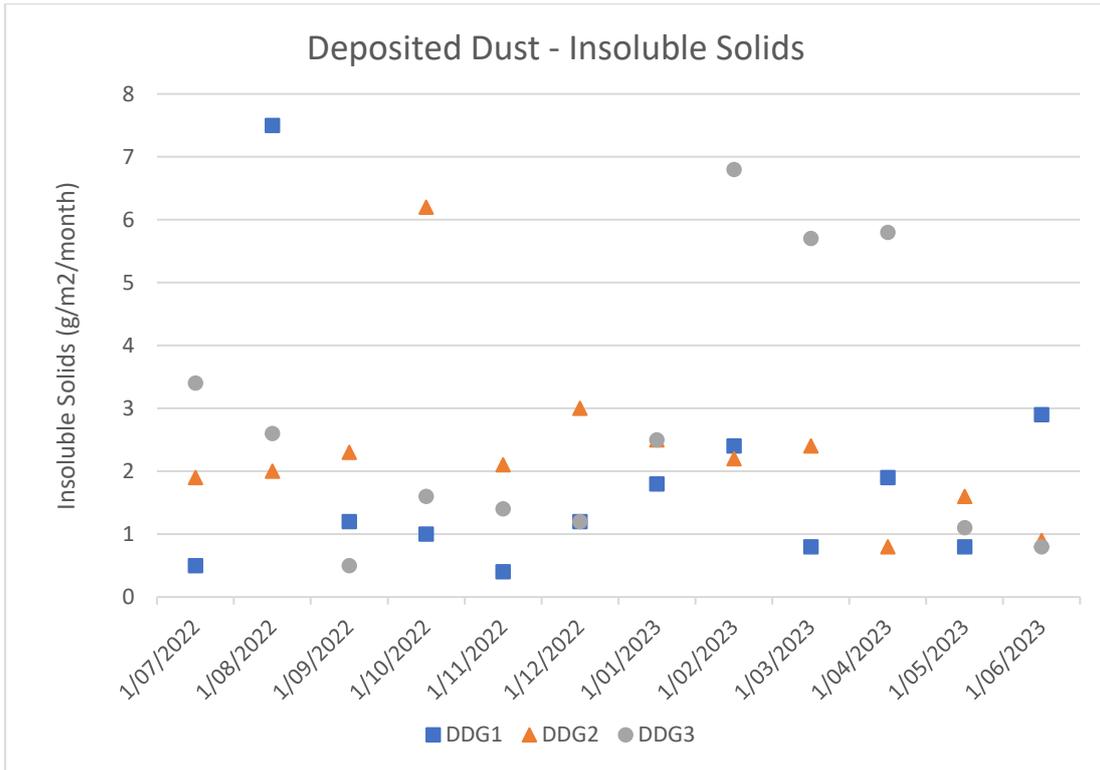
Date Sampled	DDG1	DDG2	DDG3
1/07/2022	0.5	1.9	3.4
29/07/2022	7.5	2	2.6
30/08/2022	1.2	2.3	0.5
30/09/2022	1	6.2	1.6
1/11/2022	0.4	2.1	1.4
2/12/2022	1.2	3	1.2

Date Sampled	DDG1	DDG2	DDG3
3/01/2023	1.8	2.5	2.5
2/02/2023	2.4	2.2	6.8
3/03/2023	0.8	2.4	5.7
4/04/2023	1.9	0.8	5.8
5/05/2023	0.8	1.6	1.1
6/06/2023	2.9	0.9	0.8

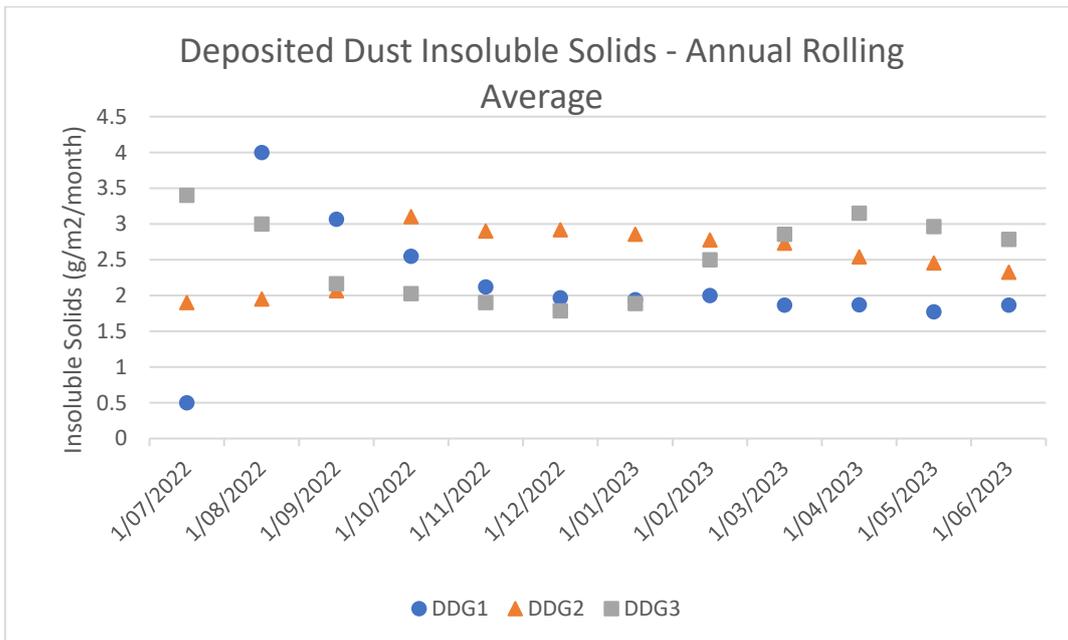
Table 6.9 Insoluble Solids (g/m²/month) Summary

	Dust Gauge No 1	Dust Gauge No 2	Dust Gauge No 3
Overall Background Average Extension Project	2.8		
Individual Gauge Average July 18 – June 19	1.6	3.3	2.1
Overall Average for Period July 18 – June 19	2.3		
Individual Gauge Average July 19 – June 20	2.4	3.5	1.2
Overall Average for Period July 19 – June 20	2.3		
Individual Gauge Average July 20 – June 21	1.4	1.8	1.6
Overall Average for Period July 20 – June 21	1.6		
Individual Gauge Average July 21 – June 22	0.9	2.3	3.1 [#]
Overall Average for Period July 21 – June 22	2.1		
Individual Gauge Average July 22 – June 23	1.9	2.3	2.8
Overall Average for Period July 22 – June 23	2.3		

[#] reduces to an average of 1.7g/m²/month when excluding the anomalous 18.5 g/m²/month for the deposition in January/February sampled on 8/2/22 which in turn gives an overall average of 1.6g/m²/month



Graph 6.5 - Dust Deposition



Graph 6.6 - Dust Deposition - Annual Rolling Average

The annual average dust deposition at DDG1 for the reporting period was 1.9 g/m²/month, which is higher than the previous reporting period but lower than the background levels and the assessment criteria detailed in the AQMP and Table 6.7. DDG1 had the lowest annual average dust deposition for the reporting period.

The annual average of DDG2 (2.3 g/m²/month) was in line with the background levels for that site and the same as the previous reporting period as can be seen in Table 6.9. The average concentration was still below the assessment criteria detailed in the AQMP. DDG2 is located to the southeast of the Gunlake Extension Project extraction area and the increased dust deposition in previous reporting periods is likely due to localised dust generated from topsoil stripping, blasting and removal of overburden activities adjacent to the gauge. These activities were completed in this area in early 2020 and subsequently bench development has continued with blasting and removal of hardrock at lower depths reflected in lower dust deposition in DDG2.

The annual average of DDG3 for the reporting period was 2.8 g/m²/month in line with the background average and below the assessment criteria. DDG3 located to the west of the quarry, has had fluctuating dust deposition levels and is influenced by normal surrounding agricultural activities. DDG1, located to the northeast of the quarry operations, in opposing the direction of the prevailing winds, captures dust emanating from the quarry. This gauge shows constant readings from before the quarry started and throughout the operations to date and therefore verifies that the dust mitigation strategy has been effective in meeting the assessment goals contained in the AQMP, that is the quarry has not increased ambient dust levels by more than 2 g/m²/month at nearby residential receptors and verifies the predictions made in the statement of environmental effects for the Extension Project Mod 2.

6.4.6 High Volume Air Sampling PM₁₀ Monitoring

PM₁₀ monitoring is undertaken on a one-in-six-day cycle in line with the Gunlake Extension Project Development Consent and the EPL. One high volume air sampler (HVAS) is located to the northeast of the quarry at R1 on Brayton Road and the second is located to the northwest at R4 on Carrick Road. Results for the 2022/2023 reporting period are contained in Tables 6.10 and shown graphically in Graph 6.7 and 6.8 for R1 and R4 respectively.

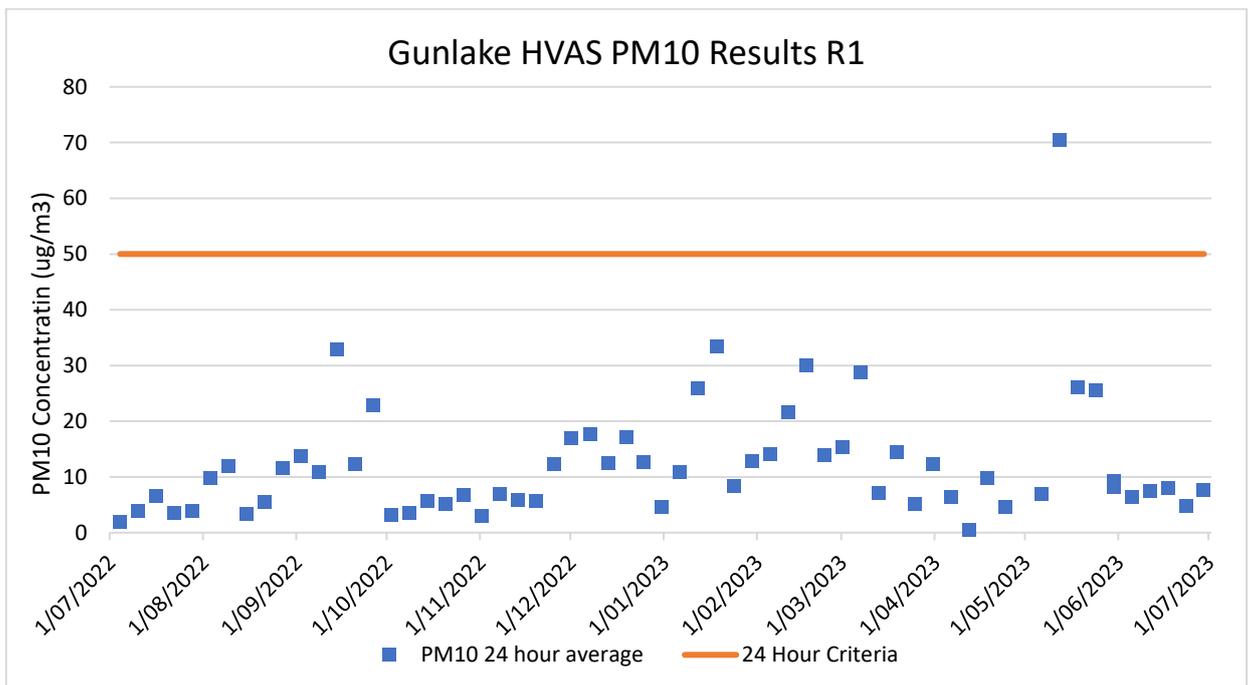
Table 6.10 PM₁₀ Monitoring Results

Sampling Date	R1 PM ₁₀ (µg/m ³)	R4 PM ₁₀ (µg/m ³)
4/07/2022	1.9	2.6
10/07/2022	3.8	3.5
16/07/2022	6.5	4.6
22/07/2022	3.5	1.5
28/07/2022	3.8	0.5
3/08/2022	9.8	5.6
9/08/2022	11.9	3
15/08/2022	3.3	2.6
21/08/2022	5.4	1
27/08/2022	11.6	5.4
2/09/2022	13.7	11.7
8/09/2022	10.9	15.5
14/09/2022	32.8	5.9

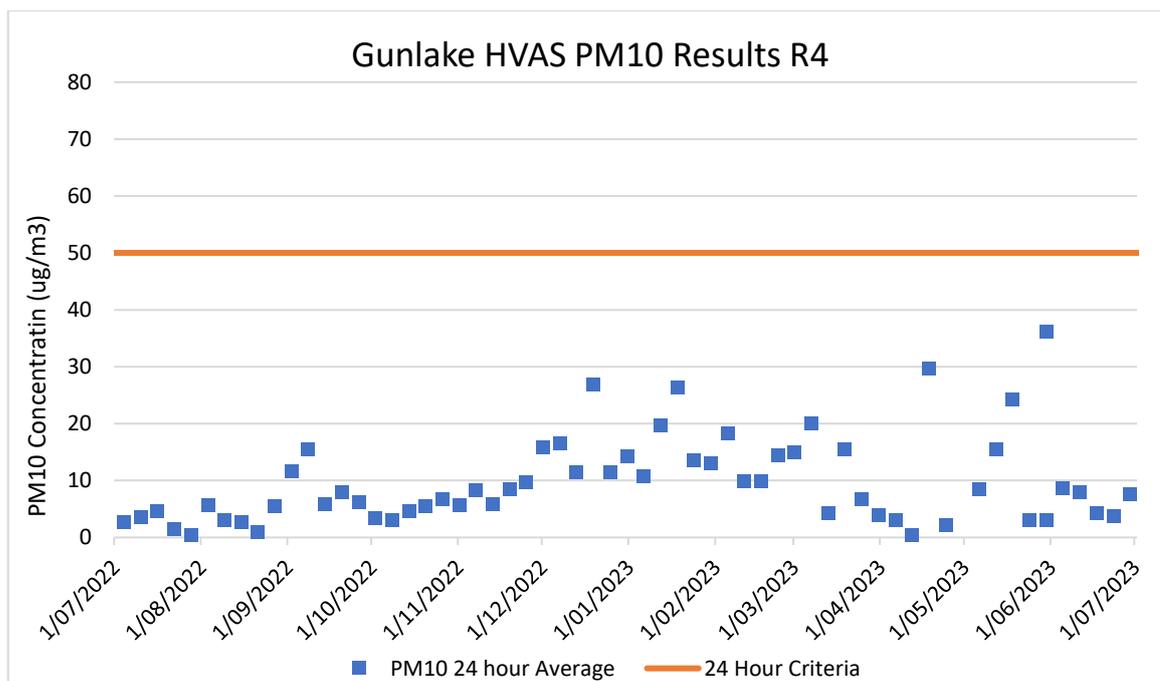
Sampling Date	R1 PM ₁₀ (µg/m ³)	R4 PM ₁₀ (µg/m ³)
20/09/2022	12.3	8
26/09/2022	22.8	6.2
2/10/2022	3.2	3.4
8/10/2022	3.6	3.1
14/10/2022	5.7	4.7
20/10/2022	5.1	5.4
26/10/2022	6.7	6.7
1/11/2022	3	5.6
7/11/2022	6.9	8.3
13/11/2022	5.8	5.8
19/11/2022	5.7	8.5
25/11/2022	12.2	9.6
1/12/2022	16.9	15.9
7/12/2022	17.6	16.6
13/12/2022	12.4	11.5
19/12/2022	17.2	26.9
25/12/2022	12.6	11.5
31/12/2022	4.6	14.3
6/01/2023	10.8	10.8
12/01/2023	25.8	19.8
18/01/2023	33.5	26.3
24/01/2023	8.4	13.5
30/01/2023	12.8	13
5/02/2023	14	18.4
11/02/2023	21.6	9.9
17/02/2023	29.9	9.8
23/02/2023	13.9	14.5
1/03/2023	15.4	15
7/03/2023	28.8	20
13/03/2023	7.1	4.3
19/03/2023	14.5	15.6
25/03/2023	5.2	6.7
31/03/2023	12.2	3.9
6/04/2023	6.4	3.1
12/04/2023	0.5	0.5
18/04/2023	9.7	29.6
24/04/2023	4.6	2.1
30/05/2023	8.2	36.2
6/05/2023	6.9	8.4
12/05/2023	70.4	15.5
18/05/2023	26	24.2
24/05/2023	25.5	3
30/05/2023	9.2	3
5/06/2023	6.3	8.6
11/06/2023	7.5	7.9
17/06/2023	8	4.3
23/06/2023	4.8	3.8
29/06/2023	7.6	7.6

Sampling Date	R1 PM ₁₀ (µg/m ³)		R4 PM ₁₀ (µg/m ³)	
	R1 Maximum 24 hour average ug/m ³	R1 Annual average ug/m ³	R4 Annual average ug/m ³	R4 Annual average ug/m ³
Background	Varies Daily	13	Varies Daily	13
2014/2015	24.9	13.19	N/A	N/A
2015/2016	40.4	15.33	N/A	N/A
2016/2017	44.7	18.8	N/A	N/A
2017/2018	48.0	18.6	N/A	N/A
2018/2019	47.4	17.62	49.5	13.61
2019/2020	61.0	18.63	51.3	12.80
2020/2021	64.2	12.07	24.3	9.39
2021/2022	61.9	9.99	25.7	6.92
2022/2023	70.4	12.27	36.2	9.75
Assessment Criteria	50	25	50	25

Graphs 6.7 and 6.8 show the PM₁₀ data for both HVAS sites recorded for the 2022/2023 reporting period.



Graph 6.7 – R1 HVAS PM₁₀ Results



Graph 6.8 – R4 HVAS PM₁₀ Results

The monitoring results at R1, show an annual average PM₁₀ concentration of 12.27 ug/m³, with a maximum 24 hour average of 70.4 ug/m³ and a minimum 24 hour average of <0.1 ug/m³. At R4, the annual average PM₁₀ concentration was 9.75 ug/m³, with a maximum 24 hour average of 36.2 ug/m³ and a minimum 24 hour average of <0.1 ug/m³.

It can be seen in Table 6.10 that the maximum 24 hour average PM₁₀ concentration at R1 was higher than the previous reporting period and exceeded the 24 hour criteria detailed in Table 6.6 on one occasion. The annual average PM₁₀ concentration was however below the long term criteria, whilst slightly higher than the previous reporting period. R4 had a higher maximum 24 hour PM₁₀ concentration than the previous reporting period however this did not exceed the 24 hour criteria. The annual average was also slightly higher than the previous reporting period whilst below the long term assessment criteria.

The exceedance of the 24 hour criteria on 12th May 2023 at R1 was investigated and reported to the DPE and EPA. Whilst this represents an exceedance of the 24 hour average criteria, this does not constitute a non-compliance with Condition 14, Schedule 3 of the Extension Project Development Consent as this monitoring point is located on land owned by Gunlake Quarry and is used to evaluate compliance at the nearest non-company owned residence which is further away from the quarry. The monitoring period was characterised gentle winds from SSW to WSW and it was determined that the high concentration was not caused by any failure of the operational dust controls systems, including ceasing production on that day.

Background data used in the dust assessment for Mod 2 showed that in an average year there would be three exceedances of the 24-hour average criteria in the absence of quarrying operations, and the modelling confirmed that the cumulative impacts from the quarry would not cause further exceedances at any of the sensitive receivers both quarry owned and private. The monitoring during the reporting period has confirmed these predictions and that the closest non-company owned residences will not experience dust levels attributed to the project greater than the project emissions criteria as outlined in the AQMP.

6.4.7 High Volume Air Sampling PM2.5 Monitoring

Monitoring of PM2.5 commenced on 13th September 2021 as required by the Gunlake Extension Project Mod 2 LEC approval. Monitoring is undertaken on a one-in-six-day cycle at monitoring locations R1. Results of this monitoring are detailed Table 6.11.

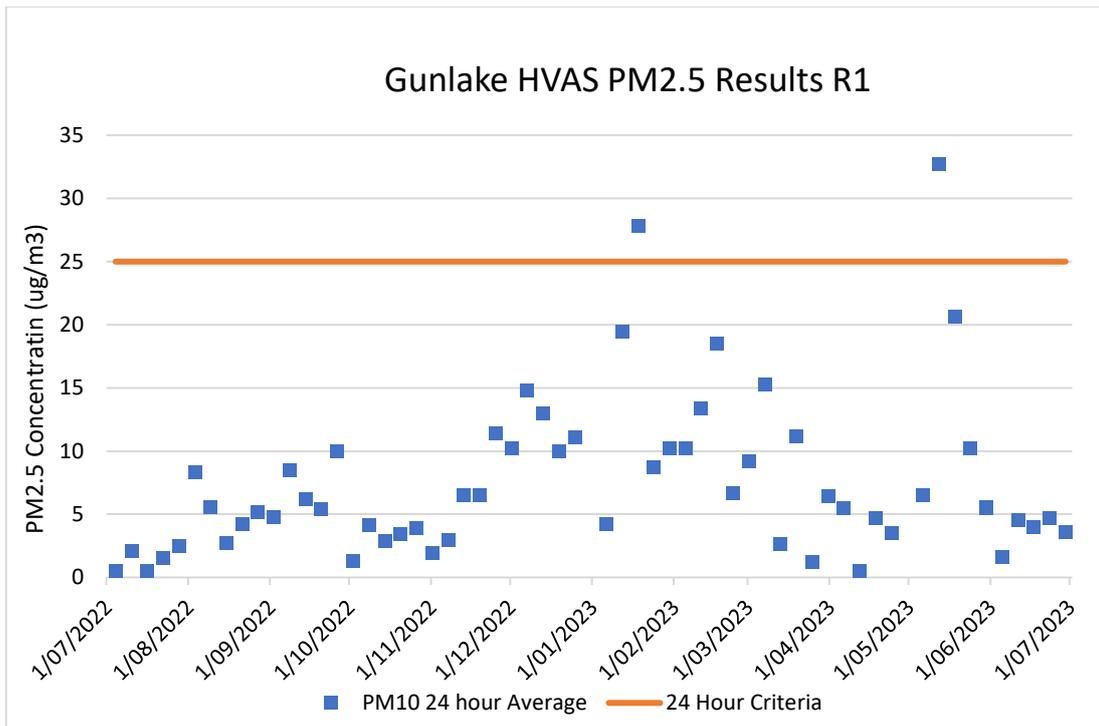
Table 6.11 PM_{2.5} Monitoring Results R1

Sampling Date	R4 PM ₁₀ (µg/m ³)
4/07/2022	0.5
10/07/2022	2.1
16/07/2022	0.5
22/07/2022	1.5
28/07/2022	2.5
3/08/2022	8.3
9/08/2022	5.6
15/08/2022	2.7
21/08/2022	4.2
27/08/2022	5.2
2/09/2022	4.8
8/09/2022	8.5
14/09/2022	6.2
20/09/2022	5.4
26/09/2022	10
2/10/2022	1.3
8/10/2022	4.1
14/10/2022	2.9
20/10/2022	3.4
26/10/2022	3.9
1/11/2022	1.9
7/11/2022	3
13/11/2022	6.5
19/11/2022	6.5
25/11/2022	11.4
1/12/2022	10.2
7/12/2022	14.8
13/12/2022	13
19/12/2022	10
25/12/2022	11.1
31/12/2022	N/A [#]
6/01/2023	4.2
12/01/2023	19.5
18/01/2023	27.8 ^{#1}
24/01/2023	8.7
30/01/2023	10.2
5/02/2023	10.2
11/02/2023	13.4
17/02/2023	18.5
23/02/2023	6.7

Sampling Date	R4 PM ₁₀ (µg/m ³)	
1/03/2023		9.2
7/03/2023		15.3
13/03/2023		2.6
19/03/2023		11.2
25/03/2023		1.2
31/03/2023		6.4
6/04/2023		5.5
12/04/2023		0.5
18/04/2023		4.7
24/04/2023		3.5
30/05/2023		5.6
6/05/2023		6.5
12/05/2023		32.7
18/05/2023		20.6
24/05/2023		10.2
30/05/2023		5.5
5/06/2023		1.6
11/06/2023		4.5
17/06/2023		4
23/06/2023		4.7
29/06/2023		3.6
	Maximum 24 hour average ug/m ³	Annual average ug/m ³
Background	Varies Daily	6.9
2021/2022	36.4	7.40
2022/2023	32.7	7.51
Assessment Criteria	25	8

Invalid result, HVAS unit operation error. Quarry closed.

#1 high concentration not attributable to quarry. HVAS located to northeast of the quarry and prevailing winds during the monitoring period were from the northeast.



The PM_{2.5} concentration follow a similar trend to PM₁₀ concentrations. The exceedance of the 24 hour criteria on 12th May 2023 at R1 was investigated and reported to the DPE and EPA. Whilst this represents an exceedance of the 24 hour average criteria, this does not constitute a non-compliance with Condition 14, Schedule 3 of the Extension Project Development Consent as this monitoring point is located on land owned by Gunlake Quarry and is used to evaluate compliance at the nearest non-company owned residence which is further away from the quarry. The monitoring period was characterised gentle winds from SSW to WSW and it was determined that the high concentration was not caused by any failure of the operational dust controls systems, including ceasing production on that day.

Background data used in the dust assessment for Mod 2 showed that in an average year there would be two exceedances of the 24-hour average criteria in the absence of quarrying operations, and the modelling confirmed that the cumulative impacts from the quarry would not cause further exceedances at any of the sensitive receivers both quarry owned and private. The monitoring during the reporting period has confirmed these predictions and that the closest non-company owned residences will not experience particulate dust levels attributed to the project greater than the project emissions criteria as outlined in the AQMP.

6.4.8 TSP Monitoring

Condition 14 of Schedule 3 of the LEC Consent requires evaluation of a Total Suspended Particulate (TSP) annual average criterion of 90 µg/m³. The typical percentage of PM₁₀ compared to TSP in a semi-rural environment (i.e. one where the airshed is not dominated by particulate from motor vehicles) lies in the range of 40-50%. Given this, compliance with the annual PM₁₀ criterion (30 µg/m³) should therefore be seen as satisfying the annual TSP criterion. Monitoring of PM₁₀ therefore is used as a surrogate for evaluating compliance with the TSP criterion (i.e. if the annual PM₁₀ criterion is satisfied, it is assumed that the TSP criterion will also be achieved). In addition, the annual average TSP at R1 has been estimated from the monitoring results to be approximately 27 µg/m³ which is well below the

annual average criteria of 90 µg/m³ for TSP. These results are in line with the predictions made in the Air Quality Impact Assessment.

6.4.9 Greenhouse Gas Emissions

The Greenhouse Gas Assessment for Mod 2 of the Gunlake Extension Project revised the adopted activity rates for the project to reflect the changes in product transport from 2Mtpa to 2.6Mtpa. The annual site diesel consumption from mobile plant and equipment is 900kL for current operations which equates to 5,707 t CO₂-e/year.

