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Marulan South Limestone Mine | **SSD 7009**

Environment Management Strategy

Prepared for Boral Cement Limited | 8 August 2022

Marulan South Limestone Mine

SSD 7009 | ENVIRONMENT MANAGEMENT STRATEGY

Prepared for Boral Cement Limited
8 August 2022

PR163

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Date	3 August 2022	8 August 2022

DOCUMENT CONTROL

Revision	Date	Description	Prepared by	Reviewed by
0	26 May 2022	For Boral Cement Limited review	Element Environment Pty Ltd	Boral Cement Limited
1	8 August 2022	For submission to DPHI	Element Environment Pty Ltd	Boral Cement Limited
2	15 July 2024	Review following Independent Audit 2024 – updated Environment Policy, changed DPIE to DPHI updated key Boral document naming, updated Appendices.	Sharon Makin Boral Cement Limited	Crystal Perry Boral Cement Limited
7	29 November 2024	D7(b) of the CoC review of Management Plans within 3 months of Annual Review submission. No changes.	Boral Environment Business Partners	Boral Cement Limited
5	29 November 2024	D7(b) of the CoC review of Management Plans within 3 months of Annual Review submission. No changes.	Boral Environment Business Partners	Boral Cement Limited

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1 INTRODUCTION

1.1 Background

Boral Cement Limited (Boral) owns and operates the Marulan South Limestone Mine (the mine), an open cut mine in Marulan South, New South Wales (NSW). Limestone mining north of Bungonia Gorge began around 1830 with major developments emerging in the 1920s to supply limestone for cement manufacturing and steel making.

The mine was opened in 1929 to supply limestone for cement, manufacturing and steel making. By 1953 two main pits (northern mine pit and southern mine pit) were well established and by the early 1970s the facets of the business included limestone for cement, steel making, agriculture, glass making, lime manufacturing, quicklime and hydrated lime.

The mine produces up to 3.38 million tonnes (Mt) of limestone based products per year for the cement, steel, agricultural, construction and commercial markets.

Due to changes in the NSW *Mining Act 1992* (Mining Act) and the NSW *Environmental Planning & Assessment Act 1979* (EP&A Act), a State significant development (SSD) consent under the EP&A Act was required to move mining operations beyond the area covered by the mining operations plan (MOP).

Two approvals are required for the mine:

- a consent for the development (SSD 7009) under Part 4, Division 4.7 of the EP&A Act; and
- controlled action approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for impacts on listed threatened species and communities (sections 18 and 18A of the Act).

An environmental impact statement (EIS) was prepared to accompany the application for SSD 7009 and addresses the requirements of State agencies under the EP&A Act and the Commonwealth Department of Agriculture, Water and the Environment. A response to submissions (RTS) report was subsequently prepared to consider and respond to agency and public submissions and provide clarification of development components where relevant.

Development consent (the consent) was granted by the Department of Planning, Industry and Environment (DPHI) on 19 August 2021, to continue mining limestone at a rate of up to 4 million tonnes per annum (Mtpa) for up to 30 years (the Project).

To satisfy Condition of Consent (CoC) D5(i), the EIS, RTS, development consent and other publicly available information related to the assessment and determination of SSD 7009 can be accessed on DPHI's Major Projects Planning Portal (https://www.planningportal.nsw.gov.au/major-projects/project/9691).

The consent requires the preparation and implementation of management plans, strategies, protocols and procedures detailing environmental commitments, controls and performance objectives at the mine throughout its operational life. An environmental management strategy (EMS) is required under CoC D1.

This EMS incorporates the relevant management measures in the EIS, RTS and conditions of consent relating to environmental management**.** This EMS will be a dynamic document which will be updated as required over the life of mining operations until 31 August 2051.

This EMS has been prepared by Element Environment on behalf of Boral.

1.2 Overview of operations

1.2.1 Site description

The mine is in Marulan South, 10 km south-east of Marulan village and 35 km east of Goulburn. It is in the Goulburn Mulwaree Local Government Area (LGA).

The mine is separated from the Bungonia National Park (NP) and State Conservation Area to the south by Bungonia Creek and is separated from the Shoalhaven River and Morton NP to the east by Barbers Creek.

The mine and surrounds are characterised by rolling hills of pasture interspersed with forest to the west, contrasting with the heavily wooded, deep gorges that begin abruptly to the east of the mine, forming part of the Great Escarpment and catchment of the Shoalhaven River.

Access is via Marulan South Road, which connects the mine and Boral's Peppertree Quarry with the Hume Highway approximately 9 km to the north-west. Boral's private rail line connects the mine and Peppertree Quarry with the Main Southern Railway approximately 6 km to the north.

The Project site (site) covers historical and proposed future areas of disturbance and comprises two geographically separate areas:

- the existing mine including the proposed 30-year mine footprint and associated infrastructure; and
- the proposed Marulan Creek dam to be on Marulan Creek, within Boral landholdings approximately 2.5 km north of the mine entrance.

The site covers an area of 846.4 ha. The existing pre-SSD disturbance footprint is 341.5 ha with 256.5 ha of new disturbance associated with the proposed 30-year mine plan.

Most of the site is zoned RU1 – Primary Production under the Goulburn Mulwaree Local Environmental Plan (LEP) 2009. Mining and extractive industries are permissible in this zone with consent. The remaining area is zoned E3 – Environmental Management. Mining and extractive industries are prohibited in this zone. However, as agriculture is permitted in the E3 zone with consent, mining is also permitted in this zone under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (now the Resources and Energy SEPP 2022) with consent.

1.2.2 Overview of existing mining

The mine is on a high-grade limestone resource. Subject to market demand the mine has typically produced up to 3.38 Mt of limestone and up to 200,000 t of shale per annum.

The mine produces a range of limestone products for internal and external customers in the Southern Highlands/Tablelands, the Illawarra and metropolitan Sydney markets for use primarily in cement and lime manufacture, steel making, agriculture and other commercial uses. Products are despatched by road and rail, with the majority despatched by rail.

Historically limestone mining was focused on the approximately 200-300 m wide Eastern Limestone and was split between a north pit and a south pit. A limestone wall (the 'centre ridge') rising almost to the original land surface, divided the two pits.

The north and south pits were joined in 2016/2017 by mining the centre ridge to form a single contiguous pit, approximately 2 kilometres (km) in length. However, the north pit/south pit naming remains important as mining locations continue to be reported with respect to one or other of the old pits.

Limestone and shale are extracted using open-cut hard rock drill and blast techniques. Limestone is loaded using front end loaders and hauled either to stockpiles or the processing plant using haul trucks. Oversized material is stockpiled and reduced in size using a hydraulic hammer attached to an excavator.

Limestone processing facilities including primary and secondary crushing, screening, conveying and stockpiling plant and equipment are in the northern end of the north pit. Kiln stone grade limestone is also processed on site through the existing lime plant comprising kiln stone stockpiles, rotary lime kiln, hydration plant and associated auxiliary conveying, processing, storage, despatch plant and equipment. Overburden from stripping operations is emplaced in the Western Overburden Emplacement (WOE), west of the open cut pits.

1.2.3 Overview of approved project

Consent was granted for a 30-year mine plan accessing approximately 120 Mt of limestone to a depth of 335 m. The mine footprint focuses on an expansion of the pit westwards to mine the Middle Limestone and to mine deeper into the Eastern Limestone.

As the Middle Limestone lies approximately 70-150 m west of the Eastern Limestone, the 30-year mine plan avoids mining where practical the interburden between these two limestone units thereby creating a smaller second, north-south oriented west pit with a ridge remaining between.

The north pit will also be expanded southwards, encompassing part of the south pit, leaving the remainder of the south pit for overburden emplacement and a visual barrier.

Limestone will be extracted at up to 4 Mtpa for 30 years until 31 August 2051. Clay shale will also continue to be extracted at up to 200,000 tonnes per annum (tpa). The limestone will be processed to create limestone and lime products including limestone aggregates and sand, hydrated lime and quick lime.

Existing infrastructure is being retained along with the following changes:

- relocation of a section of high voltage power line to accommodate a proposed overburden emplacement;
- realignment of a section of Marulan South Road, to accommodate a proposed overburden emplacement;
- relocation of the processing infrastructure and the stockpile and reclaim area at the northern end of the north pit to allow the northward expansion of the pit;
- development of a shared Road Sales Stockpile Area including a weighbridge and wheel wash to service both the mine and Peppertree Quarry; and
- construction of a 118 million litre (ML) in-stream water supply dam on Marulan Creek.

Boral will transport up to 600,000 tpa of limestone and hard rock products along Marulan South Road to the Hume Highway, as well as 120,000 tpa of limestone products to the agricultural lime manufacturing facility.

The Project provides continued direct employment for 118 people on the mine site and 73 offsite. It will operate 24-hours per day, 7 days per week. Blasting will continue to be restricted to daylight hours on weekdays, excluding public holidays.

Figure 1.1 and Figure 1.2 provide an overview of the approved project.

Figure 1.1
Project overview

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION

233 million tonnes

Expansion of mine void to extract 120 million tonnes of limestone, 5 million tonnes of shale and 108 million tonnes of overburden. Mining of eastern limestone, upper, middle and lower limestone members.

4 million tonnes

Produce up to 4 million tonnes of limestone and extraction of up to 200,000 tonnes of clay/shale per annum.

720,000 tonnes by road per annum

600,000 tonnes per annum by road via Marulan South Road to the Hume Highway and 120,000 tonnes per annum to the agricultural lime manufacturing facility immediately west of the mine.

108 million tonnes

New overburden emplacement areas to store up to 108 million tonnes of overburden.

1.4 kilometre realignment

Proposed realignment of a section of Marulan South Road. Deregistration of Marulan South Road east of the Agricultural lime manufacturing facility.

1 million tonnes

1 million tonnes per annum of manufactured limestone sand transported across the road to Peppertree Quarry.

Filling of south pit and rehabilitation to partially screen mine void from the Bungonia Lookdown.

256.5 hectares

256.5 hectares of new disturbance associated with the proposed 30 year mine plan.

4.5 hectares (Road sales stockpile area)

Road sales stockpile area to store and despatch finished product by truck.

24/7

Operates 24 hours per day, 7 days a week.

6 up to six trains departing the mine per day

Continued reliance on rail for the majority of finished product transport (up to six trains departing the mine per day).

$165 million

Net social benefits to Australia of $485 to 640 million over 30 years.

Net social benefits to NSW of $165 to 320 million over 30 years.

118 megalitres

Proposed water supply dam on Marulan Creek (north of Peppertree Quarry).

80 kilometres per hour

Upgrade of Marulan South Road.

1.4 kilometres

Realignment of high voltage powerlines.

191 full time staff

Continue to employ 191 full time personnel in connection with the mine. 118 on site and 73 off-site.

Figure 1.2

Source: Boral (2018), Cambium Group (2019).

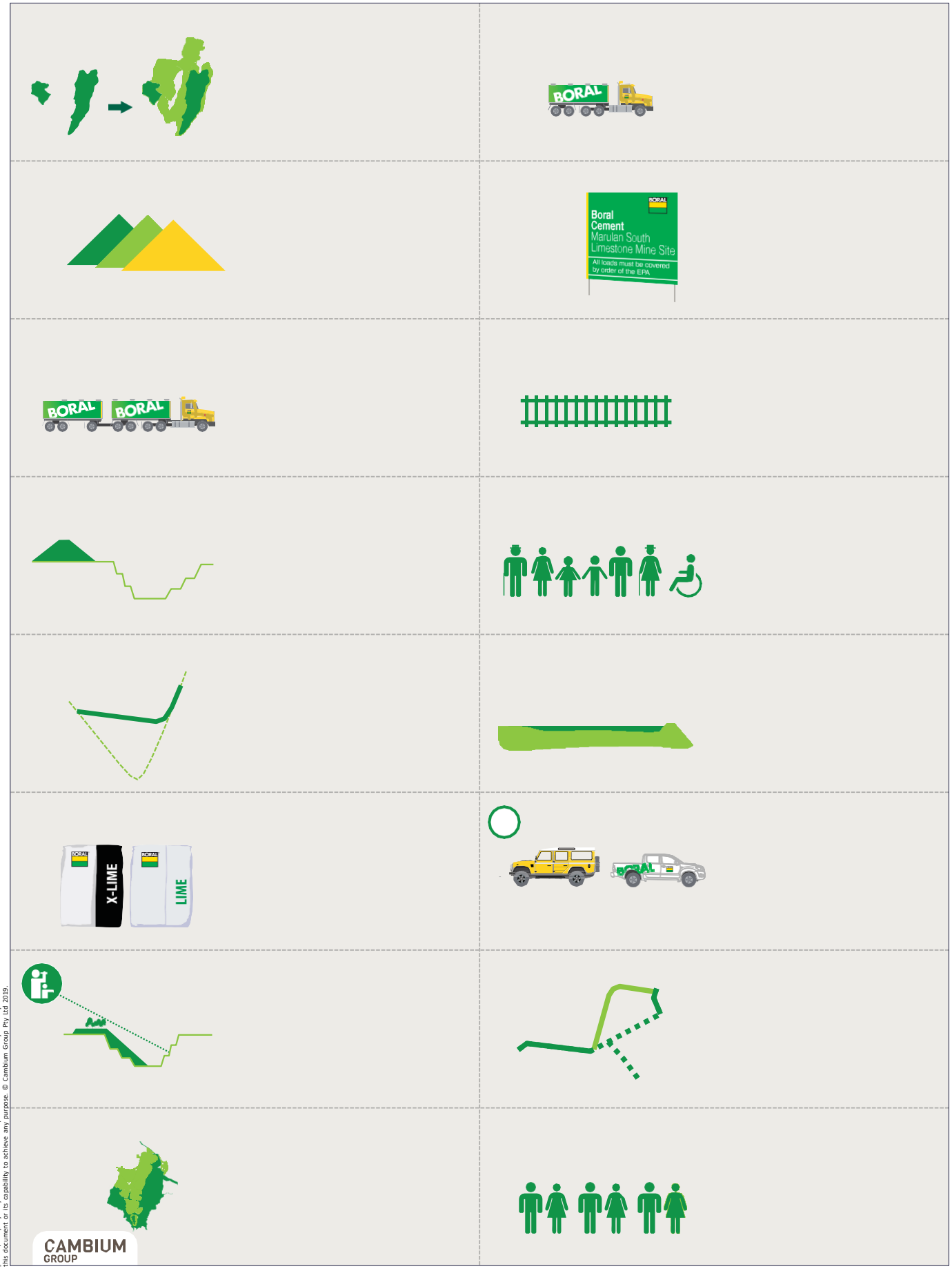

Figure 1.3
The Project

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION

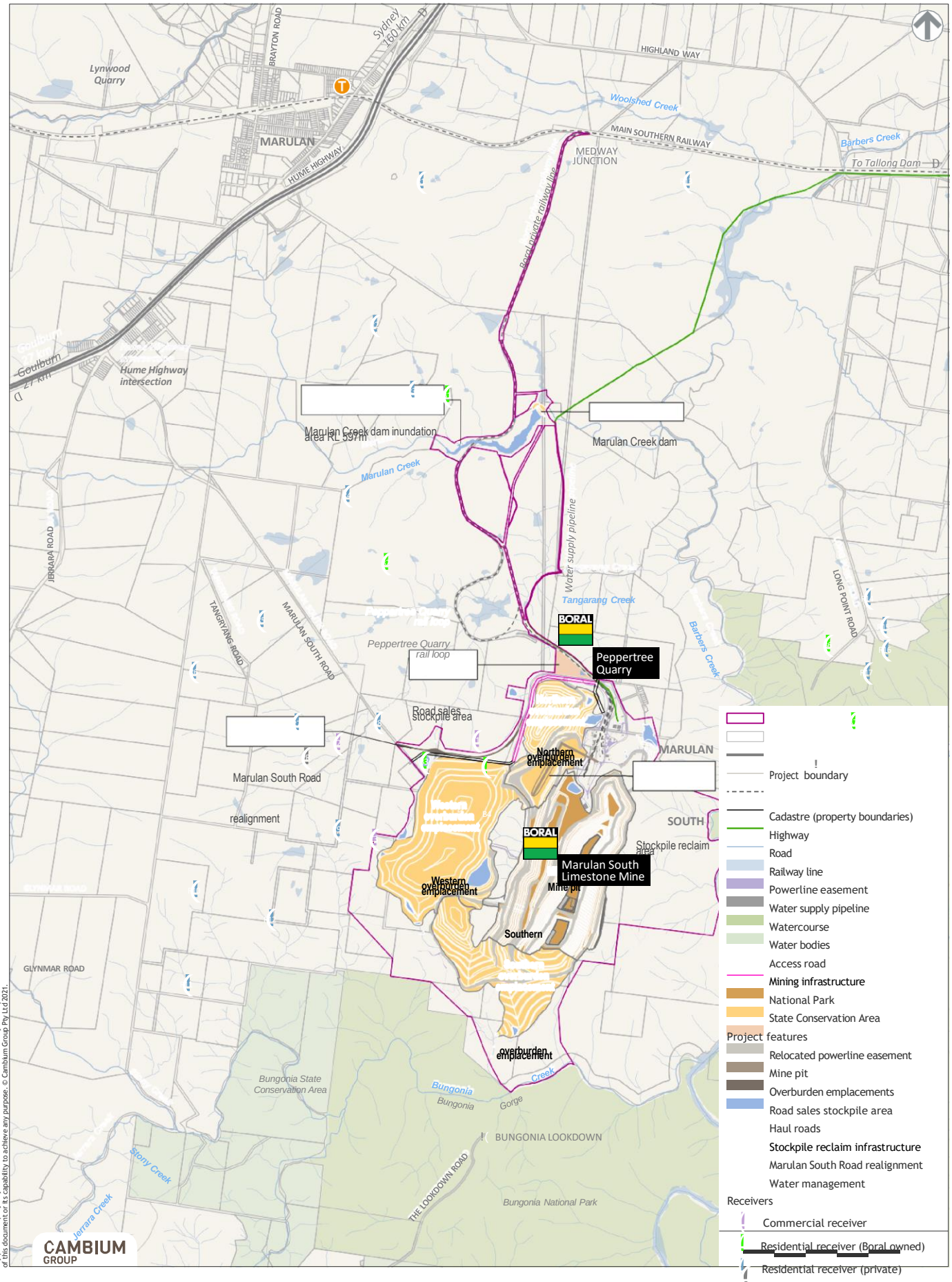

Figure 1.4

Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), Cambium Group (2021).

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1.3 Environmental management framework

The mine operates in accordance with the Boral integrated Health Safety, Environment and Quality Management System (HSEQ MS) which establishes a strategic platform for regulatory compliance and continual improvement in environmental management. This framework is documented in *GRP-HSEQ-1-01 Management System Framework and Operational Control*. The Boral HSEQ MS is aligned with the international standard ISO-14001.

1.3.1 Environmental management strategy

CoC D1 requires the preparation of an environmental management strategy (EMS) for the mine. The EMS provides the mine's strategic framework for environmental management.

1.3.2 Alignment with other plans

This document outlines the overarching strategy of which the other environmental management plans – air quality and greenhouse gas, traffic, water, groundwater, Aboriginal heritage, historic heritage, noise, blasting, bushfire management and biodiversity and rehabilitation form a part of and are publicly available on Boral's website: www.boral.com.au/marulan-slm.

1.4 Purpose and objectives

This EMS applies to all activities approved under SSD 7009, including maintenance activities and associated service and support functions.

The performance of environmental management at the mine will be managed through an EMS that is implemented across all of Boral's businesses. This EMS is tailored specifically to the mine and integrates the management plans and monitoring programs that have been prepared in accordance with relevant conditions of SSD 7009.

This EMS has been prepared to comply with CoC D1, which is described in Section 0

The EMS is structured around the plan-do-check-review framework and continual improvement objectives outlined in the international environmental management standard ISO-14001.

1.5 Document structure

The structure of this EMS is outlined in Table 1.1.

Table 1.1 Structure of the EMS

Section	Content
1	Provides an overview of the Project and objectives of the EMS.
2	Outlines statutory requirements associated with the development consent and consultation regarding the EMS.
3	Outlines implementation components of the EMS.
4	Includes checking and review components of the EMS.
Appendix A	Boral Environment Policy
Appendix B	Development Consent (SSD 7009)
Appendix C	EPBC Act Approval (EPBC 2015/7521)
Appendix D	Noise management plan
Appendix E	Blast management plan
Appendix F	Air quality and greenhouse gas management plan
Appendix G	Water management plan (including groundwater management plan)

Appendix H	Biodiversity management plan
Appendix I	Aboriginal cultural heritage management plan
Appendix J	Historic heritage management plan
Appendix K	Contaminated materials protocol
Appendix L	Bushfire management plan
Appendix M	Rehabilitation strategy
Appendix N	Traffic management plan
Appendix O	Emergency response procedure
Appendix P	Pollution Incident Response Management Plan

2 POLICY AND PLANNING

The success of the EMS requires detailed understanding and planning towards the mine's environmental impacts and controls, regulatory compliance requirements, internal corporate obligations, and community expectations. This Section outlines the planning aspects of the EMS.

2.1 Environmental policy

The context for environmental management at the mine is guided by the Corporate Environmental Policy of Boral Limited, regulatory compliance, growing community awareness/expectations and the proximity of the site to other local industry.

The Boral Limited Corporate Environmental Policy (see Appendix A) underpins the way in which the environment is managed across all of Boral's operations internationally. Boral is committed to pursuing industry specific best practice in environmental performance, complying with environmental legislation and open, constructive engagement with communities surrounding its operations.

The Boral Environmental Policy (January 2024) provides the foundation for the environmental objectives and the commitment that all employees and contractors undertake their duties in consideration of:

- efficient use of energy (including appropriate use of alternative fuels);
- conservation of water;
- minimisation and recycling of wastes;
- prevention of pollution;
- effective use of virgin and recovered resources and supplemental materials;
- open and constructive engagement with communities surrounding Boral
- operations;
- reducing the greenhouse gas emissions from Boral processes, operations and facilities;
- protecting and, where possible, enhancing biodiversity values at and around
- Boral facilities; and
- complying with environmental legislation, regulations, standards and codes of practice relevant to the particular business as the absolute minimum requirement in each of the communities in which Boral operate.

It is a Boral Corporate requirement that the Environmental Policy is clearly displayed in prominent locations at all operations and is included in training and induction programs undertaken by all employees and contractors.

Local communities are increasingly becoming more aware of the environmental performance of industry and have resulting high expectations. Marulan South is no different, and in light of this, community relations activities for the mine will seek to meet these expectations and earn a social licence to operate from the local community.

It is also recognised that the mine is in a semi-rural environment adjacent to other local industry. Peppertree Quarry is north of the mine, and Aglime Fertiliser's processing plant to the north west. The environmental performance of the mine will be monitored, assessed and managed in light of these cumulative impacts.

2.2 Aspects and impacts

Key Boral documents *GRP-HSEQ-1-03 Hazard Identification and Risk Management* and *GRP-HSEQ-8-01 Environmental Aspects and Impacts* will be implemented at the mine. The aspects

and impacts register is subject to scheduled reviews and updates (if required) to reflect any operational changes.

2.3 Development consent

This EMS has been prepared in accordance with the development consent. Table 2.1 presents the consent conditions relevant to the EMS and identifies where each condition has been addressed in this strategy. The development consent is in Appendix B.

Table 2.1 EMS requirements

Condition		Condition requirement	Section reference
D1		The Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Planning Secretary. This strategy must:	This strategy
	(a)	provide the strategic framework for environmental management of the development;	1.3
	(b)	identify the statutory approvals that apply to the development;	2.2, 2.3
	(c)	set out the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;	3.1
	(d)	set out the procedures to be implemented to:	
	(i)	keep the local community and relevant agencies informed about the operation and environmental performance of the development;	3.3, 4.3.2, 4.4, 4.5
	(ii)	receive record, handle and respond to complaints;	3.3.4, 3.3.5
	(iii)	resolve any disputes that may arise during the course of the development;	3.3.4, 3.3.5
	(iv)	respond to any non-compliance and any incident;	4.4
	(v)	respond to emergencies; and	3.6
	(e)	include:	
	(i)	references to any strategies, plans and programs approved under the conditions of this consent; and	1.3.2, 1.6
	(ii)	a clear plan depicting all the monitoring to be carried out under the conditions of this consent.	4.1
D2	The Environmental Management Strategy must be approved by the Planning Secretary within 3 months from the date of this consent, unless otherwise agreed by the Planning Secretary.		Noted
D3	The Applicant must implement the Environmental Management Strategy as approved by the Planning Secretary.		Noted

2.4 Statutory requirements

Key Boral document: *GRP-HSEQ-1-04 Legal Compliance and Other Requirements* will be implemented at the mine.

Operators need to know and understand the statutory requirements that apply to their operations. Boral maintains subscriptions to a number of on-line legal resources which are accessible for all employees through links available on the company's intranet.

The mine operates under the compliance requirements of a statutory approval and a NSW EPA environment protection licence. The following key statutory instruments apply to the mine.

2.4.1 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Approval from the Minister for the Environment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is required for any action that would result in a significant impact on matters of national environmental significance.

EPBC Act approval was sought in 2015 and granted in October 2021 ((EPBC 2015/7521) (refer to Appendix C). Conditions were applied in reference to native vegetation clearing (White Box-Yellow Box-Blakelys Red Gum Grassy Woodland and Derived Native Grassland and Koala/Large-eared Pied Bat habitat) and offsetting of approved clearing of the above vegetation/habitat).