In accordance with Condition 19, Schedule 3 of the Development Consent, Gunlake implements all reasonable and feasible measures to reduce the use of diesel fuels which in turn minimises the release of greenhouse gases from the site. Measures include:

- regular servicing of equipment,
- minimising rehandling of topsoil, overburden and product,
- haul road design to require minimal distance for raw product and overburden haulage from source to processing area and emplacement areas; and
- upgrading mobile equipment which are compliant with the USA-EPA Tier 3 or Tier 4 emissions standards.

6.5 Biodiversity

6.5.1 Flora and Fauna

The land on which the Gunlake quarry is located was historically extensively cleared and used for sheep and cattle grazing. The property consists of highly disturbed native vegetation, of which most is predominantly native grassland in cleared areas and the remainder consisting of clusters of remnant native trees and shrubs and some isolated native trees.

One threatened ecological community has been identified in the vicinity of the quarry that is listed both under the NSW Biodiversity Conservation Act (as EEC *White Box Yellow Box Blakely's Red Gum Woodland*) and the Commonwealth EPBC Act (as CEEC *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*).

During surveys undertaken as part of the original EIS for the Gunlake Extension Project, six threatened fauna species listed under the Biodiversity Conservation Act were recorded within the extension area being the Speckled Warbler, Diamond Firetail (*Stagonopleura guttata*), Square-tailed Kite (*Lophoictinia isura*), Eastern Bentwing Bat, Eastern False Pipistrelle (*Falsistrellus tasmaniensis*) and Little Bentwing Bat (*Miniopterus australis*). Fauna and flora are managed as per Gunlake's Rehabilitation and Biodiversity Offset Management Plan.

6.5.2 Fauna Management

Effective management of vegetation communities at Gunlake enhances the habitat for native fauna species including known rare endangered species such as the Speckled Warbler. Specific management initiatives include:

- Minimising clearing at any one time as the quarry progresses;

- Undertaking pre-clearing surveys which include marking of hollow bearing trees which will not be felled if there is a risk to fauna or active nests;
- Should any threatened fauna be discovered or injured a suitably qualified carer such as WIRES will be contacted and works in that area will cease until the ecologist has given the all clear to proceed;

The above measures are designed to minimise the impact on existing fauna on site as well as enhancing the habitat value of the property both during and after quarry extraction.

6.5.3 Biodiversity Offsets

The aims of the Management Strategy for biodiversity, rehabilitation and agriculture, currently comprise:

- protection, maintenance and enhancement of 32.66 ha of “Box Gum Woodland” in Biodiversity Areas 1 and 2 through assisted regeneration;
- regeneration and/or replanting of 46.16 ha of cleared land in Biodiversity Areas 1 and 2 with native vegetation representative of Box Gum Woodland;
- including 571 ecosystem credits for PCT 1330 in the Gunlake Quarry Extension Project offset areas;
- including 845 ecosystem credits for PCT 734 in the Gunlake Quarry Extension Project offsets;
- protection of the biodiversity offsets into perpetuity; and
- no net loss of stream length and aquatic habitat in the offset areas.

The Biodiversity Areas 1 and 2 (Figure 3 Appendix C) are subject to a Conservation Agreement.

The Gunlake Extension Project Offset Areas (Figure 4, Appendix C) that house the credits required to offset impacts from the Extension Project are protected by the BioBanking Agreement which was executed in May 2019. The management initiatives of these areas are detailed in the BioBanking agreement and implemented as required.



Plate 3 Biodiversity Conservation Area Rehabilitation Monitoring Site 2021 (left) 2023 (right)

These management initiatives have been incorporated into the Rehabilitation and Biodiversity Management Plan prepared for the Extension Project.



Plate 4 Biodiversity Conservation Area Existing Vegetation



Plate 5 Gunlake Extension Project Offset (BioBanking) Area (2022 Left, 2023 right)

6.5.4 Vegetation Management

The Gunlake Project Area comprises areas approved for disturbance and subsequent rehabilitation (such as quarrying, processing and overburden emplacement), and areas that are protected and maintained as biodiversity offsets. The remainder of the project area is regarded as agricultural area. Prolific growth of both native and pasture improved grass species was extensive following the prolonged periods of wet weather and led to abundant conditions during 2022 and 2023 that had not been seen for decades. Vegetation

management through the use of sheep grazing was undertaken in select locations during the reporting period to reduce the grass height in these areas and subsequently reduce fuel load and enable native vegetation growth to succeed (Plate 6).



Plate 6 Gunlake Extension Project Offset (BioBanking) Area Sheep Grazing

6.5.5 Weeds and Feral Animals

Two noxious weeds listed under the Goulburn-Mulwaree LGA occur on the Gunlake property:

- Serrated Tussock – *Nasella trichomotoma*
- Blackberry – *Rubus fruticosus*

Gunlake implements a weed control strategy for the site. During the reporting period spot spraying of blackberry and serrated tussock continued in the biodiversity offset areas and riparian zones (Plate 7). Aerial spraying of Tussock was undertaken by a specialist contractor across the site focusing on the offset area in December 2023. Targeted spraying of blackberry by contractors was in May 2023 focusing on offset areas and large infestations in areas along the access road. The weed control program at Gunlake will continue during the coming reporting period.



Plate 7 Gunlake Extension Project Offset (BioBank) Area Aerial Spraying

Feral animal control is undertaken by shooting, targeting rabbits and foxes. This was not possible during the majority of the reporting period due to low visibility resulting from the long grass. No feral cat, goat or deer populations have been recently observed.

6.6 Noise

6.6.1 Operational Noise

The Noise Monitoring Program (NMP) and Blast Monitoring Program (BMP) are contained in the Noise and Blast Management Plan (NBMP) for Gunlake Quarry, and detail the monitoring locations, methods of monitoring noise and vibration and the correct compliance checking procedures for the subsequent reporting in accordance with the DPE and the EPA requirements.

Table 6.12 lists the Gunlake Quarry Project operational noise assessment criteria as prescribed in Condition 6, Schedule 3 of the LEC Consent. These criteria have to be met at any residence or on more than 25% of any privately owned land.

Table 6.12 Operational Noise Assessment Criteria

Noise Assessment Location	Day	Evening	Night	
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{A1} (1 minute)
R7	38	38	38	45
R8	37	37	37	45
All other privately-owned residences	35	35	35	45

Noise modelling for the Gunlake Extension Project EIS identified receiver locations R7 and R8 as being relevant for the project. The predicted noise emission levels from Gunlake Quarry at R7 and R8 are provided in Table 6.13. Noise emission levels are predicted to be within the Development Consent limits and project specific noise limits (PSNLs) at both receiver locations. Noise levels at R2 are predicted to be up to 10dB above the PSNLs which is considered to be a significant impact and entitles this location to voluntary acquisition upon request and therefore is not subject to the assessment criteria. Gunlake has purchased receivers R1, R3, R4 and R7.

Table 6.13 Predicted Noise Levels LAeq (dB) Gunlake Extension Project 2.6 Mtpa

Assessment Location	Day	Evening	Night	Night
	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LA, max
R7	31	30	<30	35
R8	32	32	31	37

To verify compliance with operational noise assessment criteria, noise measurements have been carried out at all source points and at the property boundary in the direction of the noise receptors. Attended noise monitoring is undertaken at N1 and N2 at the property boundary between the quarry and R7/R8.

Noise monitoring of the plant and equipment was undertaken as part of the environmental assessment for the Gunlake Extension Project to verify the sound power level of various plant and equipment. The results are provided in Table 6.14.

Table 6.14 Noise Monitoring Plant and Equipment

Plant and Equipment	Sound Power Level (L _w) (dB)
Primary Crusher	112
Secondary Crusher	115
Primary Screens	112
Tertiary Crusher and Impact Crusher	115
Secondary Screens	109
Front End Loader	112
Excavator	104
Dozer	112
Water Cart	102

Attended noise measurements were undertaken quarterly during the reporting period at N1 to the east of the quarry processing area and at N2 located at the south-east boundary corner. This location measures noise generated from the quarry travelling in the direction of sensitive receivers R7 and R8 and monitoring results are extrapolated to determine compliance. The results for the first quarter are shown in Table 6.17 and indicate compliance with the assessment criteria and are in line with the EIS predictions. The Independent Environmental Audit in August 2022 identified the need to undertake evening and night time noise monitoring in addition to the day time monitoring undertaken historically. All three periods have since been monitored by EMM at representative locations around the quarry as detailed in Tables 6.15 to 6.18.

Table 6.15 Noise Monitoring July 2022

Location	Date/time	Quarry Site LA _{eq} (15 min) Contribution at Monitoring point	Estimated Noise Contribution at Receiver	Identified Noise Sources (L _{eq} (15 min))
N1	20/09/2021 10.47	63.6	<30 dB(A) <30 dB(A)	Dump truck on haul road (63); Reverse quack of loader (59) Crushers, conveyors, stockpiling from conveyor (background continuous)
N2	20/09/2021 10.29	58.9	<30 dB(A) <30 dB(A)	Dump truck on haul road (55); 3x Dump Trucks on Haul Road (57); Reverse beep (51); Drill (49); Birds (48)

Table 6.16 Attended noise monitoring results –17 October, 2022

Location	Start time (period) ¹	Total noise levels, dB				Calculated site contribution, dB		Meteorological conditions ²		Exceedance, dB	Notes
		L _{Amin}	L _{A90, 15min}	L _{Aeq, 15min}	L _{Amax}	L _{Aeq, 15min}	L _A (1 minute)	Wind speed/Direction	Temp °C		
R7 ²	4:09 pm	32	35	48	62	IA (≤25)	IA	3.1 m/s SE	13	Nil	Site inaudible. Other noise included birdsong, insects and highly dominant local traffic.
R1 ²	4:31 pm	30	34	45	58	IA (≤24)	IA	2.7 m/s SE,	13	Nil	Site inaudible. Other noise included birdsong, insects and highly dominant local traffic.
R6	4:54 pm	33	37	49	72	IA (≤27)	IA	1.8 m/s SE	13	Nil	Site inaudible. Other noise included birdsong, insects, residential noise, livestock and highly dominant local traffic.
R7 ²	8:57 pm	35	40	44	58	IA (≤30)	IA	2.7 m/s E	10	Nil	Site inaudible. Other noise included insects and distant traffic.
R1 ²	9:18 pm	31	34	53	78	IA (≤24)	IA	2.2 m/s ENE	10	Nil	Site inaudible. Other noise included insects and local traffic pass by.
R6	9:41 pm	31	36	40	51	IA (≤26)	IA	2.2 m/s ENE	10	Nil	Site inaudible. Other noise included insects, distant traffic and vegetation noise.
R6	10:00 pm	30	34	45	71	IA (≤24)	IA	2.7 m/s E	10	Nil	Site inaudible. Other noise included insects, distant traffic, vegetation noise and local traffic pass by.
R1 ²	10:22 pm	28	30	47	75	IA (≤20)	IA	4.0 m/s, ESE	10	Nil	Site inaudible. Other noise included distant traffic, insects and local traffic pass by.
R7 ²	10:45 pm	31	35	50	78	IA (≤25)	IA	4.9 m/s E	10	Nil	Site inaudible. Other noise included insects, distant traffic and local traffic pass by.

Notes: 1. Meteorological conditions stated are as recorded at the on-site weather station, wind speeds were recorded at 10m AGL.
 2. Attended noise monitoring was completed at a representative location of the nearest private residence in accordance with the approved NMP for the site

Results of operator-attended noise monitoring conducted during the day, evening and night periods of 17 October 2022 (Table 6.16) show that Quarry operations were inaudible at all monitoring locations during all surveys. As measured noise levels were compliant or below the EPL limits, other residential locations such as R8 and R9 would experience noise levels the same or below the other measured site contributions which are below EPL limits and therefore Condition 6, Schedule 3 of the LEC Consent has been complied with.

Table 6.17 Attended noise monitoring results –28 February, 2022

Location	Start time (period) ¹	Total noise levels, dB				Calculated site contribution, dB		Exceedance, dB	Notes
		L _{Amin}	L _{A90, 15min}	L _{Aeq, 15min}	L _{Amax}	L _{Aeq, 15min}	L _A (1 minute)	L _{Aeq, 15min}	
R7 ²	12:51 pm	33	37	52	67	36	36	Nil	Trucks on access road audible from site. Other noise included birdsong, windmill turning insects, foliage from wind and highly dominant local traffic.
R1 ²	1:14 pm	33	36	48	61	IA (≤24)	IA	Nil	Site inaudible. Other noise included birdsong, insects and highly dominant local traffic.
R6	1:35 pm	32	34	43	69	IA (≤27)	IA	Nil	Site inaudible. Other noise included birdsong, insects, residential noise, livestock and highly dominant local traffic.
R1 ²	6:39 pm	31	33	37	59	IA (≤30)	IA	Nil	Site inaudible. Other noise included insects, birdsong, foliage from wind and distant traffic.
R7 ²	6:59 pm	27	29	48	70	IA (≤24)	IA	Nil	Site inaudible. Other noise included insects, birdsong and local traffic pass by.
R6	7:21 pm	28	31	46	71	IA (≤26)	IA	Nil	Site inaudible. Other noise included insects, birdsong, distant and local traffic and vegetation noise.
R6	11:05 pm	25	28	31	57	27	27	Nil	Vehicle movements occasionally audible from site. Other noise included insects, distant traffic, vegetation noise and local traffic pass by.
R1 ²	11:29 pm	23	30	40	62	28	28	Nil	Site noise included vehicle movements, conveyor sound. Other noise included Insects and vegetation noise.
R7 ²	11:54 pm	22	23	25	41	27	27	Nil	Vehicle movements occasionally audible from site. Other noise included insects.

1. Day is the period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm Sunday and public holidays. Evening is the period from 6 pm to 10 pm. Night is the period from 10 pm to 7 am Monday to Saturday and 10 pm to 8 am Sunday and public holidays.
2. Attended noise monitoring was completed at a representative location of the nearest private residence in accordance with the approved NMP for the site

Results of operator-attended noise monitoring conducted during the day, evening and night periods of 28 February 2022 are detailed in Table 6.17 above. Noise from Quarry operations were compliant

with (below) relevant noise limits at all monitoring locations during all surveys. Other residential locations such as R8 and R9, located further from Quarry operations, would experience noise levels the same or below the other measured site contributions and would also be below the EPL limits and therefore Condition 6, Schedule 3 of the LEC Consent has been complied with

Table 6.18 Attended noise monitoring results –10 May, 2023

Location	Start time (period) ¹	Total noise levels, dB				Calculated site contribution, dB		Meteorological conditions ²		Exceedance, dB
		L _{Amin}	L _{A90, 15min}	L _{Aeq, 15min}	L _{Amax}	L _{Aeq, 15min}	L _{AMax}	Wind speed/Direction	Temp °C	
R1	10/05/2023 2:25 pm	33	36	41	55	38	39	CALM	11	Nil
R6	10/05/2023 2:50 pm	27	29	49	77	IA	IA	CALM	11	Nil
R7	10/05/2023 3:16 pm	26	29	51	69	IA	IA	CALM	16	Nil
R7	10/05/2023 7:19 pm	33	36	40	54	IA	IA	CALM	6	Nil
R1	10/05/2023 7:44 pm	29	31	40	61	IA	IA	CALM	6	Nil
R6	10/05/2023 8:10 pm	24	27	34	53	IA	IA	CALM	6	Nil
R7	10/05/2023 11:14 pm	30	33	37	49	IA	IA	CALM	3	Nil
R1	10/05/2023 11:36 pm	32	34	40	55	34	34	CALM	3	Nil
R6	10/05/2023 11:59 pm	22	23	29	55	26	26	0.4 m/s SW	4	Nil

Notes: 1. Meteorological conditions stated are as recorded at the on-site weather station, wind speeds were recorded at 10m AGL.

2. Attended noise monitoring was completed at a representative location of the nearest private residence in accordance with the approved NMP for the site

Attended environmental noise monitoring was done during the day evening and night periods of 10 May 2023 at three monitoring locations (Table 6.18). Attended noise monitoring observations and results demonstrate that operational noise from the site was inaudible during most attended measurements. Site contributions were demonstrated to be compliant with (below) the relevant EPL noise limits at all monitoring locations. Other residential locations, such as R8 and R9 (situated further from site), would experience noise levels the same or below the measured site contributions and would be below EPL limits, therefore Condition 6, Schedule 3 of the LEC Consent has been complied with

6.6.2 Road Traffic Noise

During the reporting period, the second Traffic Noise Compliance Assessments (TNCA) required by Condition 9, Schedule 3 of the LEC Development Consent for the Gunlake Extension Project was undertaken by EMM. Road traffic noise monitoring was completed at two locations on the quarry transport route on 10 May 2023. The monitoring consisted of a one-hour attended noise survey at each location.

To determine road traffic noise levels at the most affected privately-owned residential receivers (residences) on the transport route, sound exposure levels (SEL) of quarry truck passbys were measured at each monitoring location during each one-hour survey. The logarithmic average of measured SELs for quarry truck passbys (eastbound and westbound) on each road section of the transport route were calculated.

To calculate total traffic noise levels, the existing LAeq,15hr and LAeq,9hr road traffic noise levels prior to the extension project were referenced from the quarry's 1 million tonne TNCA undertaken by EMM in 2020. The results are detailed in Table 6.19.

Table 6.19 Road Traffic Noise Results –10 May, 2023

Road section	Distance to nearest receiver (m)	Total road traffic noise levels of 1 million tonne assessment LAeq,period, dB	Calculated additional project extension road traffic noise levels LAeq,period, dB	Total road traffic noise levels LAeq,period, dB	Criteria LAeq,period, dB
Day period (7 am to 10 pm)					
Brayton Rd - west of Ambrose/Red Hills Road	108	50	51	53	60
Ambrose/Red Hills Rd	400	38	30	39	60
Night period (10 pm to 7 am)					
Brayton Rd - west of Ambrose/Red Hills Road	108	48	49	51	55
Ambrose/Red Hills Rd	400	34	28	35	55

The assessment demonstrates that total road traffic noise levels including those generated by Gunlake Quarry satisfy the relevant criteria during day and night periods.

6.7 Vibration and Air blasting

Table 6.20 shows the airblast overpressure criteria and ground vibration impact assessment criteria for residences on privately owned land in relation to the Gunlake Quarry Extension Project as prescribed by Condition 10, Schedule 3 of the LEC Consent.

Table 6.20 Airblast Overpressure and Ground Vibration Impact Assessment Criteria

Airblast Overpressure Level (dB (Lin Peak))	Allowable Exceedances
115	5% total number of blasts over 12 month period.
120	0%
Ground Vibration Level (mm/s)	Allowable Exceedances
5	5% total number of blasts over 12 month period.
10	0%

A blast overpressure and ground vibration assessment was undertaken at various distances from the blast locations at the Quarry. The results shown in Table 6.21 convey that a large range of MICs can be adopted, based on the distance from the blast. Blasting may occur at 700m from the nearest assessment location, and the ANZECC limits will be satisfied with a respective MIC of 290kg.

Table 6.21 Blast Overpressure and Ground Vibration EIS Assessment Results for Hard Rock Extraction

Distance from Blast (m)	Highest Allowable MIC (kg)	Overpressure Criteria (dB (Lin Peak))	Ground Vibration Criteria PPV (mm/s)	Highest Allowable MIC (kg) to satisfy criteria
700	290	≤115	≤5	290
900	600	≤115	≤5	600
1,100	1,150	≤115	≤5	1,150
1,300	1,900	≤115	≤5	1,900

A portable blast emissions monitor that measures airblast overpressure and vibration is positioned at R2 on Brayton Road during each blast event. Monitoring will continue at this location in the coming reporting period. Table 6.22 details the Airblast Overpressure and the Ground Vibration level monitoring results for all the blasts undertaken at Gunlake during the reporting period. All blasting was undertaken within the approved time between 9:00am to 5:00pm Monday to Friday.

Table 6.22 Blast Monitoring Summary for the Reporting Period

Date	Time	Location	Airblast Overpressure (dB (Lin Peak))	Ground Vibration Level (mm/s)
1/07/2022	13.01	Lot 575 Brayton Rd	111.8	1.231
8/7/2022	13.38	Lot 575 Brayton Rd	109.5	0.660
15/07/2022	12.01	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
22/07/2022	14.38	Lot 575 Brayton Rd	104.2	0.524
29/07/2022	12.29	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
05/08/2022	13.26	Lot 575 Brayton Rd	110.6	0.539
12/08/2022	10.24	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
19/08/2022	11.53	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
02/09/2022	14.04	Lot 575 Brayton Rd	109.5	0.582
09/09/2022	13.04	Lot 575 Brayton Rd	106.0	1.656
16/09/2022	15.04	Lot 575 Brayton Rd	104.9	0.696
30/09/2022	11.14	Lot 575 Brayton Rd	104.9	1.616
14/10/2022	12.32	Lot 575 Brayton Rd	116.7	0.648
28/10/2022	12.57	Lot 575 Brayton Rd	110.2	2.178
11/11/2022	11.57	Lot 575 Brayton Rd	101.0	0.684
18/11/2022	10.28	Lot 575 Brayton Rd	101.9	0.648
25/11/2022	14.10	Lot 575 Brayton Rd	104.9	1.631
02/12/2022	14.08	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
09/12/2022	12.42	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
20/1/2023	12.31	Lot 575 Brayton Rd	101.9	0.842
27/1/2023	13.10	Lot 575 Brayton Rd	95.9	0.783
10/2/2023	14.26	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
17/2/2023	12.26	Lot 575 Brayton Rd	95.9	0.783
24/2/2023	12.42	Lot 575 Brayton Rd	95.9	0.783
03/3/2023	13.22	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
10/3/2023	13.05	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
17/3/2023	13.22	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
24/3/2023	13.59	Lot 575 Brayton Rd	97.5	0.967
31/3/2023	12.05	Lot 575 Brayton Rd	106.0	2.166
6/4/2023	11.58	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
14/4/2023	13.10	Lot 575 Brayton Rd	Nil Trigger	1.823
21/4/2023	12.48	Lot 575 Brayton Rd	101.9	0.783
28/4/2023	12.53	Lot 575 Brayton Rd	106.5	1.796
05/5/2023	15.03	Lot 575 Brayton Rd	104.9	0.684
12/5/2023	13.26	Lot 575 Brayton Rd	108.8	0.660
19/5/2023	13.41	Lot 575 Brayton Rd	107.5	1.529
26/5/2023	13.59	Lot 575 Brayton Rd	105.5	1.454
2/6/2023	13.04	Lot 575 Brayton Rd	Nil Trigger	Nil Trigger
9/6/2023	12.54	Lot 575 Brayton Rd	108.8	0.622
16/6/2023	14.08	Lot 575 Brayton Rd	104.9	1.550
23/6/2023	15.14	Lot 575 Brayton Rd	Nil Trigger	0.730
29/6/2023	13.55	Lot 575 Brayton Rd	106.0	0.539
30/6/2023	14.30	Lot 575 Brayton Rd	104.2	2.071

During the reporting period a total of 43 blasts were conducted. The maximum air blast overpressure result for the reporting period was 116.7dB (Lin Peak) recorded at Lot 529 Brayton Road on 14th October 2022. This result was slightly higher than the maximum for the previous reporting period, and the only blast to exceed 115 dB (Lin Peak). There were no blasts that exceeded 120dB (Lin Peak) and therefore the Assessment Criteria detailed in Table 6.18 was satisfied.

The ground vibration results show compliance with impact assessment criteria with the maximum recorded on 28th October 2022 being 2.178 mm/s. This result was slightly higher than the maximum for the previous reporting period both of which are well below the impact assessment criteria of 5mm/s as detailed in Table 6.18 and the Noise and Blast Management Plan.

The results confirm the EIS predictions that the project will comply with relevant vibration and air blast criteria at all sensitive receivers through ongoing management of blast design.

6.8 Aboriginal Heritage

Gunlake's Aboriginal Heritage Management Plan was updated May 2023 following the Independent Environmental Audit undertaken in August 2022. The Plan outlines a mitigation process for the accidental discovery of cultural heritage items, and a six step mitigation process for the accidental discovery of skeletal material. No skeletal material were discovered during the reporting period, nor the previous reporting period.

Extensive surveys of the areas subject of the Gunlake Extension Project were undertaken as part of the Aboriginal Cultural Heritage Assessment (ACHA) for the project. Sites identified within the disturbance footprint of the pit and emplacement area were salvaged in June 2018 by EMM Consulting Pty Limited assisted by representatives from Registered Aboriginal Parties. Four sites located outside of direct impact areas but within the disturbance footprint were designated for active protection. One of these sites (GL15) could not be re-located and was deemed to have been destroyed by natural processes. The other sites were protected as per the requirements of the AHMP.

6.9 Bushfire

Under the *Rural Fires Act 1997*, there are a number of obligations that must be met by Gunlake with respect to managing their land. In summary, these include:

- Occupiers of land are to extinguish fires or notify firefighting authorities immediately; and
- It is the duty of the owner or occupier of land to take practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of bush fires on or from that land.

These issues are relevant, given the location of the quarry having native forested areas to the south and will include additional reforested areas on site. The following measures are employed at the site to ensure that these obligations under the Rural Fires Act are met:

- The main water storages on site are available for fighting purposes if required. This includes the main farm dam and PWD adjacent to the workshop.

- Maintaining the agricultural component of the property to avoid significant quantities of long dry grass. Management activities include active grazing or slashing as required.
- Firebreaks are maintained around key infrastructure areas including the office and main access road to the site.

Fire fighting equipment is available on site at the office, workshop, and mobile equipment.

Due to ongoing regular rainfall from early 2020 the bushfire risk during the reporting period was generally low, however prolific vegetation growth may lead to a higher fuel load when conditions dry out which is expected to be the case in the coming period. Gunlake manages the agricultural areas of the quarry through the use of sheep grazing to reduce the risk of grass fires.

6.10 Waste Management

Gunlake operates a comprehensive management system for the appropriate handling and disposal of waste materials. The principle wastes generated by the site are categorised as non-production and production wastes.

6.10.1 Non-Production Wastes

General Domestic-Type Wastes and Routine Maintenance Consumables

All general wastes originating from the office and workshop area, together with routine maintenance wastes from the servicing of equipment are disposed of in drums and mobile garbage bins located adjacent to the various buildings on site. These bins are collected weekly or as required into skips adjacent to the workshop, which is then collected by a licensed waste contractor.

Recyclables such as paper, cardboard, drink containers, ferrous and non-ferrous metals, are contained separately and collected by a licensed waste contractor for recycling.

Oils and Greases

Routine maintenance of quarrying and earthmoving equipment is undertaken in the maintenance workshop. Waste oils are collected and pumped to bulk storage tanks by oil excavation pumps. Waste oils and grease are stored in a bunded area at the maintenance workshop and collected by an EPA licensed waste oil recycling contractor for recycling.