2.4.2 The operations will need to be able to demonstrate compliance against the EPBC Act approval. Commonwealth *National Greenhouse and Energy Reporting Act 2007*

The Commonwealth *National Greenhouse and Energy Reporting Act 2007* (NGER Act) provides a single national framework for the reporting and dissemination of information about the greenhouse gas emissions, greenhouse gas projects, and energy use and production of corporations. It makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds.

Boral triggers the threshold for reporting under the NGER Act, and reports energy use and greenhouse gas emissions from its operations, including the mine.

2.4.3 NSW *Environmental Planning and Assessment Act 1979*

The Project was declared a State significant development (SSD) under Part 4, Division 4.7 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and clause 8(1) of State Environmental Planning Policy (State and Regional Development) 2011 (now the Planning Systems SEPP).

Secretary's environmental assessment requirements were issued for the Project by the equivalent to the current NSW Department of Planning, Industry and Environment (DPHI) on 10 June 2015 with the development application and environmental impact assessment submitted on 20 March 2019.

Development consent was granted by DPHI on 19 August 2021.

The mine will be subject to the provisions of the EP&A Act for any future changes or modifications to the operations. Additionally, the operations will need to be able to demonstrate compliance against the CoC under the provisions of the EP&A Act.

2.4.4 NSW Protection of the Environment Operations Act 1997

The objectives of the NSW *Protection of Environment Operations Act 1997* (POEO Act) are to protect, restore and enhance the quality of the environment. Some of the mechanisms that can be applied, under the POEO Act, to achieve these objectives include reduction of pollution at source, monitoring and reporting of environmental quality.

Based on annual production volumes, the mine has been determined to be a 'scheduled activity' under Schedule 1 of the POEO Act which requires site operations to be the subject of an environmental protection licence (EPL No. 944).

The EPL is issued for the scheduled activities of cement or lime works and mining for minerals. The EPL will be varied in accordance with the consent prior to the commencement of operations under the consent.

2.4.5 NSW Water Management Act 2000

The NSW *Water Act 1912* (Water Act) and NSW *Water Management Act* 2000 (WM Act) regulate the management of water by granting licences, approvals for taking and using water, and trading groundwater and surface water. The WM Act applies to those areas where a water sharing plan has commenced. Alternatively, if a water sharing plan has not yet commenced, the Water Act applies. The WM Act is progressively replacing the Water Act as relevant water sharing plans are introduced across the State.

Water sharing plans (WSPs) have commenced for most of NSW. Licensing of monitoring bores continues under the Water Act until a regulation for aquifer interference gives a mechanism to approve these activities. Licensing of reinjection into groundwater systems is also still currently managed under the Water Act.

Surface water

The project is in the area of the Greater Metropolitan Region Unregulated Area WSP and the following three surface water sources within the WSP:

- Bungonia Creek Management Zone (commenced July 2011);
- Barbers Creek Management Zone (commenced July 2011); and
- Shoalhaven River Gorge Management Zone (commenced July 2011).

Boral's existing entitlements in these WALs are summarised in Table 2.2. Total water entitlements in the management zones and their access rules are summarised in Table 2.2.

Table 2.2 Surface water entitlements and access rules

WAL No	Works Approval	Water Source	Management Zone	Entitlement (ML)
Unregulated River				
WAL25207	10WA102352	Shoalhaven River Water Source	Barbers Creek Management Zone	76
WAL25373	10WA102377	Shoalhaven River Water Source	Barbers Creek Management Zone	10
Total Unregulated River				86
Domestic and stock				
WAL25352	10WA102352	Shoalhaven River Water Source	Barbers Creek Management Zone	1
Aquifer				
WAL24697	10WA116141 and 10WA116142	Goulburn Fractured Rock Groundwater Source		12
WAL41976		Goulburn Fractured Rock Groundwater Source		838
Total Aquifer				850

The proposed Marulan Creek dam will be in the Barbers Creek Management Zone. The surface water assessment identified a total annual surface water entitlement of up to 183 ML/year would be required. As summarised in Table 2.2, water licence trading is permitted in the Barbers Creek Management Zone, and sufficient surface water entitlements exist for the Marulan Creek dam.

Prior to construction of the Marulan Creek Dam, Boral would seek to acquire additional entitlements in the Barbers Creek Management Zone to account for water extracted from the dam.

Groundwater

Groundwater in the Project site is managed under the Goulburn Fractured Rock Groundwater Source zone of the 2011 Greater Metropolitan Region Groundwater Sources Water Sharing Plan (the plan).

Groundwater extraction requires an authorisation under the plan via a water access licence or some form of exemption. Boral holds entitlement to extract 12 ML/year (WAL24697) from two bores (10WA116142) for water supply on site. Boral also owns groundwater Water Access Licence 41976 for 838 ML, which was issued in September 2017.

2.4.6 State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 (Drinking Water SEPP) aims to provide for healthy water catchments that will deliver high quality water while permitting development that is compatible with that goal.

The mine is in Sydney's drinking water catchment. Under clause 10 of the SEPP, a consent authority must not grant consent to the carrying out of development on land in the Sydney drinking water catchment unless it is satisfied that the carrying out of the proposed development would have a neutral or beneficial effect on water quality.

It is considered that the Project can be managed to provide at least a neutral effect on water quality in the Shoalhaven River catchment

2.4.7 NSW *Biodiversity Conservation Act 2016*

The NSW *Biodiversity Conservation Act 2016* (BC Act) replaced the *NSW Threatened Species Conservation Act 1995*, *NSW Native Vegetation Act 2003* and the flora and fauna provisions of the NP&W Act.

As the Project is SSD, it is required to consider biodiversity impacts in accordance with the Biodiversity Offset Scheme of the BC Act, that requires impacts to first be avoided and then mitigated before being offset in accordance with the scheme. The preliminary biodiversity offset strategy is summarised below

The ecosystem credits required to offset vegetation and habitat impacts are summarised in Table 2.3.

Table 2.3 Ecosystem credit requirements

PCT	Required credits
PCT 1334 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands (SR670)	1,038
PCT 778 Coast Grey Box – stringybark dry woodland on slopes of the Shoalhaven Gorges -Southern Sydney Basin (SR534)	885
PCT 1150 - Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion (SR624)	260
731 - Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion (SR524)	325

PCT 1334 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands (SR670) - Non-EEC water dependent	0
Total	**1,470**

The species credits required to offset impacts on threatened fauna and flora are summarised in Table 2.4.

Table 2.4 Species credit requirements

Species credit species	Required credits
Solanum celatum	2
Koala	2,454
Large-eared Pied Bat	3,836

As required by the SEARs, a biodiversity offset strategy has been prepared for the Project. Boral has investigated offsetting opportunities in the Bungonia subregion and adjacent subregions and has purchased a 1,000 ha property and a 360 ha property in the Bungonia subregion for this purpose. The details of the properties have been withheld for confidentiality reasons.

The biodiversity values identified on the properties satisfy the following liabilities:

- PCT 778 Coast Grey Box stringybark dry woodland on slopes of the Shoalhaven Gorges - Southern Sydney Basin (SR534);
- PCT 1334 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands (SR670) and subsequent EPBC listed White Box Yellow Box Blakely's Red Gum Grassy Woodland;
- the EPBC Act offset requirement for the Koala and Large-eared Pied Bat; and
- partially satisfy the Koala and Large-eared Pied Bat BC Act offset liability.

The properties have been surveyed by Niche Environment and Heritage Pty Ltd and biodiversity credits have been calculated.

The remaining BC Act credit liability will be paid into the BCT Fund.

2.4.8 NSW *Contaminated Land Management Act 1997*

The phase 1 and 2 environmental assessment of the mine concluded there is no duty to report contamination to the EPA under Section 60 of the NSW *Contaminated Land Management Act 1997* (CLM Act).

If previously unidentified contamination is identified during construction or operation of the Project, additional assessment will be undertaken, and depending on the conclusions of the assessment, the contaminated area may be required to be notified to the EPA under Section 60 the CLM Act, and potentially remediated if required by the regulatory authority.

2.4.9 Other statutory requirements

Other Statutory instruments to which operations require compliance management are:

- NSW *Dangerous Goods (Road and Rail Transport) Act 2008*.
- NSW *Local Government Act 1993*.
- NSW *Work Health and Safety (Mines and Petroleum Sites) Act 2013*.
- NSW *Mining Act 1992*.
- NSW *Pesticides Act 1999*.

- NSW *Biosecurity Act 2015*.
- NSW *Soil Conservation Act 1938.*
- NSW *Roads Act 1993.*
- NSW *Work Health and Safety Act 2011.*

2.5 Objectives, targets and improvement programs

As part of a continual improvement process under key Boral document: GRP-HSEQ-1-05 Objectives, Targets and Improvement Plans, the environmental performance of every Boral site is measured with respect to progress and achievements on objectives, targets and program milestones.

A number of objectives and associated performance criteria has been developed for the mine and are outlined in the management plans.

3 IMPLEMENTATION AND MAINTENANCE

The implementation of the EMS will be the responsibility of a number of key internal stakeholders to ensure there is an appropriate level of resources, training and engagement in meeting the objectives outlined in Section 1.4.

3.1 Roles and responsibilities

This section will be implemented with reference to key Boral document: *GRP-HSEQ-MP-2-01 Organisational Roles, Responsibilities and Resources.*

Overall responsibility for environmental management and performance of the mine is placed on the site manager. The site manager will be accountable for ensuring appropriate resources and training is made available to achieve compliance with the consent, relevant legislation, and implement and maintain the EMS to minimise on-site and near-site environmental impacts associated with the mine.

An environmental coordinator will be based at the mine to coordinate the implementation of the CoC together with EMS implementation and management. The environmental coordinator will:

- be responsible for environmental controls being employed during operations, responding to environmental incidents that occur on site, and coordinating resources to resolve them.
- be responsible for carrying out and/or coordinating the monitoring and reporting requirements of this EMS.
- take the lead and be the primary contact with government agencies and community relations as well as site environmental training.
- toolbox employees daily on aspects of the operation that might have specific environmental impacts on that day.

Mine employees will be responsible for good housekeeping and maintaining the areas in which they work. This includes alerting the environmental coordinator to adverse environmental impacts as a result of mine operations and responding to incidents such as spills and repairing environmental controls.

3.2 Environmental training and awareness

This section will be implemented with reference to key Boral document: *GRP-HSEQ-MP-1-06 Training, Competency and Awareness.*

Environmental training and awareness is undertaken in a number of ways.

All employees and contractors working on site are required to be inducted to site annually, which covers both the safety and environmental requirements of the site.

Site specific environmental training occurs in relation to standard operating procedures or safe work method statements where environmental management is required.

Training will be given to all employees relative to the specific conditions stipulated in the consent.

Environmental awareness occurs through regular onsite briefing notes, displays and updates on the internal visual monitors.

The on-site environmental coordinator identifies training needs and provides periodic site-specific environmental awareness training and induction sessions to employees and contractors, as needed.

The mine production manager, technical manager and environmental coordinator provide environmental information through the regular toolbox talks.

Boral environmental alerts, which provide outcomes and learnings of industry sector issues are frequently posted on bulletin boards and become the topic of toolbox-talk sessions.

In accordance with the HSEQMS and corporate divisional requirements a regular report on environmental compliance and performance is prepared by the site environmental coordinator. The report is presented to the mine management team for review and action where necessary.

The Boral state and group environmental advisors are also provided with a regular overview of any significant matters which may be escalated to Board level.

3.3 Stakeholder communication and engagement

This section will be implemented with reference to key Boral document: *GRP-HSEQ-MP-1-05 Communication and Consultation.*

A key commitment in the Boral Environment Policy (Appendix A) is that all operations will be undertaken through open and constructive relationships with local communities and government agencies.

In support of the policy, the HSEQ Management System requires that “All Site/Operation Managers have a responsibility to communicate on a range of topics including site performance to ensure employee, community and other stakeholder involvement and engagement in our HSEQ Management System strategies and to meet legislative requirements”.

3.3.1 Government agencies

As with all of Boral NSW operations, open and frequent dialogue will be maintained with DPHI and other government agencies including the resources regulator.

Regulatory authorities such as NSW EPA and DPHI will be informed of key operational activities in addition to the annual reporting required through annual returns, annual reviews and website publishing of environmental monitoring data.

3.3.2 Community

The mine has actively engaged with the local community throughout its life. Ongoing communication and engagement with the community will include:

- Representation on the community consultation committee (CCC) – see below.
- Membership of the Marulan Chamber of Commerce.
- Regular publishing of community newsletters.
- Active participation in local community events.
- Facilitation of site inspections and one on one consultation.
- Active engagement with key regulators, government and non-government organisations.
- Maintenance of an environmental and community complaints line and register.
- Actively managing and resolving community issues as they arise.

The site manager and environmental coordinator will be available to respond to any stakeholder enquiry or complaint. Signage at the mine entrance provides relevant contact details for general enquiries and environmental complaints.

Members of the public are also invited by appointment to inspect the mine and operations.

Copies of all approvals, management plans, licences, strategies, procedures, monitoring, complaints, and annual regulatory reports are all readily available on-site and on Boral's website should copies be required.

A stakeholder engagement plan, available on the website, outlines Boral's commitment to events and involvement in the community.

Community consultative committee

As required by CoC A24, a CCC will be established prior to commencement of development under the consent. The CCC will be established in accordance with DPHI's (2019) *Community Consultative Committee Guidelines: State Significant Projects*. The CCC will continue to operate during the life of the development, or other timeframe agreed by the Planning Secretary.

In accordance with CoC A25, the mine and adjoining Peppertree Quarry will form a combined CCC.

3.3.3 Access to information

Boral will, during the life of the mine, operate a phone line for general inquiries, complaints and concerns. This line will also be used as the blasting hotline.

Information regarding the environmental performance of the operations can be requested and sent to the caller by email, fax or mail.

In recognition of Part D Condition D17 of the consent, copies of all documentation required by the consent will be made available on the company website www.boral.com.au/locations/boral-marulan-south-operations.

3.3.4 Community complaints

Complaints about the environmental performance of the mine will be received through a complaint phone line which will be posted on the mine's website and regular newsletters. Complaints will also be received via the website and sent to the environmental coordinator and site manager. Initial contact with a complainant will be made within 24 hours (or as soon as is reasonably practical) of the complaint being received by the environmental coordinator or site manager.

The environmental coordinator will record each complaint in the sites complaint register and follow internal reporting processes through line management. The complainant will also be followed up to communicate what measures were put in place to deal with the complaint and prevent a recurrence.

The details of each complaint will be recorded including the:

- Date and time of the complaint.
- Method by which the complaint was made.
- Personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect.
- Nature of the complaint.
- Action taken by Boral in relation to the complaint, including any follow-up contact with the complainant; and if no action was taken, the reasons why no action was taken.

A summary of the complaints received will be tabled at each CCC meeting, placed on the website and included in the annual review.

3.3.5 Dispute resolution

If an environmental complaint or other matter of concern associated with the mine is unable to be satisfactorily resolved, a meeting with the senior operations, environmental and business managers will be convened.

The meeting will assess whether all practical actions have been taken to resolve the matter. All relevant stakeholders will be advised in writing of the meeting outcomes and on any further actions able to be taken to resolve the matter.

Boral will always endeavour to resolve disputes with neighbours and members of the local community without the need for third party intervention. However, if a matter cannot be resolved directly with Boral, landowners can refer the matter to the Planning Secretary for resolution. The decision made by the Planning Secretary once this process is followed, will be final.

3.4 Document control

This section will be implemented with reference to key Boral document: *GRP-HSEQ-MP-2-04 Document Control and Records Management.*

The site manager, technical manager and environmental coordinator will have the joint responsibility of managing the EMS in accordance with the HSEQ MS Document Control Standard. All referenced documentation will be kept on-site and will be made readily available to anyone requesting a copy.

Revised versions of the EMS will be communicated to relevant internal and external stakeholders with all obsolete versions kept on-site to be destroyed.

3.5 Operational control

Documentation in relation to operations includes but is not limited to management plans, standard operating procedures, safe work method statements and checklists.

The Boral HSEQ system has several documents which outline the minimal operating requirements for environment management.

These Boral HSEQ standards include:

- *GRP-HSEQ-8-02 Water Management.*
- *GRP-HSEQ-8-03 Land Management.*
- *GRP-HSEQ-8-04 Waste Management.*
- *GRP-HSEQ-8-05 Noise Management.*
- *GRP-HSEQ-8-06 Air Quality Management.*
- *GRP-HSEQ-8-07 Spill Management.*
- *GRP-HSEQ-8-08 Ecosystems and Biodiversity Conservation Management.*
- *GRP-HSEQ-8-09 Culture and Heritage Protection Management.*

The operational standards are incorporated in the corresponding environmental management sub-plans, which are in the appendices of this EMS and incorporate the environmental management measures to which Boral committed in the EIS and response to submissions report and to comply with the consent.

3.6 Emergency response and preparedness

This section will be implemented with reference to key Boral document: *GRP-HSEQ-MP-3-03 Emergency Preparedness and Response*.

As part of the EMS, an emergency response procedure is in place to address emergencies that occur on site. Potential environmental emergencies have been identified along with associated risks and control measures to be implemented. All site employees, contractors and visitors will be educated on the emergency response procedure during the site induction.

Key emergency controllers will be trained in their specific role, and emergency drills will be carried out at least once per year.

As a means of preventing potential incidents and emergency situations, environmental hazard reporting will be promoted and encouraged amongst the workforce. Identified hazards will be entered into the incident reporting database with agreed controls and timeframes for completion and signed off by a site supervisor.

A more specific pollution incident response management plan (PIRMP) will be implemented at the mine and will include (Appendix 0):

- Identifying and risk assessing the likelihood of hazards.
- Actions for preventing and responding to incidents.
- A site-specific inventory of all potential pollutants.
- Equipment to be used in an incident response.
- A plan to minimise environmental and human harm by the implementation of actions to be taken during or immediately after a pollution incident.
- Consideration of how an incident may impact neighbours.
- Communicating an incident to authorities and neighbours.
- Staff training on their roles and responsibilities under the PIRMP.
- Annual testing and review of the PIRMP.

The environmental coordinator ensures all employees and contractors with direct responsibilities associated with the PIRMP have a clear understanding of their roles and responsibilities by conducting periodic training and simulated incident drills. The PIRMP is reviewed at least once every 12-months.

4 CHECKING AND REVIEW

The effectiveness in the implementation of the EMS is assessed through environmental performance monitoring and periodic audit assessments of regulatory compliance.

4.1 Monitoring program

This section will be implemented with reference to key Boral document: *GRP-HSEQ-MP-4-01 Monitoring and Review.*

An environmental monitoring program has been prepared that consolidates the statutory compliance requirements with development consent and EPL monitoring conditions. The site-based environmental coordinator has the responsibility to ensure all monitoring and reporting is completed in accordance with statuary requirements and EMS objectives. Monitoring is summarised below.

Results from the monitoring will be reported monthly to the management team, on a regular basis to the CCC and placed on the website as part of the EPL requirements.

4.1.1 Air quality

Stack testing

Emissions from the kiln stack and lime hydration plant stack will be tested annually. The kiln stack is to be sampled for nitrogen oxides and solid particles and the lime hydration plant stack is to be sampled for solid particles. In addition, discharge parameters including diameter, volumetric flow rate, velocity and temperature are to be measured.

Meteorology

The site operates a 10 m tall automatic weather station to assist with the environmental management of site operations (Figure 4.1). The on-site weather station continuously measures the parameters in Table 4.1. The weather station is to be relocated in the future to a suitable position west of the current location due to the progression of the Project and the establishment of the WOE.

Table 4.1 Meteorological monitoring

Parameter	Unit of measure	Sampling frequency	Averaging period
Temperature	°C	Continuous	1-hour
Relative humidity	%	Continuous	1-hour
Wind speed	m/s	Continuous	15-minute
Wind direction	Degrees	Continuous	15-minute
Standard deviation of wind direction	Degrees	Continuous	15-minute
Rainfall	mm	Continuous	15-minute

Ambient air quality

The air quality monitors operated as part of the mine air quality monitoring network include three high volume air samplers (HVAS) measuring either TSP, PM_{10} and $PM_{2.5}$ and are shared with the Peppertree Quarry. In addition to this the mine also operates three dust deposition gauges.

The monitors are located as summarised in Table 4.2 and shown on Figure 4.2.

Table 4.2 Ambient air quality monitoring

Monitoring site ID	Type	Averaging period	Sampling period
Limestone Mine			
Sub Station	Dust Gauge	1-month	30 +/- 2 days
Freddie's Hill	Dust Gauge	1-month	30 +/- 2 days
Store Paddock	Dust Gauge	1-month	30 +/- 2 days
RT Dust 2	Real-time dust	10-minute	Continuous
Shared Limestone Mine and Peppertree Quarry			
HVAS – $PM_{2.5}$	HVAS – $PM_{2.5}$	24-hour	Every six days
HVAS – PM_{10}	HVAS - PM_{10}	24-hour	Every six days
HVAS - TSP	HVAS - TSP	24-hour	Every six days
Peppertree Quarry			
D1	Dust Gauge	1-month	30 +/- 2 days
D2	Dust Gauge	1-month	30 +/- 2 days
D3	Dust Gauge	1-month	30 +/- 2 days
RT Dust 1	Real-time dust	10-minute	Continuous

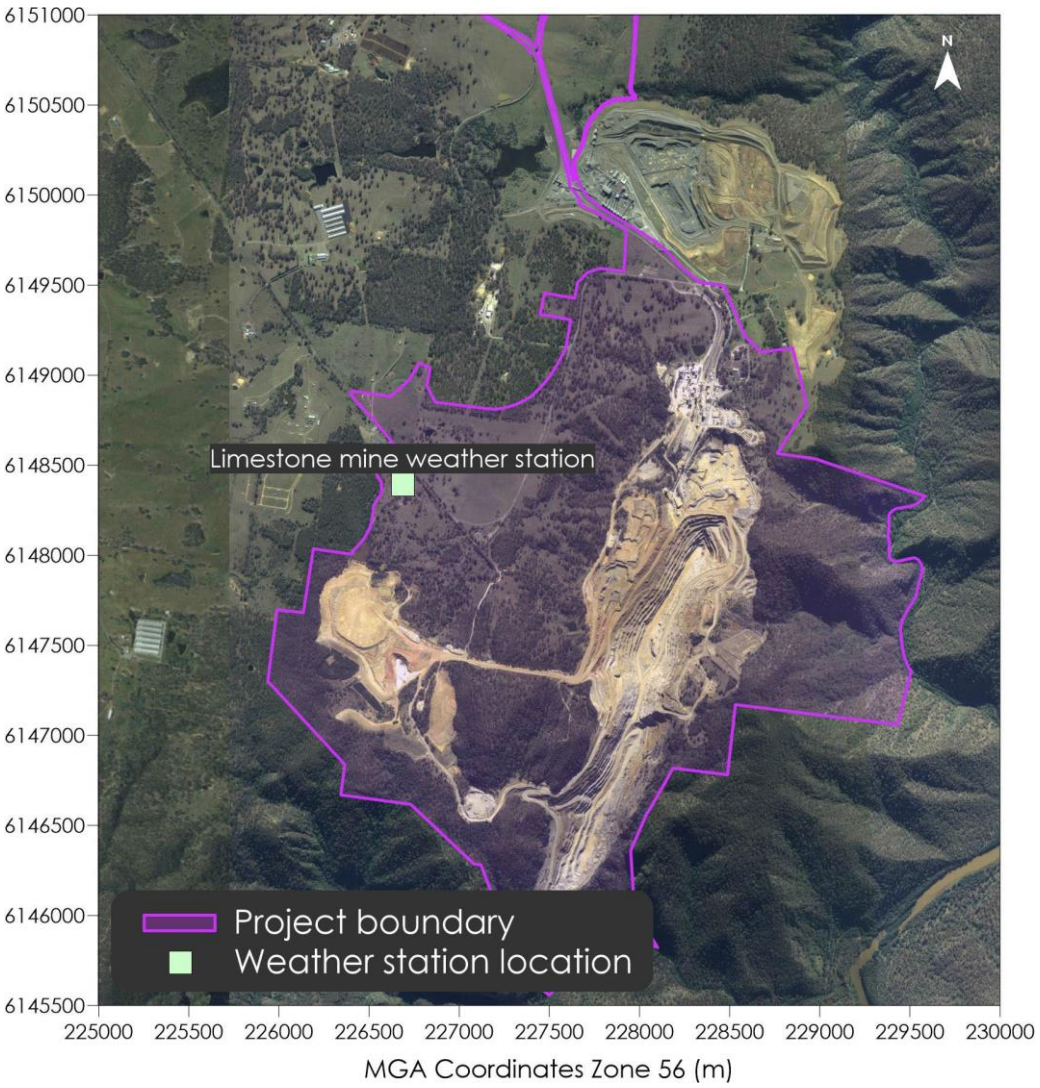


Figure 4.1 On-site weather station location

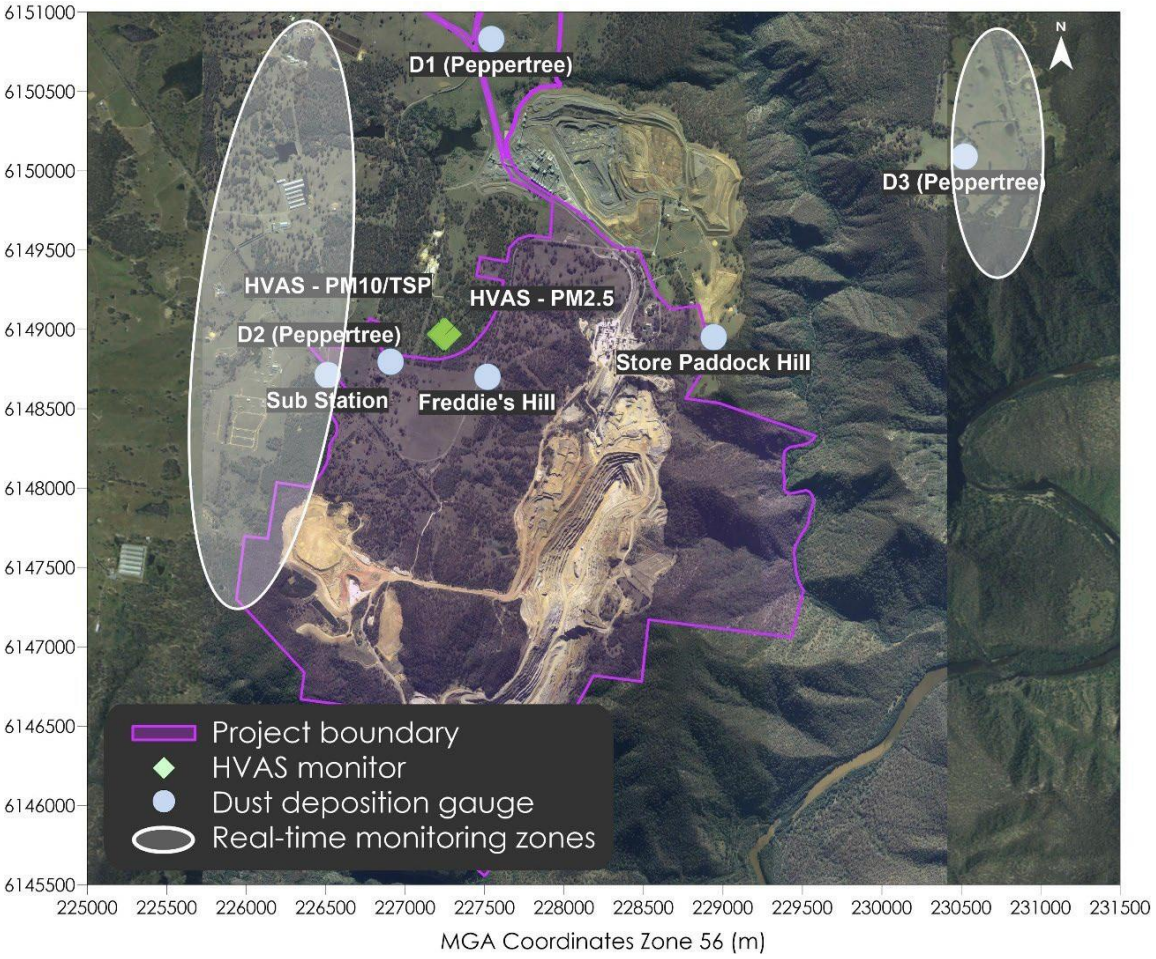


Figure 4.2 Ambient air quality monitoring network

4.1.2 Biodiversity

Biodiversity monitoring will be undertaken to:

- assess the effectiveness of the management measures presented in chapters 4 and 5 of Appendix H;
- assess progress against the performance indicators presented in Chapter 6 of Appendix H; and
- identify improvements that could be implemented to improve biodiversity outcomes.

Monitoring methods relevant to remnant vegetation are provided in Chapter 7 of Appendix H. The monitoring methods relevant to rehabilitation areas are provided in the rehabilitation strategy and currently include the use of ecosystem function analysis methodology.

4.1.3 Blasting

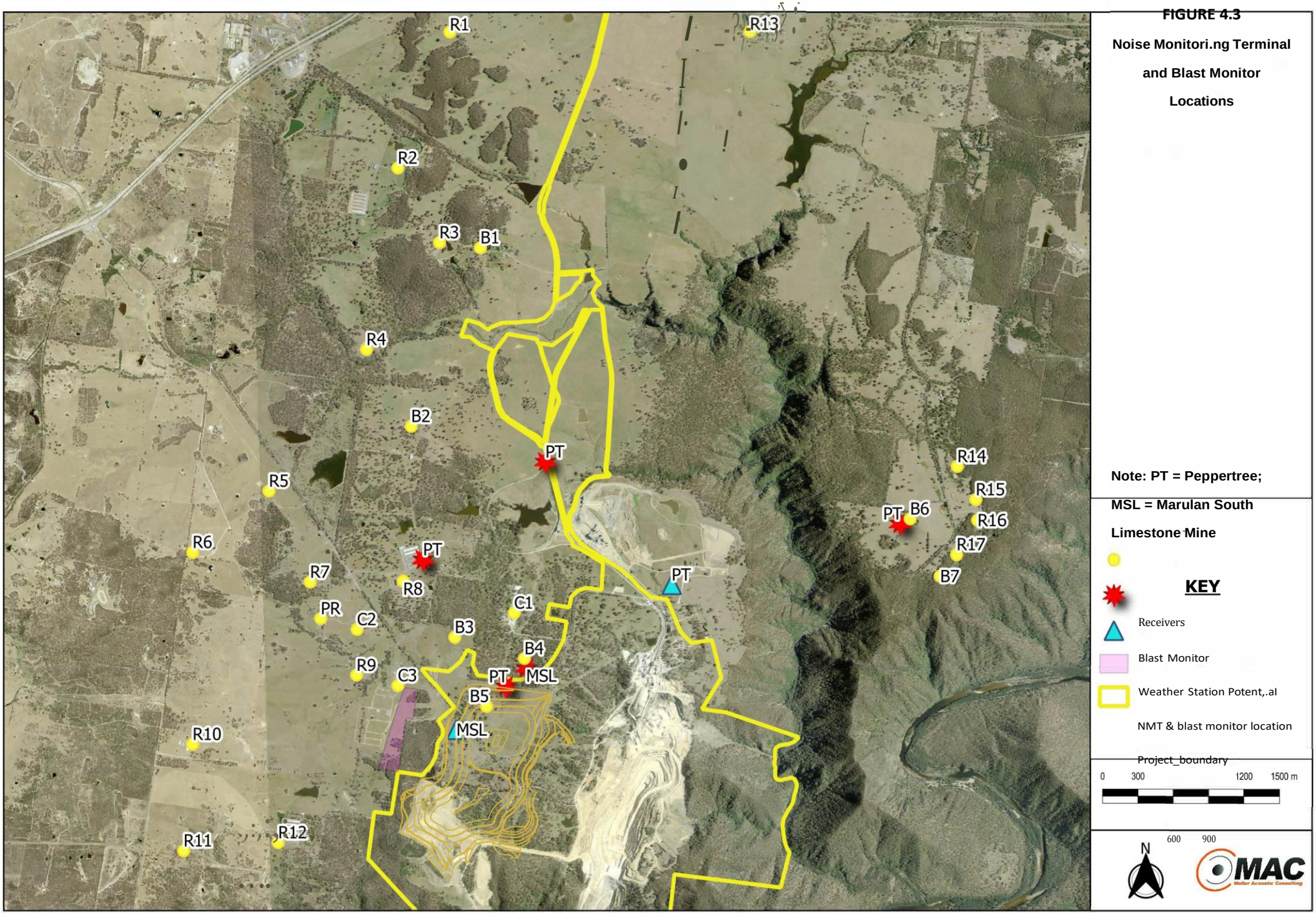
All blasts at the mine are monitored. Currently the mine has a blast monitor located near the mine managers residence, situated to the west of Marulan South Road (refer to Figure 4.3). An additional blast monitor will be installed to the north west of the mine.

In addition to the two mine specific blast monitors, additional monitoring from the Peppertree Quarry blast monitoring system is also available. This system measures blasts at five locations which are described in Table 4.3 and shown in Figure 4.3.

The blast monitoring system for the mine is proposed to be like the Peppertree Quarry blast monitoring system which comprises remote monitors that are in continuous operation with results being able to be reviewed online through a restricted access website.

Table 4.3 Blast monitoring locations

Monitoring Station	Entry Address	Station Description	Managed by
Blast Monitor	Marulan South Road	Adjacent to limestone mine managers house	Marulan South Limestone
B1	Long Point Road 1.8km from closest blast	Residence on opposite side of Barbers Creek gorge	Peppertree Quarry
B2	Rail Line 970m from closest blast	At the points to the north of the site	Peppertree Quarry
B3	Gas Pipeline 680m from closest blast	Adjacent to ramp up to the TLO	Peppertree Quarry
B4	643 Marulan South Road 1.6km from closest blast	Limestone mine managers house	Peppertree Quarry
B5	Turkey Farm 950m from closest blast	Adjacent to high voltage corridor and boundary fence	Peppertree Quarry


R1
R13
R2
R3
B1
R4
B2
PT
R5
R14
R15
PT
B6
R16
R6
PT
R17
R7
PT
B7
R8
C1
PR
C2
B3
B4
R9
C3
PT
MSL
B5
MSL
R10
R11
R12
FIGURE 4.3
Noise Monitori.ng Terminal and Blast Monitor Locations
Note: PT = Peppertree; MSL = Marulan South Limestone Mine
KEY
Receivers
Blast Monitor
Weather Station Potent,.al
NMT & blast monitor location
Project_boundary
0 300 600 900 1200 1500 m
N
MAC

4.1.4 Noise

Noise monitoring will comprise the following components:

- a permanent real time noise monitoring terminal (NMT) capable of facilitating adaptive management of noise within the mine;
- an operator attended monitoring program capable of determining compliance with the noise criteria; and
- a permanent real-time meteorological monitoring program capable of detecting and forecasting noise enhancing meteorological conditions.

The NMT will be installed at a location between the potentially most affected receiver identified in the EIS (R9) and the WOE as shown in Figure 4.3. Operator attended noise monitoring will be undertaken by an independent, suitably qualified acoustic consultant. Operator attended noise monitoring shall be conducted at suitable publicly accessible locations representative of receivers R6, R8, R9, R12 and R17.

Operator attended noise monitoring will be on a quarterly basis as a minimum. Monitoring will be undertaken during the daytime, evening and night time at each of the nominated representative receiver locations.

A summary of the unattended/permanent and operator attended noise monitoring locations is provided in Table 4.4.

Table 4.4 Noise monitoring locations

ID	Description	Type of Monitoring	Frequency of Monitoring	Criteria dB $L_{Aeq(15min)}$			Criteria dB $L_{AF(max)}$
				Day	**Evening**	**Night**	**Night**
NMT	Noise Monitoring Terminal	Unattended	Continuous	451	411	411	571
R6	Residential Receiver	Operator attended	Quarterly	40	35	35	52
R8	Residential Receiver	Operator attended	Quarterly	40	35	35	52
R9	Residential Receiver	Operator attended	Quarterly	40	36	36	52
R12	Residential Receiver	Operator attended	Quarterly	40	35	35	52
R17	Residential Receiver	Operator attended	Quarterly	40	35	35	52

4.1.5 Rehabilitation

Boral has currently adopted the ecosystem function analysis (EFA) monitoring methodology to assess rehabilitation progress. EFA is a transect-based monitoring method that measures for:

- landscape function analysis;
- vegetation dynamics;
- habitat complexity; and
- disturbance.

EFA involves the periodic measurement of landscape and vegetation parameters along transects established in rehabilitated areas. The data collected is converted into indices for comparison

against measurements made at nearby analogue (or reference) sites established in undisturbed target communities. Repeated EFA measurements should demonstrate development of rehabilitation towards rehabilitation completion criteria over time.

The domain rehabilitation objectives and completion criteria are in Table 6.1 of Appendix M.

4.1.6 Traffic and transport

Boral records all loads of product that depart the site via train and truck on the site road and rail weighbridge systems. The programs on the weighbridges record the following:

- Product code and description.
- Dispatch time and date.
- Quantity in tonnes.
- Customer.
- Mode of transport.

An annual summary of these records (product description, quantity in tonnes and modes of transport) will be included in the Annual Review.

Product dispatches will be monitored to prevent an exceedance of the hourly and daily limits prescribed in the consent.

4.1.7 Water quality

Ambient water quality

The ambient water quality parameters in Table 4.5 will be monitored at the sites in

Table 4.6 and Figure 4.4. Monitoring may cease in Barbers Creek and the Shoalhaven River once the NOE and WOE and all externally draining sections of the SOE are completed and rehabilitation has been established. However, ongoing quarterly monitoring will continue in Main Gully and Bungonia Creek for the duration of the Project.

Table 4.5 Ambient water quality monitoring parameters

Parameter		
pH	Sodium Adsorption Ratio	Electrical Conductivity @ 25°C
Total Dissolved Solids	Suspended Solids	Total hardness as $CaCO_3$
Bromide	Hydroxide Alkalinity as $CaCO_3$	Carbonate Alkalinity as $CaCO_3$
Bicarbonate Alkalinity as $CaCO_3$	Total Alkalinity as $CaCO_3$	Sulphate as SO_4
Chloride	Calcium	Magnesium
Sodium	Potassium	Fluoride
Arsenic (dissolved & total)	Aluminium (dissolved & total)	Barium (dissolved & total)
Copper (dissolved & total)	Iron (dissolved & total)	Lead (dissolved & total)
Manganese (dissolved & total)	Molybdenum (dissolved & total)	Nickel (dissolved & total)
Strontium (dissolved & total)	Zinc (dissolved & total)	Silicon as SiO_2
Nitrate + Nitrate as N	Total Kjeldahl Nitrogen as N	Total Nitrogen as N
Total Phosphorus as P		
Total Anions	Total Cations	Ionic Balance
Total Organic Carbon	Dissolved Oxygen	Biochemical Oxygen Demand

Table 4.6 Ambient water quality monitoring sites

Site	Description	Easting	Northing	Frequency
U1	Tangarang Creek upstream of Dam 1	226950	6149970	Quarterly
T1	Tangarang Creek downstream of Dam 1	228730	6150550	Quarterly
Marulan Up	Marulan Creek upstream of track crossing	225825	6151504	Quarterly
Marulan Down	Marulan Creek downstream of track crossing	228002	6151977	Quarterly
Barbers Up	Barbers Creek upstream	229518	6148416	Quarterly
Barbers Dn	Barbers Creek downstream	229542	6147306	Quarterly
Bungonia Up	Bungonia Creek upstream of mine	227294	6145485	Quarterly
Bungonia Dn	Bungonia Creek downstream of mine	228445	6145589	Quarterly
SR1	Shoalhaven River site 1	229183	6145620	Quarterly
SR2	Shoalhaven River site 2	229940	6146335	Quarterly
SR3	Shoalhaven River site 3	231172	6146891	Quarterly

Discharge

Excess runoff collected in sediment basins may be discharged from the locations detailed in Table 4.7. The following parameters will be monitored:

- Oil and grease
- pH
- Total Suspended Solids
- Turbidity

Table 4.7 Discharge monitoring

Receiving Water	Discharge Structure	Proposed Monitoring	Easting	Northing
Main Gully	Sediment Basin S2	Daily samples collected at the automated water sampler downstream of S2 during any discharge offsite	227325	6146075
North-eastern tributary of Tangarang Creek	Sediment Basin N2	Daily samples collected during any discharge offsite	227420	6149425
Eastern tributary of Tangarang Creek	Sediment Basin W1	Daily samples collected during any discharge offsite	226700	6148850

Water balance

Following the construction of the mine water dams, elevation-storage curves will be determined by “as constructed” survey and staff gauges will be installed within the reservoir to allow for the monitoring of water levels. The estimated location of the staff gauges is detailed in Table 4.8 and will be updated following installation.

Table 4.8 Water storage monitoring

Dam	Description	Easting	Northing
Kiln Dam	Expansion of the Kiln Dam as part of the NOE	228255	6149110
Eastern Gully Dam	New dam to be constructed to the east of the processing facility	228830	6148950
Central Dam	New dam constructed as part of the expansion of the WOE	227185	6147610
Main Mine Dam 2	Existing water supply dam	227360	6147600

Key water transfer and use (processing and dust suppression) will be monitored by the flowmeters summarised in Table 4.9. Monthly and total flow will be recorded at least monthly.

Table 4.9 Flowmeter locations

Flowmeter ID	Description	Easting	Northing
TBA	Tallong Weir to Marulan pipeline	228515	6149125
TBA	Eastern Gully Dam supply pipeline	228745	6148945
TBA	Kiln Dam supply pipeline	228500	6149100
TBA	Central Dam dust suppression supply	227080	6147500
TBA	North Pit Sump dust suppression supply	228150	6148250
TBA	Processing Plant Supply	228515	6149125
TBA	Sediment Basin N1 to Kiln Dam	228225	6149250
TBA	Sediment Basin N2 to Kiln Dam	227500	6149430
TBA	Sediment Basin W1 to Central Dam	226715	6148685
TBA	Sediment Basin W2 to Central Dam	226575	6147280

Stream and riparian health

Inspections will be conducted quarterly of Marulan, Barbers and Bungonia Creek to assess any potential changes in the stream or vegetation health. The inspections will be carried out by the environmental coordinator and include site notes and photographs. Inspections will be conducted at the surface water quality monitoring sites:

- Marulan Up
- Marulan Dn
- Barbers Up
- Barbers Dn
- Bungonia Up
- Bungonia Dn

Channel stability will be monitored via regular photographic records, as collected as part of stream and riparian vegetation monitoring inspections.

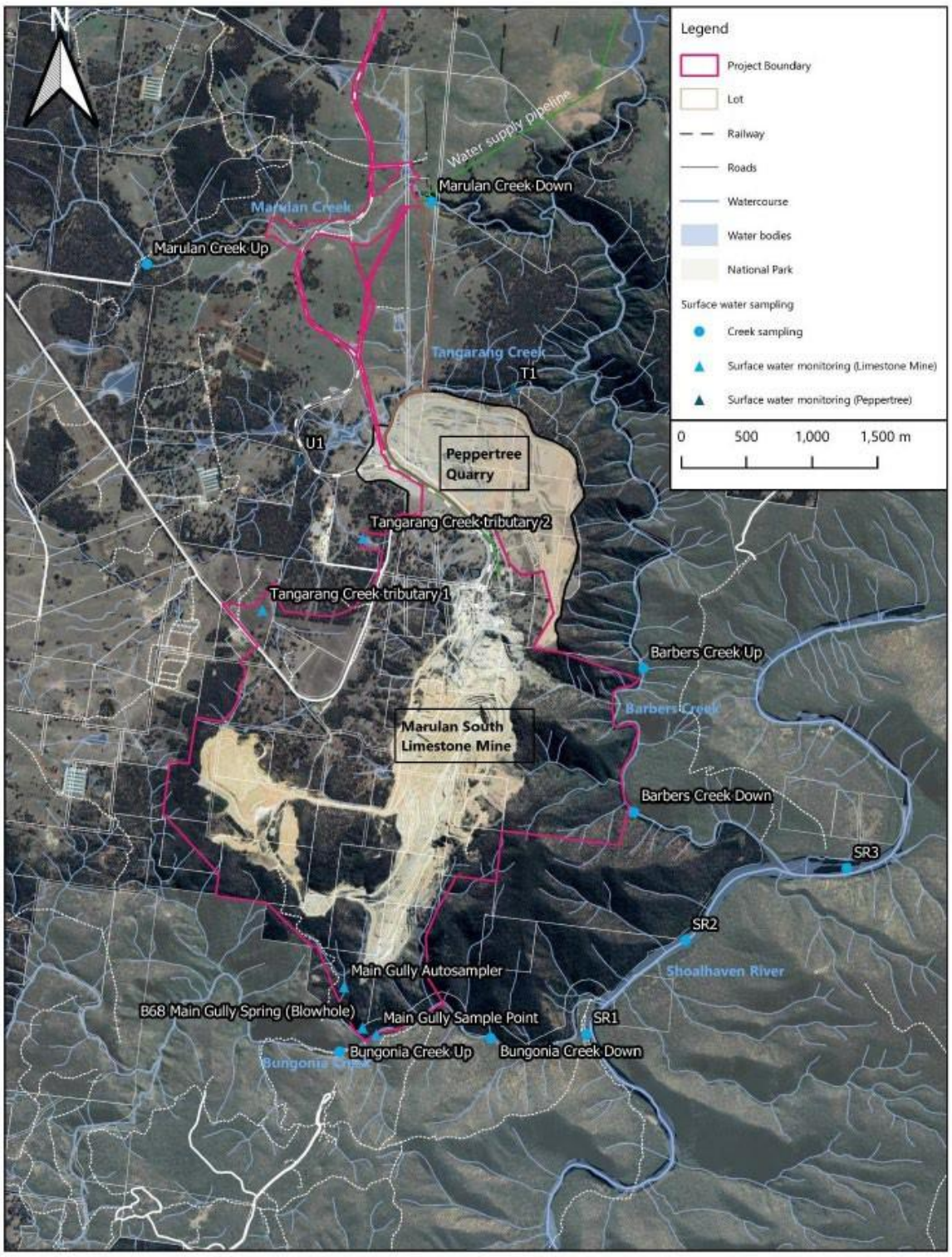


Figure 4.4 Water quality monitoring sites (Figure 3.1 of Appendix G)

4.1.8 Groundwater

Groundwater monitoring requirements are summarised below and in Table 4.10. Monitoring locations are shown on Figure 4.5.

Mine monitoring bores

Standing groundwater levels will be measured in all the mine monitoring bores with a decontaminated electronic water level meter and recorded to the top of the bore casing.

Manual level gauging and pressure logger sensor downloads will occur as part of each quarterly monitoring round. Data loggers will also be installed in the proposed monitoring bores.

The two shallow bores located along the Main Gully drainage line (MW3S and MW4S) monitor the potential interaction between groundwater and surface water associated with climatic conditions.

Groundwater users

The existing and additional monitoring bores proposed in Section 4 will monitor the regional groundwater levels and potential drawdown towards the groundwater users situated to the west and south-west of the mine.

The groundwater monitoring network will be adjusted to include any privately registered bores that may fall within the two-metre drawdown prediction on completion of model validations using the monitoring data. In addition, Boral may consider monitoring particularly concerned landholders or those in relatively close proximity and according to groundwater level trends observed in the monitoring bores.

Groundwater quality

Field measurement/observations of parameters, including pH, electrical conductivity, temperature, redox potential, colour, odour and sediment load will be recorded. The water quality analytical suite, to be analysed by a NATA accredited laboratory, includes the following parameters:

- pH, electrical conductivity and total dissolved solids (calc.);
- sodium adsorption ratio (SAR);
- total hardness;
- anions - fluoride, bromide, sulphate, chloride;
- alkalinity - hydroxide, carbonate, bicarbonate and total alkalinity;
- cations – calcium, magnesium, sodium, potassium;
- total and dissolved metals - aluminium, arsenic, beryllium, barium, cadmium, chromium, cobalt, copper, lead, manganese, molybdenum, nickel, selenium, strontium, vanadium, zinc, boron, iron;
- dissolved and total recoverable mercury;
- dissolved silica; and
- suspended solids and oil and grease (WP16 only as required by EPL944 and to be replaced by the proposed groundwater monitoring WB07).

In addition, nitrates and total nitrogen will be analysed for groundwater monitoring bores MW5 and MW8. This is to detect any diffuse contamination associated with general mining activities, such as chemicals used for rock blasting seeping into underlying groundwater.

Groundwater quality samples will be collected from the mine monitoring bores bi-annually, after the wet season (March/April) and after the dry season (August/Sept).