Sewerage

All domestic waste water is collected and treated in a purpose-built approved wastewater management system. This system is serviced annually by an external contractor.

6.10.2 Production Wastes – Overburden

When quarrying first commenced, overburden was used to progressively construct the noise bund wall to the north of the processing area. Overburden from the current extraction area is placed on the Western Overburden Emplacement. Due to a transport limit of 2Mtpa of the Gunlake Extension Project, some low-grade material generated by processing within the infrastructure area was classified as waste and emplaced in the western overburden emplacement area. With the approval of Mod 2 allowing an increase in product transport up to 2.6 Mtpa, this lower grade material can now be transported offsite as saleable product.

7. WATER MANAGEMENT

The attributes of the Quarry form the basis of ongoing management principles governing the need to protect water systems, both surface and groundwater, during quarrying activities as well as managing the remaining land for agricultural and biodiversity uses.

The operation lies within the Chapman's Creek Catchment. Chapman's Creek is an ephemeral creek which flows through the property roughly from south to north. The water management system has been designed to protect Chapman's Creek.

7.1 Erosion and Sediment Management

Gunlake Quarry operates in accordance with the Gunlake Soil and Water Management Plan which contains an Erosion and Sediment Control Plan. Specifically, the Plan includes:

- Implementation of the requirements set out in the publication "Managing Urban Stormwater: Soils and Construction Volume 1, 4th Edition, 2004 (Landcom, 2004)", referred to as the '*Blue Book*' and Volume 2E Mines and Quarries (DECC, 2008);
- Detailing practices that have potential to cause erosion and generate sediment and what control measures will be adopted to minimise the impact of these practices; and
- Detailing the location function and capacity of erosion and sediment control structures and how they will be maintained.

The design of the quarry has included the construction of rock-lined drains and check dams, sediment traps and water quality control ponds to contain dirty water. These structures were constructed as part of the initial quarry development and are maintained as necessary in order ensure adequate storage to capture runoff from storm events, to maintain a nil discharge site, and to minimise erosion and sedimentation.

7.2 Surface Water Management

7.2.1 Pollution Control Strategies

Gunlake Quarry operates under an approved Soil and Water Management Plan. Stormwater is collected in a series of pollution control structures which is then recycled within the process water circuit. Collected water is utilised for the:

- Processing plant;
- Dust suppression on roads and hardstand areas;
- Pasture irrigation (when required to dispose of excess site water);
- Truck washing; and
- Non-potable domestic water.

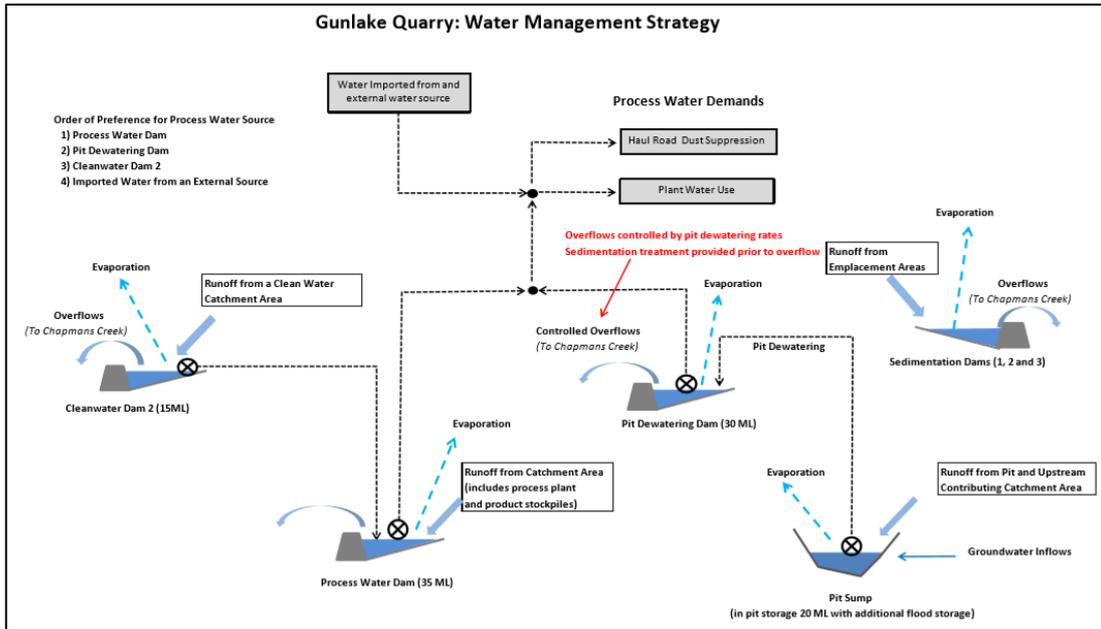


Plate 7 – Surface Water Management Plan



Plate 7 Process Water Dam

7.2.2 EIS Assessment and Predictions

No specific assessment criteria were provided in the EIS in relation to surface water. The EIS however, made the following Surface water management objectives;

- Separation of clean and quarry water circuits using clean water diversion drains up gradient from disturbance areas. This will minimise water treatment required on site.
- Providing sedimentation basins of an appropriate size for all catchment areas based on '*Managing Urban Stormwater: Soils and Construction, Volume 2E– Mines and Quarries*' (DECC, 2008).
- Suitable management of excess water in the pit by pumping to a pit dewatering dam that will hold water for process water usage.
- The volume and frequency of site discharge will be minimised by capturing water from disturbed areas in water management dams to be used as process water. Water storages on site provide a capacity in excess of 120ML.
- Site discharge locations have been established and characterised for each stage of the quarry plan.
- Model the quarry's operational water demands to estimate process water needs and supply reliability, including dam storage volumes.
- Use of an ongoing monitoring and review program to enable improvement of the Surface Water Management Plan as the operation expands.

The EIS for the Extension Project predicted that site water discharges may be required in periods of wet weather. This occurred during the reporting period following a prolonged period of wet weather and intense storm events. Controlled release of water from the process water dam was required in August to provide adequate freeboard for future predicted rainfall events so as to avoid the risk of uncontrolled discharge. The water quality met the requirements for release as detailed in the SWMP. Results of the monitoring are detailed in Tables 7.1 to 7.3

7.2.3 Monitoring and Reporting

Gunlake Quarry undertakes quarterly monitoring of surface water quality within Chapman's Creek at two sites within the project boundary to determine a basis for potential impact assessment as the quarry progresses. The upper reaches of Chapman's Creek are predominantly dry and only flow following heavy rain events, while the lower section towards Brayton Road at the Gunlake property boundary consists largely of pools connected by baseflow during periods of low rainfall. Chapman's Creek flows into Joaramin Creek approximately 1.4 km downstream from the Gunlake project boundary, and Joaramin Creek eventually flows into the Wollondilly River.

The sites include two sampling locations on Chapman's Creek downstream of the operation known as RW1 and RW2. RW1 is located at the Quarry entrance adjacent to Brayton Road, whilst RW2, which is often dry, is sampled approximately 1km upstream of RW1 within the property. The upstream site previously recorded as Site I is no longer monitored as sufficient background data on Chapman's Creek exists for the purposes of impact assessment.

The water quality has been monitored and significant parameters outlined in the Trigger Action Response Plan (TARP) including pH, EC and TDS have been compared to historical background levels taken at Site I in order to be able to identify any harmful changes to the creek's water quality.

Tables 7.1 to 7.4 provide summaries of the surface water monitoring for the 2022/2023 reporting period. Monitoring is undertaken on a quarterly basis and sample results from the Process Water Dam (PWD) and the Drop Cut are also included.

Table 7.1 Monitoring Results for RW1

Analyte	Units	Sample Date				
		10/08/2022*	21/09/2022	6/12/2022	04/04/2023	20/06/2023
pH	pH units	8.11	8.39	8.31	8.67	8.44
Electrical Conductivity	uS/cm	743	1960	1230	1440	2690
Total Suspended Solids (TSS)	mg/L	9	<5	6	<5	<5
Total Phosphorus as P (TP)	mg/L		0.01	0.17	0.02	<0.01
Total Nitrogen as N (TN)	mg/L		0.9	1.8	0.9	1.1
Dissolved Oxygen (DO)	mg/L		10.8	9.0	11.9	12.2
Turbidity	NTU		5.0	3.8	4.1	6.0
Chloride	mg/L		505	289	380	630
Calcium	mg/L		72	42	46	85
Magnesium	mg/L		89	50	60	133
Sodium	mg/L		194	127	165	268
Potassium	mg/L		4	5	6	4
Total Arsenic	mg/L		<0.001	<0.001	<0.001	<0.001
Total Cobalt	mg/L		0.001	<0.001	<0.001	<0.001
Total Copper	mg/L		<0.001	<0.001	<0.001	<0.001
Total Manganese	mg/L		0.224	0.044	0.021	0.155
Total Nickel	mg/L		<0.001	<0.001	<0.001	<0.001
Total Zinc	mg/L		<0.005	<0.005	<0.005	<0.005
Total Iron	mg/L		<0.05	<0.05	<0.05	<0.05
Oil and Grease	Visual		None visible	None visible	None visible	None visible

* Controlled release

Table 7.2 Monitoring Results for RW2

Analyte	Units	Sample Date				
		10/08/2022*	21/09/2022	6/12/2022	04/04/2023	20/06/2023
pH	pH units	8.21	8.32	8.11	8.17	8.18
Electrical Conductivity	uS/cm	850	1460	952	1460	1640
Total Suspended Solids (TSS)	mg/L	10	7	14	<5	<5
Total Phosphorus as P (TP)	mg/L		0.01	0.02	0.03	<0.01
Total Nitrogen as N (TN)	mg/L		2.4	2.2	0.8	6.5
Dissolved Oxygen (DO)	mg/L		11.2	8.9	9.2	12.0
Turbidity	NTU		6.8	9.2	8.7	6.3
Chloride	mg/L		363	189	374	362
Calcium	mg/L		49	30	46	55
Magnesium	mg/L		66	39	63	73
Sodium	mg/L		151	102	169	171
Potassium	mg/L		5	5	6	5
Arsenic	mg/L		<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L		0.001	0.001	0.002	0.001
Copper	mg/L		<0.001	<0.001	<0.001	<0.001
Manganese	mg/L		0.224	0.331	0.619	0.242
Nickel	mg/L		<0.001	0.001	0.001	<0.001
Zinc	mg/L		<0.005	<0.005	<0.005	<0.005
Iron	mg/L		<0.05	<0.05	0.13	<0.05
Oil and Grease	Visual		None visible	None visible	None visible	None visible

* Controlled release

Table 7.3 Monitoring Results for PWD

Analyte	Units	Sample Date				
		10/08/2022*	21/09/2022	7/12/2021	04/04/2023	20/06/2023
pH	pH units	8.05	8.60	8.80	8.44	8.22
Electrical Conductivity	uS/cm	674	749	686	441	840
Total Suspended Solids (TSS)	mg/L	14	8	<5	49	10
Total Phosphorus as P (TP)	mg/L		0.01	0.02	0.12	0.01
Total Nitrogen as N (TN)	mg/L		7.7	9.0	5.6	11.3
Dissolved Oxygen (DO)	mg/L		11.2	11.2	10.2	11.5
Turbidity	NTU		6.6	4.4	139	15.3
Chloride	mg/L		113	94	52	132
Calcium	mg/L		22	20	14	36
Magnesium	mg/L		28	24	13	30
Sodium	mg/L		86	84	63	92
Potassium	mg/L		7	7	6	6
Total Arsenic	mg/L		<0.001	0.001	<0.001	<0.001
Total Cobalt	mg/L		<0.001	<0.001	<0.001	<0.001
Total Copper	mg/L		0.002	0.001	<0.001	<0.001
Total Manganese	mg/L		0.004	0.007	0.026	0.014
Total Nickel	mg/L		<0.001	<0.001	<0.001	<0.001
Total Zinc	mg/L		<0.005	<0.005	<0.005	<0.005
Total Iron	mg/L		<0.05	<0.05	0.39	<0.05
Oil and Grease	Visual		None visible	None visible	None visible	None visible

* Controlled release

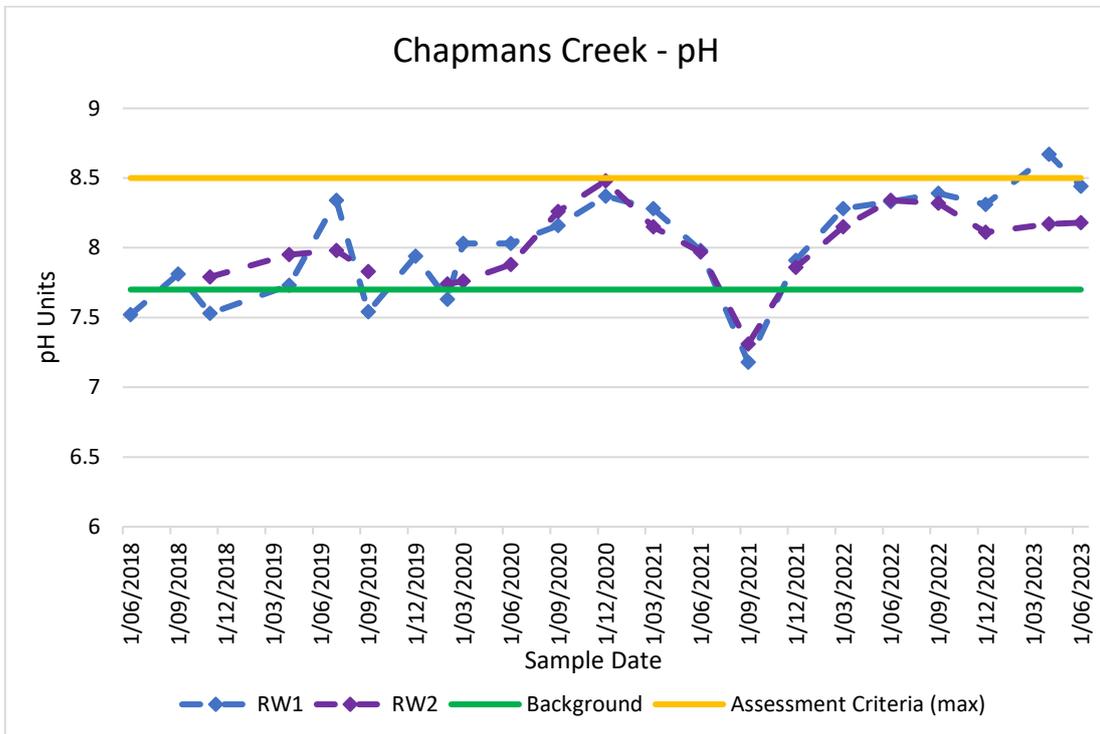
Table 7.4 Monitoring Results for Drop Cut

Analyte	Units	Sample Date			
		21/09/2022	6/12/2022	04/04/2023	20/06/2023
pH	pH units	8.04	8.26	8.28	7.91
Electrical Conductivity	uS/cm	659	690	697	805
Total Suspended Solids (TSS)	mg/L	<5	38	5	6
Total Phosphorus as P (TP)	mg/L	<0.01	0.02	0.02	<0.01
Total Nitrogen as N (TN)	mg/L	8.9	11.4	10.9	12.4
Dissolved Oxygen (DO)	mg/L	10.8	9.2	9.0	10.7
Turbidity	NTU	8.7	8.7	7.2	6.5
Chloride	mg/L	106	101	105	131
Calcium	mg/L	27	28	32	39
Magnesium	mg/L	22	23	25	28
Sodium	mg/L	68	73	80	82
Potassium	mg/L	5	5	6	6
Total Arsenic	mg/L	<0.001	<0.001	<0.001	<0.001
Total Cobalt	mg/L	<0.001	0.001	<0.001	0.001
Total Copper	mg/L	0.003	0.003	0.002	<0.001
Total Manganese	mg/L	<0.001	0.003	0.001	0.019
Total Nickel	mg/L	<0.001	<0.001	<0.001	<0.001
Total Zinc	mg/L	<0.005	<0.005	<0.005	<0.005
Total Iron	mg/L	<0.05	<0.05	<0.05	<0.05
Oil and Grease	Visual	None visible	None visible	None visible	None visible

Graphs 7.1 - 7.5 present the water quality parameters in Chapmans Creek over the last two reporting periods. There are no site specific trigger values for the surface water monitoring sites, however the following water quality parameters and values are used as the basis for impact assessment as detailed in the SWMP:

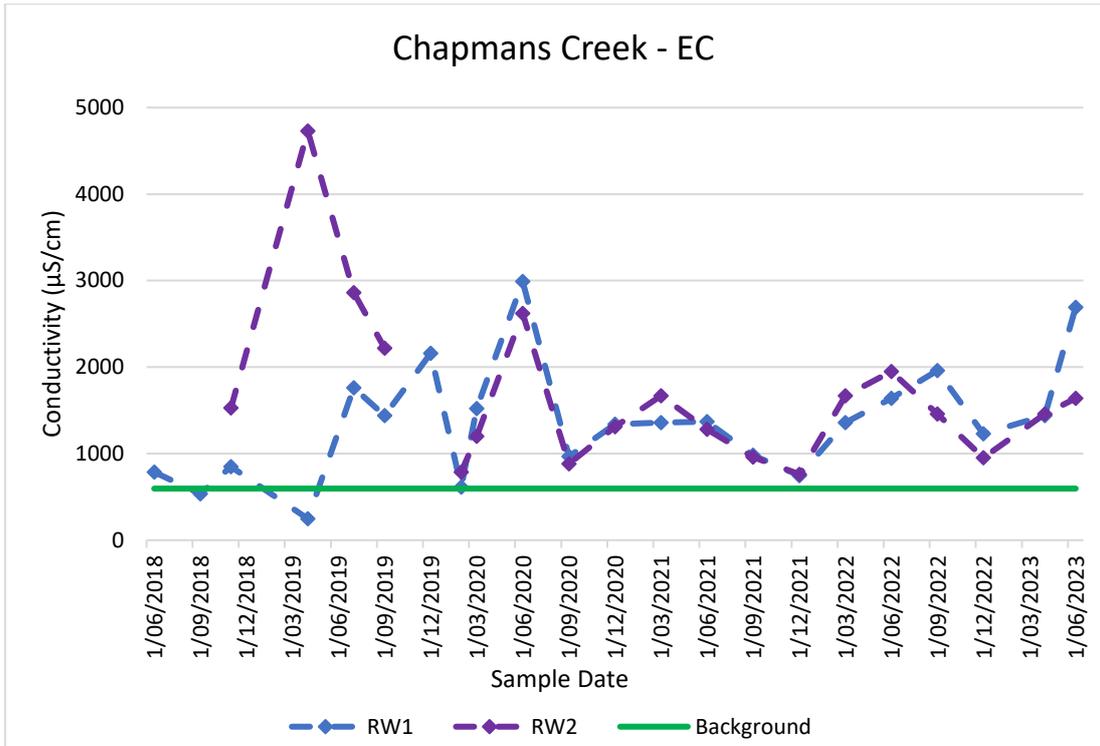
- pH 6.5 – 8.5
- Electrical conductivity <2,000 uS/cm
- Total suspended solids <50mg/L

The monitoring results for the past two periods show results within the above criteria for pH (graph 7.1) whilst suspended solids exceeded 50mg/L on one occasion at RW2 (graph 7.6) and fluctuating conductivity on a number of occasions exceeding these values for both sites in Chapmans Creek (graph 7.2). Given the ephemeral nature of the creek it is difficult to determine trends in the water quality and therefore the cause of changes in water quality. The fluctuation in conductivity is likely due to the variation from stagnant water through to high flow events and movement of salts through the system.



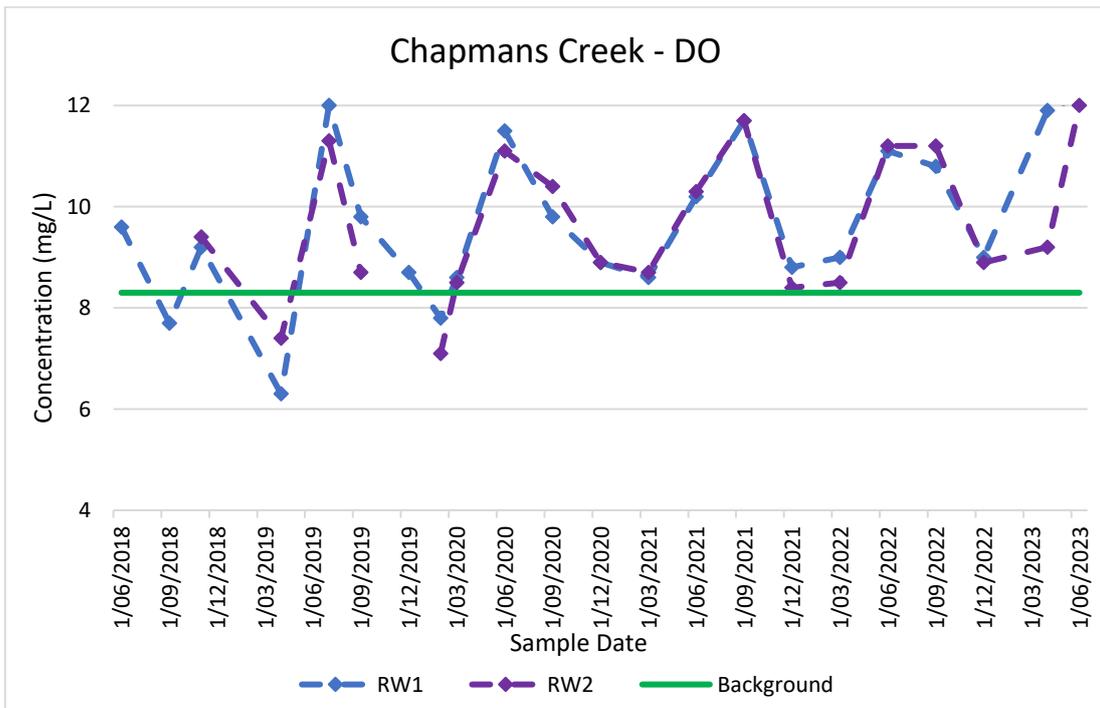
Graph 7.1 – Chapmans Creek pH

The data shows that water quality in Chapmans Creek is largely influenced by groundwater baseflow during normal conditions. Salt levels at RW1 and RW2 respectively average at 1830 $\mu\text{S}/\text{cm}$ and 1378 $\mu\text{S}/\text{cm}$ (Graph 7.2) with a pH fluctuating generally between pH7 and pH8.5 (Graph 7.1). During high flow, the salt content decreases following initial flushing of the system.

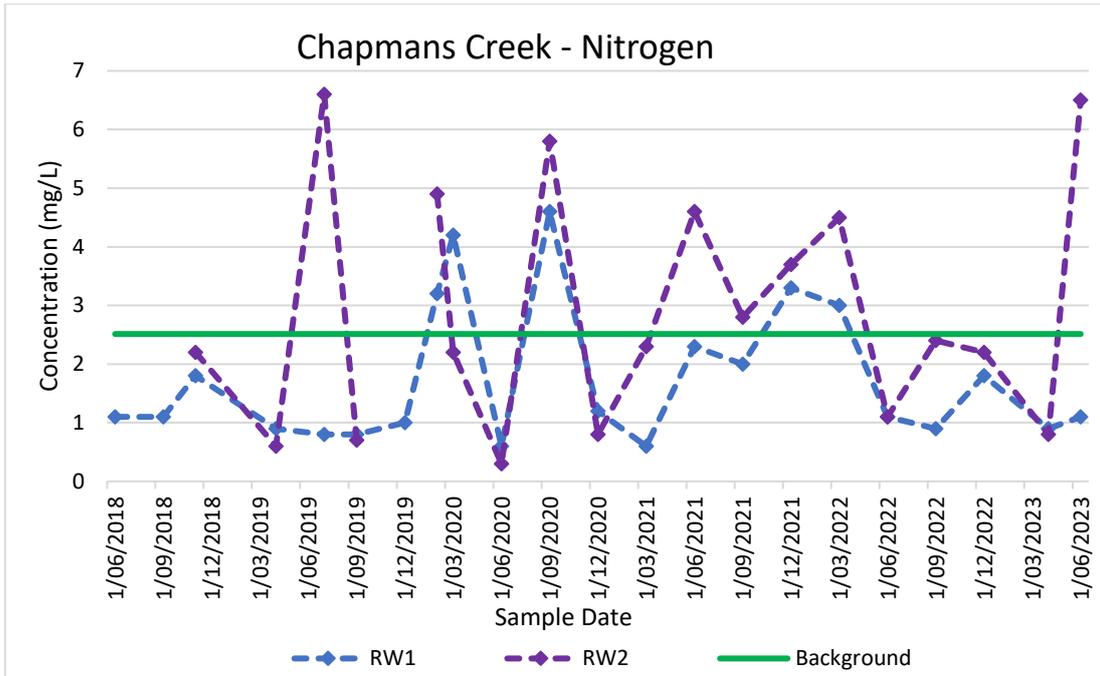


Graph 7.2 - Chapmans Creek Electrical Conductivity

Dissolved oxygen levels presented in Graph 7.3 remain in a range for healthy aquatic biodiversity in line with background levels from the upstream Site I. Increases in DO during represent high flow in the creek following rainfall.

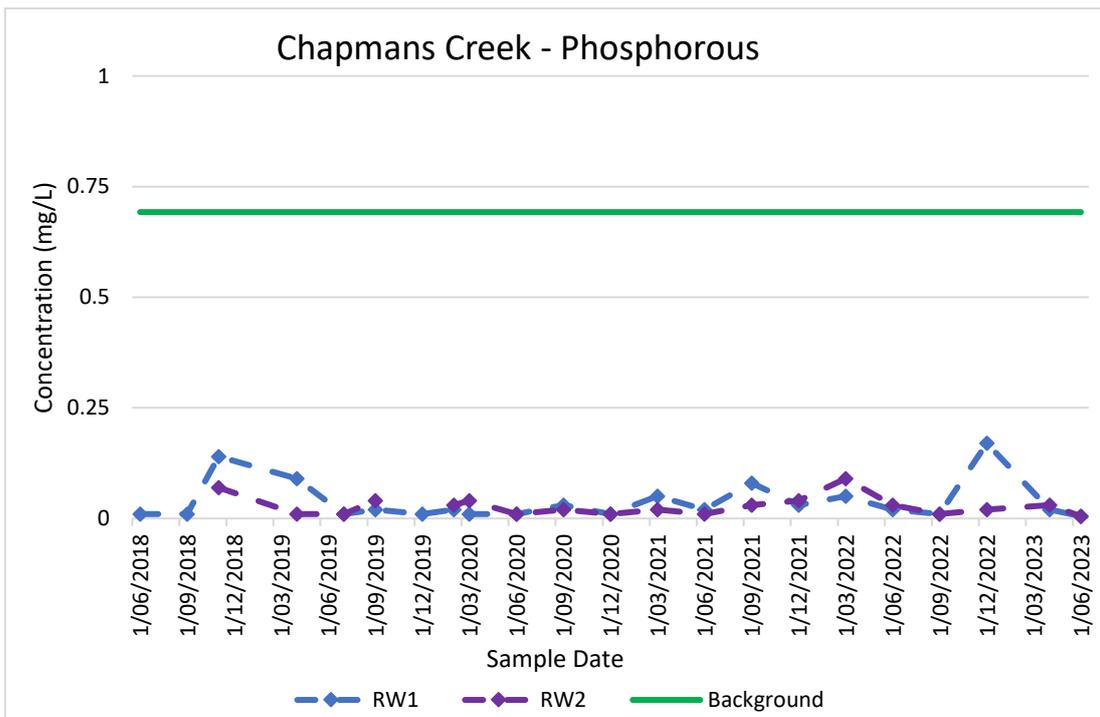


Graph 7.3 - Chapmans Creek Dissolved Oxygen



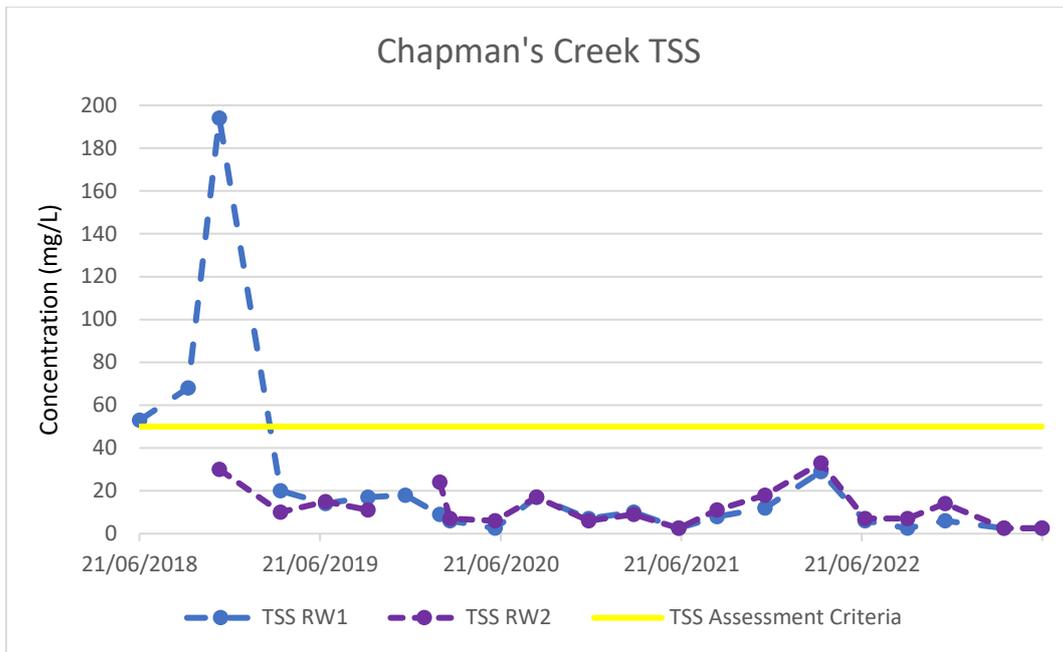
Graph 7.4 – Chapmans Creek Total Nitrogen

Levels of total Nitrogen show fluctuation around the long term average which is likely due to fertilisation of the agricultural properties upstream of the quarry (Graph 7.4). Total Phosphorus levels shown in Graph 7.5 are consistently below 0.2mg/L and are well below the background average of 0.7mg/L at Site I.



Graph 7.5 – Chapmans Creek Total Phosphorous

During the past two reporting period TSS concentrations within the creek were below the assessment criteria.



Graph 7.6 – Chapmans Creek Total Suspended Solids

7.2.4 Stream Health Monitoring

As with most ephemeral streams, the intermittent flow events in Chapmans Creek give rise to infrequent but often high sediment movement. Ephemeral streams tend to remain apparently stable for long periods until major storm events when high flows can cause channel scour and mass movement of sediment downstream. Although these are natural events, the loss of riparian vegetation through past agricultural activities can result in higher than normal instability of channels and banks. Four monitoring points have been identified along the creek and are monitored quarterly to observe changes over time.

Despite the extended wet conditions and intense rainfall events during the reporting period, no evidence of any further erosion was recorded at Photopoints 1, 2 and 4 whilst minimal erosion of the stream bank was evident at Photopoint 3. The lack of further erosion is in part due to the increased vegetation in the stream bed and banks and indicates that the creek is in a degraded but stable state.

Quarterly monitoring will continue over the coming reporting period with additional monitoring following heavy rainfall.

7.2.5 Future Improvements

Surface water quality remains within a healthy range and will continue to be monitored on a quarterly basis in the 2023/2024 reporting period and beyond. Planting of Blakely's Red Gum (*Eucalyptus blakelyi*) and Yellowbox (*Eucalyptus melliodora*) is scheduled for September 2023 along the riparian zone within the BioBank Area. This will improve bank stability over time and reduce the risk of further erosion.

7.3 Groundwater Management

7.3.1 Groundwater Monitoring

Baseline data on static water level, water quality and rock permeability was obtained from a broad network of monitoring bores distributed around the current and future quarry area. Ongoing monitoring will continue with two groundwater monitoring bores GM6 and GM13 located in proximity to the pit. The direction of the groundwater flow is generally to the northwest following the surface topography.

The Groundwater Monitoring component of the Gunlake Groundwater Management Plan provides a set of trigger levels for investigating any potential adverse groundwater impacts. The initial triggers relate to physical and chemical descriptors of water quality which may be influenced by quarrying activities. These triggers will be updated as the range of natural background variability is refined through ongoing monitoring. The current triggers relating to groundwater quality are:

- A 'significant' decrease in pH (pH less than 6); and
- A gradually increasing trend in EC and TDS values in GM6 and GM13.

Table 7.5 presents average analytical results for the background groundwater as sampled from a series of 9 groundwater monitoring bores determined from samples collected in June 2007 prior to the commencement of quarrying activities.

Table 7.5 Summary of Background Bore Water Quality

Analyte	Range	Average
pH (pH units)	6.8-7.3	6.9
EC (uS/cm)	720-7210	3232
Sodium (mg/L)	110-575	293
Calcium (mg/L)	17-530	224
Potassium (mg/L)	2.5-18	9.7
Magnesium (mg/L)	17-435	177
Ammonia (mg/L)	<0.1-1.4	0.7
Chloride (mg/L)	110-2620	1093
Sulphate (mg/L)	3-44	17
Bicarbonate (mg/L)	210-760	490
Carbonate (mg/L)	<1	<1
Nitrate (mg/L)	<0.1-7.1	2.02
Nitrite (mg/L)	<0.1-0.33	0.14
Phosphate (mg/L)	<0.01-0.04	0.02
Total Phosphorous (mg/L)	0.33-4.0	1.16
Copper (mg/L)	0.001-0.003	0.002
Lead (mg/L)	<0.001	<0.001
Zinc (mg/L)	0.002-0.010	0.005
Cadmium (mg/L)	<0.0002	<0.0002
Chromium (mg/L)	<0.01	<0.01
Nickel (mg/L)	<0.01	<0.01
Total Iron (mg/L)	14-82	42
Dissolved Iron (mg/L)	<0.01-0.69	0.09
Arsenic (mg/L)	<0.01	<0.01

Analyte	Range	Average
Mercury (mg/L)	<0.0001	<0.0001

Tables 7.6 to 7.7 show the monitoring data during the reporting period for bores GM6 and GM13.

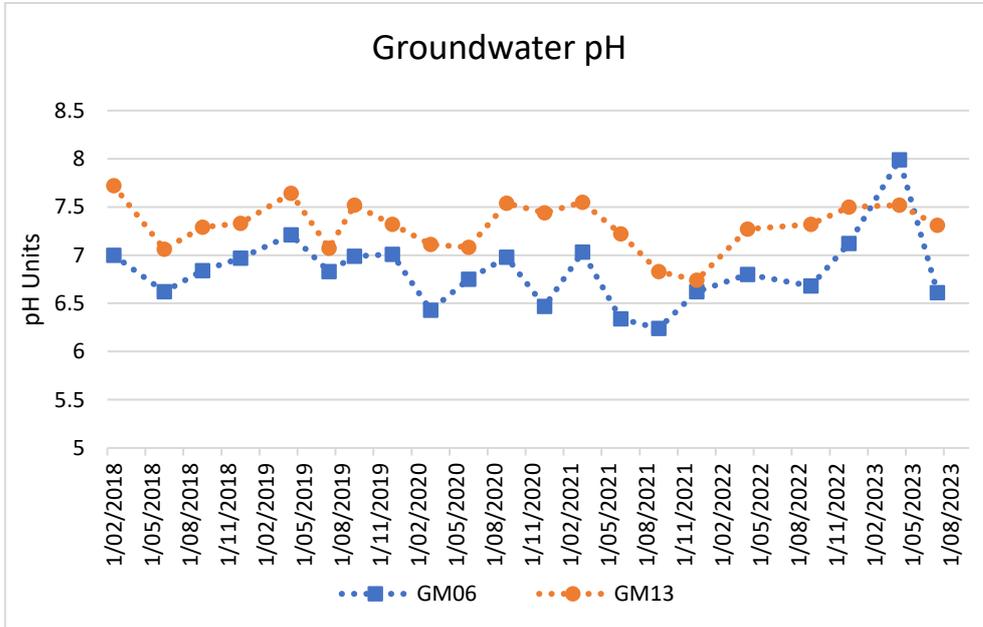
Table 7.6 Groundwater Quality Monitoring Results and Summary GM 6

Parameter	Unit of Measure	Sample Date:21/09/22	Sample Date:7/12/22	Sample Date:27/4/23	Sample Date:12/7/23	Reporting Period Average
pH	pH units	6.68	7.12	7.99	6.61	7.1
Electrical Conductivity	µS/cm	341	316	258	289	301
Total Dissolved Solids	mg/L				294	294
Hardness	mg/L	47	47	85	47	57
Sulfate	mg/L	23	29	<1	26	26
Calcium	mg/L	9	9	24	9	13
Iron (dissolved)	mg/L	0.17	0.76	0.21	2.55	0.92
Magnesium	mg/L	6	6	6	6	6
Potassium	mg/L	5	4	4	4	4
Sodium	mg/L	51	45	19	43	30
Iron (total)	mg/L	0.117			3.30	1.7
Arsenic	mg/L	0.001	0.002	<0.001	0.003	0.002
Cadmium	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.0028	0.002	<0.001	0.002	0.002
Copper	mg/L	0.005	0.003	0.005	0.004	0.004
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.008	0.009	0.004	0.009	0.008
Zinc	mg/L	0.040	0.012	<0.005	0.015	0.02
Ammonia as N	mg/L	<0.01	<0.01	<0.01	0.11	<0.01
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	0.76	0.09	0.30	<0.05	0.38
Total Phosphorus as P	mg/L	0.04	0.12	0.07	0.26	0.12

Table 7.7 Groundwater Quality Monitoring Results and Summary GM 13

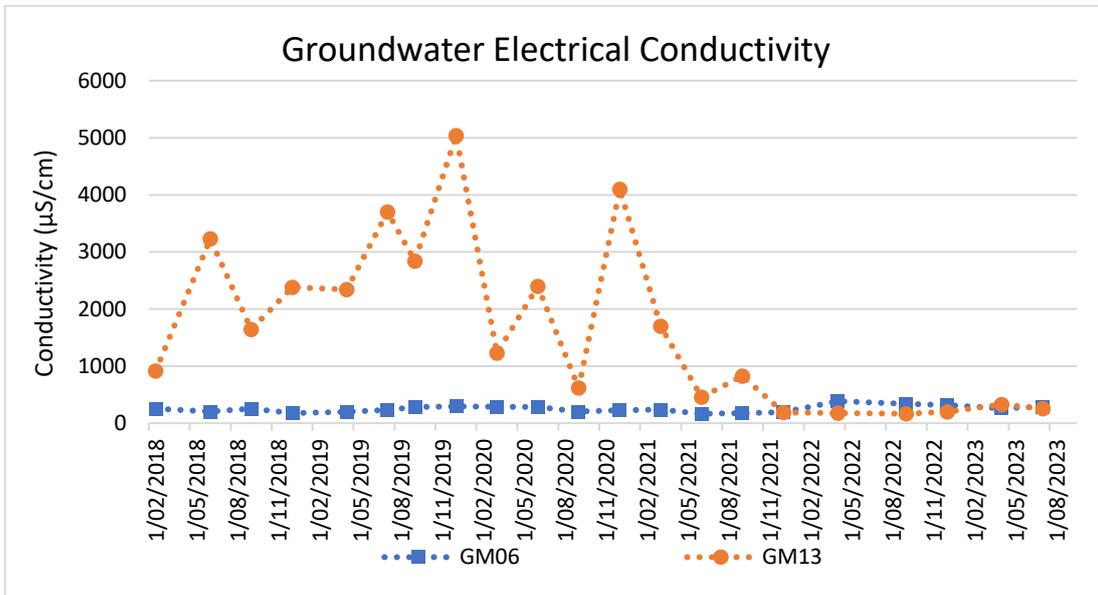
Parameter	Unit of Measure	Sample Date:21/09/22	Sample Date:7/12/22	Sample Date:27/4/23	Sample Date:12/7/23	Reporting Period Average
pH	pH units	7.32	7.50	7.52	7.31	7.4
Electrical Conductivity	µS/cm	166	196	326	257	236
Total Dissolved Solids	mg/L				217	217
Hardness	mg/L	56	66	47	96	66
Sulfate	mg/L	9	3	29	4	11
Calcium	mg/L	14	18	9	27	17
Iron (dissolved)	mg/L	0.32	0.29	0.73	0.24	0.4
Magnesium	mg/L	5	5	6	7	6
Potassium	mg/L	3	3	5	4	4
Sodium	mg/L	21	18	46	20	26
Iron (total)	mg/L	1.22			0.38	0.8
Arsenic	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.001
Chromium	mg/L	0.002	0.001	0.002	<.001	0.002
Copper	mg/L	0.005	0.004	0.004	0.006	0.005
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.004	0.004	0.010	0.006	0.006
Zinc	mg/L	0.008	0.005	0.009	<0.005	0.007
Ammonia as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	0.19	0.17	0.35	1.73	0.61
Total Phosphorus as P	mg/L	0.04	0.11	0.06	0.04	0.06

The monitoring to date shows that the groundwater varies from slightly basic at GM13 to slightly acidic at GM06, having a narrow range of 1pH unit from 6.61 to 7.99 across the sites for the reporting period (Graph 7.6), both recorded at GM6. Monitoring showed a normal pH range and no investigation under the trigger action response plan was required. It should be noted that the quarry does not undertake any processes, store or use any materials that would cause a low pH to occur in the groundwater.



Graph 7.6 – Monitoring Bore Ground Water - pH

The bores show typical groundwater characteristics with conductivity ranging from 258 $\mu\text{S}/\text{cm}$ to 341 $\mu\text{S}/\text{cm}$ in bore GM6 and 166 $\mu\text{S}/\text{cm}$ to 326 $\mu\text{S}/\text{cm}$ for GM13 (Graph 7.7). The concentration of GM6 has remained relatively consistent over time, whereas GM13 shows fluctuating concentrations with a gradual increase during the prolonged drought conditions, followed by a decline after high rainfall events through the previous three reporting periods.



Graph 7.7 – Monitoring Bore Ground Water - Electrical Conductivity

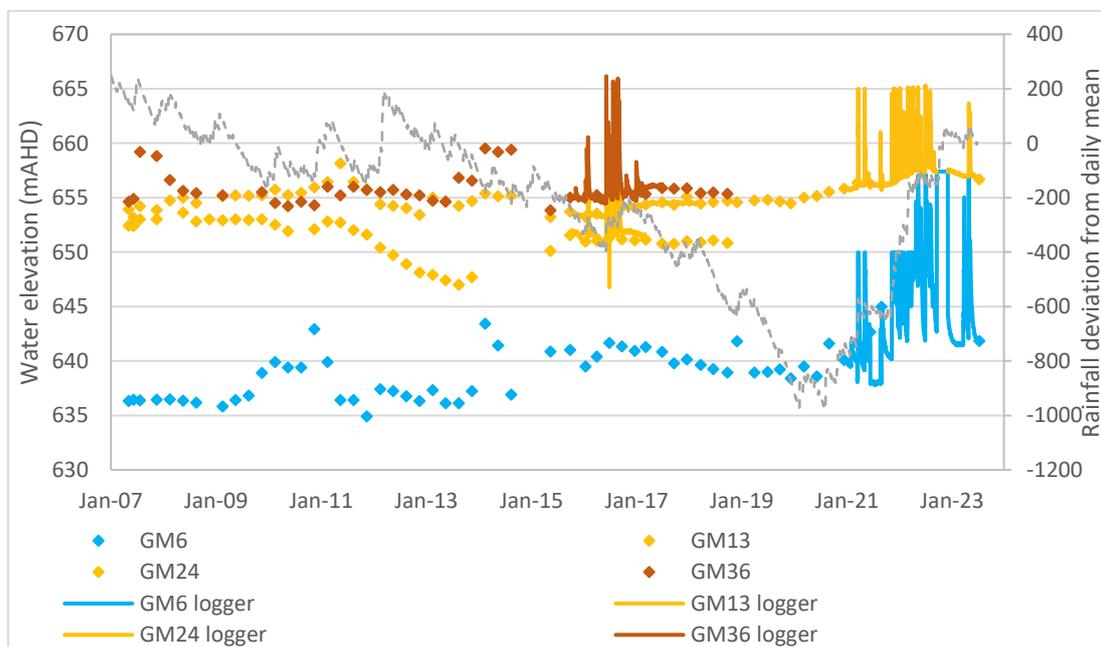
The salt content consists largely of chloride, magnesium and sodium ions. The background levels shown in Table 7.5 show conductivity levels in excess of 7,000 uS/cm but having the same characteristics being dominated by chloride, sodium, magnesium and low levels of sulphates and metals with the exception of iron. Variability in concentration of parameters between sites indicate local changes in geology, particularly for conductivity and iron. There has been no significant change in metal concentrations in either bore during the reporting period and remain low. There are indications of some low levels of nutrients such as nitrate and phosphorus which could have come from the previous agricultural practices in the area.

7.3.2 Groundwater Levels

The EIS for the Extension Project made assumptions of predicted groundwater levels using a series of transient models used to simulate the staged expansion of the project. The incorporation of the expanded pit shows levels of stress on the groundwater system. At the end of each development stage, the EIS has predicted the following impacts to the groundwater table:

- Stage 1: During the first five years excavation will only occur above the groundwater table, and no impacts on groundwater are predicted.
- Stage 2: Years 5 – 10 will see an interception of the groundwater table, resulting in a predicted 2m drawdown contour extending 300m from the edge of the pit.
- Stage 3: From year 10 – 20, the 2m drawdown contour will extend up to 1km from the pit footprint edge.
- Stage 4: During years 20 – 30, it is predicted that the drawdown will extend up to 1.5km.
-

The environmental assessment for the Gunlake Extension Project Mod 2 indicates that there will be no change in impact to groundwater resulting from the increased truck movements and therefore the impacts identified in the EIS are still relevant. The groundwater levels recorded during the reporting period as well as historic data from decommissioned bores are presented in Graph 7.8 below.



Graph 7.8 - GW6 and GW13 Hydrographs

The results of the bore monitoring are in line with the projections of the EIS. Increases in standing water level are seen to be a result of recharge of local aquifers following rainfall while a drop in standing water level coincides with periods of low rainfall rather than quarrying activities to date. The long term trend for bore GW06 shows fluctuating standing water levels between 13 MBGL and 19. MBGL, with generally higher standing water levels during the reporting period reflecting the saturated nature of the surrounding stata. GM13 follows a similar but less pronounced trend with an average standing water level of 10.7MBGL and a range of 3m (Graph 7.8). GM 13 is located closer to the pit than GM6 and has had a positive increase to the standing water level since the rains in early 2020. Bore monitoring will continue in the coming reporting period.

7.3.3 Water Take

Gunlake quarry holds two water access licences as detailed in Table 7.8 which combined allows for 72ML groundwater take per annum. Modelling for the EIS for the Extension Project predicts that groundwater will not be intercepted until year 5 of the project as quarrying activities will be undertaken above the water table during this time. The pit floor is currently above the water table and there has been no evidence of groundwater inflow to date and therefore no groundwater was extracted or used during the reporting period.

Table 7.8 Groundwater Licence

Water Access Licence	Water Sharing Plan, Source and Management Zone	Entitlement	Passive Take/Inflow	Active Pumping	Total
42340	Greater Metropolitan Region Groundwater Sources 2011; Goulburn Fractured Rock Groundwater Source	37ML	Nil	Nil	Nil
44232	Greater Metropolitan Region Groundwater Sources 2011; Goulburn Fractured Rock Groundwater Source	35ML	Nil	Nil	Nil

7.3.4 Future Improvements

There are no apparent significant variations or developing trends in groundwater quality or water levels as a result of the quarrying activity undertaken to date. The monitoring program will continue on a quarterly basis in the 2023/2024. It is proposed to expand the monitoring network in the coming reporting period with an additional five bores located to the north, south, east and west of the quarry. These will be detailed in the updated Water Management Plan that is being prepared as a post approval requirement of the Gunlake Continuation Project. The monitoring program will be reviewed as part of this process.

8. REHABILITATION

8.1 Rehabilitation Performance and Objectives

The Applicant must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the rehabilitation strategy in the EIS and must comply with the objectives in Table 8.1.

Table 8.1 Rehabilitation Objectives

Feature	Objective
Site (as a whole)	<ul style="list-style-type: none"> • Safe, stable and non-polluting • Final landform integrated with surrounding natural landforms as far as is reasonable and feasible • Final landform has minimal visual impact when viewed from surrounding land
Surface Infrastructure	<ul style="list-style-type: none"> • Decommissioned and removed, unless otherwise agreed by the Secretary
Land identified as the Biodiversity Area	<ul style="list-style-type: none"> • Conserved and enhanced with native, endemic vegetation consistent with the objectives
Riparian Corridors along Chapman Creek and its tributaries	<ul style="list-style-type: none"> • Stabilised and vegetated
Quarry benches	<ul style="list-style-type: none"> • Landscaped and vegetated using native tree and understorey species
Final Void	<ul style="list-style-type: none"> • Minimise the size, depth and slope of the batters of the final void • Minimise the drainage catchment of the final void

Table 8.2 Rehabilitation Performance

Area of Rehabilitation	Site Comment
Extent of the operations and rehabilitation at completion of the reporting period	During the reporting period the extraction area was expanded further to the south-west as approved in the Gunlake Extension Project. Existing rehabilitation on the bund wall was maintained. Final shaping of northwestern end of the western overburden completed, ready for seeding and tube stock planting in Spring 2023.
Agreed post- rehabilitation land use	The final land use will comprise the final void, rehabilitated emplacement area, offset areas and agricultural areas within the Gunlake property.
Key rehabilitation performance indicators	<p>The following performance criteria apply:</p> <ul style="list-style-type: none"> • Key indicator species present in equivalent density to target vegetation community. • Indicator species successfully seed in two consecutive years.

Area of Rehabilitation	Site Comment
Any other Rehabilitation Taken including: <ul style="list-style-type: none"> • Exploration activities; • Infrastructure; • Dams; and • The installation or maintenance of fences, bunds and any other works 	There was no other rehabilitation undertaken during the reporting period. Ongoing repair of erosion controls within stormwater management system.
Any rehabilitation areas which have received formal sign off from DRG	N/A
Variations to activities undertaken to those proposed (including why there were variations and whether DRG was notified)	No
Outcomes of trials, research projects and other initiatives	No trials were undertaken during the reporting period
Key issues that may affect successful rehabilitation	There are a number of issues that affect rehabilitation success and these include low volume of topsoil, extreme weather condition, feral animals, and seedling quality.

8.2 Progressive Rehabilitation Strategy

Gunlake has adopted a progressive approach to the rehabilitation of disturbed areas to ensure that where practicable areas where quarrying or overburden placement is completed are progressively shaped and vegetated to provide a stable landform. The rehabilitation of the site has been designed to integrate the re-establishment of agricultural land with the conservation of native vegetation and the creation of a riparian habitat corridor.

The outer extent of the overburden emplacement bund to the north east of the processing area has been shaped and revegetation work undertaken on the completed batters progressively (Plates 8 and 9). The vegetation is well established in this area with high success rate.

Following rain and the breaking of the drought in February 2020, the first three completed batters at the northern end of the western overburden emplacement area were planted with 600 tubestock to commence rehabilitation of this area (Plate 10). A further 300 hundred tubestock planted in this area in 2021. Due favourable weather conditions since that time there has been success with the establishment of the tubestock with significant growth. Further rehabilitation works including spray seeding and planting of tubestock on the next three completed batters of the western overburden emplacement were scheduled for autumn and spring 2022 but had to be postponed due to the wet conditions making access for machinery unsafe. These works will be undertaken in spring 2023.



Plate 8 Rehabilitation of Bund Wall Southeastern Side



Plate 9 Rehabilitation of Bund Wall Northeastern Side



Plate 10 Rehabilitation Works Western Overburden Emplacement Area

8.3 Key Environmental Issues and Management Measures

Due to active quarry development and emplacement of overburden rehabilitation areas are essentially limited to the noise bund wall and the northern and northwestern end of the western overburden emplacement area. Rehabilitation success was limited during 2018 through to early 2020 due to prolonged drought conditions, but subsequently wetter conditions have seen good vegetation growth of both planted tubestock and natural seeding from nearby mature eucalypts. Replacement of unsuccessful tubestock, weed and erosion control comprise the main management measures for the rehabilitation area at present.

8.4 Actions for the Next Reporting Period

Table 8.3 Actions for the Next Reporting Period

Action	Site Comment
Describe the steps to be undertaken to progress agreement during next reporting period, where final rehabilitation outcomes have not yet been agreed between stakeholders	There will be further rehabilitation of the western overburden emplacement following final shaping in the next Annual Review period.
Outline proposed rehabilitation trials, research projects and other initiatives to be undertaken during next reporting period.	Details of any rehabilitation trials will be provided in the next Annual Review. Monitoring of the Biobanking areas will continue to be undertaken during the

Action	Site Comment
	period as well as planting of tubestock in the riparian zones in this area.
Summary of rehabilitation activities proposed for next report period.	There will be further rehabilitation of the western overburden emplacement following final shaping as well as further maintenance and weed spraying in the next Annual Review period.