Project water supply and groundwater production bores

Groundwater abstraction from production bores is measured through installed flow meters. The monthly production rates will be calculated from the flow meter readings and reported in the annual review and used to inform the water balance

Table 4.10 Summary of groundwater monitoring requirements

Bore ID	East	North	Purpose	Groundwater level monitoring frequency	Groundwater quality monitoring frequency	GW level trigger value		GW Q (EC) trigger [uS/cm]		GW Q (pH) trigger		Metals	Other site specific triggers
						5th %	95th %	5th %	95th %	5th %	95th %		
Marulan South monitoring bores													
MW3S	226618	6148365	GW Level and quality	Download logger and manual dip quarterly	bi-annually	599.9	602.13	1208	1452	7.4	7.9	Three exceedances of appropriate ANZECC guidelines based on beneficial use	None
MW3D	226608	6148370	GW Level and quality	Download logger and manual dip quarterly	bi-annually	600	602.2	1096	1375	7.4	8.1		None
MW4S	226718	6147140	GW Level and quality	Download logger and manual dip quarterly	bi-annually	564.25	565.78	1490	1728	7.3	7.8		dissolved Fe [mg/l]
MW4D	226717	6147129	GW Level and quality	Download logger and manual dip quarterly	bi-annually	547.02	548.89	1076	1384	7.7	8.8		None
MW5	227826	6148352	GW Level and quality	Download logger and manual dip quarterly	bi-annually ^			765	1386	6.5	11.5		None
MW6	228482	6147186	GW Level and quality	Download logger and manual dip quarterly	bi-annually	468	468.2	1039	2315	7.1	7.9		None
MW7	227525	6147816	GW Level and quality	Download logger and manual dip quarterly	bi-annually	bore dry, no sufficient baseline data available							
WB07	228001	6148555	Water supply GW Level and quality	Download logger and manual dip quarterly	bi-annually ^^	TBC (trigger levels derived after two years of monitoring)							
MW8	227447	6146019	GW Level and quality	Download logger and manual dip quarterly	bi-annually ^								
MW9	227570	6149019	GW Level and quality	Download logger and manual dip quarterly	bi-annually								

*** Peppertree monitoring bores: groundwater level data reported on in annual report**													
PQ01S	228788	6149365	To include data in annual review and 3-year model validation										
PQ01D	228783	6149375											
PQ03	228288	6149608											
PQ04S	227607	6149951											
PQ04D	227626	6149947											
PQ05	227423	6149780											
PQ06	227796	6150247											
**** Monitoring groundwater towards private bores at Marulan South monitoring bores**													
MW3D	226608	6148370	GW Level and quality	Download logger and manual dip quarterly	bi-annually	Review groundwater level data against 5th percentile and drawdown >2m due to mine influence. Assess groundwater quality against 95th percentile and beneficial use.							
MW9	227570	6149019	GW Level and quality	Download logger and manual dip quarterly	bi-annually								
MW4D	226717	6147129	GW Level and quality	Download logger and manual dip quarterly	bi-annually								
***** Monitoring groundwater seepage as spring flow at "Blow hole" through surface water monitoring plan**													
Blowhole' Sampling Point	227432	6145617	Spring flow and water quality	Quarterly	bi-annually								
Groundwater take													
Incidental, passive, and consumptive groundwater take:						> 100 % of Water Access Licences units for each applicable water source affected by the Project							

Notes: ^ nitrates and total nitrogen will be analysed for groundwater monitoring bores MW5 and MW8. This is to detect any diffuse contamination associated with general quarrying mining activities, such as chemicals used for rock blasting, seeping into underlying groundwater.

^^ suspended solids and oil and grease (historical from WP16 only as required by EPL944 and to be replaced by the proposed groundwater monitoring WB07.

* Groundwater monitoring data from the Peppertree Quarry groundwater monitoring network will be used to evaluate groundwater levels in the annual groundwater review. This relates especially to the four monitoring bores closest to the Marulan South mine complex, namely PQ01, PQ03, PQ04 and PQ05. All Peppertree piezometers were installed into granitic bedrock that Boral quarries at Peppertree.

** The groundwater monitoring network will be adjusted to include any privately registered bores that may fall within the two-metre drawdown prediction on completion of model validations using the monitoring data from these monitoring bores.

*** Monitoring and trigger information WMP.

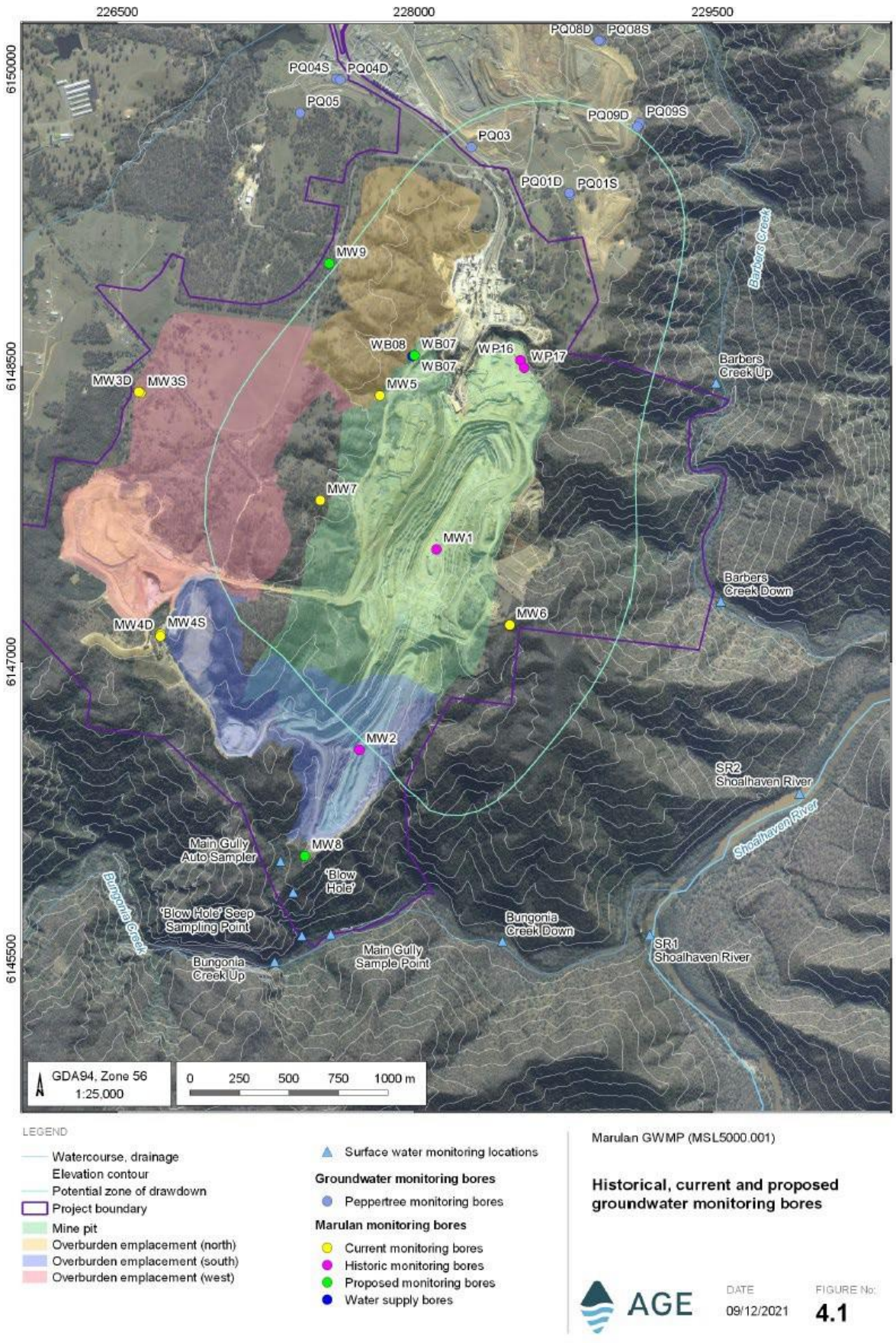


Figure 4.5 Historical, current and proposed monitoring bores (Figure 4.1 of Appendix A of Appendix G)

4.2 Cumulative impacts

Boral is committed to reducing cumulative impacts created by the collective operation of local industry including the mine, Boral's Peppertree Quarry and Aglime Fertilisers processing facility.

Effective management of cumulative impacts of noise and dust will be achieved by continuous improvement of mine practices to minimise the individual contribution of the mine. The analysis of mine monitoring programs will also be compared to those for the adjacent Peppertree Quarry to better understand what works could be undertaken in conjunction with these operations to reduce cumulative impacts. Measures taken to reduce cumulative impacts will be reported in the annual review.

4.3 Auditing and inspections

This section will be implemented with reference to key Boral document: *GRP-HSEQ-3-03 Performance Assessments and Audits.*

4.3.1 Internal audits and inspections

The mine is subject to Boral corporate and business level compliance governance programs that include the auditing of site based conformance with the HSEQ Management System and regulatory compliance requirements.

The site manager and environmental coordinator will conduct or coordinate scheduled site environmental inspections on key operational activities with findings being documented onto specific checklists.

Non-compliances identified during the audits and inspections will be reported to the relevant regulatory authorities, where required and registered onto the Boral Safety Information Management System (SIMS) from which electronic alerts are directed to senior business managers for action and tracking towards re-establishing compliance.

Alerts not actioned within specified timelines are progressively escalated through senior managers and ultimately to the CEO if corrective actions have not been appropriately implemented.

4.3.2 External audits

In accordance with Condition D13 (Part D) of the consent, an independent environmental audit will be engaged in the first year of operation then every 3 years thereafter.

Independent auditors will be suitably qualified and experienced and their appointment will be endorsed by the Planning Secretary. The audits and subsequent reporting will be in accordance with DPHI (2020) *Independent Audit – Post Approval Requirements.*

4.4 Management of non-compliances and incidents

This section will be implemented with reference to key Boral document: *GRP-HSEQ-3-02 Incident Reporting, Investigation and Action Management.*

Boral has a comprehensive incident management protocol in place for notification, investigation and reporting of actual and near miss incidents, including those associated with the environment or the community. This protocol will be implemented at the mine.

If an exceedance of the goals/limits/performance criteria in the consent is detected, or an incident causing (or threatening to cause) material harm to the environment is identified, the process outlined below will be followed.

4.4.1 Non-compliances

Non-compliances will be reported to the DPHI and EPA within seven days of becoming aware of the noncompliance, in accordance with Part D, Condition D10 of the consent.

The notification must be in writing through the Department's Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

4.4.2 Incidents

Incidents will be immediately reported to DPHI in accordance with Part D, Condition D9 of the consent. The notification will be in writing through DPHI's Major Projects Website and will identify the development (including the development application number and name) and set out the location and nature of the incident.

An incident is defined in the consent as "An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance".

Under Part 5.7A of the POEO Act, the PIRMP also requires immediate reporting of incidents. The PIRMP outlines incidents that have the potential to cause material harm and therefore the actions to prevent and manage such incidents.

The POEO Act requires:

- Identifying and risk assessing the likelihood of hazards.
- Actions for preventing and responding to incidents.
- A site specific inventory of all potential pollutants.
- Equipment to be used in an incident response.
- Plan to minimise environmental and human harm by the implementation of actions to be taken during or immediately after a pollution incident.
- Consideration of how an incident may impact neighbours.
- Immediate reporting and ongoing communication of an incident to regulatory authorities and neighbours.
- Staff training on their roles and responsibilities under the PIRMP.
- Annual testing and review of the PIRMP.

The site manager (or nominated Boral authority) has the responsibility of ensuring all PIRMP reviews, revisions, training, testing and internal and external notifications are undertaken in compliance with POEO Act requirements.

The DPHI and EPA representatives will be advised of incidents as per the detail in the PIRMP.

Boral also maintains a safety and environmental incident reporting system. Any incidents relating to air quality will be entered into this system. All logged incidents are dealt with internally and, if necessary, through a NSW regulatory authority. Following reporting, all incidents are investigated and appropriate management recommendations are implemented.

4.5 Annual review

By the end of July each year after the commencement of development, or other timeframe agreed by the Planning Secretary, a report will be submitted to DPHI in accordance with Part D, conditions D11 and D12 reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary.

4.6 Management review

The Boral HSEQ MS is reviewed on a regular basis.

This EMS is reviewed as required in response to:

- Changes to site activities or processes (including environmental controls, rehabilitation, incidents and non-compliances).
- Changes in environmental requirements through legislation, policy or best practice guidelines.
- An independent environmental audit.
- Recommendations or directives from DPHI or other regulatory authorities.
- Changes to the Boral HSEQ MS standards as part of its continual improvement objectives.

This EMS is to be reviewed in accordance with Part D, Condition D7 of the consent which requires a review within 3 months of:

a. the submission of an incident report under Condition D9;
b. the submission of an annual review under Condition D11;
c. the submission of an independent environmental review under Condition D12;
d. the approval of any modification of the conditions of this approval (unless the conditions require otherwise); or
e. notification of a change in project stage under Condition A15.

5 REFERENCES

This EMS has been prepared with consideration to:

- Boral integrated Health Safety, Environment and Quality Management System (HSEQ MS) as outlined in GRP-HSEQ-1-01 Management System Framework and Operational Control.
- ISO-14001.

APPENDIX A

Boral Environmental Policy

Environmental Policy

Version number	4	Implementation date	January 2024
Policy author	Jenny Miller	Policy approver	Vik Bansal
Functional area	Health, Safety, Environment and Quality		

At Boral, we acknowledge that the very nature of our operations means there will be impacts on the environment. We are committed to our goal of zero harm and work to eliminate adverse environmental impacts.

Where elimination is not possible, we seek to minimise any harmful effects from our operations which may mean we target better performance than environmental laws require. Wherever practicable, we will secure improved environmental outcomes.

Specifically, Boral will strive to:

- Reduce waste in all its forms, leading to:
  - efficient use of energy, including reuse of waste energy
  - conservation of water
  - minimisation and recycling of waste production materials and energy
  - prevention of pollution; and
  - effective use of virgin and recovered resources and supplemental materials.
- Reduce greenhouse gas emissions from our processes, operations and facilities, including appropriate use of alternative fuels
- Protect and where practicable enhance biodiversity values at and around our facilities.
- Openly and constructively engage with communities surrounding our operations.
- Through communication and training, encourage and assist our employees to enhance Boral's environmental performance.
- Comply with environmental legislation, regulations, standards and codes of practice relevant to the particular business, and
- Allocate sufficient resources to meet the commitments of this policy:

This policy is delivered through the implementation of Boral's integrated Health Safety Environment and Quality (HSEQ) Management System and related strategies, improvement plans and programs.

Vik Bansal
CEO & Managing Director

Policy Version History

This table documents the most recent key policy update.

No.	Definition	Comments / Key changes	Next review
4		Reviewed and no changes required.	August 2026

APPENDIX B

Development Consent (SSD 7009)

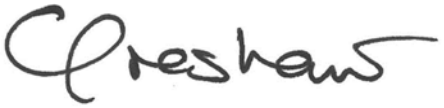
Development Consent

Section 4.36 of the Environmental Planning and Assessment Act 1979

As delegate of the Minister for Planning and Public Spaces under delegation executed on 26 April 2021, I approve the Development Application referred to in Schedule 1, subject to the conditions specified in Schedule 2.

These conditions are required to:

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



Executive Director
Energy, Resources and Industry Assessments
As delegate for the Minister for Planning and Public Spaces

Sydney 19 August 2021

SCHEDULE 1

Application Number:	SSD 7009
Applicant:	Boral Cement Limited
Consent Authority:	Minister for Planning and Public Spaces
Site:	The land defined in Appendix 1
Development:	Marulan South Limestone Mine Continued Operations Project

TABLE OF CONTENTS

DEFINITIONS

Aboriginal object	Has the same meaning as the definition of the term in section 5 of the NP&W Act
Aboriginal place	Has the same meaning as the definition of the term in section 5 of the NP&W Act
Annual Review	The review required by condition D11
Applicant	Boral Cement Limited, or any person carrying out any development under this consent
Approved disturbance area	The area identified as such on the Development Layout
ARI	Average Recurrence Interval
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016*
BCD	Biodiversity & Conservation Division within the Department
BCT	NSW Biodiversity Conservation Trust
Biodiversity Offset Strategy	The Biodiversity Offset Strategy for the development as described in the document/s listed in condition A2(c) and shown conceptually in Appendix 4
Blast misfire	The failure of one or more holes in a blast pattern to initiate
CCC	Community Consultative Committee required by condition A24
Clay/Shale	Includes both Clay/Shale and White Clay
Conditions of this consent	Conditions contained in Schedule 2
Construction	All physical works to enable mining operations to be carried out, including demolition and removal of buildings or works, and erection of buildings and other infrastructure permitted by this consent
Council	Goulburn Mulwaree Council
Date of commencement	The date notified to the Department by the Applicant under condition A17
Day	The period from 7.00 am to 6.00 pm on Monday to Saturday, and 8.00 am to 6.00 pm on Sundays and Public Holidays
Decommissioning	The deconstruction or demolition and removal of works installed as part of the development
Demolition	The deconstruction and removal of buildings, sheds and other structures on the site
Department	NSW Department of Planning, Industry and Environment
Development	The development described in the documents listed in condition A2(c), as modified by the conditions of this consent
Development Layout	The plans in Appendix 2 of this consent
DPHI Crown Lands	Crown Lands Group within the Department
DPHI Water	Water Group within the Department
CEEC	Critically endangered ecological community, as defined under the EPBC Act
EIS	The Environmental Impact Statement titled *Marulan South Limestone Mine Continued Operations State Significant Development Application Environmental Impact Statement*, prepared by Element Environment, dated March 2019, submitted with the application for consent for the development, including the Applicant's Response to Submissions and additional information provided by the Applicant dated 6 November 2019, 19 February 2020, 7 May 2020, 6 July 2020, 27 July 2020, 23 March 2021, 22 April 2021, May 2021, 18 June 2021, 6 July 2021 and 23 July 2021
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings

EPA	NSW Environment Protection Authority

DEFINITIONS

EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence under the POEO Act
Evening	The period from 6 pm to 10 pm
Feasible	Means what is possible and practical in the circumstances
Financial Year	A period of 12 months from 1 July to 30 June
Fisheries NSW	Fisheries Branch of the Primary Industries Group within the Department
Heritage NSW	Heritage Branch of the Department of Premier and Cabinet
Heritage item	An Aboriginal object, an Aboriginal place, or a place, building, work, relic, moveable object, tree or precinct of heritage significance, that is listed under any of the following: • the State Heritage Register under the *Heritage Act 1977*; • a state agency heritage and conservation register under section 170 of the *Heritage Act 1977;* • a Local Environmental Plan under the EP&A Act; • the World Heritage List; • the National Heritage List or Commonwealth Heritage List under the EPBC Act; or • anything identified as a heritage item under the conditions of this consent
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
Laden trains	Trains transporting mining or quarry products from the site
Laden trucks	Trucks transporting mining or quarry products from the site
Land	Has the same meaning as the definition of the term in section 1.4 the EP&A Act, except for where the term is used in the noise and air quality conditions in PART B of this consent where it is defined to mean 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	Is harm to the environment that: • involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or • results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment) This definition excludes "harm" that is authorised under either this consent or any other statutory approval
MEG	Mining, Exploration and Geoscience
Mine-Owned Land	Land owned by a mining, petroleum or extractive industry company (or its subsidiary or related party)
Mine closure	Decommissioning and final rehabilitation of the site following the cessation of mining operations
Mine water	Water that accumulates within, or drains from, active mining and infrastructure areas and any other areas where runoff may have come into contact with carbonaceous or saline material
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the development
Mining operations	The carrying out of mining, including the extraction, processing, stockpiling and transportation of mineral ore and extractive materials on the site and the associated removal, storage and/or emplacement of vegetation, topsoil, overburden, tailings and reject material
Mining products	Includes all saleable mining products produced at the site, but excludes tailings and other wastes and rehabilitation material
Minister	NSW Minister for Planning and Public Spaces, or delegate
Minor	Not very large, important or serious

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
Noise sensitive areas	Areas where mining operations are being carried out that have potential to lead to increased noise at privately-owned residences, such as elevated areas or areas near the boundary of the site
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
'Non-road' mobile diesel equipment	Mobile equipment used in mining operations that is fitted with a diesel engine with a capacity >30 litres and that is self-propelled or transportable and primarily designed for off- road use
NP&W Act	*National Parks and Wildlife Act 1974*
NRAR	NSW Natural Resources Access Regulator
Offset areas	Means the areas shown conceptually in Appendix 4
Peppertree Quarry	Quarrying operations permitted under MP 06_0074 or any subsequent development consent for extractive industry at the Peppertree Quarry granted by the Minister (or delegate) or the Independent Planning Commission of NSW
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	*Protection of the Environment Operations Act 1997*
Privately-owned land	Land that is not owned by a public agency or a mining, petroleum or extractive industry company (or its subsidiary or related party)
Public infrastructure	Linear and related infrastructure that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas supply, electricity, telephone, telecommunications, etc.
Quarry products	Includes all saleable quarry products produced at the Peppertree Quarry, but excludes tailings and other wastes and rehabilitation material
Reasonable	Means applying 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
Registered Aboriginal Parties	As described in the *National Parks and Wildlife Regulation 2009*
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Residence	Existing or approved dwelling at the date of grant of this consent
Resources Regulator	NSW Resources Regulator
RFS	NSW Rural Fire Service
Site	The land defined in Appendix 1
SOE	Southern Overburden Emplacement as shown in Figure 1 in Appendix 2
TfNSW	Transport for NSW
TSS	Total suspended solids
WOE	Western Overburden Emplacement as shown in Figure 1 in Appendix 2

SCHEDULE 2

PART A ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

A1. 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 if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.

TERMS OF CONSENT

A2. The development may only be carried out:

(a) in compliance with the conditions of this consent;

(b) in accordance with all written directions of the Planning Secretary;

(c) generally in accordance with the EIS; and

(d) generally in accordance with the Development Layout in Appendix 2.

A3. If there is any inconsistency between the above documents, the most recent document must prevail to the extent of the inconsistency. However, the conditions of this consent must prevail to the extent of any inconsistency.

A4. The Applicant must comply with any requirement/s of the Planning Secretary arising from the Department's assessment of:

(a) any strategies, plans or correspondence that are submitted in accordance with this consent;

(b) any reports, reviews or audits commissioned by the Department regarding compliance with this consent; and

(c) the implementation of any actions or measures contained in these documents.

LIMITS OF CONSENT

Mining operations

A5. Mining operations may be carried out on the site, within the approved disturbance area, until 31 August 2051.

Notes:

- *Under this consent, the Applicant is required to decommission and rehabilitate the site and carry out other requirements in relation to mining operations. Consequently, this consent will continue to apply in all respects other than to permit the carrying out of mining operations until the rehabilitation of the site and other requirements have been carried out to the required standard.*
- *Mining operations and rehabilitation are also regulated under the Mining Act 1992.*

Extraction and Transportation

A6. A maximum of 4 million tonnes of limestone may be extracted from the site in any financial year.

A7. A maximum of 200,000 tonnes of clay/shale may be extracted from the site in any financial year.

A8. A maximum of 4.2 million tonnes of limestone and clay/shale (combined) may be processed on the site in any financial year.

A9. A maximum of 1 million tonnes of manufactured sand may be transported to Peppertree Quarry in any financial year.

A10. A maximum of 150,000 tonnes of quarry products may be transported from Peppertree Quarry to the shared road sales stockpiling area[a] in any financial year.

[a] *The shared road sales stockpiling area is shown in Figure 1 in Appendix 2.*

A11. A maximum of 720,000 tonnes of limestone, clay/shale and quarry products (combined) may be transported from the site by road in any financial year.

A12. A maximum of 133 laden trucks may be dispatched from the site[a,b] in any 24-hour period.

[a] *Excludes any truck movements to or from the Peppertree Quarry authorised under conditions A9 and A10 or for the transportation of overburden as described in the EIS*

[b] *Excludes any truck movements which may be authorised under separate development consent/s for the Peppertree Quarry*

A13. A maximum of six laden trains may leave the site in any 24-hour period.

Hours of Operation

A14. The Applicant may undertake mining operations 24 hours a day, 7 days a week.

***Notes**:*

- *For limitations on blasting operations see condition B13.*

Mining Depth

A15. The Applicant must not carry out any extraction or excavation below 335 m AHD.

Identification of Approved Disturbance Area

A16. Within three months of commencement of development under this consent, or other timeframe agreed by the Planning Secretary, the Applicant must provide to the Department a survey plan of the boundaries of the approved disturbance areas.

NOTIFICATION OF COMMENCEMENT

A17. The date of commencement of each of the following phases of the development must be notified to the Department in writing, at least two weeks before that date:

(a) commencement of development under the consent;

(b) commencement of construction under the consent;

(c) commencement of mining operations under the consent;

(d) cessation of mining operations (i.e. mine closure); and

(e) any period of suspension of mining operations (i.e. care and maintenance).

A18. If the phases of the development are to be further staged, the Department must be notified in writing at least two weeks prior to the commencement of each stage, of the date of commencement and the development to be carried out in that stage.

SURRENDER OF EXISTING CONSENTS OR APPROVALS

A19. Within 12 months of the date of commencement of development under this consent, or other timeframe agreed by the Planning Secretary, the Applicant must surrender the existing development consents dated 21 February 1972, 16 October 1974, 13 February 1995 and 22 May 1997, April 2008, 20 June 2006 and 1 March 2012 as detailed in Section 3.3.4 of the EIS, and any existing or continuing use rights for the site, in accordance with the EP&A Regulation.

A20. Upon the commencement of development under this consent, and before the surrender of existing development consents required under condition A19, the conditions of this consent prevail to the extent of any inconsistency with the conditions of those consents or approvals.

Note: *This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under the former Part 4A of the EP&A Act or Part 6 of the EP&A Act as applies from 1 September 2018. The surrender should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.*

DIVISION 7.1 CONTRIBUTIONS TO COUNCIL

A21. Under section 7.11 of the EP&A Act, an annual financial contribution must be paid to Council to be put toward the maintenance of Marulan South Road used for haulage of mining and quarry products. The contribution is to be calculated in accordance with the *Goulburn Mulwaree Section 94 Development Contributions Plan 2009* or its latest version (adjusted on a quarterly basis to account for movements in the Australian Bureau of Statistics Consumer Price Index – Building Construction (NSW).

A22. The contribution must be paid to Council within 12 months of the date notified for the commencement of development under this consent and in the same month each year and be reported in the Annual Review required under condition D11.

A23. With the approval of the Planning Secretary, the contribution required under condition A21 may be waived or reduced in lieu of road upgrading works, or other means, as may be agreed by Council.

COMMUNITY CONSULTATIVE COMMITTEE

A24. Before the commencement of development under this consent, a Community Consultative Committee (CCC) must be established for the development in accordance with the Department's *Community Consultative Committee Guidelines: State Significant Projects* (2019). The CCC must continue to operate during the life of the development, or other timeframe agreed by the Planning Secretary.

Notes:

- *The CCC is an advisory committee only.*
- *In accordance with the Guidelines, the Committee should comprise an independent chair and appropriate representation from the Applicant, Council and the local community.*

A25. With the approval of the Planning Secretary, the Applicant may combine the CCC required by this consent with any similar CCC required by a consent or approval for any adjoining mine or quarry subject to common, shared or related ownership or management.

EVIDENCE OF CONSULTATION

A26. Where conditions of this consent require consultation with an identified party, the Applicant must:

(a) consult with the relevant party prior to submitting the subject document; and

(b) provide details of the consultation undertaken, including:

(i) the outcome of that consultation, matters resolved and unresolved; and

(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

A27. With the approval of the Planning Secretary, the Applicant may:

(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);

(b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined);

(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and

(d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by an adjoining mining consent or approval, in common ownership or management.

A28. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.

A29. If the Planning Secretary agrees, a strategy, plan or program may be staged without addressing particular requirements of the relevant condition of this consent if those requirements are not applicable to the particular stage.

PROTECTION OF PUBLIC INFRASTRUCTURE

A30. 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[a] that is damaged by carrying out the development; and

(b) relocate, or pay the full costs associated with relocating, any public infrastructure[a] that needs to be relocated as a result of the development.

[a] *This condition does not apply to any damage to roads caused as a result of general road usage or otherwise addressed by contributions required by condition A21 or to damage that has been compensated under the Mining Act 1992.*

DEMOLITION

A31. All demolition must be carried out in accordance with *Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).

STRUCTUAL ADEQUACY

A32. All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the BCA.

***Notes**:*

- *Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.*

OPERATION OF PLANT AND EQUIPMENT

A33. All plant and equipment used on site, or to monitor the performance of the development must be:

(a) maintained in a proper and efficient condition; and

(b) operated in a proper and efficient manner.

COMPLIANCE

A34. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

APPLICABILITY OF GUIDELINES

A35. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of inclusion (or later update) in the condition.

A36. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, in respect of ongoing monitoring and management obligations, agree to or require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

CROWN LAND

A37. The Applicant must consult with DPHI – Crown Lands prior to undertaking any development on Crown Land or Crown Roads.

***Notes**:*

- *Under section 265 of the Mining Act 1992, the Applicant is required to enter into a compensation agreement with DPHI – Crown Lands prior to undertaking any mining operations or related activities on Crown land or Crown roads within a mining lease.*
- *Under section 141 of the Mining Act 1992, the Applicant is required to enter into an access arrangement with DPHI – Crown Lands prior to undertaking any prospecting operations on Crown land or Crown roads within an exploration licence.*

PART B SPECIFIC ENVIRONMENTAL CONDITIONS

NOISE

Noise Criteria

B1. The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence on privately-owned land.

Table 1: *Noise criteria dB(A)*

Noise Assessment Location[a]	***Day*** $L_{Aeq\ (15\ min)}$	***Evening*** $L_{Aeq\ (15\ min)}$	***Night*** $L_{Aeq\ (15\ min)}$	***Night*** L_{AFmax}
R9	40	36	36	52
Other privately-owned residences	40	35	35	52

[a]*The Noise Assessment Locations referred to in Table 1, are shown in Appendix 3.*

B2. Noise generated by the development must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the *NSW Noise Policy for Industry* (EPA, 2017).

B3. The noise criteria in Table 1 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Temporary Construction Noise Limits

B4. With the written agreement of the Planning Secretary, the Applicant may seek temporary construction noise limits above the noise criteria in Table 1, including for construction works outside of standard hours. In order to seek a temporary construction noise limit, the Applicant must develop a Construction Noise Protocol to the satisfaction of the Planning Secretary. This protocol must:

(a) be prepared in consultation with the EPA and any residents who may be affected by the noise generated by these works;

(b) specify the construction works to which the temporary construction noise limits would apply and provide justification for these limits; and

(c) address the relevant requirements of the *Interim Construction Noise Guideline* (DECC, 2009).

B5. The Applicant must continue to operate in accordance with the noise criteria in Table 1 until and unless a Construction Noise Protocol for the specified construction works is approved by the Planning Secretary.

B6. The Applicant must implement any Construction Noise Protocol approved by the Planning Secretary.

Noise Operating Conditions

B7. The Applicant must:

(a) take all reasonable steps to minimise noise from construction and operational activities, including low frequency noise and other audible characteristics, as well as road and on-site rail noise associated with the development;

(b) implement reasonable and feasible noise attenuation measures on all plant and equipment that will operate in noise sensitive areas;

(c) take all reasonable steps to minimise the noise impacts of the development in noise sensitive areas during the evening and night;

(d) operate a noise management system to guide the day to day planning of mining operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent;

(e) take all reasonable steps to minimise the noise impacts of the development during noise-enhancing meteorological conditions;

(f) only use locomotives and rolling stock that are approved to operate on the NSW rail network in accordance with the noise limits in any relevant rolling stock operator's EPL and use reasonable endeavours to ensure that rolling stock is selected to minimise noise;

(g) carry out regular attended noise monitoring (at least once a month, unless otherwise agreed by the Planning Secretary) to determine whether the development is complying with the relevant conditions of this consent; and

(h) regularly assess the noise monitoring data and modify operations on the site to ensure compliance with the relevant conditions of this consent.

Noise Management Plan

B8. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) describe the measures to be implemented to ensure:

(i) compliance with the noise criteria and operating conditions of this consent;

(ii) best practice management is being employed; and

(iii) noise impacts of the development are minimised during noise-enhancing meteorological conditions;

(c) describe the measures to minimise development related road traffic noise generated on public roads;

(d) describe the noise management system in detail; and

(e) include a monitoring program that:

(i) uses a combination of attended and unattended monitoring to evaluate the performance of the development;

(ii) monitors noise at locations representative of the most affected residences;

(iii) adequately supports the noise management system;

(iv) includes a protocol for distinguishing noise emissions of the development from any neighbouring developments; and

(v) includes a protocol for identifying any noise-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of any such event.

B9. The Noise Management Plan must be approved by the Planning Secretary within 3 months of the date of this consent, unless otherwise agreed by the Planning Secretary.

B10. The Applicant must implement the Noise Management Plan as approved by the Planning Secretary.

BLASTING

Blasting Criteria

B11. The Applicant must ensure that blasting on the site does not cause exceedances of the criteria at the locations in Table 2.

Table 2: *Blasting criteria*

Location	***Airblast overpressure (dB(Lin Peak))***	***Ground vibration (mm/s)***	***Allowable exceedance***
	120	10	0%
Residence on privately-owned land[a]	115	5	5% of the total number of blasts over a financial year
Commercial receiver[a]	133	25	0%
Electricity Transmission Lines		50	0%
Public Roads		100	0%
All other infrastructure		50 *(or a limit determined by the structural design methodology in AS 2187.2 - 2006, or its latest version, or other alternative limit for public infrastructure, to the satisfaction of the Planning Secretary)*	0%

[a] *The locations referred to in Table 2 are shown in Appendix 3.*

B12. The blasting criteria in Table 2 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the blasting criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Blasting Hours

B13. The Applicant must only carry out blasting on the site between 9 am and 5 pm (Monday to Friday inclusive). No blasting is allowed on weekends, public holidays or any other time without the prior written approval of the Planning Secretary.

Blasting Frequency

B14. The Applicant may carry out a maximum of 1 single blast event[a] per day.

B15. Condition B14 does not apply to single blast events[a] that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public.

[a] Within conditions B14 and B15, 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.

Property Inspections

B16. If the Applicant receives a written request from the owner of any privately-owned land within 2 kilometres of any approved open cut mining pit on the site for a property inspection to establish the baseline condition of any buildings and structures on their land, or to have a previous property inspection updated, then within 2 months of receiving this request the Applicant must:

(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to:

(i) establish the baseline condition of any buildings and other structures on the land, or update the previous property inspection report; and

(ii) identify measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and structures; and

(b) give the landowner a copy of the new or updated property inspection report.

B17. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property inspection report, either party may refer the matter to the Planning Secretary for resolution.

Property Investigations

B18. If the owner of any privately-owned land within 2 kilometres of any approved open cut mining pit on the site or any other landowner where the Planning Secretary is satisfied an investigation is warranted, claims in writing that buildings or structures on their land have been damaged as a result of blasting on the site, then within 2 months of receiving this written claim the Applicant must:

(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and

(b) give the landowner a copy of the property investigation report.

B19. If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damage to the satisfaction of the Planning Secretary.

B20. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.

Blast Operating Conditions

B21. The Applicant must:

(a) take all reasonable steps to:

(i) ensure the safety of people and livestock from blasting impacts of the development;

(ii) protect public and private infrastructure and property in the vicinity of the site from blasting damage associated with the development; and

(iii) minimise blast-related dust and fume emissions;

(b) ensure that blasting on the site does not damage heritage items[a], except in accordance with predictions in the document/s listed in condition A2(c), and develop specific measures to protect heritage items from any blasting damage associated with the development;

(c) operate a comprehensive blast management system that uses a combination of meteorological forecasts and predictive blast modelling to guide the planning of blasts to minimise blasting impacts;

(d) operate a suitable system to enable interested members of the public to get up-to-date information on the proposed blasting schedule on the site and any associated road closures, including notification via SMS message of the blasting schedule and any variations to that schedule;

(e) use all reasonable efforts to co-ordinate the timing of blasting at the site with Peppertree Quarry to minimise cumulative blasting impacts; and

(f) carry out regular blast monitoring to determine whether the development is complying with the relevant conditions of this consent.

[a]*The locations of the heritage items referred to in paragraph (b) are shown in Appendix 5.*

B22. The Applicant must not undertake blasting on the site within 500 metres of any public road or any land outside the site not owned by the Applicant, unless the Applicant has:

(a) a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the public road or land, and the Applicant has advised the Department in writing of the terms of this agreement; or

(b) demonstrated, to the satisfaction of the Planning Secretary, that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or other buildings and structures, and updated the Blast Management Plan to include specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the road or land.

Blast Management Plan

B23. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) describe the blast management system and the measures that will be implemented to ensure compliance with the blasting criteria and conditions of this consent;

(c) include a Blast Fume Management Strategy for:

(i) minimising blast fume emissions;

(ii) rating and recording blast fume events; and

(iii) reporting significant blast fume events to the Department and the EPA;

(d) identify any agreed alternative ground vibration limits for public or private infrastructure in the vicinity of the site (if relevant);

(e) include a strategy to monitor, mitigate and manage the effects of blasting on heritage items[a];

(f) include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent;

(g) include a protocol for identifying any blast-related exceedance, incident or non-compliance and for notifying the Department, the EPA and relevant stakeholders of these events;

(h) include public notification procedures to enable members of the public, particularly surrounding residents, to get up-to-date information on the proposed blasting schedule; and

(i) include a protocol for investigating and responding to blast-related complaints.

[a]*The locations of the heritage items are shown in Appendix 5.*

B24. The Applicant must not undertake any blasting under this consent until the Blast Management Plan is approved by the Planning Secretary.

B25. The Applicant must implement the Blast Management Plan as approved by the Planning Secretary.

AIR QUALITY AND GREENHOUSE GAS

Odour

B26. The Applicant must ensure that no offensive odours, as defined under the POEO Act, are emitted from the site.

Air Quality Criteria

B27. 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 listed in Table 3 at any residence on privately-owned land.

Table 3: *Air quality criteria*

Pollutant	***Averaging period***	***Criterion***
Particulate matter < 10 µm (PM_{10})	Annual	[a, c] 25 µg/m^3
	24 hour	[b] 50 µg/m^3
Particulate matter < 2.5 µm ($PM_{2.5}$)	Annual	[a, c] 8 µg/m^3
	24 hour	[b] 25 µg/m^3
Total suspended particulate (TSP) matter	Annual	[a, c] 90 µg/m^3

Notes:

[a] *Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).*
[b] *Incremental impact (i.e. incremental increase in concentrations due to the development on its own).*
[c] *Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.*

B28. The air quality criteria in Table 3 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Mine-owned Land

B29. Particulate matter emissions generated by the development must not exceed the criteria listed in Table 3 at any occupied residence on mine-owned land (including land owned by another mining or quarry company) unless:

(a) the tenant and landowner (if the residence is owned by another mining or quarry company) have been notified of any health risks associated with such exceedances in accordance with the notification requirements under PART C of this consent;

(b) the tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving 14 days' notice;

(c) air quality monitoring is regularly undertaken to inform the tenant and landowner (if the residence is owned by another mining company) of the likely particulate matter emissions at the residence; and

(d) data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property.

Air Quality Operating Conditions

B30. The Applicant must:

(a) take all reasonable steps to:

(i) minimise odour, fume and particulate matter (including PM_{10} and $PM_{2.5}$) emissions of the development, paying particular attention to minimising wheel-generated haul road emissions;

(ii) improve energy efficiency and reduce greenhouse gas emissions of the development;

(iii) minimise any visible off-site air pollution generated by the development; and

(iv) minimise the extent of potential dust generating surfaces exposed on the site at any given point in time;

(b) ensure that all 'non-road' mobile diesel equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology;

(c) operate an air quality management system to guide the day to day planning of mining operations and implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;

(d) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note c to Table 3 above);

(e) use all reasonable efforts to co-ordinate air quality management on the site with the air quality management at Peppertree Quarry to minimise cumulative air quality impacts;

(f) carry out regular air quality monitoring to determine whether the development is complying with the relevant conditions of this consent; and

(g) regularly assess meteorological and air quality monitoring data, and modify operations on the site to ensure compliance with the relevant conditions of this consent.

Air Quality and Greenhouse Gas Management Plan

B31. The Applicant must prepare an Air Quality and Greenhouse Gas Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) be prepared in consultation with the EPA;

(c) describe the measures to be implemented to ensure:

(i) compliance with the air quality criteria and operating conditions of this consent;

(ii) best practice management is being employed to:

- minimise the development's air quality impacts;
- minimise the development's Scope 1 and 2 greenhouse gas emissions; and
- improve the development's energy efficiency; and

(iii) the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;

(d) describe the air quality management system in detail; and

(e) include an air quality monitoring program, undertaken in accordance with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (DEC, 2007), that:

(i) uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of mining operations;

(ii) adequately supports the air quality management system; and

(iii) includes a protocol for identifying any air quality-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of these events.

B32. The Air Quality and Greenhouse Gas Management Plan must be approved by the Planning Secretary within 3 months of the date of this consent, unless otherwise agreed by the Planning Secretary.

B33. The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Planning Secretary.

METEOROLOGICAL MONITORING

B34. Prior to the commencement of development under this consent, and 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:

(a) complies with the requirements in the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (DEC, 2007); and

(b) is capable of measuring meteorological conditions in accordance with the *NSW Noise Policy for Industry* (EPA, 2017),

unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA.

WATER

Water Supply

B35. The Applicant must ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of the development to match its available water supply.

B36. The Applicant must report on water extracted from the site each year (direct and indirect) in the Annual Review, including water taken under each water licence.

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, including during rehabilitation and post mine closure.*

Compensatory Water Supply

B37. The Applicant must provide a compensatory water supply to any landowner of privately-owned land whose rightful water supply is adversely and directly impacted (other than an impact that is minor or negligible) as a result of the development, in consultation with DPHI Water, and to the satisfaction of the Planning Secretary.

B38. The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent, in quality and volume, to the loss attributable to the development. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner.

B39. If the Applicant and the landowner cannot agree on whether the loss of water is attributed to the development or 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 Planning Secretary for resolution.

B40. If the Applicant is unable to provide an alternative long-term supply of water, then the Applicant must provide compensation, to the satisfaction of the Planning Secretary.

***Notes**:*

- *The Water Management Plan (see condition B45) is required to include trigger levels for investigating potentially adverse impacts on water supplies.*

Water Discharges

B41. The Applicant must ensure that all surface discharges from the site comply with:

(a) discharge limits (both volume and quality) set for the development in any EPL; or

(b) relevant provisions of the POEO Act.

Groundwater Management

B42. Within 12 months of the commencement of development under this consent, or other timeframe as agreed by the Planning Secretary, the Applicant must install a groundwater level and quality monitoring network within and adjacent to the Mt Frome Middle Limestone, or a suitable alternative location, in consultation with DPHI Water and to the satisfaction of the Planning Secretary.

Water Management Performance Measures

B43. The Applicant must ensure that the development complies with the performance measures in Table 4.

***Table 4:** Water management performance measures*

Feature	***Performance Measure***
Water management – General	• Maintain separation between clean, dirty (i.e. sediment-laden) and mine water management systems • Minimise the use of clean and potable water on the site • Maximise water recycling, reuse and sharing opportunities • Minimise the use of make-up water from external sources • Design, install, operate and maintain water management systems in a proper and efficient manner • Minimise risks to the receiving environment and downstream water users
Barbers Creek, Bungonia Creek and Shoalhaven River alluvial aquifers	• Negligible impacts to alluvial aquifers as a result of the development, beyond those predicted in the document/s listed in condition A2(c), including: – negligible change in groundwater levels; – negligible change in groundwater quality; and – negligible impact to other groundwater users
Groundwater springs	• Negligible impacts to groundwater springs as a result of the development, beyond those predicted in the document/s listed in condition A2(c), including: – negligible change in groundwater supply; and – negligible change in groundwater quality
Aquatic and riparian ecosystems	• Negligible environmental consequences beyond those predicted in the document/s listed in condition A2(c) • Negligible decline in baseline channel stability • Develop site-specific in-stream water quality objectives in accordance with the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC & ARMCANZ, 2000) and *Using the ANZECC Guidelines and Water Quality Objectives in NSW* (DEC, 2006)
Marulan Creek Dam	• Negligible impacts on the quality and quantity of downstream flows and geomorphic processes in Marulan Creek and Barbers Creek as a result of the development, beyond those predicted in the document/s listed in condition A2(c) • Design, install and maintain dam infrastructure in accordance with the guidance series for *Controlled Activities on Waterfront Land* (DPI Water, 2012)

Feature	*Performance Measure*
Erosion and sediment control works	• Design, install and maintain erosion and sediment controls in accordance with the guidance series *Managing Urban Stormwater: Soils and Construction* including *Volume 1: Blue Book (Landcom, 2004), Volume 2A: Installation of Services (DECC, 2008), Volume 2C: Unsealed Roads (DECC,2008), Volume 2D: Main Road Construction (DECC, 2008) and Volume 2E: Mines and Quarries (DECC, 2008)* • Design, install and maintain any creek crossings in accordance with the *Fisheries NSW Policy and Guidelines for Fish Habitat Conservation and Management* (DPI, 2013) and *Why Do Fish Need To Cross The Road*? *Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003) • Design, install and maintain any new infrastructure within 40 metres of watercourses in in accordance with the guidance series for *Controlled Activities on Waterfront Land* (DPI Water, 2012)
Clean water diversions and storage infrastructure	• Design, install and maintain the clean water system to capture and convey the 100 year ARI flood • Maximise, as far as reasonable, the diversion of clean water around disturbed areas on the site, except where clean water is captured for use on the site
Sediment dams	• Design, install and maintain sediment dams in accordance with the guidance series *Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom, 2004) and 2E Mines and Quarries (DECC, 2008)* and the requirements under the POEO Act
Chemical and hydrocarbon storage	• Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standard
Overburden emplacements	• Design, install and maintain emplacements to encapsulate and prevent migration of acid forming and potentially acid forming materials, and saline and sodic material • Design, install and maintain out-of-pit emplacements to prevent and/or manage long term saline seepage

B44. The performance measures in Table 4 do not apply to water management structures which were lawfully constructed prior to the commencement of development under this consent.

Water Management Plan

B45. The Applicant must prepare a Water Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) be prepared in consultation with WaterNSW, DPHI Water, Fisheries NSW and the EPA;

(c) describe the measures to be implemented to ensure that the Applicant complies with the water management performance measures (see Table 4);

(d) utilise existing local data and build on existing monitoring programs, where practicable;

(e) include a:

(i) **Site Water Balance** that includes details of:

- predicted annual inflows to and outflows from the site;
- sources and security of water supply for the life of the development (including authorised entitlements and licences);
- water storage capacity;
- water use and management on the site, including any water transfers or sharing with neighbouring mines;
- licensed discharge points and limits; and
- reporting procedures, including the annual preparation of an updated site water balance;

(ii) **Erosion and Sediment Control Plan** that:

- is consistent with the requirements of *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) and *Volume 2E: Mines and Quarries* (DECC, 2008);
- identifies activities that could cause soil erosion, generate sediment or affect flooding;
- includes a program to periodically review sheet, rill and gully erosion risks, particularly in relation to emplacement areas;

- includes a program to monitor the geomorphological stability of emplacement areas, in consultation with WaterNSW;
- describes measures to minimise soil erosion and the potential for the transport of sediment to downstream waters, and manage flood risk;
- describes the location, function, and capacity of erosion and sediment control structures; 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 of watercourses and/or water bodies potentially impacted by the development, including:
  - stream and riparian vegetation health;
  - channel stability (geomorphology); and
  - water supply for other surface water users;
- a detailed description of the surface water management system, including consideration of mitigation measures to manage downstream risks associated with alkalinity, TSS and settling agents;
- details of the water licensing requirements for all water storages (i.e. exempt, harvestable rights or licenced);
- detailed plans, design objectives and performance criteria for water management infrastructure, including:
  - water run-off diversions and catch drains;
  - water storages (excluding Marulan Creek Dam) and sediment dams;
  - emplacement areas; and
  - backfilled pits and any final voids for the development;
- surface water performance criteria, including trigger levels for identifying and investigating any potentially adverse impacts (or trends) associated with the development, for:
  - water supply for other water users;
  - downstream surface water flows and quality, including (but not limited to) specific trigger levels for TSS, metals, alkalinity, bicarbonate alkalinity and settling agents, which are informed by baseline data, having regard to the sensitivity of downstream waters;
  - downstream flooding impacts;
  - stream and riparian vegetation heath; and
  - post-mining water pollution from rehabilitated areas of the site;
- a program to monitor and evaluate:
  - compliance with the relevant performance measures listed in Table 4 and the performance criteria in this plan;
  - controlled and uncontrolled discharges and seepage/leachate from the site;
  - impacts on water supply for other water users;
  - surface water inflows, outflows and storage volumes, to inform the Site Water Balance; and
  - the effectiveness of the surface water management system and the measures in the Erosion and Sediment Control Plan;
- reporting procedures for the results of the monitoring program, including notifying other water users of any elevated results; and
- a trigger action response plan to respond to any exceedances of the relevant performance measures or performance criteria, and repair, mitigate and/or offset any adverse surface water impacts of the development;

(iv) **Marulan Creek Dam Management Plan** that includes:

- detailed plans, design objectives and performance criteria for the dam infrastructure;
- detailed measures to ensure compliance with the relevant performance measures in Table 4;
- performance criteria, including trigger levels for identifying and investigating any potentially adverse impacts (or trends) associated with the development with respect to:
  - downstream geomorphic processes;
  - sediment transmission;
  - ecological function; and

- water quality;

- a program to monitor and evaluate compliance with the relevant performance measures in Table 4, including justification for proposed monitoring frequencies and parameters;
- reporting procedures for the results of the monitoring program;
- a remediation and rehabilitation strategy for areas of Marulan Creek both above and below the dam up to the entry to the Barber's Creek gorge, which has been prepared by a suitably qualified and experienced fluvial geomorphologist, having regard to *A Rehabilitation Manual for Australian Streams* (Land and Water Resources Research and Development Corporation, 2000); and
- a trigger action response plan to respond to any exceedances of the relevant performance measures or performance criteria, and repair, mitigate and/or offset any adverse impacts on downstream flows and/or ecological processes;

(v) **Groundwater Management Plan** that includes:

- detailed baseline data of groundwater levels, yield and quality for groundwater resources and groundwater dependent ecosystems potentially impacted by the development, including groundwater supply for other water users;
- a detailed description of the groundwater management system;
- groundwater performance criteria, including trigger levels for identifying and investigating any potentially adverse groundwater impacts (or trends) associated with the development, on:
  - regional and local aquifers (alluvial and hardrock);
  - groundwater springs; and
  - groundwater supply for other water users such as licensed privately-owned groundwater bores;
- a program to monitor and evaluate:
  - compliance with the relevant performance measures listed in Table 4 and the performance criteria in this plan;
  - water loss/seepage from water storages into the groundwater system, including from any final voids;
  - groundwater inflows, outflows and storage volumes, to inform the Site Water Balance;
  - the hydrogeological setting of any nearby alluvial aquifers and the likelihood of any indirect impacts from the development;
  - impacts on groundwater dependent ecosystems;
  - impacts on groundwater supply for other water users;
  - the effectiveness of the groundwater management system;
- reporting procedures for the results of the monitoring program, including notifying other water users of any elevated results;
- a trigger action response plan to respond to any exceedances of the relevant performance measures and groundwater performance criteria, and repair, mitigate and/or offset any adverse groundwater impacts of the development;
- a program to periodically validate the groundwater model for the development, including an independent review of the model every 3 years (unless otherwise agreed by the Planning Secretary), and comparison of monitoring results with modelled predictions; and

(vi) a protocol to report on the measures, monitoring results and performance criteria identified above, in the Annual Review referred to in condition D11.

B46. The Water Management Plan must be approved by the Planning Secretary within 3 months from the date of this consent, unless otherwise agreed by the Planning Secretary.