9. COMMUNITY RELATIONS

9.1 Community Consultation

Gunlake management is required to keep the local community and relevant agencies informed about the construction, operation and environmental performance of the project. A Community Consultative Committee (CCC) operates for the project. Information is provided to the CCC along with other members of the community on request. The CCC is independently chaired and currently meets approximately three to four times per year. Minutes are available on the website.

Three CCC meetings were held during the reporting period, on the 12th August 2022, 2nd December 2022, and 24th March 2023. These meetings discussed:

- transport route issues such as signage, reduced speed limits, state of disrepair and maintenance schedules;
- the truck driver behaviour and road use;
- approval of the SSD Continuation Project; and
- addressed concerns raised by the community.

The CCC will continue to operate in the coming reporting periods.

9.2 Community Involvement

Gunlake is committed to supporting the local community and participates in numerous local community programs and events including:

- annual commitments:
 - Goulburn District Education Foundation (major contributor);
 - Marulan Australia Day Committee (major sponsor);
 - Tallong Apple Day Festival (major sponsor); and
 - Trades training scholarships.
- Other recent community commitments and initiatives include:
 - Marulan CWA new rear boundary fence;
 - Roadbase for new driveway at the Marulan Uniting Church;
 - Goulburn Base Hospital Patient information Service Video System;
 - Rotary Southern Tablelands Science and Engineering Secondary Schools Challenge;
 - Donation of materials for Saint Peter and Paul's Old Cathedral Goulburn Restoration Project;
 - Road base for the new Tallong Basketball Court and Skate Park; and
 - Gunlake hosted an excursion of local Year 9 students who are interested in undertaking the new School based apprenticeship scheme commencing 2024.
- Gunlake also participates in:
 - the Goulburn Mulwaree Council: Marulan Village Plan Working Party member;

-
-
- the Goulburn Secondary Schools Work Experience Placement Program: committee member and participant in local career expos;
 - emceeing of various community events; and
 - Regional Development Australia: ongoing panel member at a local 'jobs agenda' forums.

In addition to the support by way of sponsorship and donations, Gunlake provided assistance to the wider community through supplying a range of products including ballast and oversize rock to enable repairs to rail lines following damage caused by flooding and landslips on the main line near Picton and the southern line at the top of Macquarie Pass. Priority was given to the supply of these products to facilitate completion of the repairs as soon as possible.

Community liaison and support will continue in the coming reporting period.

9.3 Blast Liaison

In accordance with Schedule 3, Condition 13 of the LEC Consent, Gunlake undertakes a blast notification process as detailed in the Noise and Blast Management Plan:

9.4 Community Complaints

A complaints register is provided on Gunlake's website. One complaint relating to noise was received during the reporting period on 29th June 2023. The complainant reported what sounded like heavy machinery under load which he believed was coming from the quarry on the evening of 27th June. The night shift reports were reviewed and normal quarry operations were undertaken as per approved operating hours. It was determined unlikely that the noise heard would have originated from the quarry. The complainant was then contacted and advised of the findings and he stated that he had not heard anything since and the investigation was closed out.

10. INDEPENDENT AUDIT

Condition 11 of Schedule 5 of the LEC Consent for the project requires an independent environmental audit to be undertaken within a year of commencing development under the consent and every three years thereafter. The first independent environmental audit covered the date of commencement of SSD 2017/108663, that is, 7th August 2018 to 30th September 2019. The Audit Report is available on the Gunlake Quarries website. The second audit under the consent was undertaken on the 9th and 10th August 2022 and is also available on the Gunlake Quarries website together with the Gunlake Response to Audit Recommendations. The next Independent Audit under this consent is therefore scheduled for August 2025 however it is likely that the first audit under the consent for the Continuation Project will be required before that time.

10.1 Audit Recommendations and Actions

The following table details the actions that have not been completed as at the end of the reporting period. All other actions detailed in the Gunlake Response to Audit Recommendations (available on the website) have been completed.

Table 10.1- Summary of Recommendations – Outstanding Actions

Gunlake Response to Non-compliances and Recommendations – Independent Environmental Audit 2022

Ref No.	Condition	Independent Audit Finding	Independent Audit Recommendation	Proponent's Response	Action Status
NC-07	Schedule 3 Condition 22	Records were not available to verify that inspections of all drainage structures, channels and embankments had been conducted on a monthly basis or following intense storm events.	Gunlake should ensure that inspections required by management plans are completed, recorded and maintained.	Gunlake will continue to undertake inspections required by management plans	Ongoing
NC-08	Schedule 3 Condition 22	Effective measures had not been implemented to minimise soil erosion and the potential for transport of sediment. Scouring of the embankment leading down to the process water dam was evident during the site inspection on 10/08/2022.	Gunlake should ensure that inspections are conducted following rainfall events. Areas of erosion/ scouring should be promptly repaired. Records of inspections and repairs should be maintained.	Gunlake will continue to undertake inspections required by management plans. Unprecedented rainfall events over the past 24 months have prevented access to many areas of the site. Maintenance will be undertaken as soon as conditions allow	Ongoing
NC-12	Schedule 3 Condition 33 Statement of Commitments 8, 9	Conservation agreement areas have not been finalised – awaiting outcome of delayed proceedings before the Land and Environment Court.	The agreement for the long-term security of the offset area should be finalised.	This was subject to court proceedings and could not be progressed until determination of those proceedings.	Pending determination of Continuation Project Mod 1.
NC-16	Schedule 5 Condition 13 EPBC Condition 8	All required information was not provided on the company website. The EPBC Approval and the applicant's response to the recommendations in the previous Independent Environmental Audit were not included on website.	Gunlake need to ensure that information required to be published on the company website is uploaded and the website maintained.	Gunlake has and does ensure that information required to be published on the company website is uploaded and the website maintained.	Ongoing



11. INCIDENTS AND NON-COMPLIANCES

No incidents occurred at Gunlake Quarry during the reporting period, and as such the Pollution Incident Response Management Plan was not activated. Non-compliances identified in the Independent Environmental Audit are detailed in Chapter 10.

12. ACTIVITIES PROPOSED FOR NEXT AEMR PERIOD

The following activities are planned to be undertaken in the coming reporting period:

- Further development of quarry benches in the Gunlake Extension Project Area;
- Rehabilitation of completed benches and batters on western overburden emplacement area
- Maintenance on eastern noise bund wall rehabilitation;
- Ongoing program for desilting of sediment ponds and stormwater erosion control system;
- Upgrades to site water management structures;
- Continue environmental monitoring in accordance with management plans, EPL and consent requirements;
- Continue to update the website with monitoring data;
- Management of conservation areas as per conservation agreement;
- Management of offset areas as per BioBanking agreement;
- Weed spraying program;
- Review of current Extension Project management plans following submission of Annual Review;
- Preparation of updated management plans as required the Continuation Project consent in consultation with relevant agencies and submission to DPE for approval; and
- Ongoing driver training in accordance with the Driver Code of Conduct and Transport Management Plan.



APPENDIX A – Development Consent

Annexure B

DETERMINATION OF DEVELOPMENT APPLICATION BY GRANT OF CONSENT

Development Application No: Land and Environment Court proceedings 108663 of 2017 (SSD7090).

Development: Development of a hard rock quarry as an extension of the existing quarry footprint (previously approved pursuant to MP07_0074);

- transportation from the site of no more than 2 million tonnes per annum (Mtpa) of quarry products from the site per year by road;
- transporting quarry products by truck via two approved transport routes (the Primary Transport Route and the Secondary Transport Route);
- additional overburden emplacements;
- supporting infrastructure;
- 24 hour per day crushing & processing; and
- blasting

Site: 715 Brayton Road, Marulan (contained in Lot 13 DP1123374, Lot 271 DP750053, Lot 1 DP1246715, Lot 12 DP1123374 and Lot 1 DP841147)

Schedule of Modifications:

Date approved	Modification Application Number	Decision maker (Land and Environment Court or relevant council)	Proceedings Name and Number (if applicable)
9 June 2021	Land and Environment Court Proceedings 327172 of 2020	Land and Environment Court	Land and Environment Court Proceedings 327172 of 2020

Date of determination: 30 June 2017

Date from which consent takes effect: Date of determination - 30 June 2017 (and modified on 9 June 2021)

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DEFINITIONS

Aboriginal item or object	Any item or object that provides evidence of the use of an area by Aboriginal people, as defined under the <i>National Parks and Wildlife Act 1974</i>
AHD	Australian Height Datum
Annual Review	The review required by condition 10 of Schedule 5
Applicant	Gunlake Quarries Pty Ltd, or any other person/s who rely on this consent to carry out the development that is subject to this consent
BCA	Building Code of Australia
Biodiversity offset strategy	The conservation and enhancement strategy described in the EIS
Calendar Month	The first day of the month until the last day of the month
CCC	Community Consultative Committee
Conditions of consent	Conditions contained in Schedules 2 to 5 inclusive
Construction	The demolition of buildings or works, carrying out of works and erection of buildings covered by this consent
Council	Goulburn Mulwaree Council
Cured concrete waste	Cured concrete waste from a batch plant as defined in clause 49, Definitions of waste classifications, in Schedule 1 of the <i>POEO Act</i> , as in force from time to time
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Environment
Development	The development as described in the documents listed in condition 2(a) of Schedule 2
DPI Water	Department of Primary Industries – Water
DPI Fisheries	Department of Primary Industries – Fisheries
DRG	Division of Resources and Geosciences within the Department
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement titled <i>Gunlake Quarry Extension Project</i> , dated April 2016 and prepared by EMM, and the Response to Submissions report titled <i>Gunlake Quarry Extension Project Response to Submissions</i> , dated September 2016 and prepared by EMM
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence under the <i>POEO Act</i>
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
GPS	Global Positioning System
Incident	A set of circumstances that: <ul style="list-style-type: none"> • causes or threatens to cause material harm to the environment; and/or • breaches or exceeds the limits or performance measures/criteria in this consent <i>NSW Industrial Noise Policy</i> (NSW EPA, 2000)
INP	
Laden trucks	Trucks transporting quarry products from the site and/or trucks transporting cured concrete waste to the site
Land	As defined in the EP&A Act, except where the term is used in the noise and air quality conditions in Schedules 3 and 4 of this consent, where it is defined as the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this consent
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning, or delegate
Mitigation	Activities associated with reducing the impacts of the development
Negligible	Small and unimportant, such as to be not worth considering
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Primary transport route	Route from the site along Brayton Road, Ambrose Road and Red Hills Road
Privately-owned land	Land that is not owned by a public agency, the Applicant (or its subsidiary) or another quarry-owning company
Public infrastructure	Linear and other infrastructure that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas supply, electricity, telephone, telecommunications, etc.
Quarrying operations	The extraction, processing, stockpiling and transportation of extractive materials carried out on the site, the associated removal of vegetation, topsoil and overburden, and the associated emplacement of overburden
Quarry products	Includes all saleable quarry products, but excludes tailings and other wastes
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements

Rehabilitation	The restoration of land disturbed by the development to a good condition and for the purpose of establishing a safe, stable and non-polluting environment
RMS	Roads and Maritime Services
Secondary transport route	Route from the site to the Marulan interchange on the Hume Highway, along Brayton Road, across George Street, and under the Hume Highway
Secretary	Secretary of the Department, or nominee
SEE MOD 2	Statement of Environmental Effects prepared by EMM Consulting dated November 2020, the Response to Submissions dated March 2021 and supplementary noise and air quality impact assessments prepared by EMM Consulting dated 23 April 2021
Site	The land identified in Schedule 1 Lot 13 in Deposited Plan 1123374 Lot 271 in Deposited Plan 750053 Lot 1 in Deposited Plan 1246715 Lot 12 in Deposited Plan 1123374 Lot 1 in Deposited Plan 841147
Truck movements	Truck movements mean heavy vehicle one-way trips, either entering or leaving the site

[Modified by the Land and Environment Court on 9 June 2021 in LEC Proceedings 2020/ 327172](#)

**SCHEDULE 2
ADMINISTRATIVE CONDITIONS**

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. In addition to meeting the specific performance measures and criteria established under this consent, the Applicant 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 development.

TERMS OF CONSENT

2. The Applicant must carry out the development:
 - (a) generally in accordance with the EIS [and SEE \(MOD 2\)](#); and
 - (b) in accordance with the conditions of this consent, the Development Layout Plan and the Statement of Commitments.

*Notes: The Development Layout Plan is included in Appendix 1
The Statement of Commitments is included in Appendix 2*

[Modified by the Land and Environment Court on 9 June 2021 in LEC Proceedings 2020/ 327172](#)

3. If there is any inconsistency between the documents in condition 2(a), the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail over all documents in condition 2(a) to the extent of any inconsistency.
4. The Applicant must comply with any requirement/s of the Secretary arising from the Department's assessment of:
 - (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this consent (including any stages of these documents);
 - (b) any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with this consent; and
 - (c) the implementation of any actions or measures contained in these documents.

LIMITS ON CONSENT

Quarrying Operations

5. The Applicant may carry out quarrying operations on the site for 25 years from the date of notification, as stipulated under Condition 10(a), Schedule 2.

Note: Under this consent, the Applicant is required to rehabilitate the site and carry out additional undertakings to the satisfaction of the Secretary. Consequently, this consent 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.

6. The Applicant must not undertake quarrying operations below a level of 572 m AHD.
7. The Applicant must not transport more than [2 2.6](#) million tonnes of quarry products from the site in any calendar year.

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8. The Applicant must not receive more than 30,000 tonnes of cured concrete waste on the site in any calendar year. The volume of cured concrete waste held on site at any one time must not exceed 2,500 tonnes. No other material classified as waste under the *EPA Waste Classification Guidelines 2014* (or its latest version) may be received on site.

Quarry Product Transport

- 9.

[The Applicant must limit truck movements to:](#)

- (a) [an average of 220 inbound movements and 220 outbound movements, including no more than 25 outbound movements on the secondary transport route, per working day \(averaged over the working days in each quarter\); and](#)
- (b) [a maximum of 295 inbound movements and 295 outbound movements, including no more than 38 outbound truck movements on the secondary transport route, per working day.](#)

Note: In this condition:

'working day' means any day on which the Applicant may load and despatch trucks (see condition 4 of Schedule 3); and

['quarter' means a three-monthly period, comprising January to March, April to June, July to September and October to December \(inclusive\) in each calendar year.](#)

[Modified by the Land and Environment Court on 9 June 2021 in LEC Proceedings 2020/ 327172](#)

NOTIFICATION OF COMMENCEMENT

10. The Applicant must notify the Department in writing of the date on which it will commence:
 - (a) development permitted under this consent, at least 14 days prior to commencing that development; and
 - (b) quarrying operations under this consent, at least 14 days prior to commencing those operations.

SURRENDER OF EXISTING DEVELOPMENT CONSENTS

11. Within six months of commencing development under this consent, or as otherwise agreed by the Secretary, the Applicant must surrender the project approval MP 07_0074 for the Gunlake Quarry granted on 24 September 2008, in accordance with the EP&A Regulation.

Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. The surrender of the project approval should not be understood as implying that works legally constructed can no longer be legally maintained or used.

12. Following the commencement of development under this consent, the conditions of this consent shall prevail to the extent of any inconsistency with the conditions of project approval MP 07_0074.

STRUCTURAL ADEQUACY

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

Notes:

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

DEMOLITION

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

PROTECTION OF PUBLIC INFRASTRUCTURE

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

Note: This condition does not apply to damage to roads caused as a result of general road usage or otherwise addressed by contributions required by condition 21 of Schedule 2.

OPERATION OF PLANT AND EQUIPMENT

16. The Applicant must ensure that all the 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.

PRODUCTION DATA

17. The Applicant must:
 - (a) provide annual quarry production data to DRG and the Secretary using the standard form for that purpose; and
 - (b) include a copy of this data in the Annual Review.

IDENTIFICATION OF APPROVED EXTRACTION LIMITS

18. Prior to commencing quarrying operations under this consent, the Applicant must:
 - (a) engage a registered surveyor to mark out the boundaries of the approved disturbance area; and
 - (b) submit a survey plan of these boundaries with applicable GPS coordinates to the Secretary.
19. While quarrying operations are being carried out, the Applicant must ensure that the boundaries of the approved disturbance areas are clearly marked at all times in a manner that allows operating staff to clearly identify these approved limits.
20. The Applicant must ensure that:
 - (a) no quarrying operations take place outside the approved disturbance area; and
 - (b) the haul road between the extraction area and western overburden emplacement area is clearly marked at all times, has the minimum width required for safe hauling operations, and includes erosion and sedimentation measures to minimise impacts from the use of the road on Chapmans Creek.

Note: The approved disturbance area includes the extraction area, the overburden emplacement areas, the infrastructure area, haul roads and ancillary areas required to carry out the development.

CONTRIBUTIONS TO COUNCIL

21. The Applicant must pay to Council an annual financial contribution toward the maintenance of Council-owned roads along its primary and secondary transport routes. The contribution must be determined in accordance with the *Goulburn Mulwaree s94 Development Contributions Plan 2009*, or any subsequent relevant contributions plan adopted by Council.
22. Following commencement of development under this consent, the contribution must be paid to Council within one month of the anniversary of the date of this consent each year and reported in the Annual Review.

**SCHEDULE 3
ENVIRONMENTAL PERFORMANCE CONDITIONS**

NOISE**Acquisition upon Request**

1. Upon receiving a written request from the owner of the land listed in Table 1, the Applicant must acquire the land in accordance with condition 5 of Schedule 4.

Table 1: Land subject to acquisition upon request

Acquisition Basis	Land
Noise	R2

Note: The location of the residence referred to in Table 1 is shown on the figure in Appendix 3.

Additional Mitigation upon Request

2. Upon receiving a written request from the owner of any residence listed in Table 2, the Applicant must implement additional mitigation measures at the residence, in consultation with the landowner.

Table 2: Land subject to additional mitigation upon request

Mitigation Basis	Residence
Noise	R2, R7

Note: The location of the residences referred to in Table 2 is shown on the figure in Appendix 3.

These measures must be reasonable and feasible, and directed towards reducing the noise impacts of the development on the residence. Mitigation may include measures such as double-glazing, insulation and/or air conditioning.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Enclosure of Primary Crusher

3. The Applicant must achieve at least a 5 dB(A) reduction in the measured sound power level of the primary crusher by enclosing the primary crusher within two months of commencing development under this consent and prior to operating the primary crusher outside the hours of 7 am to 6 pm Monday to Saturday.

The Applicant must engage a suitably qualified and experienced acoustical practitioner to measure the sound power level of the primary crusher before and after constructing the enclosure to demonstrate that the enclosure has resulted in a 5 dB(A) sound power level reduction. A report from the acoustical practitioner must be provided to the Secretary within 30 days of constructing the enclosure.

Hours of Operation

4. The Applicant must comply with the operating hours set out in Table 3.

Table 3: Operating Hours

Activity	Permissible Hours
Construction	<ul style="list-style-type: none"> • 7 am to 6 pm Monday to Friday • 8 am to 1 pm Saturday • At no time on Sunday or public holidays
Blasting	<ul style="list-style-type: none"> • 9 am to 5 pm Monday to Friday • At no time on Saturday, Sunday or public holidays
Quarrying operations (excluding overburden removal/emplacement and drilling)	<ul style="list-style-type: none"> • 24 hours a day but not between 6 pm Saturday and 2 am Monday • At no time on Sunday or public holidays
Overburden removal/emplacement and drilling	<ul style="list-style-type: none"> • 7 am to 6 pm Monday to Saturday • At no time on Sunday or public holidays
Loading and dispatching	<ul style="list-style-type: none"> • 24 hours a day but not between 6 pm Saturday and 2 am Monday

	<ul style="list-style-type: none"> At no time on Sunday or public holidays
Transportation on the primary transport route	<ul style="list-style-type: none"> 24 hours a day but not between 6 pm Saturday and 2 am Monday At no time on Sunday or public holidays
Transportation on the secondary transport route	<ul style="list-style-type: none"> 6 am to 7 pm Monday to Saturday At no time on Sunday or public holidays
Maintenance	<ul style="list-style-type: none"> At any time provided that the activity is not audible at any privately-owned residence

5. The following activities may be carried out on the site outside the hours specified in condition 4:
- delivery or dispatch of materials as requested by Police or other authorities; and
 - emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

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

Noise Impact Assessment Criteria

6. The Applicant must ensure that operational noise generated by the development does not exceed the criteria in Table 4 at any residence on privately-owned land.

Table 4: Noise criteria dB(A)

Receiver	Day	Evening	Night	
	<i>L_{Aeq} (15 minute)</i>	<i>L_{Aeq} (15 minute)</i>	<i>L_{Aeq} (15 minute)</i>	<i>L_{A1} (1 minute)</i>
R7	38	38	38	45
R8	37	37	37	45
All other privately-owned residences	35	35	35	45

Note: Receiver locations referred to in Table 4 are shown on the figure in Appendix 3

Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the *NSW Industrial Noise Policy*. Appendix 4 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, the noise criteria in Table 4 do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Operating Conditions

7. The Applicant must:
- implement best practice management to minimise the construction, operational and road transportation noise of the development, particularly during the evening and night periods;
 - minimise the noise impacts of the development during meteorological conditions when the noise criteria in this consent do not apply (see Appendix 4);
 - carry out quarterly attended noise monitoring, unless otherwise agreed by the Secretary, to determine whether the development is complying with the relevant conditions of this consent; and
 - regularly assess noise monitoring data and modify and/or stop operations on site to ensure compliance with the relevant conditions of this consent, to the satisfaction of the Secretary.

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

Noise Management Plan

8. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:
- be prepared in consultation with the EPA;
 - be submitted to the Secretary within six months of commencing development under this consent and prior to commencing quarrying operations under this consent;
 - describe the measures that would be implemented to ensure:
 - compliance with the noise criteria in this consent;
 - best practice noise management is being employed;

- noise impacts of the development are minimised during meteorological conditions under which the noise criteria in this consent do not apply (see Appendix 4); and
 - best practice management is being employed to minimise the noise impacts on the primary transport route and the secondary transport route;
- (d) describe the proposed noise management system; and
- (e) include a monitoring program to be implemented to measure noise from the development against the noise criteria in Table 4, and which evaluates and reports on the effectiveness of the noise management system on site.

The Applicant must implement the Noise Management Plan as approved by the Secretary.

Traffic Noise Compliance Assessment

9.

A noise compliance assessment of the traffic noise impacts of the project must be undertaken within two months of annual dispatches of quarry products exceeding 1 million, 1.5 million, 1.9 million and 2.5 million tonnes. The assessment must be conducted by a suitably qualified and experienced acoustical practitioner and must assess compliance of the traffic noise impacts against the predictions in the documents listed in condition 2(a) of Schedule 2 and relevant road noise criteria, to the satisfaction of the Secretary. The traffic noise compliance assessment reports must be provided to the Department within 1 month of each assessment.

Modified by the Land and Environment Court on 9 June 2021 in LEC Proceedings 2020/ 327172

BLASTING

Blasting Impact Assessment Criteria

10. The Applicant must ensure that blasting on site does not cause any exceedance of the criteria in Table 5.

Table 5: Blasting Criteria

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

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

Blasting Frequency

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

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

Operating Conditions

12. During blasting operations, the Applicant must:
- (a) implement best practice management to:
- protect the safety of people and livestock in the areas surrounding blasting operations;
 - protect public or private infrastructure/property in the surrounding area from damage from blasting operations and
 - minimise the dust and fume emissions of blasting;
- (b) operate a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site;
- (c) co-ordinate the timing of blasting on site with the timing of blasting at Johnniefields quarry and Lynwood quarry to minimise potential cumulative blasting impacts of the three quarries; and
- (d) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, to the satisfaction of the Secretary.

Blast Management Plan

13. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:
- be submitted to the Secretary for approval within six months of commencing development under this consent and prior to commencing quarrying operations under this consent;
 - describe the measures that would be implemented to ensure compliance with the blast criteria and operating conditions of this consent;
 - include measures to manage flyrock;
 - include a monitoring program for evaluating and reporting on compliance with the blasting criteria in this consent;
 - include a protocol for investigating and responding to complaints; and
 - include community notification procedures for blasting, which includes:
 - a notification process to alert any resident who registers an interest in the blasting schedule to be notified at least 24 hours in advance of each blast;
 - a blasting hotline, or alternative system agreed to by the Secretary, to enable the public to obtain up-to-date information on blasting operations; and
 - information on how the public will be kept informed of the hotline, or any alternative system.

The Applicant must implement the Blast Management Plan as approved by the Secretary.

AIR QUALITY**Air Quality Impact Assessment Criteria**

14. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures^e are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 6 at any residence on privately-owned land.

Table 6: Air quality criteria

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, d} 25 µg/m ³
	24 hour	^b 50 µg/m ³
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, d} 8 µg/m ³
	24 hour	^b 25 µg/m ³
Total suspended particulate (TSP) matter	Annual	^{a, d} 90 µg/m ³
^c Deposited dust	Annual	^b 2 g/m ² /month ^{a, d} 4 g/m ² /month

Notes to Table 6:

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

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

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

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

^e "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 14, 15 and 16 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

[Modified by the Land and Environment Court on 9 June 2021 in LEC Proceedings 2020/ 327172](#)

Operating Conditions

15. The Applicant must:
- implement best practice management to minimise the dust emissions of the development;
 - regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in this consent;
 - minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note d under Table 6);
 - monitor and report on compliance with the relevant air quality conditions in this consent; and

- (e) minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary.

Air Quality Management Plan

16. The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:
- (a) be prepared in consultation with the EPA;
 - (b) be submitted to the Secretary for approval within six months of commencing development under this consent and prior to commencing quarrying operations under this consent;
 - (c) describe the measures that would be implemented to ensure:
 - compliance with the relevant conditions of this consent;
 - best practice management is being employed; and
 - the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;
 - (d) describe the proposed air quality management system, including a minimum of two High Volume Air Samplers in locations agreed to by the EPA;
 - (e) include an air quality monitoring program that:
 - is capable of evaluating the performance of the development;
 - includes a protocol for determining any exceedances of the relevant conditions of consent;
 - effectively supports the air quality management system; and
 - evaluates and reports on the adequacy of the air quality management system.

The Applicant must implement the Air Quality Management Plan as approved by the Secretary.

Quarry-owned Land

17. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 6 at any occupied residence on quarry-owned land unless:
- (a) the tenant has been notified of any health risks associated with such exceedances in accordance with the notification requirements under Schedule 4 of this consent; and
 - (b) the tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice, to the satisfaction of the Secretary.

Meteorological Monitoring

18. For the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.

Greenhouse Gas Emissions

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

SOIL AND WATER

Water Supply

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

Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain all necessary water licences for the development.