B47. The Applicant must implement the Water Management Plan as approved by the Planning Secretary.

B48. The Applicant must commission an independent audit of the long-term geomorphological stability of the WOE and SOE. This audit must:

(a) be conducted by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) be carried out in consultation with WaterNSW;

(c) be undertaken within three months of the completion of the surface water management systems for the WOE and SOE in Stage 4 of the development, or other timeframe agreed by the Planning Secretary;

(d) assess whether the surface water management system has been constructed in accordance with the conditions of this consent and is geomorphologically stable;

(e) recommend appropriate measures or actions to ensure the long-term stability of the WOE and SOE (if required); and

(f) be conducted and reported to the satisfaction of the Planning Secretary.

B49. Within three months of commissioning the independent audit required under condition B48, or other timeframe agreed by the Planning Secretary, the Applicant must submit a copy of the Audit Report to the Planning Secretary and to WaterNSW, together with its response to any recommendations contained in the audit report and a timetable for the implementation of its recommendations.

B50. The Applicant must implement the recommendations of the Audit Report to the satisfaction of the Planning Secretary.

BIODIVERSITY

Biodiversity Credits Required

B51. Prior to commencing construction under this consent, or other timeframe agreed by the Planning Secretary, the Applicant must retire the biodiversity credits specified in ***Table 5***. The retirement of credits must be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BCT Act, to the satisfaction of the BCT.

B52. The retirement of credits must be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.

Table 5: *Biodiversity credit requirements*

Credit Type	***Credits Required***
Ecosystem Credits	
PCT 1334 Yellow Box – Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands[a, b]	1,038
PCT 778 Coast Grey Box – stringybark dry woodland on slopes of the Shoalhaven Gorges – Southern Sydney Basin	885
PCT 1150 – Silvertop Ash – Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion	260
PCT 731 Broad-leaved Peppermint – Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion	325
Species Credits	
Solanum celatum	2
Koala[b]	2,454
Large-eared Pied Bat[b]	3,836

[a] *Commensurate with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC under the EPBC Act*

[b] *Under clause 6.6A of the Biodiversity Conservation Regulation 2017, variation rules do not apply to the identified species or community and the required credits must be retired on a like-for-like basis*
basis

B53. The Applicant must implement the Biodiversity Offset Strategy in consultation with BCD, the BCT and MEG.[a]

[a] *Consultation with MEG is only required in respect of land-based biodiversity offsets*

Biodiversity Management Plan

B54. The Applicant must prepare a Biodiversity Management Plan to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) be prepared in consultation with BCD;

(c) describe the short, medium, and long-term measures to be undertaken to manage the remnant vegetation and fauna habitat on the site and within the offset areas;

(d) describe how biodiversity management would be integrated with similar measures within other management plans, including the Rehabilitation Management Plan referred to in condition B82;

(e) include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and include triggers for remedial action, where these performance or completion criteria are not met;

(f) describe how the Biodiversity Offset Strategy will be implemented and secured;

(g) describe the measures to be implemented within the approved disturbance areas to:

(i) minimise the amount of clearing;

(ii) minimise impacts on fauna, including undertaking pre-clearance surveys and measures to minimise the risk of vehicle strike;

(iii) provide for the salvage, transplanting and/or propagation of any threatened flora found during pre-clearance surveys, in accordance with the *Guidelines for the Translocation of Threatened Plants in Australia* (Vallee et al., 2004); and

(iv) maximise the salvage of resources, including tree hollows, vegetation and soil resources, for beneficial reuse, including fauna habitat enhancement;

(h) describe the measures to be implemented on the site to:

(i) minimise impacts to *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC* including potential edge effects within identified buffer zones, and contribute to conservation strategies for this CEEC;

(ii) minimise impacts on fauna habitat resources such as hunting and foraging areas, habitat trees, fallen timber and hollow-bearing trees;

(iii) enhance the quality of vegetation, vegetation connectivity and wildlife corridors including through the assisted regeneration and/or targeted revegetation of appropriate canopy, sub-canopy, understorey and ground strata;

(iv) introduce naturally scarce fauna habitat features such as nest boxes and salvaged tree hollows and promote the use of these introduced habitat features by threatened fauna species;

(v) manage any potential conflicts with Aboriginal heritage values;

(vi) protect vegetation and fauna habitat outside of the approved disturbance areas;

(vii) manage the collection and propagation of seed from the local area;

(viii) control weeds, including measures to avoid and mitigate the spread of weeds;

(ix) control feral pests and diseases with consideration of actions identified in relevant threat abatement plans;

(x) control erosion;

(xi) manage any grazing and agriculture;

(xii) control access to vegetated or revegetated areas; and

(xiii) manage bushfire hazards;

(i) include a seasonally-based program to monitor and report on the effectiveness of the above measures, progress against the detailed performance indicators and completion criteria, and identify improvements that could be implemented to improve biodiversity outcomes;

(j) identify the potential risks to the successful implementation of the Biodiversity Management Plan, and include a description of the contingency measures to be implemented to mitigate against these risks; and

(k) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

B55. The Applicant must not clear any vegetation described in the document/s listed in condition A2(c) until the Biodiversity Management Plan is approved by the Planning Secretary.

B56. The Applicant must implement the Biodiversity Management Plan as approved by the Planning Secretary.

HERITAGE

Protection of Aboriginal Heritage

B57. The Applicant must ensure that the development does not cause any direct or indirect impact on any identified heritage items located outside the approved disturbance area, beyond those predicted in the document/s listed in condition A2(c).

Note: *Identified heritage items are shown in the figures in Appendix 5.*

B58. If suspected human remains are discovered on the site, then all work surrounding the area must cease, and the area must be secured. The Applicant must immediately notify NSW Police Force and Heritage NSW, and work must not recommence in the area until authorised by NSW Police Force and Heritage NSW.

B59. The Applicant must ensure that all known Aboriginal objects or Aboriginal places on the site and within the offset areas are properly recorded, and those records are kept up to date, in the Aboriginal Heritage Information Management System (AHIMS) Register.

Aboriginal Cultural Heritage Management Plan

B60. The Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development. The plan must:

(a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Planning Secretary;

(b) be prepared in consultation with Heritage NSW and Registered Aboriginal Parties;

(c) describe the measures to be implemented on the site or within the offset areas to:

(i) comply with the heritage-related operating conditions of this consent;

(ii) ensure all workers receive suitable Aboriginal cultural heritage training/inductions prior to carrying out any activities which may cause impacts to Aboriginal objects or Aboriginal places, and that suitable records are kept of these inductions;

(iii) protect, monitor and manage identified Aboriginal objects and Aboriginal places (including any proposed archaeological investigation of potential subsurface objects, collection and salvage of objects within the approved disturbance area) in accordance with the commitments made in the document/s listed in condition A2(c);

(iv) protect Aboriginal objects and Aboriginal places located outside the approved disturbance area from impacts of the development;

(v) manage the discovery of suspected human remains and any new Aboriginal objects or Aboriginal places, including provisions for burials, over the life of the development;

(vi) maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the approved disturbance area); and

(vii) facilitate ongoing consultation and involvement of Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site;

(d) include a strategy for the care, control and storage of Aboriginal objects salvaged on the site, both during the life of the development and in the long term; and

(e) in relation to the women's cultural heritage site along Marulan Creek, include:

(i) an assessment of the potential impacts of the Marulan Creek dam and associated flow regime on the site, prepared by an intangible cultural heritage specialist in consultation with the identified knowledge holders; and

(ii) assessment of whether mitigation to any negative impacts should occur through periodic cultural flows.

B61. The Applicant must not disturb any heritage item until the Aboriginal Cultural Heritage Management Plan is approved by the Planning Secretary.

B62. The Applicant must implement the Aboriginal Cultural Heritage Management Plan approved by the Planning Secretary.

Historic Heritage Management Plan

B63. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) be prepared in consultation with Council and in accordance with the relevant Heritage NSW guidelines;

(c) describe how the historic heritage values of the site would be recorded and preserved;

(d) identify all heritage items in the vicinity of the site and include a statement of significance for each item;

(e) describe the measures to be implemented on the site or within the offset areas to:

(i) ensure all workers on the site receive suitable heritage training/inductions prior to carrying out any activities which may cause impacts to historic heritage, and that suitable records are kept of these inductions;

(ii) protect heritage items located outside the approved disturbance area from impacts of the development, beyond those predicted in the document/s listed in condition A2(c);

(iii) undertake photographic/archival recording of any items of heritage significance predicted to be impacted by the development, prior to disturbance; and

(iv) manage any new heritage items discovered during the life of the development; and

(f) include a strategy for the care, control and storage of heritage relics salvaged from the site.

B64. The Applicant must not disturb any heritage item until the Historic Heritage Management Plan is approved by the Planning Secretary.

B65. The Applicant must implement the Historic Heritage Management Plan as approved by the Planning Secretary.

VISUAL

Visual Amenity and Lighting

B66. The Applicant must:

(a) take all reasonable steps to minimise the visual and off-site lighting impacts of the development;

(b) take all reasonable steps to minimise views of mining operations and associated equipment from privately-owned residences, public roads and the Bungonia Lookdown;

(c) ensure no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure;

(d) ensure no in-pit mobile lighting rigs shine directly above the pit wall and other mobile lighting rigs do not shine directly above the horizontal (except where required for emergency safety purposes);

(e) ensure that all external lighting associated with the development complies with relevant Australian Standards including the latest version of *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting*;

(f) ensure that the visual appearance of any new buildings, structures, facilities or works (including paint colours and specifications) is aimed at blending as far as possible with the surrounding landscape.

B67. The Applicant must take all reasonable steps to minimise the night lighting impacts associated with road transport along Marulan South Road. This may include, but not be limited to, the construction of earth bunds within the realigned Marulan South Road reserve, in consultation with Council.

WASTE

B68. The Applicant must:

(a) take all reasonable steps to minimise the waste generated by the development;

(b) classify all waste in accordance with the *Waste Classification Guidelines* (EPA, 2014);

(c) dispose of all waste at appropriately licensed waste facilities;

(d) manage on-site sewage treatment and disposal in accordance with the requirements of Council; and

(e) monitor and report on the effectiveness of the waste minimisation and management measures in the Annual Review referred to in condition D11.

B69. Except as expressly permitted in an applicable EPL, specific resource recovery order or exemption under the *Protection of the Environment Operations (Waste) Regulation 2014*, the Applicant must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.

B70. Prior to commencing development under this consent, the Applicant must prepare a Contaminated Materials Protocol to the satisfaction of the Planning Secretary. This protocol must describe the procedures to be implemented in the event that potentially contaminated material is identified during construction, including:

(a) procedures for the testing, removal and disposal of potentially contaminated material; and

(b) measures to ensure compliance with the requirements of SafeWork NSW and relevant guidelines.

B71. The Applicant must implement the Contaminated Materials Protocol as approved by the Planning Secretary.

DANGEROUS GOODS

B72. The Applicant must ensure that the storage, handling, and transport of:

(a) dangerous goods is done in accordance with the relevant Australian Standards, particularly *AS1940* and *AS1596*, and the *Dangerous Goods Code*; and

(b) explosives are managed in accordance with the requirements of the Resources Regulator.

BUSHFIRE MANAGEMENT

B73. The Applicant must:

(a) ensure that the development:

(i) provides for asset protection in accordance with the relevant requirements in *the Planning for Bushfire Protection* (RFS, 2019) guideline; and

(ii) ensure that there is suitable equipment to respond to any fires on the site; and

(b) assist the RFS and emergency services to the extent practicable if there is a fire in the vicinity of the site.

B74. Prior to commencing development under this consent, the Applicant must prepare a Bushfire Management Plan for the development, in consultation with RFS. This plan must include a:

(a) contact person and 24-hour contact phone number;

(b) schedule and description of proposed bushfire mitigation works, including:

(i) location of managed and unmanaged vegetation within the site;
(ii) location of water supply; and
(iii) internal access roads;

(c) plan identifying the location and storage of bulk flammable liquids and materials;

(d) 'hot works' management plan, including:
(i) circumstances when 'hot works' are limited or prohibited; and
(ii) safety measures to be implemented when 'hot works' are being conducted; and

(e) emergency/evacuation plan in accordance with the *Guidelines for the* Preparation *of Emergency/Evacuation* Plans (RFS) and Australian Standard *AS3745 Planning for Emergencies in Facilities.*

B75. The Applicant must implement the Bushfire Management Plan in consultation with RFS.

REHABILITATION

Rehabilitation Objectives

B76. The Applicant must rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in documents listed in condition A2(c) and shown in Appendix 6, and must comply with the objectives in Table 6.

Table 6: *Rehabilitation objectives*

Feature	***Objective***
All areas of the site affected by the development	• Safe, stable and non-polluting • Fit for the intended post-mining land use/s • Establish the final landform and post-mining land use/s as soon as practicable after cessation of mining operations • Minimise post-mining environmental impacts
Areas proposed for native ecosystem re-establishment	• Establish/restore self-sustaining native woodland ecosystems • Establish local plant community types, with a particular focus on species commensurate with *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC* • Establish: – riparian habitat within any retained water features; – habitat, feed and foraging resources for threatened fauna species (including the Koala); and – vegetation connectivity and wildlife corridors, as far as is reasonable and feasible
Final Landform	• Stable and sustainable for the intended post-mining land use/s • Integrated with surrounding natural landforms and other mine rehabilitated landforms, to the greatest extent practicable • Incorporate micro-relief and drainage features that mimic natural topography and mitigate erosion, to the greatest extent practicable • Maximise surface water drainage to the natural environment i.e. free draining (excluding final void catchment) • Minimise visual impacts, where practicable
Final void	• Designed as long term groundwater sink to prevent the release of saline water into the surrounding environment, unless further mine planning and final landform design processes identify a more suitable outcome for the final void (see condition B79) • Minimise to the greatest extent practicable: – the size and depth; – the drainage catchment; – any high wall instability risk; and – the risk of flood interaction • Maximise potential for beneficial reuse, where practicable
Surface infrastructure of the development (excluding Marulan Creek Dam)	• To be decommissioned, removed and rehabilitated, unless the Resources Regulator agrees otherwise
Water quality	• Water retained on the site is fit for the intended post-mining land use/s • Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation

Feature	*Objective*
Community	• Ensure public safety • Minimise adverse socio-economic effects associated with mine closure

B77. The rehabilitation objectives in Table 6 apply to the entire site, including all landforms which were lawfully constructed prior to the commencement of development under this consent. The Applicant is not required to retrospectively incorporate micro-relief and drainage features that mimic natural topography and mitigate erosion on landforms that have been approved and constructed under the previous consents, however, further erosion control works may be required to these landforms to address long term stability issues (if identified).

Progressive Rehabilitation

B78. The Applicant must rehabilitate[a] the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion and weed incursion cannot be permanently rehabilitated.

[a]This condition does not prevent further disturbance at some later stage of the development of areas that have been rehabilitated.

Rehabilitation Strategy

B79. The Applicant must prepare a Rehabilitation Strategy for all land disturbed by the development to the satisfaction of the Planning Secretary. This strategy must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) be prepared in consultation with DPHI Water, BCD, Resources Regulator and Council;

(c) build upon the Rehabilitation Objectives in Table 6, describe the overall rehabilitation outcomes for the site, and address all aspects of rehabilitation including mine closure, final landform (including final voids), post-mining land use/s and water management;

(d) align with strategic rehabilitation and mine closure objectives and address the principles of the *Strategic Framework for Mine Closure* (ANZMEC and MCA, 2000);

(e) describe how the rehabilitation measures would be integrated with the measures in the Biodiversity Management Plan referred to in condition B54;

(f) describe how rehabilitation will be integrated with the mine planning process, including a plan to address premature or temporary mine closure;

(g) include indicative mine plans and scheduling for life-of-mine rehabilitation showing each rehabilitation domain;

(h) include details of target vegetation communities and species to be established within the proposed revegetation areas;

(i) investigate opportunities to refine and improve the final landform and final void outcomes over time;

(j) include a post-mining land use strategy to investigate and facilitate post-mining beneficial land uses for the site (including the final void), that:

  (i) align with regional and local strategic land use planning objectives and outcomes;

  (ii) support a sustainable future for the local community;

  (iii) utilise existing mining infrastructure, where practicable; and

  (iv) avoid disturbing self-sustaining native ecosystems, where practicable;

(k) include a stakeholder engagement plan to guide rehabilitation and mine closure planning processes and outcomes;

(l) investigate ways to minimise adverse socio-economic effects associated with rehabilitation and mine closure; and

(m) include a program to periodically review and update this strategy at least every three years.

B80. The Rehabilitation Strategy must be approved by the Planning Secretary within 6 months from the date of this consent, unless otherwise agreed by the Planning Secretary .

B81. The Applicant must implement the Rehabilitation Strategy approved by the Planning Secretary.

Rehabilitation Management Plan

B82. The Applicant must prepare a Rehabilitation Management Plan for the development, in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*. This plan must:

(a) be prepared in consultation with the Department and Council;

(b) be prepared in accordance with any relevant Resources Regulator Guidelines;

(c) include detailed performance indicators and completion criteria for each rehabilitation domain, and triggers for remedial actions;

(d) include an overview of the identified risks to achieving successful rehabilitation;

(e) describe the measures to be implemented on the site to achieve the Rehabilitation Objectives in Table 6, the requirements of the Rehabilitation Strategy referred to in condition B79 and the criteria in paragraph (c);

(f) include detailed mine plans and scheduling for progressive rehabilitation to be initiated, undertaken and/or completed over the next three years, or other suitable time period as agreed with the Resources Regulator;

(g) include a program to monitor, independently audit and report on progress against the criteria in paragraph (c) and the effectiveness of the measures in paragraph (e);

(h) describe any further studies, work, research or consultation that will be undertaken to expand the site-specific rehabilitation knowledge base, reduce uncertainty and improve rehabilitation outcomes; and

(i) outline intervention and adaptive management techniques to ensure rehabilitation remains on a trajectory of achieving the Rehabilitation Objectives, Rehabilitation Completion Criteria and the Final Landform in the Rehabilitation Management Plan as soon as reasonably practical.

TRANSPORT

Monitoring of Product Transport

B83. The Applicant must:

(a) keep accurate records[a] of the:

(i) amount of mining products and quarry products transported from the site (on a daily basis); and

(ii) date and time of each laden train and truck movement generated by the development; and

(b) publish these records in the Annual Review.

[a] *Records must contain sufficient details to demonstrate compliance with conditions A6 to A13 of this consent.*

Transport Operating Conditions

B84. Until such time as the eastern end of Marulan South Road is de-proclaimed, the Applicant must:

(a) make suitable arrangements to ensure the safety of public road users (including traffic signals, signage or other traffic control measures), to the satisfaction of Council; and

(b) ensure that any traffic signals on public roads are designed, installed and operated to the satisfaction of TfNSW.

B85. The Applicant must:

(a) ensure that all laden trucks entering or exiting the site have their loads covered;

(b) ensure that all laden trucks exiting the site are cleaned of material that may fall from vehicles, before leaving the site;

(c) take all reasonable steps to minimise traffic safety issues and disruption to local road users; and

(d) take all reasonable steps to ensure that appropriate signage is displayed on all trucks used to transport quarry products from the development so they can be easily identified by other road users.

Road Realignment

B86. Unless otherwise agreed by Council, the Applicant must construct the new alignment of Marulan South Road as described in the documents listed in A2 (c), to the following standard:

(a) 7 m wide sealed carriageway, comprising two 3.5 m wide travel lanes;

(b) 1.5 m wide shoulders (1 m sealed) on both sides of the road;

(c) 3 m wide cleared zone; and

(d) Wide Centre Line Treatment, with retroreflective pavement markers, edge-line markers and guideposts as agreed by Council,

in accordance with relevant Austroads guidelines and to the satisfaction of Council.

***Notes**:*

- *The upgrade works identified above include all road furniture and safety requirements required to meet relevant road standards, to the satisfaction of the relevant roads authority.*
- *If there is a dispute between the relevant parties about the implementation of this condition, then any party may refer the matter to the Planning Secretary for resolution.*

B87. The Applicant must ensure that public access is maintained along the existing alignment of Marulan South Road until the new alignment (as required under condition B86) is constructed and dedicated to Council.

Road Restrictions

B88. Unless otherwise agreed by Council, the Applicant must not dispatch more than 75 laden trucks per day or 5 laden trucks per hour from the site, until Marulan South Road is upgraded as described in the documents listed in A2 (c), to the following standard:

(a) 7 m wide sealed carriageway, comprising two 3.5 m wide travel lanes;

(b) 1.5 m wide shoulders (1 m sealed) on both sides of the road;

(c) 3 m wide cleared zone; and

(d) Wide Centre Line Treatment, with retroreflective pavement markers, edge-line markers and guideposts as agreed by Council,

in accordance with relevant Austroads guidelines and to the satisfaction of Council. The requirements of condition B88 do not apply to the section of road which is to be realigned under condition B86 above.

***Notes**:*

- *The upgrade works identified above include all road furniture and safety requirements required to meet relevant road standards, to the satisfaction of the relevant roads authorities.*
- *If there is a dispute between the relevant parties about the implementation of this condition, then any party may refer the matter to the Planning Secretary for resolution.*

B89. The design standard required under condition B88 may be varied with the agreement of Council.

Traffic Management Plan

B90. The Applicant must prepare a Traffic Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

(b) be prepared in consultation with TfNSW and Council;

(c) include details of all transport routes and traffic types to be used for development-related traffic;

(d) describe the measures to be implemented to ensure compliance with conditions B84 and B85 above;

(e) include details of the measures to be implemented to minimise traffic safety issues and disruption to local road users, including minimising potential for conflict with school buses and stock movements;

(f) include a Drivers' Code of Conduct that includes procedures to ensure that drivers:

(i) adhere to posted speed limits or other required travelling speeds;

(ii) adhere to designated transport routes; and

(iii) implement safe and quiet driving practices;

(g) describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; and

(h) propose measures to minimise the transmission of dust and tracking of material onto the surface of public roads from vehicles exiting the site.

B91. The Traffic Management Plan must be approved by the Planning Secretary within 3 months from the date of this consent, unless otherwise agreed by the Planning Secretary.

B92. The Applicant must implement the Traffic Management Plan as approved by the Planning Secretary.

PART C ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS/TENANTS

C1. Within one month of the date of this consent, the Applicant must:

(a) notify in writing the owner of any privately-owned land within 2 kilometres of any approved open cut mining pit on the site that they are entitled to ask the Applicant for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated;

(b) notify the tenants of any mine-owned land of their rights under this consent; and

(c) send a copy of the fact sheet entitled *"Mine Dust and You"* (NSW Health, 2017) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the document/s listed in condition A2(c) identify that dust emissions generated by the development are likely to be greater than the relevant air quality criteria identified in condition B27 at any time during the life of the development.

C2. 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 fact sheet entitled *"Mine Dust and You"* (NSW Health, 2017); and

(b) advise the prospective tenants of the rights they would have under this consent,

to the satisfaction of the Planning Secretary.

NOTIFICATION OF EXCEEDANCES

C3. As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, blasting or air quality criterion in PART B of this consent, the Applicant must provide the details of the exceedance to any affected landowners, tenants and the CCC.

C4. For any exceedance of any air quality criterion in PART B of this consent, the Applicant must also provide to any affected land owners and/or tenants a copy of the fact sheet entitled "*Mine Dust and You"* (NSW Health, 2017).

INDEPENDENT REVIEW

C5. If a landowner considers the development to be exceeding any relevant noise, blasting or air quality criterion in PART B of this consent, they may ask the Planning Secretary in writing for an independent review of the impacts of the development on their residence or land.

C6. If the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.

C7. If the Planning Secretary is satisfied that an independent review is warranted, within 3 months, or other timeframe agreed by the Planning Secretary and the landowner, of the Planning Secretary's decision, the Applicant must:

(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to:

(i) consult with the landowner to determine their concerns;

(ii) conduct monitoring to determine whether the development is complying with the relevant criterion in PART B of this consent; and

(iii) if the development is not complying with the relevant criterion, identify measures that could be implemented to ensure compliance with the relevant criterion; and

(b) give the Planning Secretary and landowner a copy of the independent review; and

(c) comply with any written requests made by the Planning Secretary to implement any findings of the review.

PART D ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

D1. The Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Planning Secretary. This strategy must:

(a) provide the strategic framework for environmental management of the development;

(b) identify the statutory approvals that apply to the development;

(c) set out the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;

(d) set out the procedures to be implemented to:

(i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;

(ii) receive record, handle and respond to complaints;

(iii) resolve any disputes that may arise during the course of the development;

(iv) respond to any non-compliance and any incident;

(v) respond to emergencies; and

(e) include:

(i) references to any strategies, plans and programs approved under the conditions of this consent; and

(ii) a clear plan depicting all the monitoring to be carried out under the conditions of this consent.

D2. The Environmental Management Strategy must be approved by the Planning Secretary within 3 months from the date of this consent, unless otherwise agreed by the Planning Secretary

D3. The Applicant must implement the Environmental Management Strategy as approved by the Planning Secretary.

Adaptive Management

D4. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and performance measures in this consent. Any exceedance of these criteria or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

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

(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;

(b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and

(c) implement reasonable remediation measures as directed by the Planning Secretary.