Water Discharges

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

Soil and Water Management Plan

22. The Applicant must prepare a Soil and Water Management Plan for the development to the satisfaction of the Secretary. This plan must:
- (a) be prepared by suitably qualified and experienced person/s approved by the Secretary;

- (b) be prepared in consultation with the EPA, WaterNSW and DPI Water;
- (c) be submitted to the Secretary for approval within six months of commencing development under this consent and prior to commencing quarrying operations under this consent;
- (d) include a:
 - (i) Site Water Balance that includes:
 - details of:
 - sources and security of water supply;
 - water use and management on site;
 - any off-site water transfers; and
 - reporting procedures; and
 - measures that would be implemented to minimise clean water use on site;
 - (ii) Erosion and Sediment Control Plan that:
 - is consistent with the requirements of the Landcom's *Managing Urban Stormwater: Soils and Construction* manual;
 - identifies activities that could cause soil erosion and generate sediment;
 - describes measures to minimise soil erosion and the potential for the transport of sediment to downstream waters, including for the haul road between the extraction area and the western emplacement area;
 - describes the location, function, and capacity of erosion and sediment control structures, including for the haul road between the extraction area and the western emplacement area; and
 - describes what measures would be implemented to maintain (and if necessary decommission) the structures over time.
 - (iii) Surface Water Management Plan, that includes:
 - detailed baseline data on surface water flows and quality in water bodies that could potentially be affected by the development;
 - surface water impact assessment criteria;
 - a protocol for managing any exceedances of the surface water impact assessment criteria;
 - a detailed description of the surface water management system on site including the:
 - clean water diversion system;
 - dirty water management system;
 - water storages, including their capacity to contain dirty water during flood events;
 - irrigation areas; and
 - design of creek and stream crossings; and
 - a program to monitor and report on:
 - the effectiveness of the water management system in ensuring that the development has a neutral or beneficial effect on downstream receiving waters;
 - channel stability of the watercourses on the site;
 - surface water flows and quality in watercourses on the site;
 - surface water discharges from the site, including provisions for sampling of water quality during discharge events;
 - the impact of the irrigation areas on water quality;
 - details of the on-site waste water management system, including the effluent disposal area, that demonstrates there is adequate capacity for the wastewater loads generated by the development;
 - (iv) Groundwater Management Plan that includes:
 - detailed baseline data on groundwater levels, flows and quality in the region;
 - groundwater impact assessment criteria for monitoring bores;
 - a program to monitor:
 - groundwater levels and quality on the site;
 - the impacts of the development on any groundwater dependent ecosystems;
 - the impacts of the development on any groundwater bores, springs and seeps on privately-owned land; and
 - a protocol for the investigation of identified exceedances of the groundwater impact assessment criteria.

The Applicant must implement the Soil and Water Management Plan as approved by the Secretary.

TRANSPORT

Monitoring of Product Transport

23. The Applicant must keep accurate records of all truck movements to and from the site (including time of arrival and dispatch) and publish a summary of records, which includes daily maximum and calendar month averages, on its website every 6 months.

Note: See condition 9 of Schedule 2 for the relevant daily maximum and monthly averages.

Operating Conditions

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

Traffic Management Plan

25. The Applicant must prepare a Traffic Management Plan for the development to the satisfaction of the Secretary. This plan must:
- (a) be prepared in consultation with the RMS and Council;
 - (b) be submitted to the Secretary for approval within six months of commencing development under this consent and prior to commencing quarrying operations under this consent;
 - (c) describe the measure that would be implemented to avoid dispatching and/or receiving large groups or convoys of laden trucks from the site onto public roads;
 - (d) include a Drivers' Code of Conduct as required under condition 28 of Schedule 3;
 - (e) describe the measures that would be put in place to ensure compliance with the Drivers' Code of Conduct; and
 - (f) include measures to minimise the transmission of dust and tracking of material onto the surface of the public road from vehicles leaving the quarry.

The Applicant must implement the Traffic Management Plan as approved by the Secretary.

Primary Transport Route

26. Prior to transporting more than 62,500 tonnes per calendar month of quarry products from the site, either under this consent or under this consent in combination with MP 07_0074 (while ever it has not been surrendered), the Applicant must implement and complete:
- (a) **Red Hills Road and Hume Highway intersection works** - construct an additional 500m long (including taper) left turn northbound acceleration lane at the intersection of Red Hills Road and the Hume Highway in accordance with the relevant Austroads intersection design requirements and to the satisfaction of the Secretary and RMS; and
 - (b) **Brayton Road and Quarry Access Road intersection works** - upgrade the intersection of the quarry access road with Brayton Road in accordance with Austroads intersection design requirements, to the satisfaction of the local roads authority including carrying out the following:
 - (i) laying asphalt; and
 - (ii) constructing an acceleration lane on Brayton Road for truck traffic turning right from the Quarry Access Road onto Brayton Road, to be located south of the quarry intersection, and starting at the intersection.
 - (c) **General Road Upgrade Works**- the primary transport route shall be upgraded such that it conforms with current Austroads standards and is generally in accordance with the plans entitled Primary Transport Route Road Upgrade Plans prepared by EMM dated 29 June 2017, Map 1 - 39. Detailed road works plans, including relevant supportive calculations and modelling, shall be submitted to the local roads authority for approval, which outlines the extent of works to be undertaken. The applicant must:
 - (i) Obtain a survey of the primary transport route from a registered surveyor of the entire road corridor. This should show road corridor boundaries, sealed and unsealed pavement extents, line markings, signage, hazards, driveways and intersections, shoulders and any significant vegetation within the corridor that would be affected by the road upgrade works. The survey shall include sufficient detail to indicate the levels and grades of existing pavement, shoulder and clear zone areas.
 - (ii) The design plans shall show the full extent of works, including at a minimum, earthworks, road widening, shoulders and clear zones, stopping areas, bus bays, drainage, line marking, pavement upgrades, signage and vegetation to be removed or retained. The design plans shall include long-sections of roads and the drainage

- system, and representative road cross-sections which identify the extent of upgrade works.
- (iii) The design plans shall demonstrate that 3.1 m wide lanes are provided along the primary transport route.
 - (iv) The design plans shall demonstrate that 1.5 m wide shoulders, with 0.5 m width being sealed, are provided along the primary transport route. Where this is not achieved, alternative measures are to be provided, and justification is to be given which demonstrates that the non-compliance does not result in an unacceptable road safety outcome.
 - (v) The design plans shall demonstrate that 3.0 m wide clear zones are provided along the primary transport route. Where this is not achieved, alternative measures are to be provided generally in accordance with the plans entitled Primary Transport Route Road Upgrade Plans prepared by EMM dated 29 June 2017, Map 1 - 39.
 - (vi) The design plans must identify all trees and native vegetation that need to be removed as a part of the works. Lawful approval for any vegetation removal must be provided to the local roads authority prior to the removal of any vegetation in association with the road works.
 - (vii) A geotechnical report shall be provided to the local roads authority in respect of existing road pavement conditions, pavement carrying capacity, and requirements to upgrade the pavement to accommodate the increase in truck traffic. The geotechnical report shall document the existing pavement by way of borehole and strength testing, at a sampling frequency that will adequately characterise the existing pavement.
 - (viii) A drainage design shall be submitted as a part of the road works plans. This will include relevant calculations and modelling of the road drainage system, and document the extent of drainage works required for the works. The drainage design shall be undertaken such that there will be no detrimental impact on the drainage system within the road corridor, on adjoining properties, or local vegetation.
 - (ix) The design plans shall be certified by suitably qualified civil engineer to be compliant with Austroads standards.
- (d) **In addition to the matters specified in (c) above, in respect of the primary transport route** - carry out road safety upgrades generally in accordance with the plans entitled Primary Transport Route Road Upgrade Plans prepared by EMM dated 29 June 2017, Map 1 – 39, and subject to any requirements or variations requested by Council as the roads authority including:
- (i) line-marking and signage along the primary transport route, including by:
 - marking hidden driveways;
 - upgrade line markings and increase signage; and
 - following discussions and agreement with Council, any upgrades required to improve school bus stop safety.
 - (ii) installing centre double white line-marking with retroreflective pavement markers along the full length (or along such sections as are otherwise required by Council) of the primary transport route, to prevent overtaking;
 - (iii) installing edge line-marking on pavement edges with retroreflective pavement markers along the full length (or along such sections as are otherwise required by the Council) of the primary transport route;
 - (iv) carrying out an analysis of the frequency of heavy fogs on the primary transport route within a 1 month period and in consultation with the Council;
 - (v) installing guide posts and spacings along appropriate sections of the primary transport route in consultation with the Council. The guide post spacing is to be determined on the basis of the analysis of the frequency of heavy fogs to be prepared by the Applicant as per condition (d)(iv).
- (e) Any application to Council under s138 of the Roads Act 1993 for the Primary Transport Route upgrade works is to be in accordance with the plans entitled Primary Transport Route Road Upgrade Plans prepared by EMM dated 29 June 2017, Map 1 – 39, and a copy of such application is to be provided to the Secretary no later than 2 working days after its lodgement with Council.

Note: 62,500 tonnes per calendar month is the monthly equivalent of 750,000 tonnes per annum, the consented limit under project approval MP 07_0074.

27. The Applicant must install and operate a video camera at the intersection of Red Hills Road and the Hume Highway, to the satisfaction of the Secretary. The Applicant must install the camera prior to commencing

quarrying operations under this consent and operate the camera until the Hume Highway intersection acceleration lane is constructed and fully operational. The camera must be located in a fixed position with a field of view that accurately records heavy vehicles (including truck identification numbers) merging from Red Hills Road to travel north along the Hume Highway. Recordings from the camera must be examined weekly by the Applicant to ensure safe merging practices at the intersection, securely stored for at least 60 days and made available to the Department and RMS on request.

Truck Driver Code of Conduct

28. Prior to transporting more than 62,500 tonnes per calendar month of quarry products from the site, the Applicant must prepare a Truck Driver Code of Conduct and submit it to the Secretary for approval. The Truck Driver Code of Conduct is to:
- (a) require induction of all truck drivers, including a requirement to read the Truck Driver Code of Conduct and sign a Truck Driver Induction Form, prior to commencing truck driving duties to and from the site;
 - (b) include all speed restrictions for the primary transport route and secondary transport route in the Truck Driver Induction Forms;
 - (c) incorporate provisions regarding anti-social behaviour and anti-littering practices;
 - (d) incorporate details of the safe and quiet driving practices that must be used by drivers transporting products to and from the quarry (particularly on the primary and secondary transport routes) and on safe merging practices at the intersection of Red Hills Road and the Hume Highway;
 - (e) incorporate provisions prohibiting overtaking moving vehicles on the primary transport route and secondary transport route;
 - (f) incorporate provisions prohibiting the use of air brakes by in-bound trucks at the Red Hills and Hume Highway intersection (except in the case of emergencies) and include provisions for truck drivers to be educated regarding the acceptable use of air brakes on local roads;
 - (g) include a copy of the Applicant's drug and alcohol policy; and
 - (h) incorporate mechanisms for ensuring compliance with the Truck Driver Code of Conduct including a mechanism for the Applicant's onsite manager to conduct random compliance checks (no less than once per quarter) of driver behaviour along the primary transport route and secondary transport route.

Transport Options Review

29. Within 10 years of commencing development under this consent, and every 10 years thereafter, the Applicant must commission, commence and pay the full cost of a Transport Options Review for the development. This review must:
- (a) be conducted by a suitably qualified, experienced and independent expert/s whose appointment has been endorsed by the Secretary;
 - (b) include detailed consultation with Transport for NSW, RMS and Council;
 - (c) review the economic, social and environmental costs and benefits of all reasonable and feasible options for the transport of quarry products from the site (including by rail and including trucks movements currently permitted by this consent);
 - (d) recommend any appropriate measures or actions to reduce the economic, social and environmental costs associated with transport of quarry products from the site, and
 - (e) be conducted and reported to the satisfaction of the Secretary.

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

ABORIGINAL HERITAGE

Aboriginal Heritage Management Plan

30. The Applicant must prepare an Aboriginal Heritage Management Plan for the development to the satisfaction of the Secretary. The plan must:
- (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;
 - (b) be prepared in consultation with OEH and the Registered Aboriginal Parties;
 - (c) be submitted to the Secretary for approval within six months of commencing development under this consent and prior to commencing quarrying operations under this consent; and
 - (d) include a description of the measures that would be implemented to:
 - (i) protect, monitor and manage known sites of archaeological significance;
 - (ii) manage any new Aboriginal objects or relics that are discovered;
 - (iii) store Aboriginal heritage items salvaged on site; and
 - (iv) ensure ongoing consultation and involvement of the Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site.

BIODIVERSITY AND REHABILITATION**Biodiversity Offset Strategy**

31. The Applicant must implement the Biodiversity Offset Strategy, including:
- protecting, enhancing and maintaining the Biodiversity Areas identified in condition 32 of Schedule 3; and
 - retiring the biodiversity credits identified in condition 34 of Schedule 3, in accordance with the *Framework for Biodiversity Assessment - NSW Biodiversity Offsets Policy for Major Projects*; to the satisfaction of the Secretary and OEH.

Biodiversity Areas

32. The Applicant must protect, enhance and maintain the Biodiversity Areas described in Table 7 and shown conceptually on the plan in Appendix 5, to achieve the objectives in Table 7 to the satisfaction of the Secretary and OEH.

Table 7: Biodiversity Areas

Biodiversity Area	Objective	Minimum Size (ha)
White Box-Yellow Box Blakely's Red Gum Woodland Endangered Ecological Community (Box Gum Woodland EEC)	Protect, maintain and enhance, including through assisted regeneration, Box Gum Woodland EEC on the site	32.66
Cleared land	Regenerate and/or replant cleared land on site with native vegetation representative of Box Gum Woodland EEC	46.16
Total		78.82

Security of Biodiversity Areas

33. Prior to commencing quarrying operations under this consent, unless otherwise agreed with the Secretary, the Applicant must make suitable arrangements to provide long-term security and funding for the Biodiversity Areas identified in condition 32 of Schedule 3, to the satisfaction of the Secretary and OEH.

Note: Mechanisms to provide appropriate long-term security to the Biodiversity Area include a BioBanking Agreement, under the Threatened Species Conservation Act 1995, a Voluntary Conservation Agreement or an alternative mechanism that provides for a similar conservation outcome. Any mechanism must remain in force in perpetuity.

Biodiversity Offsets

34. The Applicant must retire the biodiversity credits set out in Table 8, in accordance with the *Framework for Biodiversity Assessment - NSW Biodiversity Offsets Policy for Major Projects* to the satisfaction of the Secretary and OEH. The credits identified in Table 8 include credits arising from the carrying out of the primary transport route upgrade works referred to in condition 26. If the vegetation to be removed is less than anticipated at the date of this consent the credits arising from these upgrade works may be reduced if approved by the Secretary provided the number of credits does not fall below the minimum number identified in column 2 of the table.

Table 8: Biodiversity credits to be retired

Credit type	Number of Credits	Additional Credits resulting from Primary Transport Route Upgrade Works
Ecosystem Credits		
Yellow Box - Blakely's Red Gum Grassy Woodland (PCT1330)	373	13
Yellow Box - Blakely's Red Gum Grassy Woodland Derived Native Grassland (PCT1330)	185	
Broad-leaved	160	23

Peppermint - Red Stringybark grassy open forest (PCT734)		
Broad-leaved Peppermint - Red Stringybark grassy open forest Derived Native Grassland (PCT734)	662	
Total	1,380	36

Security of Offsets

35. Within eighteen months of commencing development under this consent, unless otherwise agreed with the Secretary, the Applicant must make suitable arrangements to provide long-term security and funding for the Biodiversity Offset Areas used to retire the credits identified in condition 34 of Schedule 3, through a Biobanking Agreement under the *Threatened Species Conservation Act 1995*, to the satisfaction of OEH.

Rehabilitation Objectives

36. The Applicant must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the rehabilitation strategy in the EIS and must comply with the objectives in Table 9.

Table 9: Rehabilitation Objectives

Feature	Objective
Site (as a whole)	<ul style="list-style-type: none"> Safe, stable and non-polluting Final landform integrated with surrounding natural landforms as far as is reasonable and feasible Final landform has minimal visual impact when viewed from surrounding land
Surface Infrastructure	<ul style="list-style-type: none"> Decommissioned and removed, unless otherwise agreed by the Secretary
Land identified as the Biodiversity Area	<ul style="list-style-type: none"> Conserved and enhanced with native, endemic vegetation consistent with the objectives shown in Table 7
Riparian corridors along Chapman Creek and its tributaries	<ul style="list-style-type: none"> Stabilised and vegetated
Quarry benches	<ul style="list-style-type: none"> Landscaped and vegetated using native tree and understorey species
Final Void	<ul style="list-style-type: none"> Minimise the size, depth and slope of the batters of the final void Minimise the drainage catchment of the final void

Progressive Rehabilitation

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

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

Biodiversity and Rehabilitation Management Plan

38. The Applicant must prepare a Biodiversity and Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:
- be prepared in consultation with OEH, DPI Fisheries and Council;
 - be submitted to the Secretary within twelve months of commencing development under this consent and prior to commencing quarrying operations under this consent unless the Secretary agrees otherwise;
 - provide details of the conceptual final landform and associated land uses for the site;
 - describe how the implementation of condition 31 of Schedule 3 would be integrated with the overall rehabilitation of the site;

- (e) include detailed performance and completion criteria for evaluating performance under condition 31 of Schedule 3 and rehabilitation of the site, including triggers for any necessary remedial action;
- (f) describe the short, medium and long term measures that would be implemented to:
 - manage remnant vegetation and habitat, including within the Biodiversity Areas and any areas that would be used to offset the biodiversity credits identified in condition 34 of Schedule 3; and
 - ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this consent;
- (g) include a detailed description of the measures that would be implemented over the next 3 years (to be updated for each 3 year period following initial approval of the plan) including the procedures to be implemented for:
 - maximising the salvage of environmental resources within the approved disturbance area, including tree hollows, vegetative and soil resources, for beneficial reuse in the enhancement of the offset area or site rehabilitation;
 - restoring and enhancing the quality of native vegetation and fauna habitat in the biodiversity offset and rehabilitation areas through assisted natural regeneration, targeted vegetation establishment and the introduction of fauna habitat features;
 - protecting vegetation and fauna habitat outside the approved disturbance area on-site;
 - protecting the Chapmans Creek riparian buffer area shown on the figure in Appendix 6 in accordance with the *Policy and Guidelines for Fish Habitat Conservation and Management*;
 - minimising the impacts on native fauna, including undertaking pre-clearance surveys;
 - establishing vegetation screening to minimise the visual impacts of the site on surrounding receivers;
 - ensuring minimal environmental consequences for threatened species, populations and habitats;
 - collecting and propagating seed;
 - controlling weeds and feral pests;
 - controlling erosion; and
 - managing bushfire risk;
- (h) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;
- (i) identify the potential risks to the successful implementation of condition 31 of Schedule 3, and include a description of the contingency measures that would be implemented to mitigate these risks; and
- (j) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Applicant must implement the Biodiversity and Rehabilitation Management Plan as approved by the Secretary.

Biodiversity and Rehabilitation Bond

39. Within 6 months of the approval of the Biodiversity and Rehabilitation Management Plan, the Applicant must lodge a Biodiversity and Rehabilitation Bond with the Department to ensure that the Biodiversity Offset Strategy and rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the plan and the relevant conditions of this consent. The sum of the bond must be determined by:
- (a) calculating the cost of implementing the Biodiversity Offset Strategy over the next 3 years for the Biodiversity Areas identified in condition 32 of Schedule 3;
 - (b) calculating the cost of rehabilitating all disturbed areas of the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and
 - (c) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, or by using the Rehabilitation Cost Estimate spreadsheet tool (RCE) issued by DRG.
- to the satisfaction of the Secretary.

Notes:

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

40. Within 3 months of each Independent Environmental Audit (see condition 11 of Schedule 5), the Applicant must review, and if necessary revise, the sum of the Biodiversity and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:
- (a) effects of inflation;

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

VISUAL

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

WASTE

42. The Applicant must:
- (a) manage on-site sewage treatment and disposal in accordance with the requirements of its EPL, and to the satisfaction of the EPA and Council;
 - (b) minimise the waste generated by the development;
 - (c) ensure that the waste generated by the development is appropriately stored, handled, and disposed of; and
 - (d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.
43. Except as expressly permitted in an EPL, the Applicant must not receive waste (with the exception of the cured concrete transported to the site in accordance with condition 8 of Schedule 2) at the site for storage, treatment, processing, reprocessing or disposal.

LIQUID STORAGE

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

DANGEROUS GOODS

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

BUSHFIRE

46. The Applicant must:
- (a) ensure that the development is suitably equipped to respond to any fires on site; and
 - (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the site.

**SCHEDULE 4
ADDITIONAL PROCEDURES**

NOTIFICATION OF LANDOWNERS

1. Within 2 months of the commencement of development under this consent, the Applicant must notify in writing the owner of:
 - (a) the residences listed in Table 2 of Schedule 3 that they are entitled to ask the Applicant to install additional noise mitigation measures at the residences; and
 - (b) notify any tenants of quarry-owned land of their rights under this consent.
2. Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended dust and/or noise criteria, the Applicant must:
 - (a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and
 - (b) advise the prospective tenants of the rights they would have under this consent, to the satisfaction of the Secretary.
3. As soon as practicable after obtaining monitoring results showing:
 - (a) an exceedance of any relevant criteria in Schedule 3, the Applicant must notify the affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria; and
 - (b) an exceedance of any relevant air quality criteria in Schedule 3, the Applicant must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and current tenants of the land (including the tenants of land which is not privately-owned).

INDEPENDENT REVIEW

4. If an owner of privately-owned land considers the development 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 development on his/her land.

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

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

LAND ACQUISITION

5. Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant must make a binding written offer to the landowner based on:
 - (a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the development, having regard to the:
 - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
 - presence of improvements on the land and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the additional noise mitigation measures in condition 2 of Schedule 3;
 - (b) the reasonable costs associated with:
 - relocating within the Goulburn Mulwaree local government area, or to any other local government area determined by the Secretary; and
 - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and
 - (c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Secretary for resolution.

Upon receiving such a request, the Secretary will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:

- consider submissions from both parties;
- determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
- prepare a detailed report setting out the reasons for any determination; and
- provide a copy of the report to both parties.

Within 14 days of receiving the independent valuer's report, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Secretary will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions.

Within 14 days of this determination, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination.

If the landowner refuses to accept the Applicant's binding written offer under this condition within six months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Secretary determines otherwise.

The Applicant must pay all reasonable costs associated with the land acquisition process described in this condition, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.

**SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING**

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

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

The Applicant must implement any Environmental Management Strategy as approved by the Secretary.

Management Plan Requirements

2. The Applicant must ensure that the management plans required under this consent 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 development or any management measures;
 - (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 development; and
 - effectiveness of any management measures (see (c) above);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
 - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
 - (g) a protocol for managing and reporting any:
 - incidents;
 - complaints;
 - non-compliances with statutory requirements; and
 - exceedances of the impact assessment criteria and/or performance criteria; and
 - (h) a protocol for periodic review of the plan.

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

Application of Existing Management Plans

3. Prior to the approval of management plans under this consent, the Applicant shall manage development undertaken pursuant to this consent in accordance with any equivalent or similar management plan/s required under project approval MP 07_0074.

Revision of Strategies, Plans & Programs

4. Within 3 months of the:
- submission of an Annual Review;
 - submission of an incident report under condition 8 below;
 - submission of an audit report under condition 11 below; and
 - approval of any modifications to this consent,
- the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.

Within 4 weeks of conducting any such review, the Applicant 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 that strategies, plans and programs are updated on a regular basis, and to incorporate any recommended measures to improve environmental performance of the development.

Updating and Staging of Strategies, Plans or Programs

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

With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent.

Notes:

- While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the operations associated with the development are covered by suitable strategies, plans or programs at all times.*
- If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the development to which the strategy, plan or program applies; the relationship of this stage/s to any future stages; and the trigger for updating the strategy, plan or program.*

Adaptive Management

6. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

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

- take all reasonable and feasible steps to ensure that the exceedance ceases and does not reoccur;
 - 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
 - implement remediation measures as directed by the Secretary;
- to the satisfaction of the Secretary.

COMMUNITY CONSULTATIVE COMMITTEE

7. The Applicant must establish and operate a Community Consultative Committee (CCC) for the development to the satisfaction of the Secretary. The CCC must be operated in general accordance with the Department's *Community Consultative Committee Guidelines for State Significant Projects* (November 2016, or its latest version).

Note:

- The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.*

REPORTING

Incident Reporting

8. The Applicant must immediately notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Regular Reporting

9. The Applicant must provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

Annual Review

10. By the end of September each year, or other timing as may be agreed by the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must:
- (a) describe the development (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, which includes a comparison of these results against the:
 - relevant statutory requirements, limits or performance measures/criteria;
 - requirements of any plan or program required under this consent;
 - monitoring results of previous years; and
 - relevant predictions in the documents listed in condition 2(a) of Schedule 2;
 - (c) identify any non-compliance over the past financial 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 development;
 - (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
 - (f) describe what measures will be implemented over the current financial year to improve the environmental performance of the development.

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

INDEPENDENT ENVIRONMENTAL AUDIT

11. Within a year of commencing development under this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission, commence and pay the full cost of an Independent Environmental Audit of the development. This audit must:
- (f) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
 - (g) include consultation with the relevant agencies;
 - (h) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent and any relevant EPL or necessary water licences for the development (including any assessment, strategy, plan or program required under these approvals);
 - (i) review the adequacy of strategies, plans or programs required under the abovementioned approvals;
 - (j) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, strategy, plan or program required under the abovementioned approvals; and
 - (k) 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.

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

ACCESS TO INFORMATION

13. Within 6 months of the commencement of development under this consent, the Applicant must:
- (a) make the following information publicly available on its website:

- the documents listed in condition 2(a) of Schedule 2;
 - current statutory approvals for the development, including any environmental protection licence and any permits or approvals under the Roads Act 1993 relating to road upgrades, etc;
 - all approved strategies, plans and programs required under the conditions of this consent;
 - a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
 - a complaints register, updated monthly;
 - the annual reviews of the development;
 - any independent environmental audit, and the Applicant's response to the recommendations in any audit; and
 - any other matter required by the Secretary; and
- (b) keep this information up-to-date,

to the satisfaction of the Secretary.