Management Plan Requirements

D5. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:

(a) summary of relevant background or baseline data;

(b) details of:

(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);

(ii) any relevant limits or performance measures and criteria; and

(iii) 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) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);

(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;

(e) a program to monitor and report on the:

(i) impacts and environmental performance of the development; and

(ii) effectiveness of the management measures set out pursuant to condition D4(c);

(f) 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;

(g) a program to investigate and implement ways to improve the environmental performance of the development over time;

(h) a protocol for managing and reporting any:

(i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion);

(ii) complaint; or

(iii) failure to comply with other statutory requirements;

(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and

(j) a protocol for periodic review of the plan.

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

D6. The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site.

REVISION OF STRATEGIES, PLANS AND PROGRAMS

D7. Within three months of:

(a) the submission of an incident report under condition D9;

(b) the submission of an Annual Review under condition D11;

(c) the submission of an Independent Environmental Audit under condition D12;

(d) the approval of any modification of the conditions of this consent (unless the conditions require otherwise); or

(e) notification of a change in development phase under condition A17;

the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.

D8. If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.

Note: *This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.*

REPORTING AND AUDITING

Incident Notification

D9. The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing through the Department's Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.

Non-Compliance Notification

D10. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing through the Department's Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Note*: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.*

Annual Review

D11. By the end of July each year after the commencement of development, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning 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, including a comparison of these results against the:

(i) relevant statutory requirements, limits or performance measures/criteria;

(ii) requirements of any plan or program required under this consent;

(iii) monitoring results of previous years; and

(iv) relevant predictions in the document/s listed in condition A2(c);

(c) identify any non-compliance or incident which occurred in the previous financial year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;

(d) evaluate and report on:

(i) the effectiveness of the noise and air quality management systems; and

(ii) compliance with the performance measures, criteria and operating conditions of this consent;

(e) identify any trends in the monitoring data over the life of the development;

(f) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

(g) describe what measures will be implemented over the next financial year to improve the environmental performance of the development.

D12. Copies of the Annual Review must be submitted to Council and made available to the CCC and any interested person upon request.

Independent Environmental Audit

D13. Within one year of commencement of development under this consent, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. The audit must:

(a) be led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Planning Secretary;

(b) be conducted by a suitably qualified, experienced and independent team of experts (including any expert in field/s specified by the Planning Secretary) whose appointment has been endorsed by the Planning Secretary;

(c) be carried out in consultation with the relevant agencies and the CCC;

(d) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals);

(e) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent;

(f) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and

(g) be conducted and reported to the satisfaction of the Planning Secretary.

D14. Within three months of commencing an Independent Environmental Audit, or other timeframe agreed by the Planning Secretary, the Applicant must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.

Monitoring and Environmental Audits

D15. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit.

For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.

D16. Noise, blast and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Part B, providing that these representative monitoring locations are set out in the respective management plan/s.

ACCESS TO INFORMATION

D17. Before the commencement of development under this consent until the completion of all rehabilitation required under this consent, the Applicant must:

(a) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website:

(i) the documents listed in condition A2(c);

(ii) all current statutory approvals for the development;

(iii) all approved strategies, plans and programs required under the conditions of this consent;

(iv) minutes of CCC meetings;

(v) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;

(vi) 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;

(vii) a summary of the current phase and progress of the development;

(viii) contact details to enquire about the development or to make a complaint;

(ix) a complaints register, updated monthly;

(x) the Annual Reviews of the development;

(xi) audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report; and

(xii) any other matter required by the Planning Secretary; and

(b) keep such information up to date, to the satisfaction of the Planning Secretary.

APPENDIX 1 SCHEDULE OF LAND

Lot	DP	Tenure	Landowner
1	1124189	Freehold	Boral Cement Limited
2	1124189	Freehold	Boral Cement Limited
12	881240	Freehold	Boral Resources (NSW) Pty Ltd
23	867667	Freehold	Boral Resources (NSW) Pty Ltd
3	203290	Freehold	Boral Resources (NSW) Pty Ltd
4	203290	Freehold	Boral Resources (NSW) Pty Ltd
282	750029	Crown	Crown Land
24	867667	Freehold	Boral Resources (NSW) Pty Ltd
22	867667	Freehold	Boral Limited
1	261615	Freehold	Boral Cement Limited
1	860561	Freehold	Boral Cement Limited
2	860561	Freehold	Boral Cement Limited
1	106569	Freehold	Boral Cement Limited
2	527500	Freehold	Boral Cement Limited
1	527500	Freehold	Boral Cement Limited
2	106569	Freehold	Boral Cement Limited
100	1064794	Freehold	Boral Cement Limited
12	570616	Freehold	Boral Resources (NSW) Pty Ltd
16	111641	Freehold	Boral Cement Limited
14	111641	Freehold	Boral Cement Limited
15	111641	Freehold	Boral Cement Limited
7	111641	Freehold	Boral Cement Limited
6	111641	Freehold	Boral Cement Limited
111	830458	Freehold	Boral Resources (NSW) Pty Ltd
114	830458	Freehold	Boral Limited
112	830458	Freehold	Boral Cement Limited
113	830458	Freehold	Boral Cement Limited
2	1186554	Freehold	Boral Cement Limited
1	617992	Freehold	Boral Cement Limited
9	111645	Freehold	Boral Cement Limited
1	132244	Freehold	Boral Cement Limited
2	132244	Freehold	Boral Cement Limited
3	106569	Freehold	Boral Cement Limited
3	527501	Freehold	Boral Cement Limited
4	106569	Freehold	Boral Cement Limited
21	657523	Freehold	Boral Resources (NSW) Pty Ltd
3	617992	Freehold	Boral Cement Limited
114	750029	Freehold	Boral Cement Limited
82	750029	Freehold	Boral Cement Limited
32	750029	Freehold	Boral Cement Limited
7300	1149129	Crown	Crown Land
165	750029	Freehold	Boral Cement Limited
193	750029	Freehold	Boral Cement Limited
115	750029	Freehold	Boral Cement Limited
131	750029	Freehold	Boral Cement Limited
154	750029	Freehold	Boral Cement Limited
186	750029	Freehold	Boral Cement Limited
179	750029	Freehold	Boral Cement Limited
156	750029	Freehold	Boral Cement Limited
197	750029	Freehold	Boral Cement Limited
83	750029	Freehold	Boral Cement Limited
155	750029	Freehold	Boral Cement Limited
87	750029	Freehold	Boral Cement Limited
1701	610507	Freehold	Boral Cement Limited
1702	610507	Freehold	Boral Cement Limited
98	750029	Crown	Crown Land
187	750029	Freehold	Boral Cement Limited
191	750029	Freehold	Boral Cement Limited
7302	1149129	Crown	Crown Land
7301	1149129	Crown	Crown Land
7303	1149129	Crown	Crown Land

APPENDIX 2 DEVELOPMENT LAYOUT PLANS

Figure 4.10
The Project

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
ENVIRONMENTAL IMPACT STATEMENT

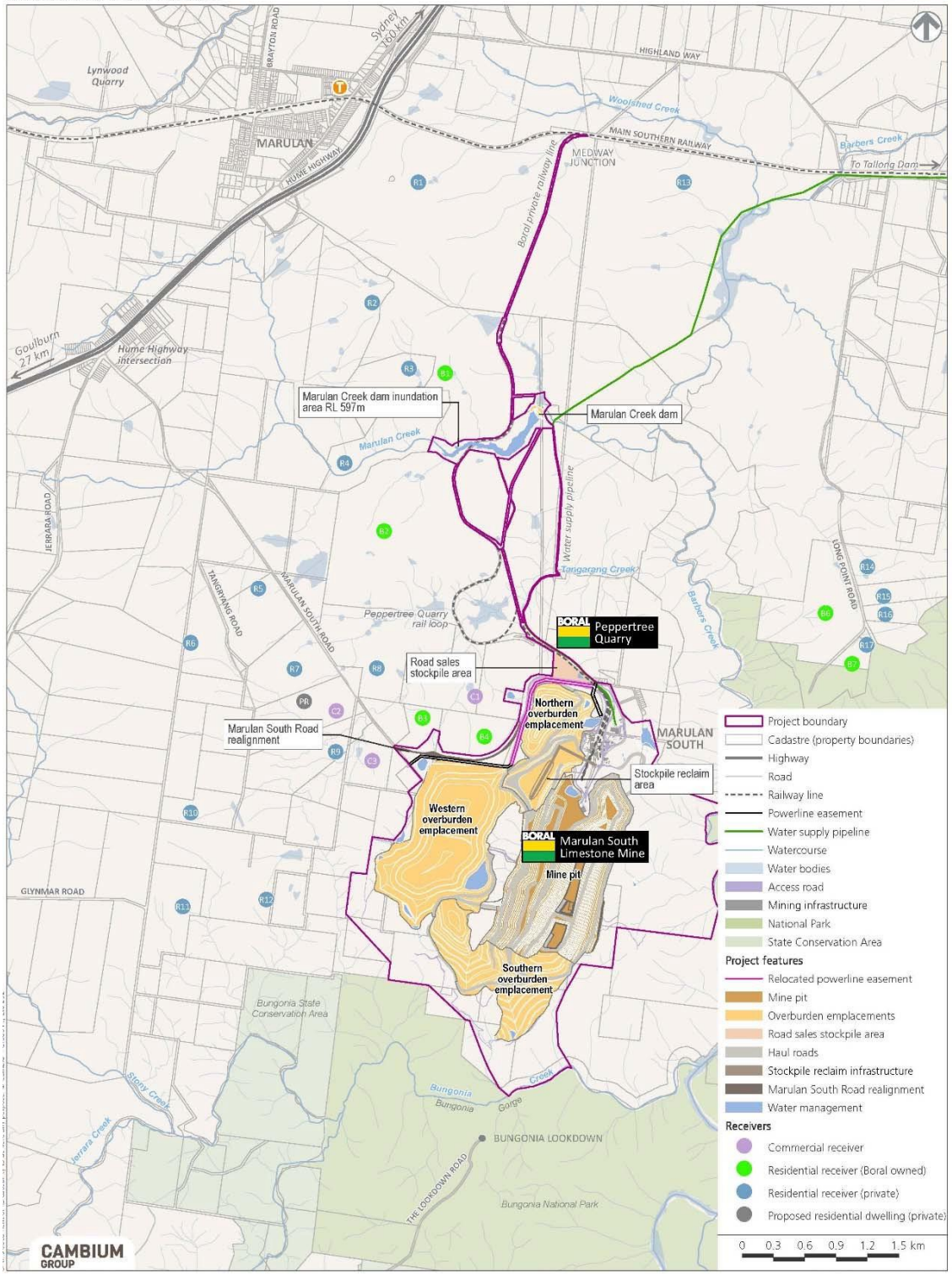


Figure 1: *Development Layout Plan*

Figure 4.11
The Project (Marulan Creek Dam)

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
SURFACE WATER ASSESSMENT

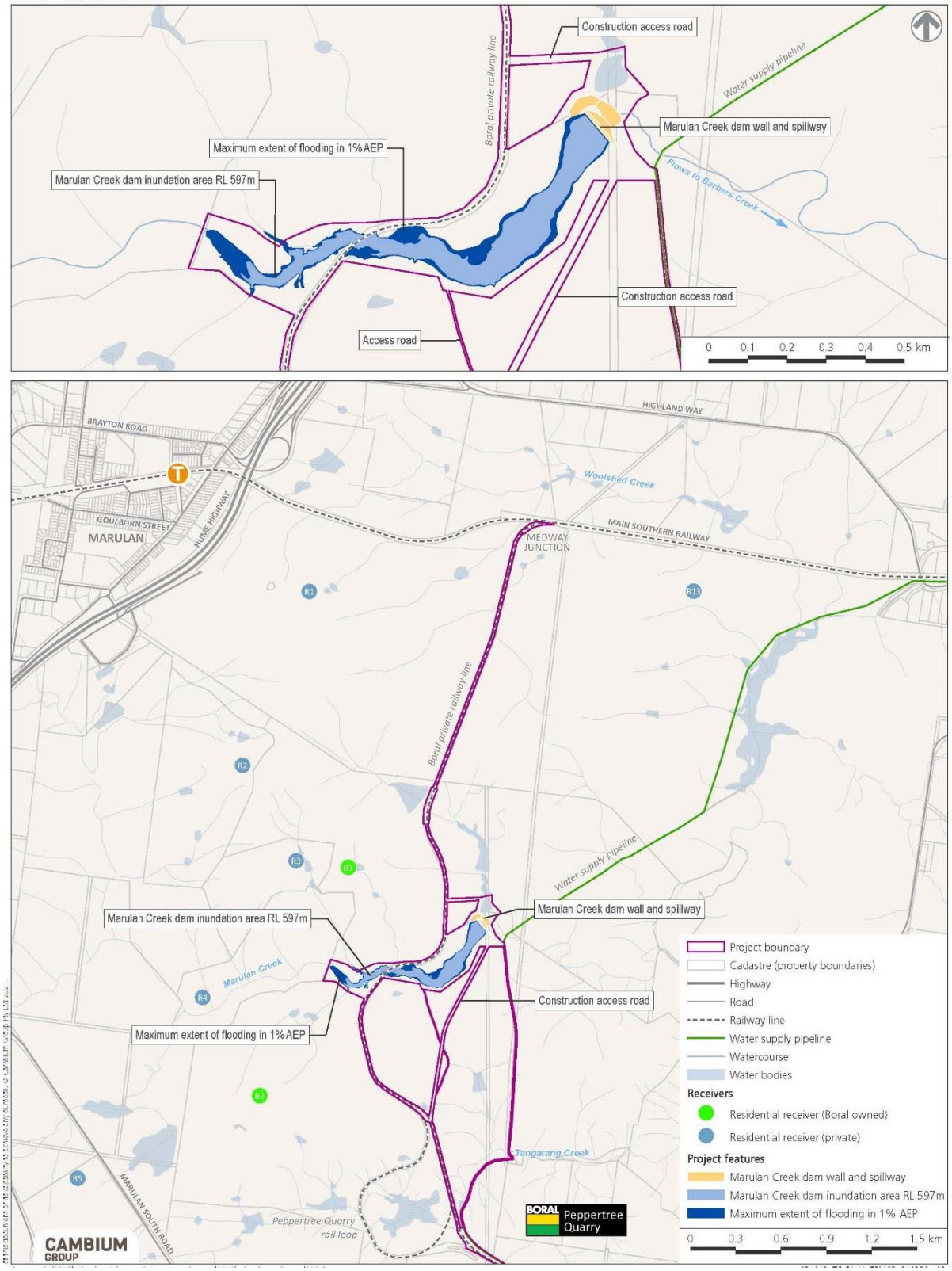


Figure 2: *Marulan Creek Dam Layout*

APPENDIX 3 RECEIVER LOCATIONS

Figure 2.9
Land ownership

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
ENVIRONMENTAL IMPACT STATEMENT