**APPENDIX 1
DEVELOPMENT LAYOUT**

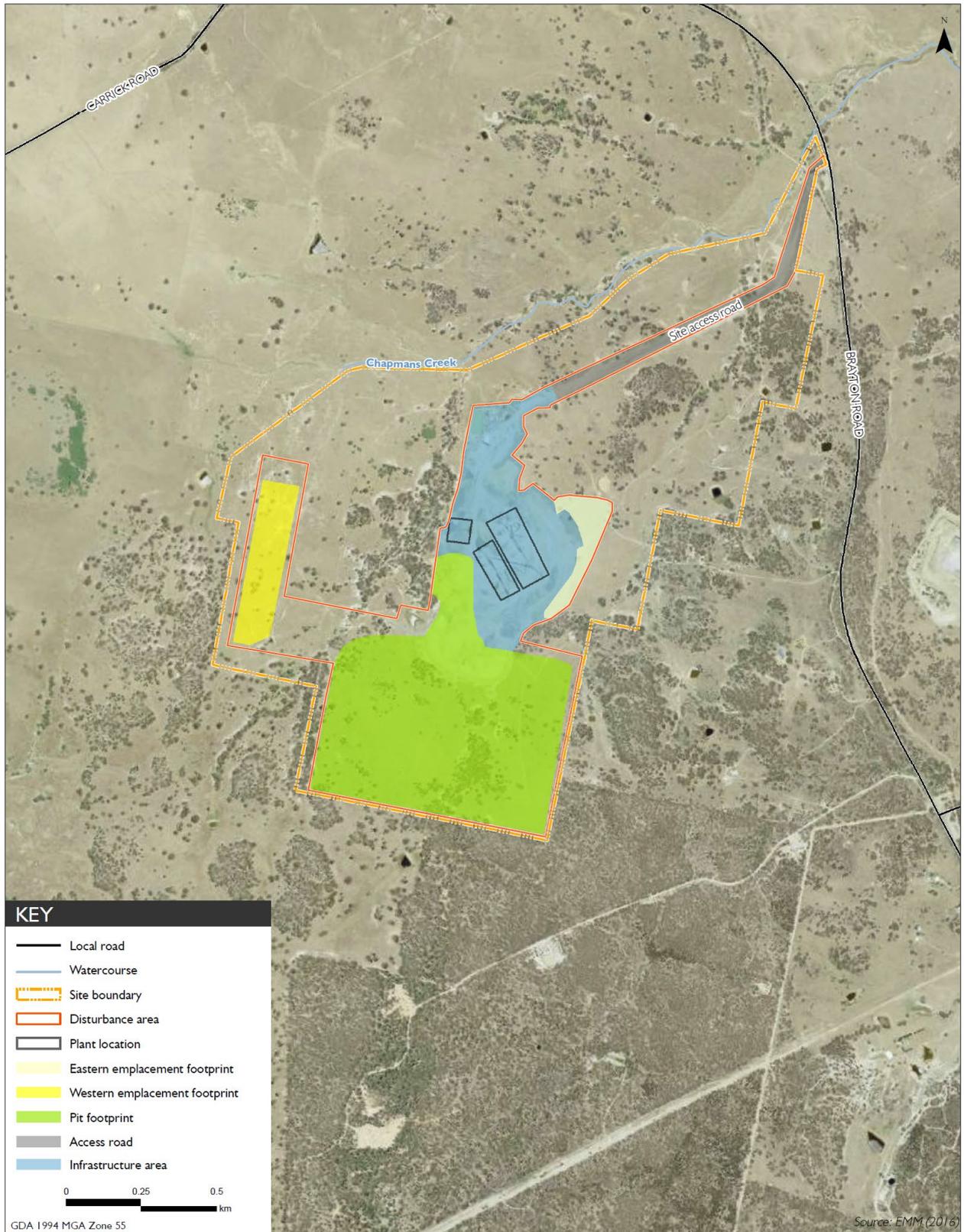


Figure: Development Layout

**APPENDIX 2
STATEMENT OF COMMITMENTS**

Aspect	Commitment
Noise and vibration	<p><i>Voluntary land acquisition and mitigation</i></p> <ul style="list-style-type: none"> • Voluntarily acquisition rights will be offered to receiver R2 in accordance with the VLAMP. • Voluntarily mitigation rights will be offered to receiver R2 and R7 in accordance with the VLAMP. <p><i>Primary crusher noise attenuation</i></p> <ul style="list-style-type: none"> • The primary crusher will be enclosed as part of the extension project within four months of approval. • The primary crusher will not be operated at night until it is enclosed. <p><i>Overburden emplacement</i></p> <ul style="list-style-type: none"> • The overburden emplacement east of the infrastructure area will be extended to the north and south as shown in the general site layout. <p><i>Evening and night operation of mobile fleet</i></p> <ul style="list-style-type: none"> • The mobile fleet operations will be reduced during the evening and night periods, as represented in the noise model. <p><i>Noise and Blast Management Plan</i></p> <ul style="list-style-type: none"> • An updated Noise and Blast Management Plan will be submitted to DPE within six months of commencing development under the consent.
Air quality	<p><i>Air quality monitoring</i></p> <ul style="list-style-type: none"> • The existing air quality monitoring network will continue under the extension project. Monitoring results will be reviewed on an annual basis against the Environment Protection Licence (EPL) and approval conditions to determine if additional monitoring is required due to production increases. <p><i>Air quality management</i></p> <ul style="list-style-type: none"> • The following additional management measures will be implemented to enable Gunlake to continue to manage potential air quality impacts effectively: <ul style="list-style-type: none"> - compliance with the USA-EPA Tier 3 or Tier 4 emissions standards, where practicable, for any new plant acquired by Gunlake; and - consideration of the following factors during blast design: <ul style="list-style-type: none"> ▪ delaying blasting to avoid unfavourable weather conditions that are likely to cause or spread a blast fume; ▪ selecting an explosive product that is correct for the conditions; ▪ monitoring the amount of hydrocarbon (diesel) in the product; ▪ preventing water ingress into blast holes; ▪ dewatering holes before loading; ▪ keeping sleep time (the amount of time between charging and firing of a blast) to a minimum, well within manufacturer recommended times; ▪ providing effective stemming; and ▪ loading the product using the appropriate techniques.

Aspect	Commitment
Biodiversity	<p><i>Rehabilitation and Biodiversity Offsets Management Plan [previously the Landscape Management Plan]</i></p> <ul style="list-style-type: none"> <li>• The Rehabilitation and Biodiversity Offsets Management Plan (RBOMP) will be updated to include details on biodiversity management and rehabilitation for the extension project. The plan will be completed and implemented within 12 months of commencing development under the consent. <li>• The RBOMP will include procedures to be applied for the management of the offset properties, the arrangements for conservation in perpetuity and regeneration works to be undertaken. This will include the procedures for: <ul style="list-style-type: none"> <li>- assisting the revegetation and regeneration in the offset areas, including establishment of canopy, understorey and groundcover in areas of native pasture where required; <li>- controlling weeds and feral pests; <li>- fencing and access arrangements; <li>- erosion control; and <li>- bushfire management. <li>• An offset monitoring program will also be included within the RBOMP to monitor any changes to the condition of the offset areas. <p><i>Offsets</i></p> <ul style="list-style-type: none"> <li>• Biodiversity Areas of 78.82 ha will be provided to compensate for the biodiversity impacts of the original approval, as modified. <li>• An offset package with 1,380 ha of biodiversity credits will be provided under a BioBanking agreement to compensate for the additional biodiversity impacts of the extension project. <li>• The offset areas will be managed in accordance with the RBOMP.
Groundwater	<p><i>Water management plan</i></p> <p>The Water Management (WMP) Plan will be updated to provide details of the surface water management system, surface water management and monitoring for the extended quarry and will be submitted to DPE within six months of commencing development under the consent.</p> <p>The Gunlake water management plan will be updated to include:</p> <ul style="list-style-type: none"> <li>• triggers values to facilitate the identification of groundwater impacts outside of predictions; <li>• the use of monitoring data to calibrate and update the model at significant project stages; <li>• quarterly groundwater quality and level monitoring to facilitate the early identification of adverse impacts and test model predictions; <li>• monitoring of spring flow in conjunction with the quarterly groundwater level and quality program; <li>• monitoring mapped areas of Box Gum Woodland; <li>• procedures for the re-use of site water; and <li>• response protocols and contingency mitigation measures to be implemented in the event of an unpredicted adverse impact. <p><i>Groundwater licensing</i></p> <ul style="list-style-type: none"> <li>• Gunlake Quarry will obtain a WAL(s) for the predicted groundwater take over the lifespan of extension project (up to 37 ML/year). <li>• Groundwater monitoring bores will be registered under the Water Act.
Surface water	<p><i>Surface water licensing</i></p> <ul style="list-style-type: none"> <li>• Gunlake will seek any required water licences should water need to be imported during extended dry periods.

Aspect	Commitment
Aboriginal heritage	<p><i>Surface water monitoring</i></p> <ul style="list-style-type: none"> <li>• The current surface water monitoring program will be modified to include monitoring at: <ul style="list-style-type: none"> <li>- two receiving water sites on Chapmans Creek, downstream of the quarry; and <li>- the Process Water Dam and Pit Dewatering Dam. <li>• Should the monitoring program indicate that the quarry is potentially adversely affecting water quality in Chapmans Creek, Gunlake will undertake an investigation to establish the likely cause and will implement necessary mitigation measures. <li>• The updated Soil and Water Management Plan will include the site water balance and measures to manage water excesses and deficits. <hr/> <p><i>Aboriginal Heritage Management Plan</i></p> <ul style="list-style-type: none"> <li>• An updated Aboriginal Heritage Management Plan, prepared in consultation with OEH and Registered Aboriginal Parties, will be submitted to DPE within six months of commencing development under the consent <li>• The Gunlake Quarry Aboriginal Heritage Management Plan (AHMP) will be updated and provide details of: <ul style="list-style-type: none"> <li>- all Aboriginal sites identified for the project and those previously recorded in the broader project site boundary; <li>- management measures and their progress towards completion; <li>- continuing consultation and involvement of registered Aboriginal parties; <li>- protocols for newly identified sites; <li>- protocols for suspected human skeletal material; and <li>- provisions for review and updates of the AHMP. <p><i>Aboriginal sites</i></p> <ul style="list-style-type: none"> <li>• All Aboriginal sites in the project disturbance footprint will be collected by a qualified archaeologist and members of the RAPs and relocated to the same area as previously collected artefacts at the site. <li>• If new Aboriginal sites are discovered outside of known site areas, all work will halt and an archaeologist and members of the RAPs be contacted to determine the significance of the objects. Objects will be managed based on their sensitivity in a manner consistent with the management measures outlined above, including appropriate forms of salvage for the items. <li>• In the event that known or suspected human skeletal remains are encountered during the activity, the procedures detailed in Appendix M of the EIS will be followed. <p><i>Avoiding Aboriginal sites</i></p> <ul style="list-style-type: none"> <li>• The Aboriginal sites, GL4, GL12, GL13 and GL15, will be fenced and avoided by the
Social	<p><i>Local employment, training and engagement</i></p> <ul style="list-style-type: none"> <li>• Gunlake will ensure that preference is given to local employees. Gunlake will use local or regional contractors and suppliers where this presents a cost effective and feasible option. <li>• Gunlake will provide ongoing training and certification opportunities for local community members to ensure they have the necessary skills to work in extractive industries. <li>• Gunlake will continue to actively engage with the local community and affected individuals and groups and address any complaints and feedback on quarry operations.
Soils and rehabilitation	<p><i>Rehabilitation scheduling</i></p> <ul style="list-style-type: none"> <li>• Rehabilitation will be progressively staged as soon as possible after final completion of works is determined. Staging of rehabilitation activities will require identification of timelines for decommissioning of pits, buildings and other supporting infrastructure. A more detailed schedule of works will be developed 12 to 24 months prior to the confirmed closure. <p><i>Erosion and sediment control</i></p> <ul style="list-style-type: none"> <li>• Erosion and sediment control measures will be defined in an Erosion and Sediment Control Plan to be implemented throughout the life of the project.

Aspect	Commitment
Visual	<p><i>Weeds</i></p> <ul style="list-style-type: none"> <li>• Gunlake will take the necessary precautions to prevent excessive development of weeds within rehabilitated areas. <p><i>Rehabilitation monitoring</i></p> <ul style="list-style-type: none"> <li>• Gunlake will undertake an ongoing monitoring program throughout and beyond the operation of the project. Areas being rehabilitated will regularly be inspected and assessed against the short and long-term rehabilitation objectives outlined in EIS Section 6.4.1. <li>• It is envisaged that rehabilitation monitoring will be undertaken for at least 2 years following the completion of all rehabilitation. The exact period would reflect seasonal conditions during that period. In any event, maintenance will continue until such time as the objectives have been achieved. The monitoring criteria will be reviewed and finalised with Goulburn Mulwaree Council at the time of submitting a final rehabilitation plan.
Historic heritage	<p><i>Visual amenity</i></p> <ul style="list-style-type: none"> <li>• Gunlake will continue to consult with surrounding landowners regarding the visual amenity of the quarry and will implement any reasonable additional controls to further reduce their visual impact, if necessary. <p><i>Unexpected finds</i></p> <ul style="list-style-type: none"> <li>• Gunlake will include an unexpected finds protocol in relation to historic heritage as part of the EMS for the quarry.

**APPENDIX 3
NOISE RECEIVER LOCATIONS**

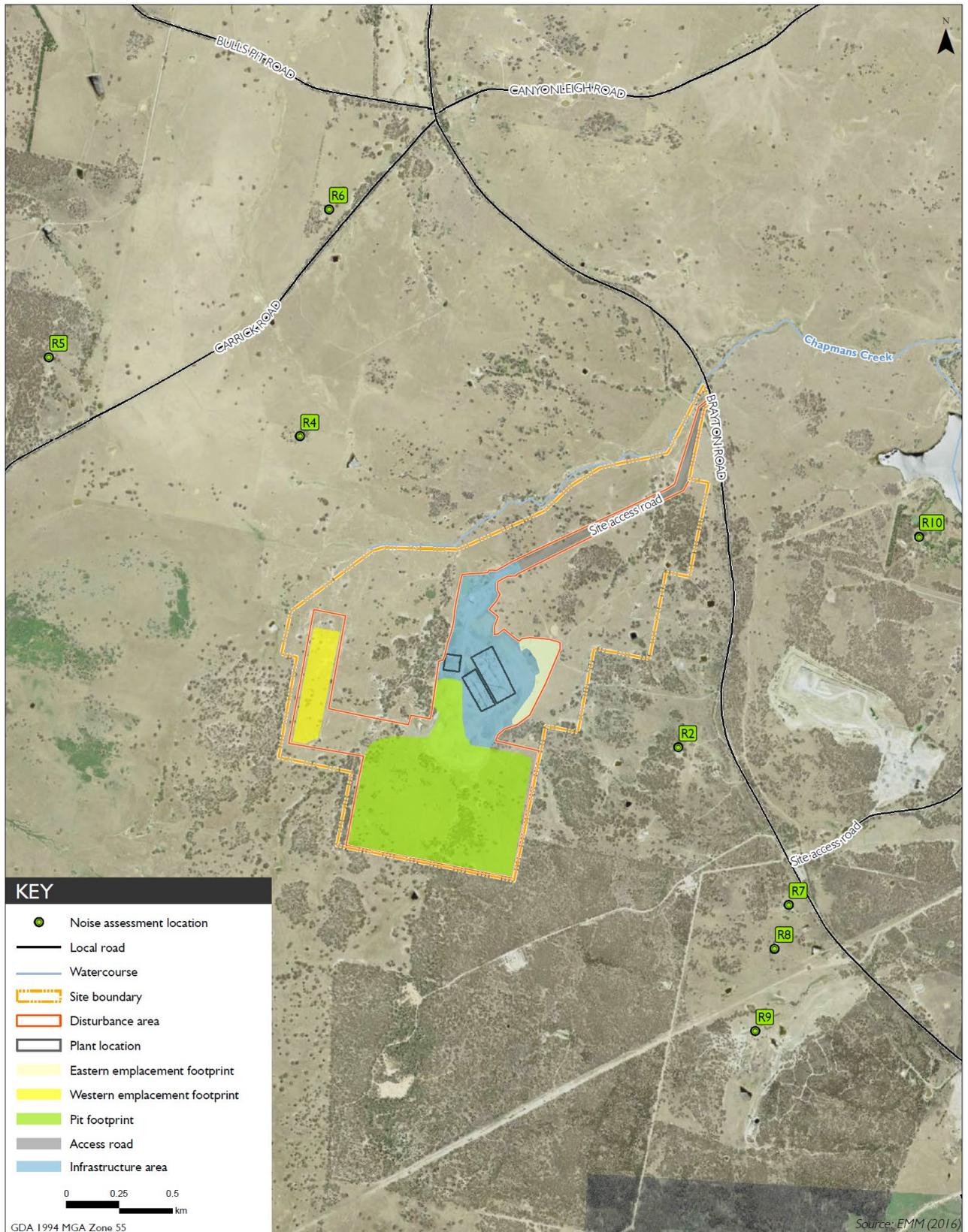


Figure: Noise Assessment Locations

**APPENDIX 4
NOISE COMPLIANCE ASSESSMENT**

Applicable Meteorological Conditions

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

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions must be that recorded by the meteorological station required under condition 18 of Schedule 3.

Compliance Monitoring

3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.
4. Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (as amended from time to time), in particular the requirements relating to:
 - (a) monitoring locations for the collection of representative noise data;
 - (b) [meteorological conditions during which collection of noise data is not appropriate;](#)
 - (c) [equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and](#)
 - (d) [modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration,](#)
[with the exception of applying appropriate modifying factors for low frequency noise during compliance testing. This should be undertaken in accordance with Fact Sheet C of the *NSW Noise Policy for Industry* \(EPA, 2017\).](#)

[Modified by the Land and Environment Court on 9 June 2021 in LEC Proceedings 2020/ 327172](#)

**APPENDIX 5
BIODIVERSITY AREAS**

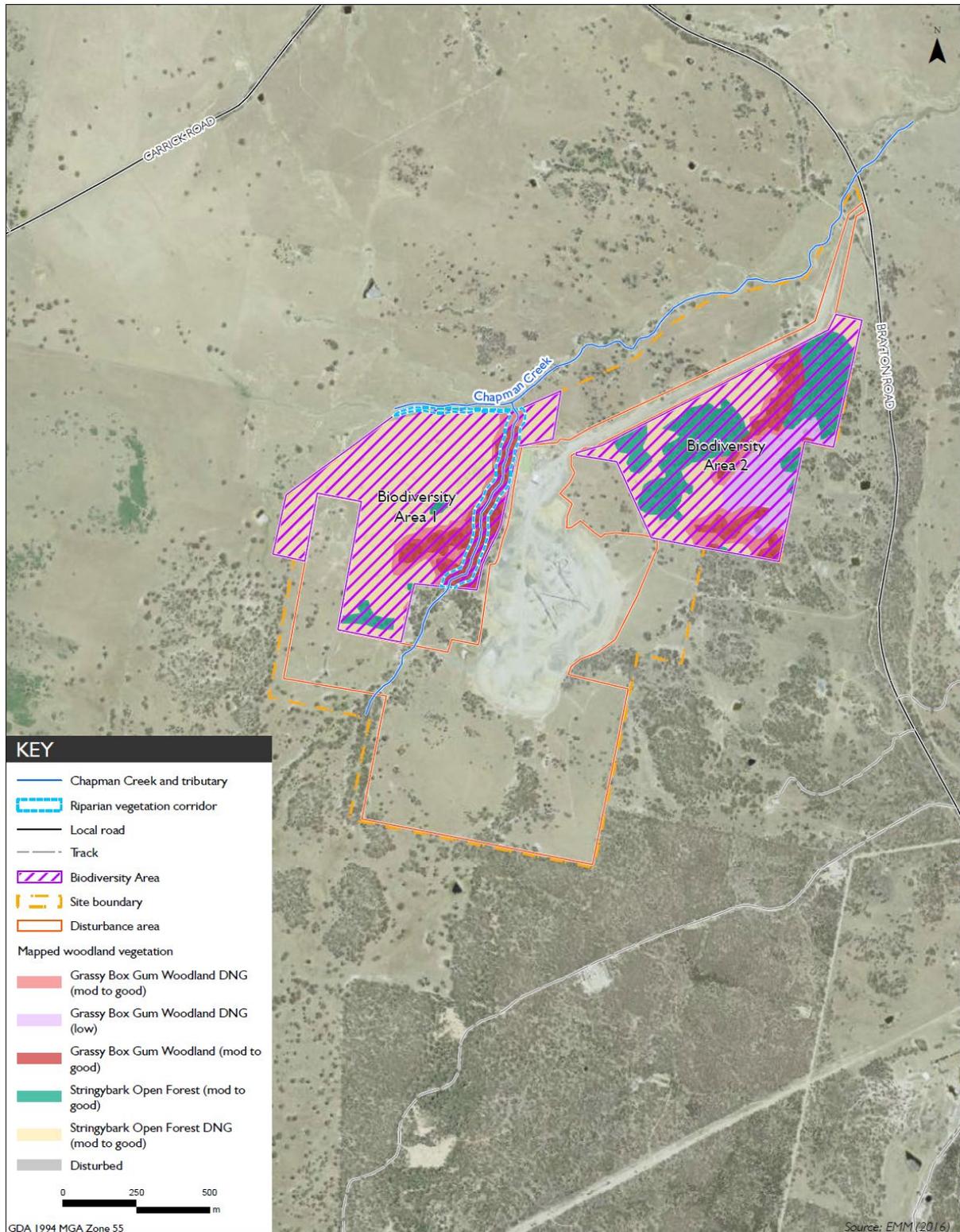


Figure: Location of Biodiversity Areas

**APPENDIX 6
CHAPMANS CREEK RIPARIAN BUFFER**

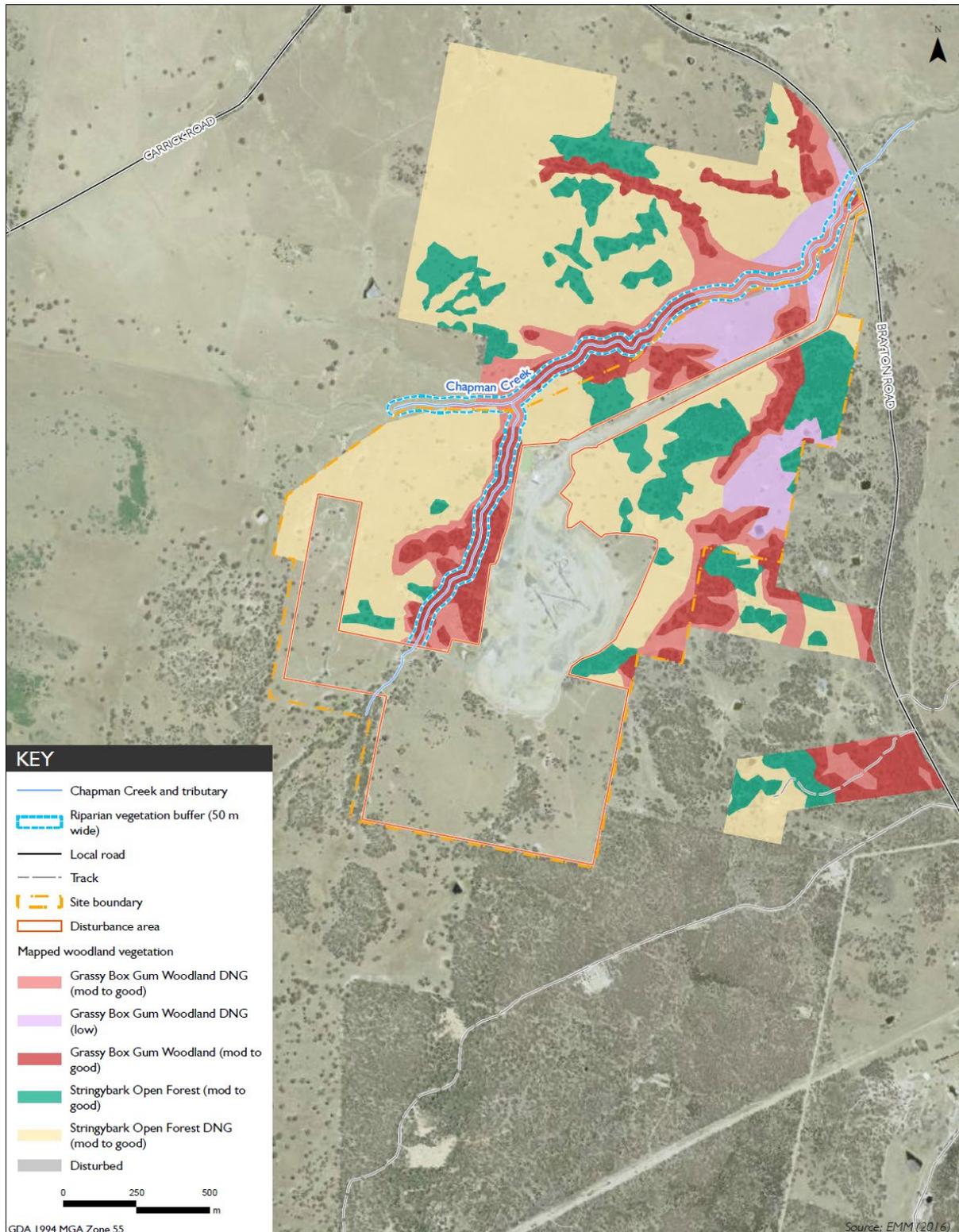


Figure: Chapmans Creek Riparian Buffer



APPENDIX B - EPA LICENCE

Environment Protection Licence

Licence - 13012

Licence Details

Number:	13012
Anniversary Date:	13-July

Licensee

GUNLAKE QUARRIES PTY LIMITED
 PO BOX 1665
 DOUBLE BAY NSW 1360

Premises

GUNLAKE QUARRIES
 715 BRAYTON ROAD
 MARULAN NSW 2579

Scheduled Activity

Extractive activities
 Resource recovery
 Waste storage

Fee Based Activity

Scale

Extractive activities	> 2000000 T annually extracted or processed
Recovery of general waste	Any general waste recovered
Waste storage - other types of waste	Any other types of waste stored

Contact Us

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

Locked Bag 5022
 PARRAMATTA NSW 2124



Environment Protection Licence

Licence - 13012

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Environment Protection Licence

Licence - 13012

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Environment Protection Licence

Licence - 13012

Information about this licence

Dictionary

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

Responsibilities of licensee

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

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

Variation of licence conditions

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

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

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

Duration of licence

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

Licence review

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

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

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



Environment Protection Licence

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

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

Transfer of licence

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

Public register and access to monitoring data

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

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

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

This licence is issued to:

GUNLAKE QUARRIES PTY LIMITED
PO BOX 1665
DOUBLE BAY NSW 1360

subject to the conditions which follow.

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1 Administrative Conditions

A1 What the licence authorises and regulates

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

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

Scheduled Activity	Fee Based Activity	Scale
Extractive activities	Extractive activities	> 2000000 T annually extracted or processed
Resource recovery	Recovery of general waste	Any general waste recovered
Waste storage	Waste storage - other types of waste	Any other types of waste stored

A1.2 The licensee must not carry on any scheduled activities until the scheduled development works are completed, except as elsewhere provided in this licence.

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
GUNLAKE QUARRIES
715 BRAYTON ROAD
MARULAN
NSW 2579
LOT 13 DP 1123374

A3 Information supplied to the EPA

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

In this condition the reference to "the licence application" includes a reference to:

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

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2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

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

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Dust Monitoring		Dust Deposition Gauge labelled DDG 1 on map titled "Figure A- Receptor and DDG locations- July 2009 " provided to DECC on 3 July 2009 (DOC09/31859)
2	Dust Monitoring		Dust Deposition Gauge labelled DDG 2 on map titled "Figure A- Receptor and DDG locations- July 2009 " provided to DECC on 3 July 2009 (DOC09/31859)
3	Dust Monitoring		Dust Deposition Gauge labelled DDG 3 on map titled "Figure A- Receptor and DDG locations- July 2009 " provided to DECC on 3 July 2009 (DOC09/31859)
4	PM 10 Monitoring		High Volume Air Sampler labelled R1 - HVAS on map titled "Figure A - Receptor and DDG locations - July 2009" provided to DECC on 3 July 2009 (DOC09/31859)
11	PM10 Monitoring		High Volume Air Sampler labelled R4 - HVAS on map titled "Figure 2 - Gunlake Quarry Environmental Monitoring Sites" submitted with licence variation application to EPA on 29 May 2018(DOC18/375566)

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

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

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
7	Groundwater Monitoring		Bore labelled as 'GM 6' on Figure 2 in the document titled 'Groundwater and Surface Water Monitoring Program' received by DECC 15 June 2009 (DOC09/28459)

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8 Groundwater Monitoring

Bore labelled as 'GM 13' on Figure 2 in the document titled 'Groundwater and Surface Water Monitoring Program' received by DECC 15 June 2009 (DOC09/28459)

3 Limit Conditions

L1 Pollution of waters

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

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General or Specific exempted waste	Cured concrete waste from a batch plant as defined in Section 49 Definitions of waste classifications, in Schedule 1 of the Protection of the Environment Operations Act 1997, as in force from time to time.	As specified in each particular resource recovery exemption	No more than 30,000 tonnes per year imported to the site. No more than 2,500 tonnes at any one time.

L3 Noise limits

L3.1 Noise generated at the premises must not exceed the noise limits presented in the table below:

Noise Assessment Location	Day	Evening	Night	Night
	LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)	LA1(1 minute)

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R7	38	38	38	45
R8	37	37	37	45
All other privately owned residences	35	35	35	45

Note: For the purpose of the above table, the following definitions apply:

- *Day* - the period from 7.00am to 6.00pm Monday to Saturday; or 8.00am to 6.00pm on Sundays and Public Holidays
- *Evening* - the period from 6.00pm to 10.00pm
- *Night* - the remaining periods

The locations referred to in the above table represent noise assessment locations as indicated in Appendix 3 'Noise Assessment Locations' in the document titled "ANNEXURE 'A' OF S34 AGREEMENT FILED 30 JUNE 2017 IN PROCEEDINGS NO: 108663 OF 2017 CONDITIONS OF CONSENT"

- L3.2 To determine compliance with these noise limits, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary.

The noise limits apply under meteorological conditions of:

- wind speed up to 3m/s at 10m above the ground level;
- temperature inversion conditions of up to 3 degrees c/100m and wind speed up to 2m/s at 10m above the ground;
- where the wind velocity and temperature gradients are determined to be relevant to the project site in accordance with the NSW industrial Noise Policy.

L4 Blasting

- L4.1 The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L4.2 The overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L4.3 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L4.4 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

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L5 Hours of operation

L5.1 The licensee must comply with the operating hours listed in the below table:

Activity	Day	Time
Overburden removal/emplacment and drilling	Monday-Saturday	7.00am to 6.00pm
	Sunday and Public Holidays	None
Blasting	Monday-Friday	9.00am to 5.00pm
	Saturday, Sunday and Public Holidays	None
Quarrying operations (excluding overburden removal/emplacment and drilling)	Monday-Saturday	24-hours but not between 6.00pm Saturday to 2.00am Monday.
	Sunday and Public Holidays	None
Maintenance	Monday-Saturday Sunday and Public Holidays	Any time provided that the activity is not audible at any privately-owned residence
Loading and dispatching	Monday-Saturday	24-hours but not between 6.00pm Saturday to 2.00am Monday.
	Sunday and Public Holidays	None
Construction	Monday-Friday	7.00am to 6.00pm
	Saturday	8.00am to 1.00pm
	Sunday and Public Holidays	None

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

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O3 Dust

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

5 Monitoring and Recording Conditions

M1 Monitoring records

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

M1.2 All records required to be kept by this licence must be:

- in a legible form, or in a form that can readily be reduced to a legible form;
- kept for at least 4 years after the monitoring or event to which they relate took place; and
- produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

- the date(s) on which the sample was taken;
- the time(s) at which the sample was collected;
- the point at which the sample was taken; and
- the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

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

M2.2 Air Monitoring Requirements

POINT 1,2,3

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	Australian Standard 3580.10.1-2003

POINT 4,11

Pollutant	Units of measure	Frequency	Sampling Method
PM10	micrograms per cubic metre	Special Frequency 1	AS/NZS 3580.9.6:2003

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M2.3 For the purposes of the table(s) above Special Frequency 1 means the collection of samples on a one day in six cycle using a HVAS fitted with size selective inlet for PM10.

M3 Testing methods - concentration limits

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

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2021* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M4 Recording of pollution complaints

- M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M4.2 The record must include details of the following:
- the date and time of the complaint;
 - the method by which the complaint was made;
 - any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - the nature of the complaint;
 - the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - if no action was taken by the licensee, the reasons why no action was taken.
- M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5 Telephone complaints line

- M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

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M5.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

R1 Annual return documents

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

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

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

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

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

R1.3 Where this licence is transferred from the licensee to a new licensee:

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

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

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

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

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

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

R2 Notification of environmental harm

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident.

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

R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
 - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
 - b) the type, volume and concentration of every pollutant discharged as a result of the event;
 - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
 - d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
 - e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
 - f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
 - g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

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7 General Conditions

G1 Copy of licence kept at the premises or plant

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

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

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

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Dictionary

General Dictionary

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

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

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

Mr Julian Thompson

Environment Protection Authority

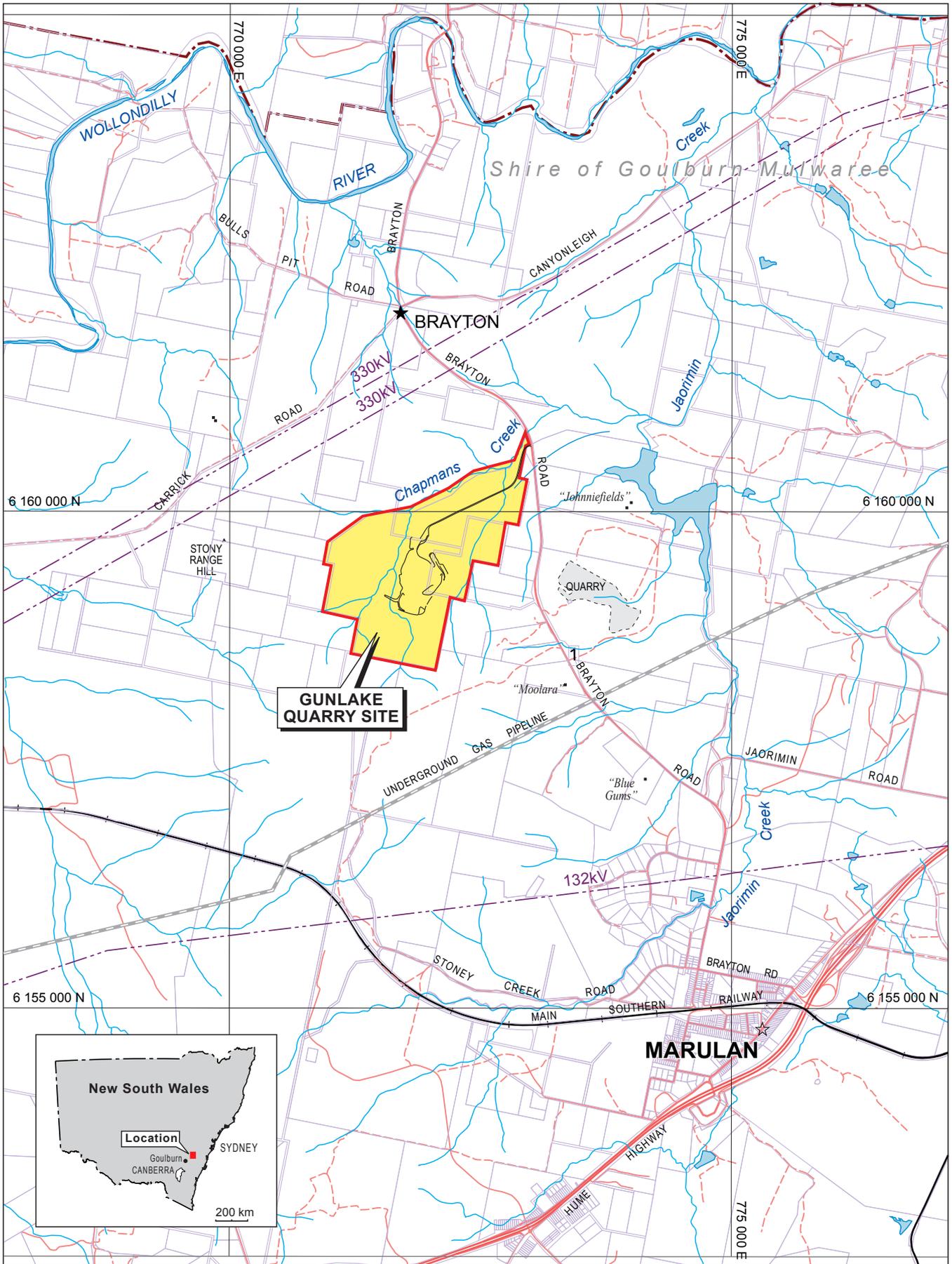
(By Delegation)

Date of this edition: 09-July-2009

End Notes

- 2 Licence varied by notice 1516660 issued on 16-Sep-2013
- 3 Licence transferred through application 1521128 approved on 23-Apr-2014 , which came into effect on 01-May-2014
- 4 Licence varied by notice 1522524 issued on 27-Oct-2014
- 5 Licence varied by notice 1532111 issued on 10-Aug-2015
- 6 Licence varied by notice 1565848 issued on 12-Jul-2018
- 7 Licence varied by notice 1588001 issued on 11-Dec-2019
- 8 Licence varied by notice 1613290 issued on 03-Dec-2021

Appendix C – Maps



Datum: GDA
MGA Zone 55

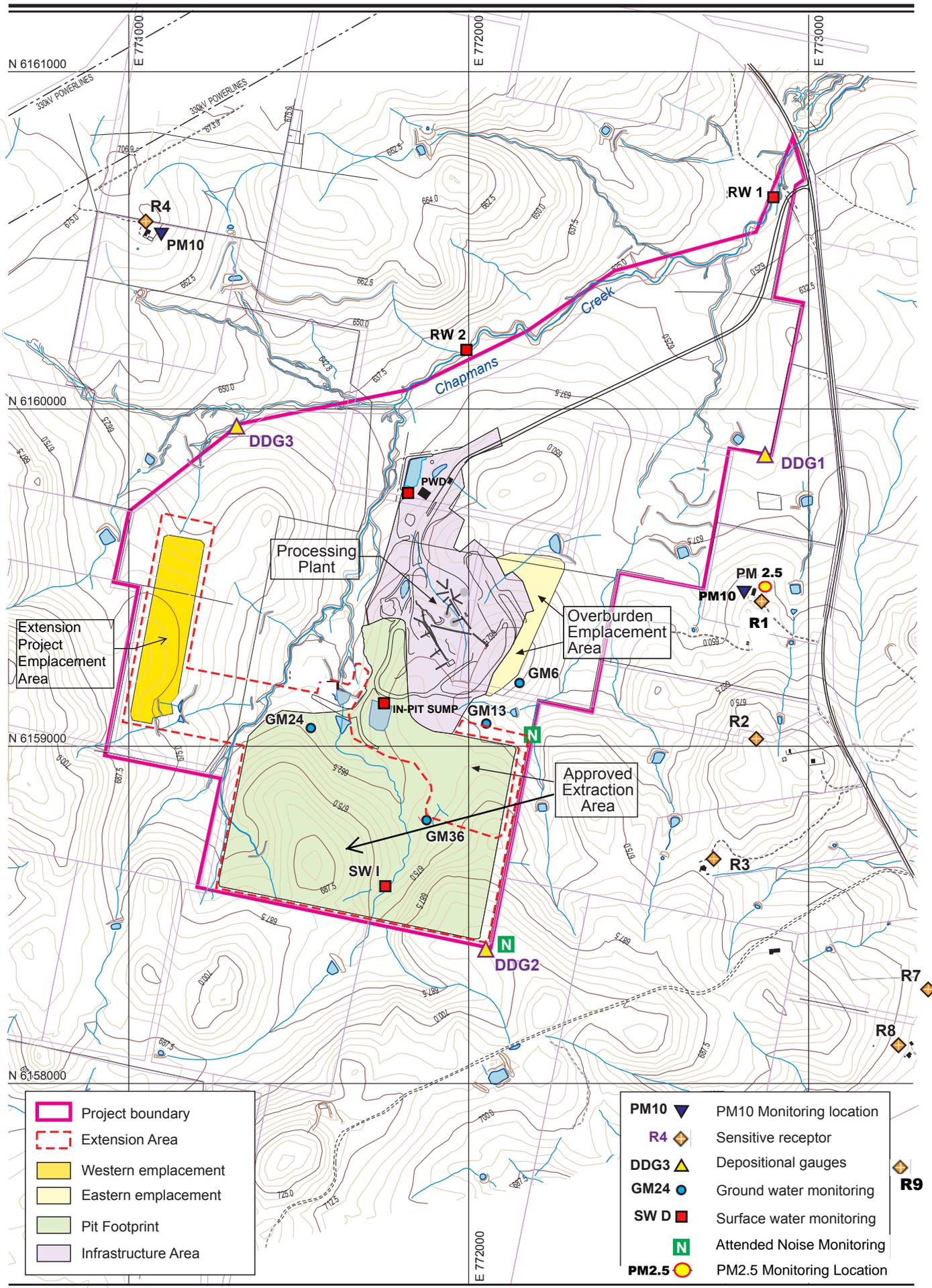
Map Source: © Department of Lands, NSW

- | | | | | | |
|--|----------------|--|--------------------------|--|-----------|
| | Dam | | Gas pipeline | | Main road |
| | River or creek | | Electricity transmission | | Railway |

0 1 2 km



FIGURE 1
Gunlake Quarry
Regional Location



	Project boundary
	Extension Area
	Western emplacement
	Eastern emplacement
	Pit Footprint
	Infrastructure Area

	PM10	PM10 Monitoring location
	R4	Sensitive receptor
	DDG3	Depositional gauges
	GM24	Ground water monitoring
	SW D	Surface water monitoring
	N	Attended Noise Monitoring
	PM2.5	PM2.5 Monitoring Location

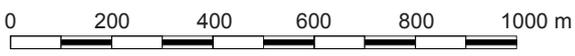


FIGURE 2
Gunlake Quarry
Environmental Monitoring Sites

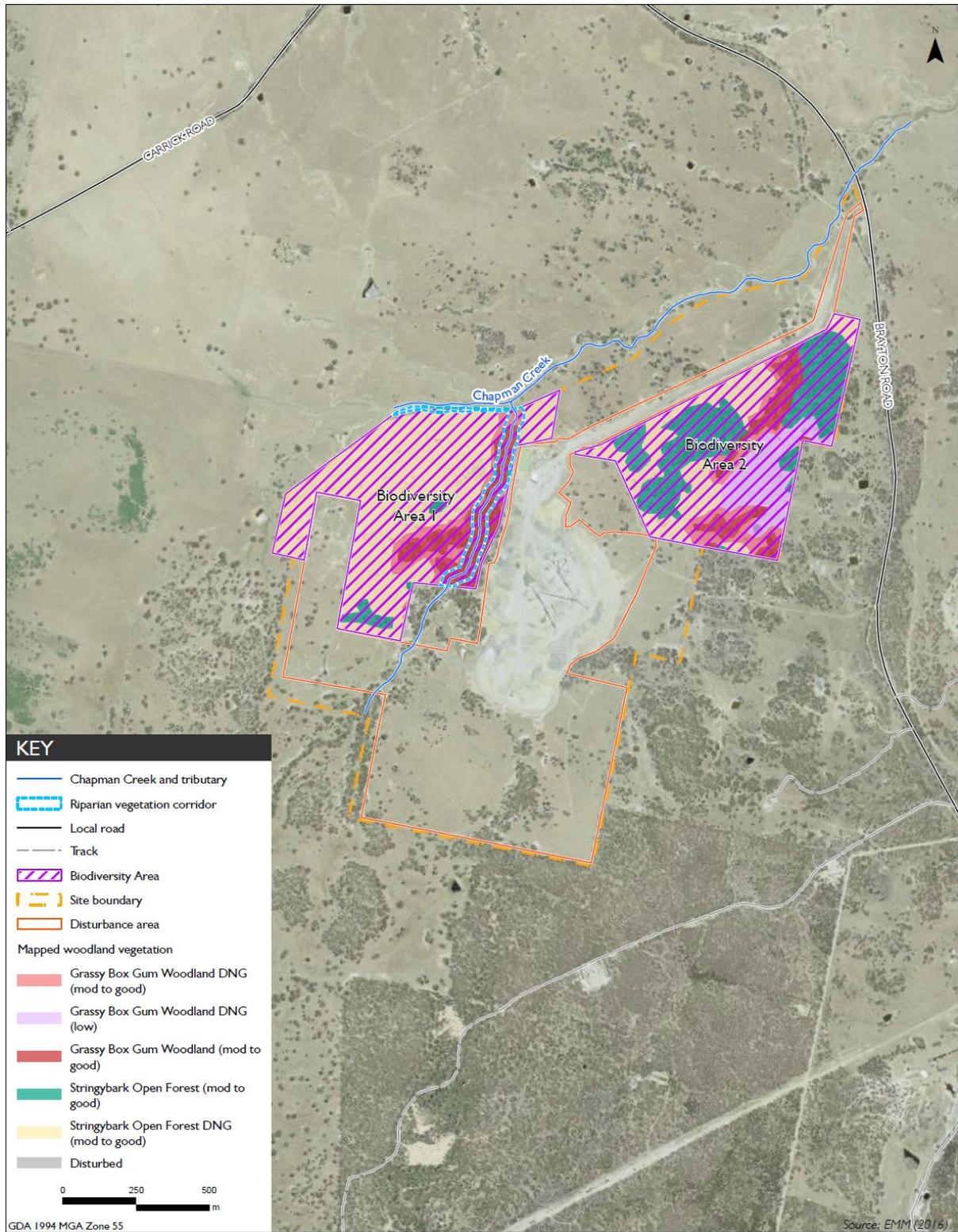


Figure 3 - Biodiversity Offset Area - Conservation Agreement

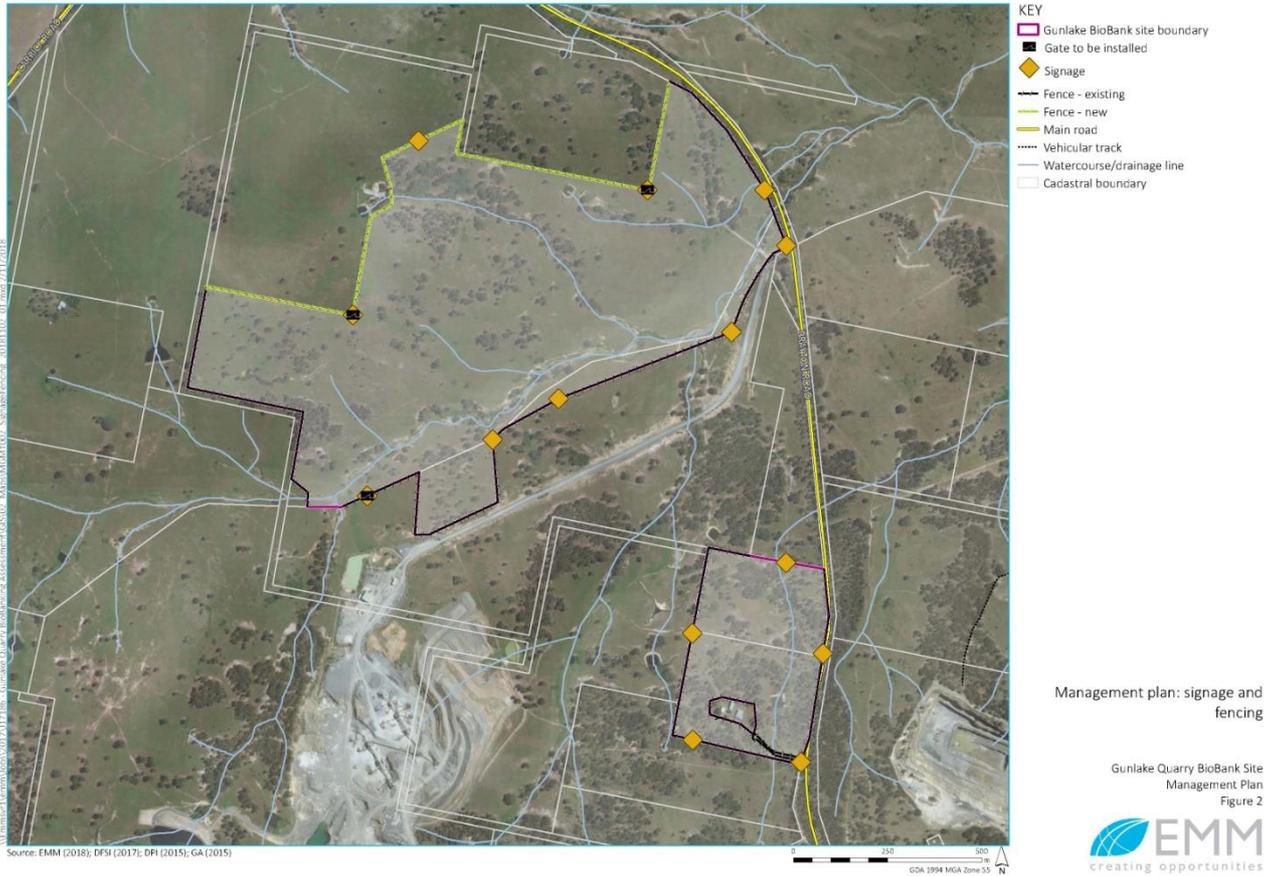


Figure 4 – Biodiversity Offset Areas – Biobanking Agreement



Figure 5 – Gunlake Quarry 2022

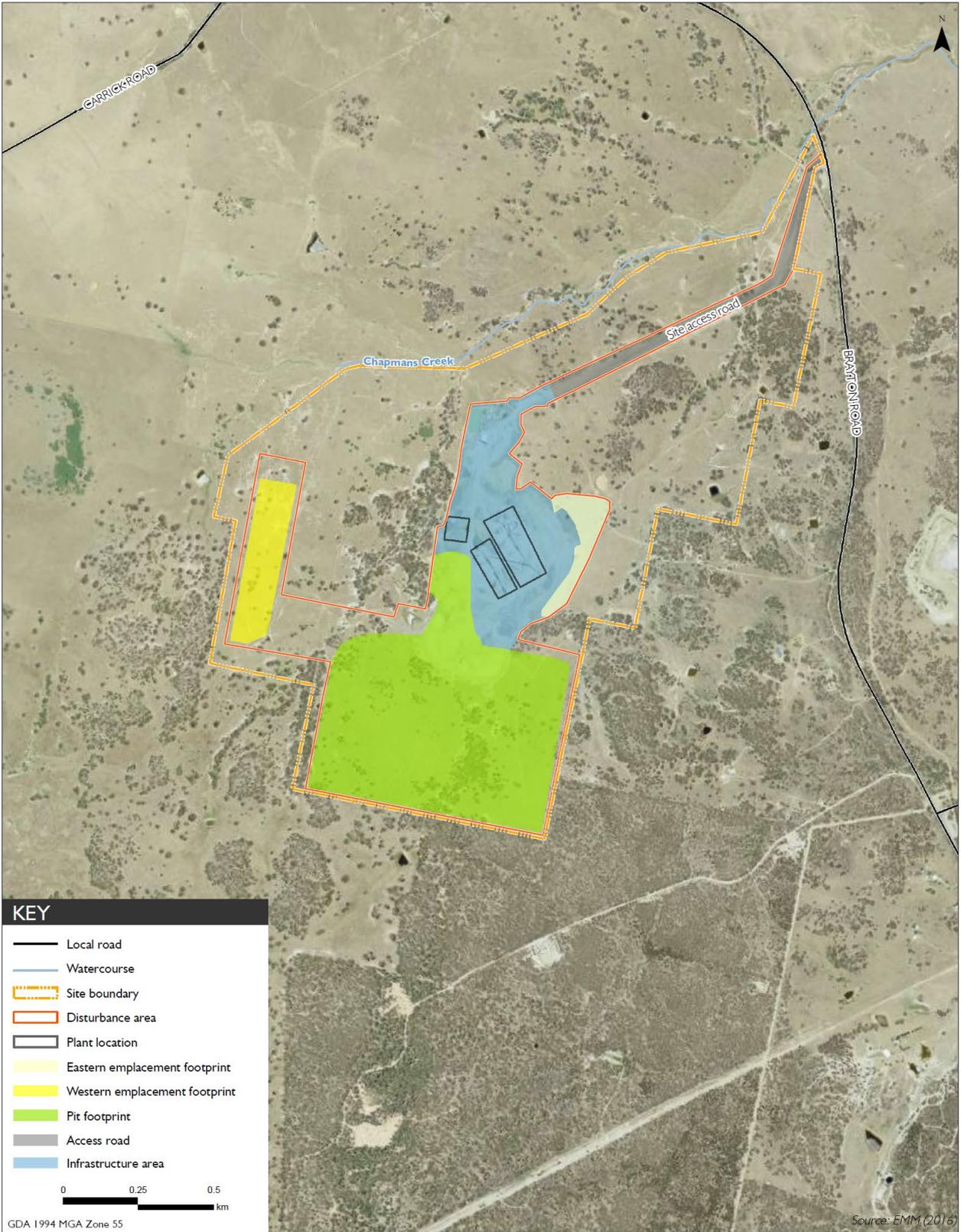


Figure 6 - Gunlake Extension Project Development Layout