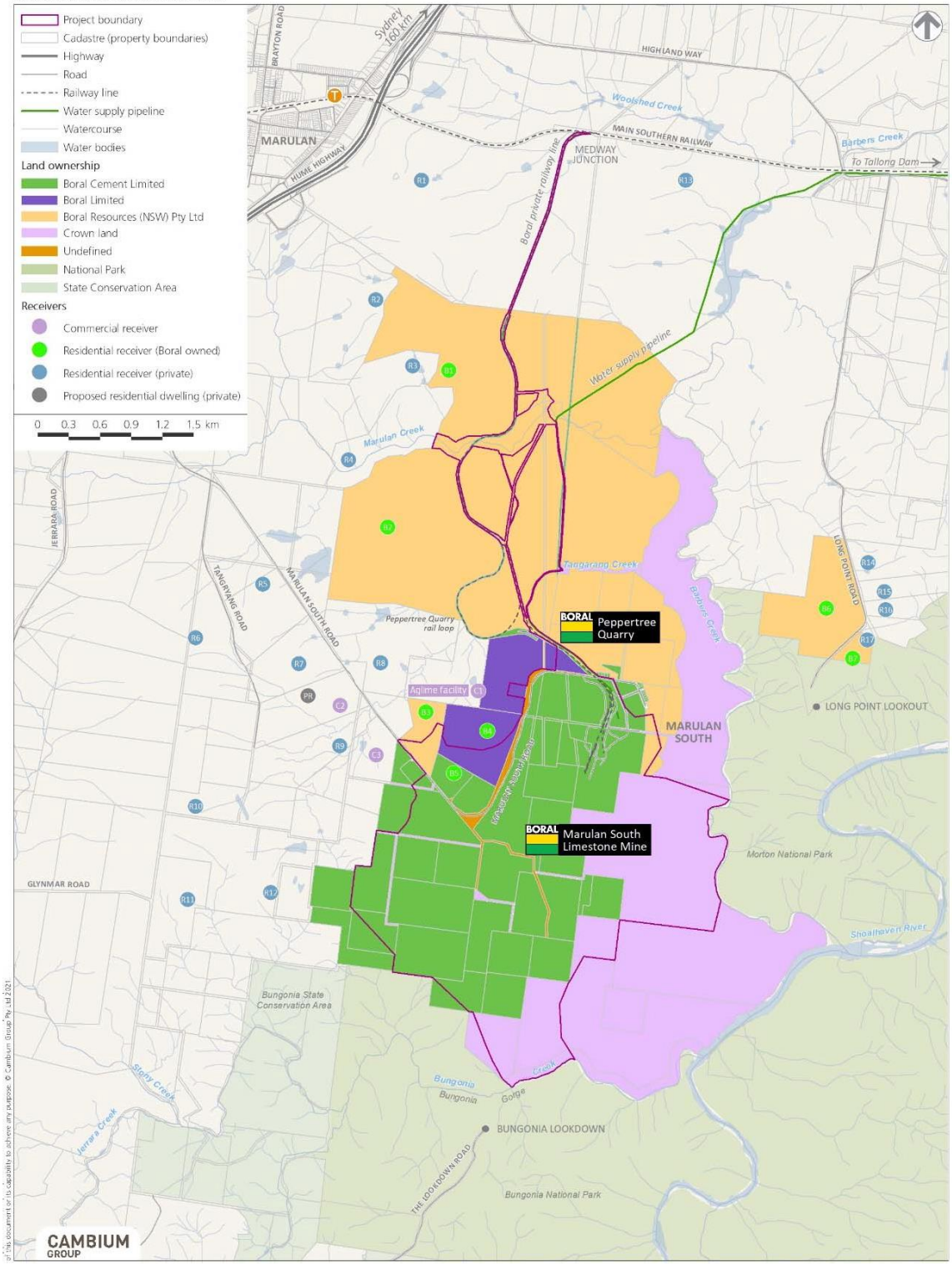


Figure 3: *Receiver Locations*

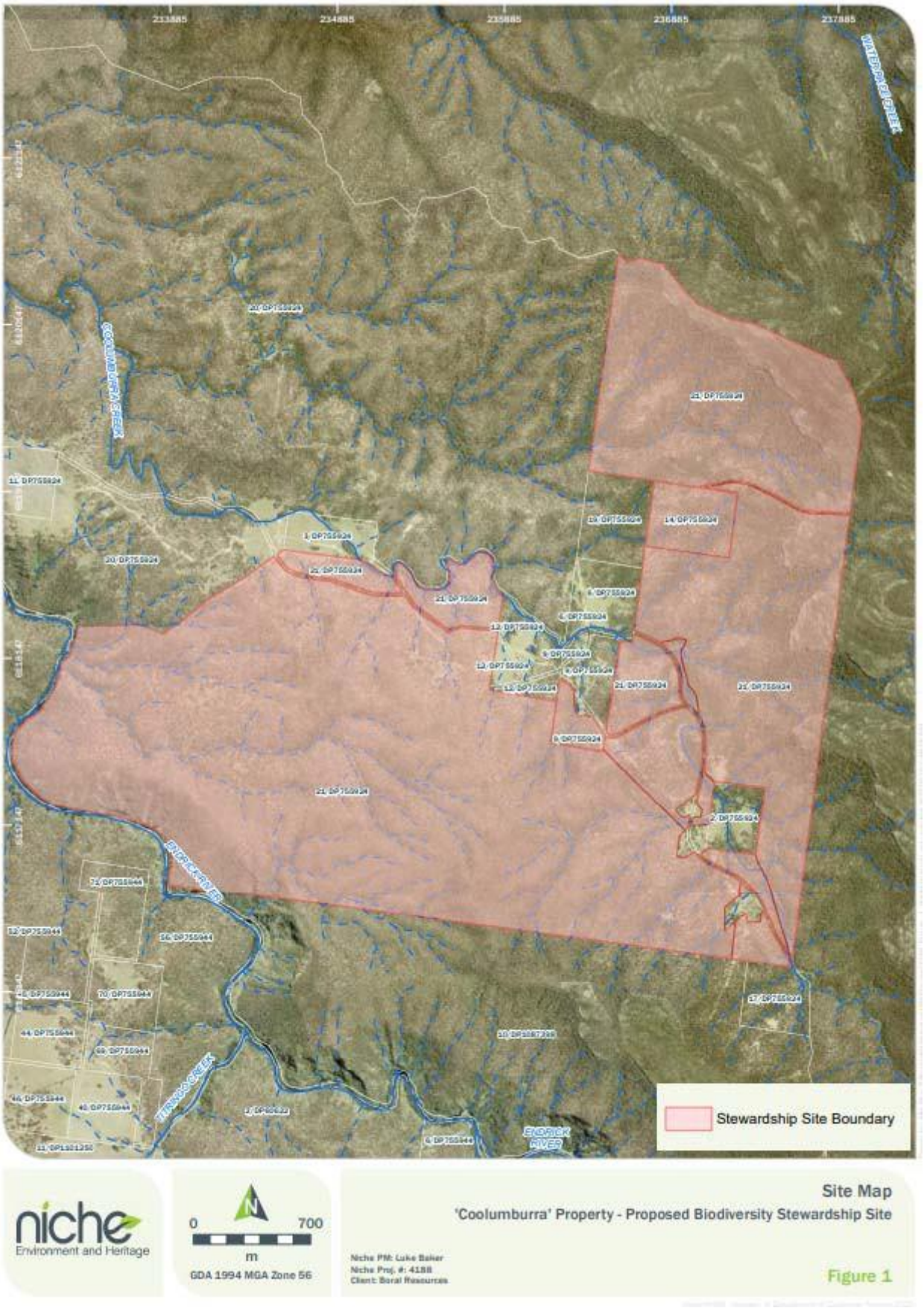


Figure 4: *Biodiversity offset area*

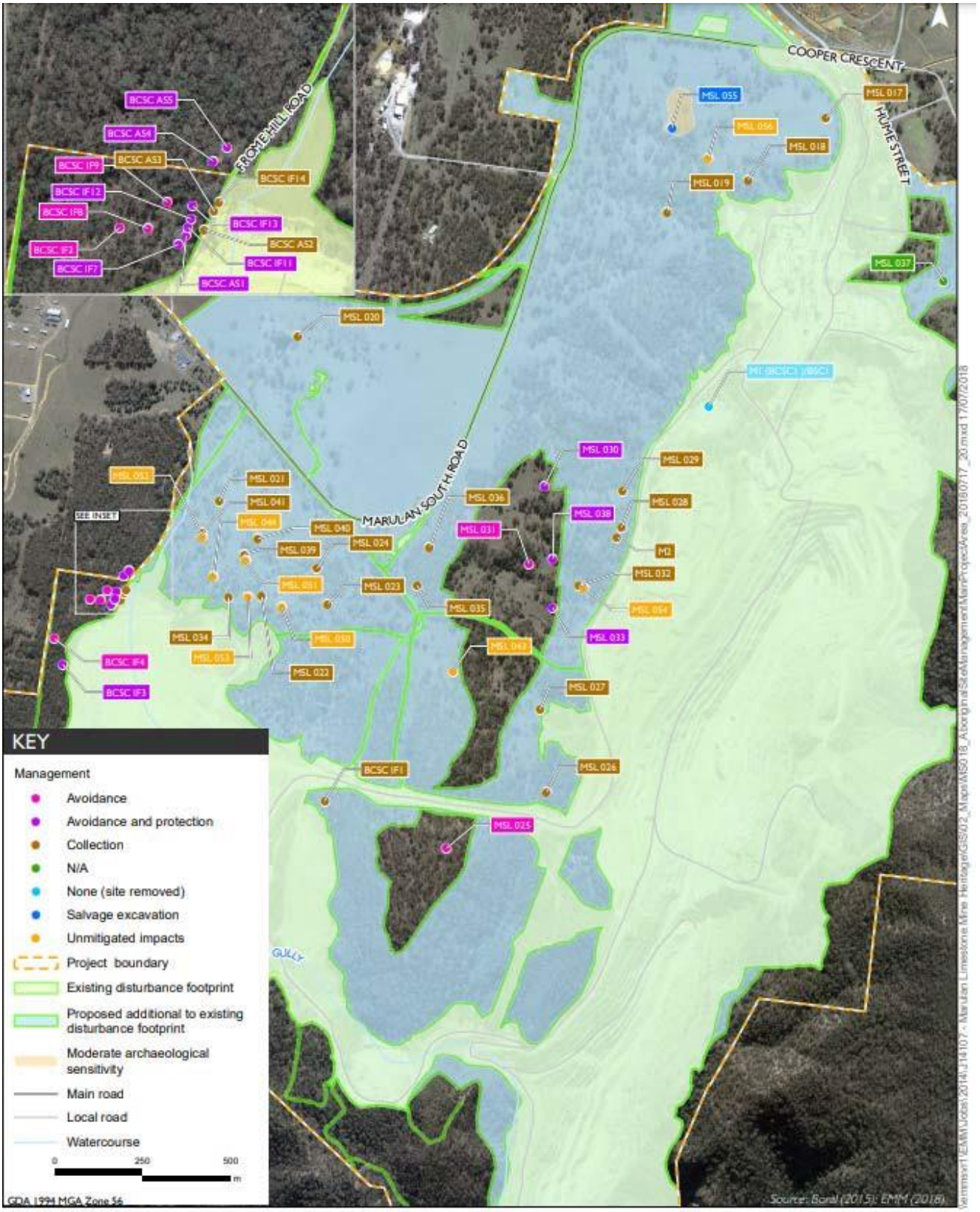


Figure 5: *Aboriginal Heritage Sites*

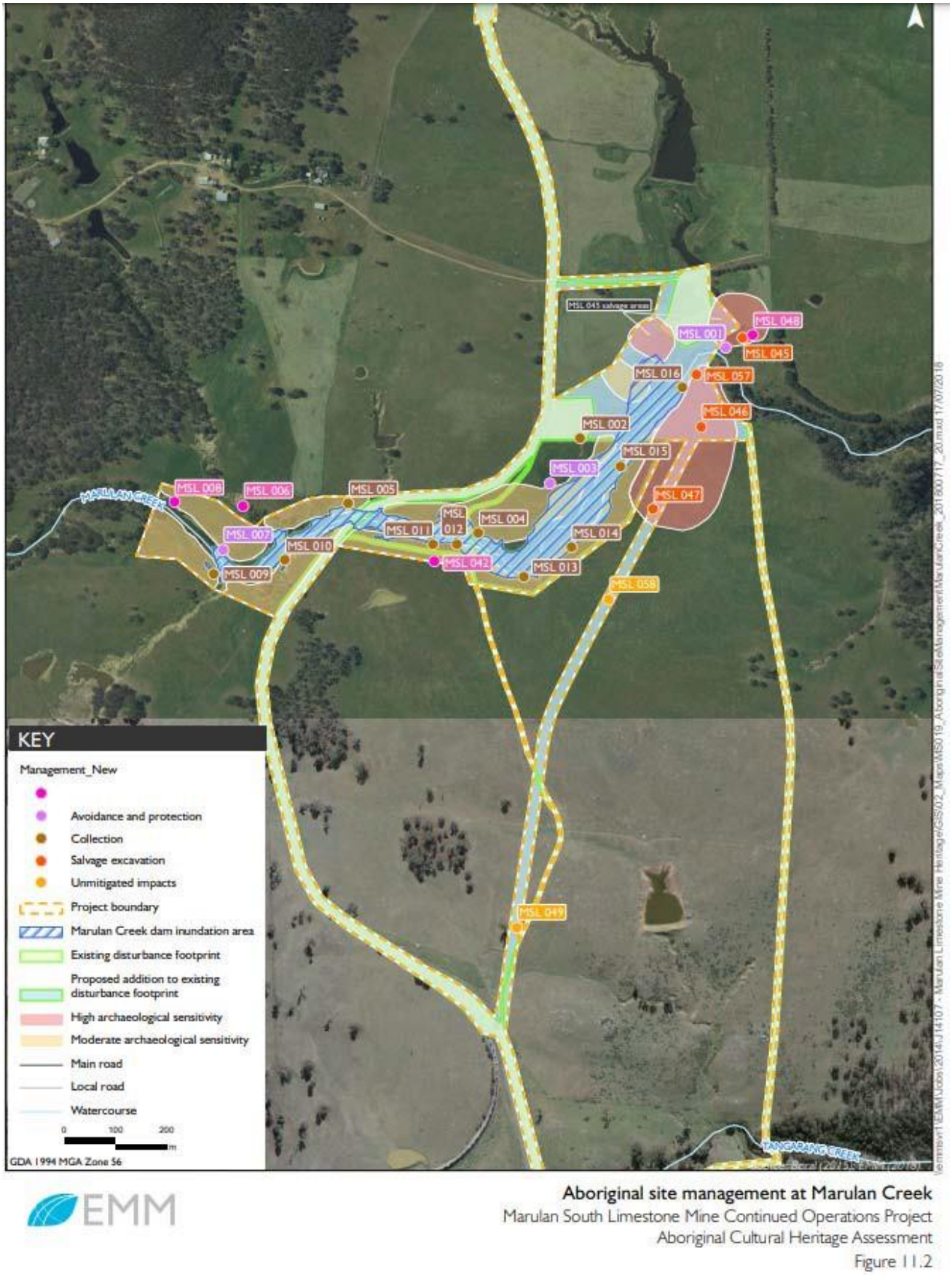


Figure 6: *Aboriginal Heritage Sites (Marulan Creek Dam)*

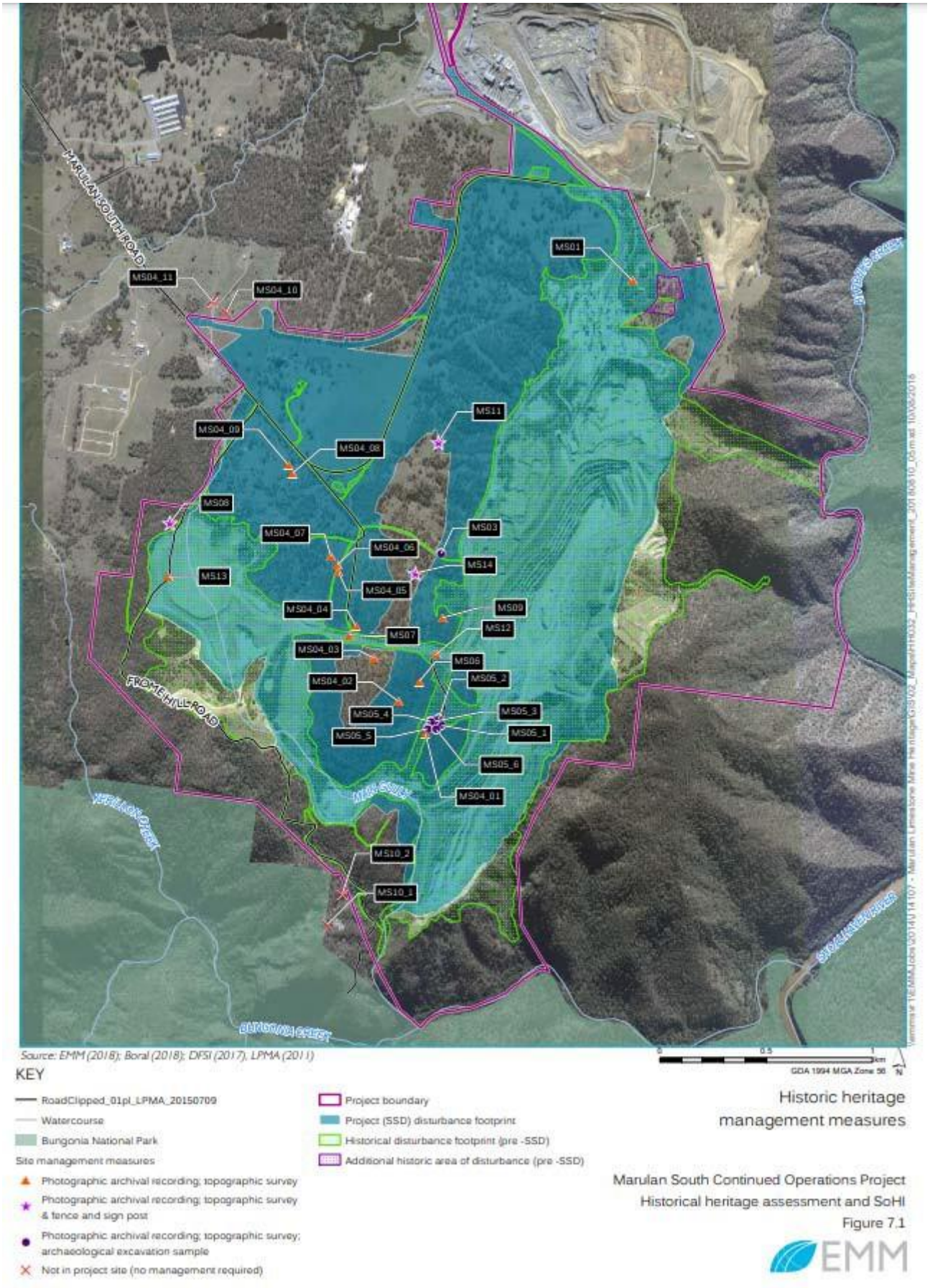


Figure 7: *Historic Heritage Sites*

APPENDIX 6 REHABILITATION PLANS

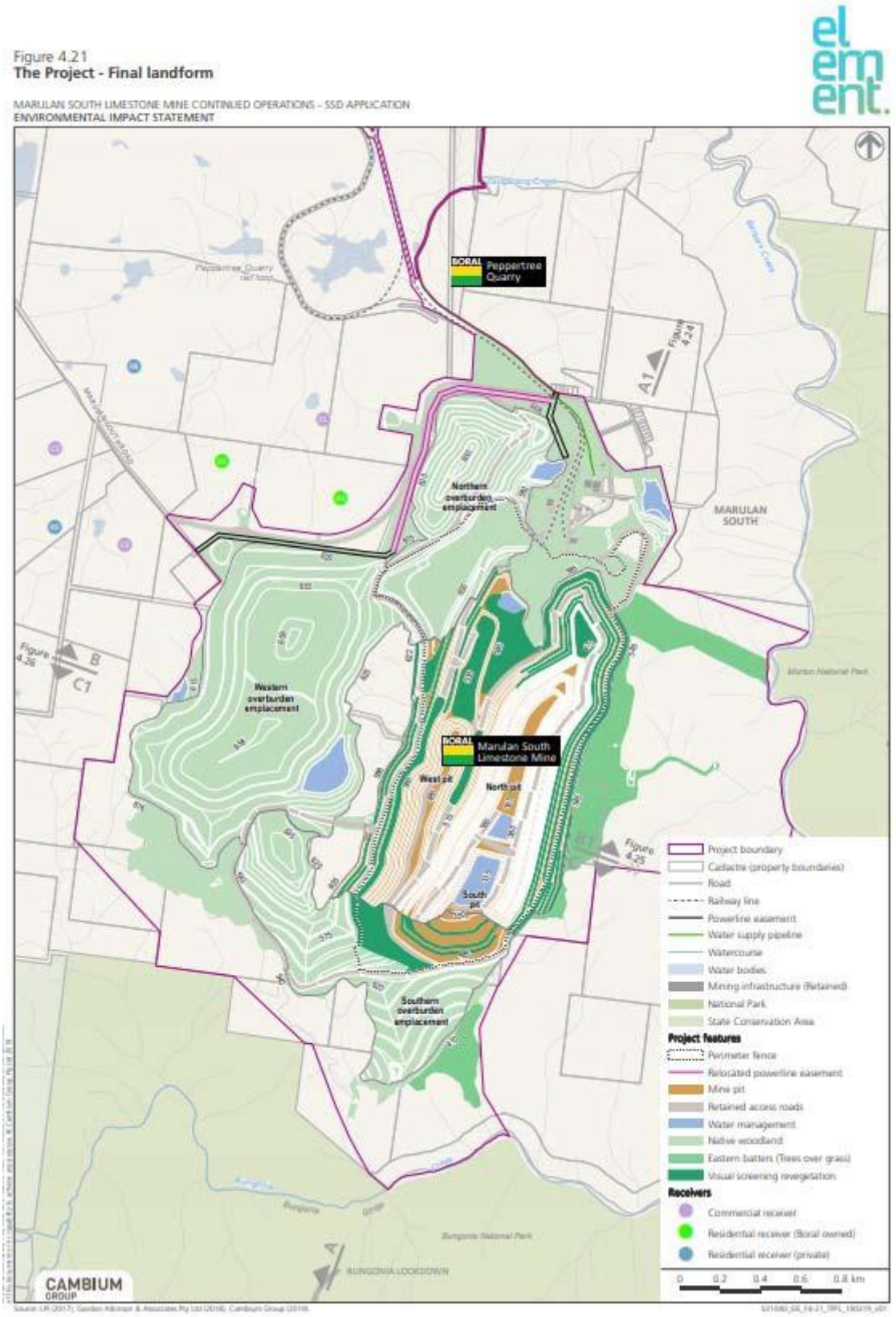


Figure 8: *Conceptual Final Landform*

Figure 4.23
The Project - Final landform (Marulan Creek Dam)

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
ENVIRONMENTAL IMPACT STATEMENT

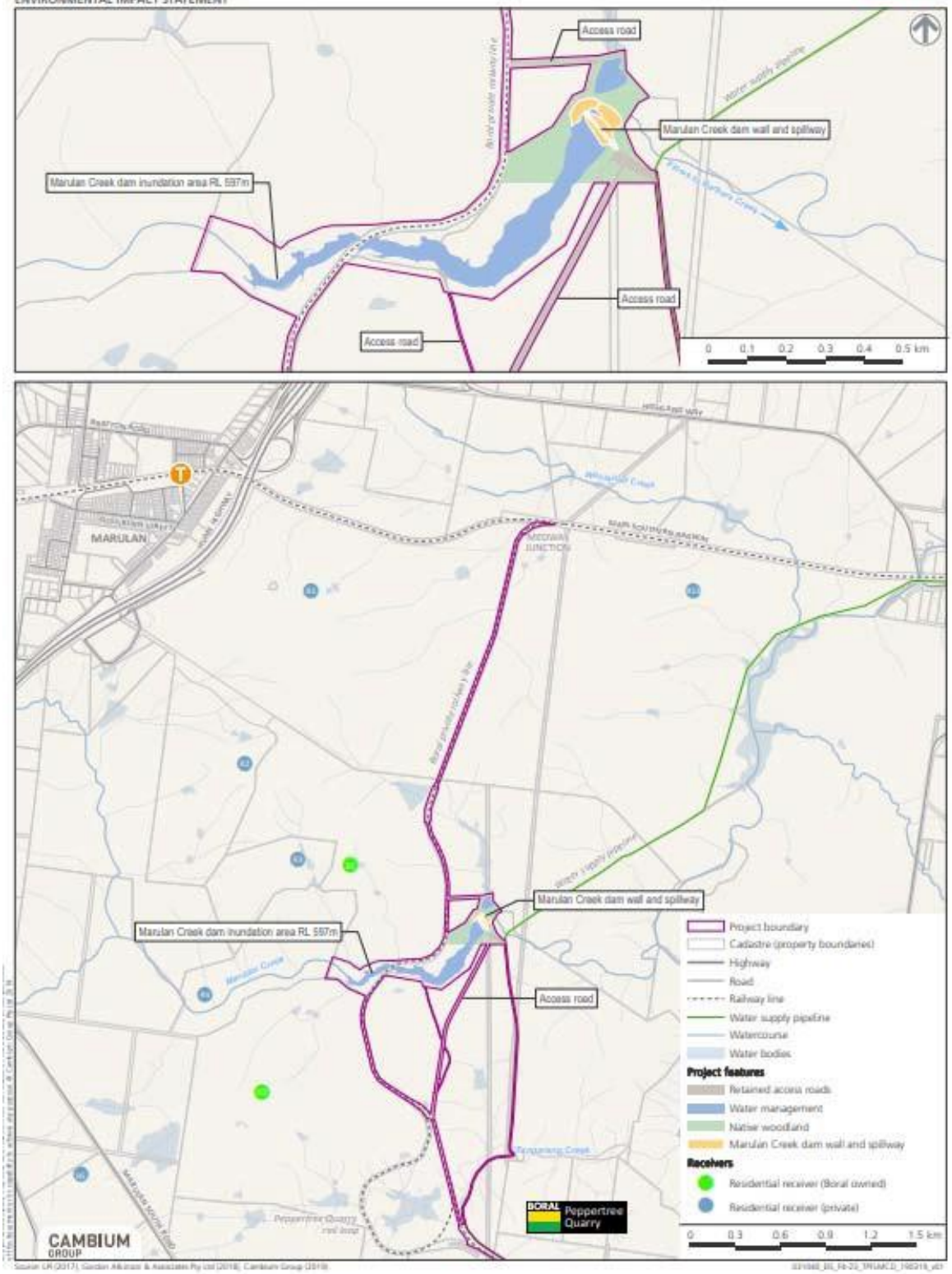


Figure 9: *Conceptual Final Landform (Marulan Creek Dam)*

APPENDIX C

EPBC Act Approval (EPBC 2015/7521)

Australian Government
Department of Agriculture, Water and the Environment

APPROVAL

Marulan South Limestone Mine Extension Project, Marulan South, NSW (EPBC 2015/7521)

This decision is made under sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (the EPBC Act). Note that section 134(1A) of the EPBC Act applies to this approval, which provides in general terms that if the approval holder authorises another person to undertake any part of the action, the approval holder must take all reasonable steps to ensure that the other person is informed of any conditions attached to this approval, and that the other person complies with any such condition.

Details

Person to whom the approval is granted (approval holder)	Boral Cement Limited
ACN or ABN of approval holder	008 528 523
Action	To expand an existing limestone and clay mining operation (Consolidated Mining Lease No. 16) and construct and operate mine-related infrastructure, for up to 30 years in Marulan South, 10 kilometres southeast of Marulan Village [See EPBC Act referral 2015/7521, subject to the variation request received on 22 September 2021].

Approval decision

My decision on whether or not to approve the taking of the action for the purposes of the controlling provision for the action is as follows.

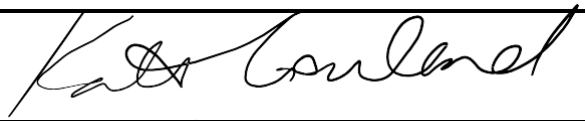
Controlling Provisions

Listed Threatened Species and Communities	
Section 18	Approve
Section 18A	Approve

Period for which the approval has effect

This approval has effect until 31 August 2071.

Decision-maker

Name and position	Kate Gowland, Acting Assistant Secretary, Environment Assessments (NSW, ACT) Branch
Signature	
Date of decision	7/10/2021

Conditions of approval

This approval is subject to the conditions under the EPBC Act as set out in ANNEXURE A.

ANNEXURE A – CONDITIONS OF APPROVAL

Part A – Conditions specific to the action

Listed threatened species and ecological communities

The objective of conditions 1, 2 and 3 is to minimise and compensate for the impacts of the action on **protected matters**.

1. Within the **development footprint**, the approval holder must not **clear** more than:

    a. 80.7 hectares of **White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland**;

    b. 132.4 hectares of **Koala habitat**; or

    c. 140.3 hectares of **Large-eared Pied Bat habitat**.

    Clearing may only

    be undertaken where shown within the **development footprint** as '**White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland**' on the map at Attachment 2, where shown within the **development footprint** as '**Koala habitat**' on the map at Attachment 3, and where shown within the **development footprint** as '**Large-eared Pied Bat habitat**' on the map at Attachment 4.

2. To compensate for the **clearance** of **White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, Koala habitat** and **Large-eared Pied Bat habitat**, the approval holder must **retire credits** prior to the **commencement of the action**, as specified:

    a. 935 ecosystem **credits** for **White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland**;

    b. 2,454 species **credits** for **Koala**; and

    c. 3,836 species **credits** for **Large-eared Pied Bat**.

3. The approval holder must comply with the **State development consent** conditions A2, A5, B51, B52, B53, B54, B55, B56, B76, B78, B79, B80, B81 and B82.

Part B – Standard administrative conditions

Notification of date of commencement of the action

4. The approval holder must notify the **Department** in writing of the date of **commencement of the action** within 10 **business days** after the date of **commencement of the action.**

5. If the **commencement of the action** does not occur within 5 years from the date of this approval, then the approval holder must not **commence the action** without the prior written agreement of the **Minister**.

Compliance records

6. The approval holder must maintain accurate and complete **compliance records**.

7. If the **Department** makes a request in writing, the approval holder must provide electronic copies of **compliance records** to the **Department** within the timeframe specified in the request.

Note: **Compliance records** may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the **Department**'s website or through the general media.

Annual compliance reporting

8. The approval holder must prepare a **compliance report** for each 12 month period following the date of **commencement of the action**, or as otherwise agreed in writing by the **Minister**. The approval holder must:
    a. publish each **compliance report** on the **website** within 60 **business days** following the relevant 12 month period
    b. notify the **Department** by email that a **compliance report** has been published on the **website** and provide the weblink for the **compliance report** within 5 **business days** of the date of publication
    c. keep all **compliance reports** publicly available on the **website** until this approval expires
    d. exclude or redact **sensitive ecological data** from **compliance reports** published on the **website**
    e. where any **sensitive ecological data** has been excluded from the version published, submit the full **compliance report** to the **Department** within 5 **business days** of publication.

Note: **Compliance reports** may be published on the **Department**'s website.

Reporting non-compliance

9. The approval holder must notify the **Department** in writing of any: **incident** or non-compliance with the conditions. The notification must be given as soon as practicable, and no later than 2 **business days** after becoming aware of the **incident** or non-compliance. The notification must specify:
    a. any condition which is or may be in breach
    b. a short description of the **incident** and/or non-compliance
    c. the location (including co-ordinates), date, and time of the **incident** and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.
10. The approval holder must provide to the **Department** the details of any **incident** or non-compliance with the conditions or commitments made in **plans** as soon as practicable and no later than 10 **business days** after becoming aware of the **incident** or non-compliance, specifying:
    a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future
    b. the potential impacts of the **incident** or non-compliance
    c. the method and timing of any remedial action that will be undertaken by the approval holder.

Independent audit

11. The approval holder must ensure that **independent audits** of compliance with the conditions are conducted as requested in writing by the **Minister**.
12. For each **independent audit**, the approval holder must:
    a. provide the name and qualifications of the independent auditor and the draft audit criteria to the **Department**

b. only commence the **independent audit** once the audit criteria have been approved in writing by the **Department**

c. submit an audit report to the **Department** within the timeframe specified in the approved audit criteria.

13. The approval holder must publish the audit report on the **website** within 10 **business days** of receiving the **Department's** approval of the audit report and keep the audit report published on the **website** until the end date of this approval.

Completion of the action

14. Within 20 **business days** after the **completion of the action**, the approval holder must notify the **Department** in writing and provide **completion data**.

Changes to State development consent

15. The approval holder must notify the **Department** in writing of any proposed change to the **State development consent** conditions referred to in these conditions within 10 **business days** of formally proposing a change or becoming aware of any proposed change where the proposed change would or is likely to alter or increase the impacts of the action on **protected matters**.

16. The approval holder must notify the **Department** in writing of any change to the conditions of the **State development consent** referred to in these conditions, for which notice was required to be given in accordance with condition 15 above, within 10 **business days** of a change to conditions being finalised.

Part C - Definitions

In these conditions, except where contrary intention is expressed, the following definitions are used:

Business day means a day that is not a Saturday, a Sunday or a public holiday in the state or territory of the action.

Clear/cleared/clearance/cleaning means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation (but not including weeds – see the *Australian weeds strategy 2017 to 2027* for further guidance).

Commence the action/Commencement of the action means the first instance of any specified activity associated with the action including **clearing** and **construction**. **Commencement of the action** does not include minor physical disturbance necessary to:

i. undertake pre-clearance surveys or monitoring programs

ii. install signage and /or temporary fencing to prevent unapproved use of the project area

iii. protect environmental and property assets from fire, weeds and pests, including installation of temporary fencing, and maintenance of existing surface access tracks

iv. install temporary site facilities for persons undertaking pre-commencement activities so long as these are located where they have no impact on the **protected matters**

v. undertaking geotechnical investigations if it causes only minor physical disturbance and is required well in advance of most site works to inform design.

Completion data means an environmental report and spatial data clearly detailing how the conditions of this approval have been met. The **Department**'s preferred spatial data format is **shapefile**.

Completion of the action means the date on which all specified activities associated with the action have permanently ceased.

Compliance records means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the approval holder's power to obtain lawfully.

Compliance reports means written reports:

i. providing accurate and complete details of compliance, **incidents**, and non-compliance with the conditions and the **plans;**

ii. consistent with the **Department's** *Annual Compliance Report Guidelines* (2014);

iii. include a **shapefile** of any clearance of any **protected matters**, or their habitat, undertaken within the relevant 12 month period; and

iv. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.

Credit(s) means biodiversity credits under the *Biodiversity Conservation Act 2016 (NSW).*

Construction means the erection of a building or structure that is or is to be fixed to the ground and wholly or partially fabricated on-site; the alteration, maintenance, repair or demolition of any building or structure; preliminary site preparation work which involves breaking of the ground (including pile driving); the laying of pipes and other prefabricated materials in the ground, and any associated excavation work; but excluding the installation of temporary fences and signage.

Department means the Australian Government agency responsible for administering the **EPBC Act**.

Development footprint means the area represented in the maps at Attachments 1a, 1b and 1c by the zones marked with black hatching and described in the legend as *The Project - Disturbance footprint*.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

Impact (verb) means to cause any measurable direct or indirect disturbance or harmful change as a result of any activity associated with the action. **Impact** (noun) means any measurable direct or indirect disturbance or harmful change as a result of any activity associated with the action.

Incident means any event which has the potential to, or does, impact on one or more **protected matter(s)** other than as authorised by this approval decision.

Independent audit: means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2019).

Koala means the animal species *(Phascolarctos cinereus - combined populations of QLD, NSW and the ACT*), listed as threatened under the **EPBC Act**.

Koala habitat means the area of habitat on the map at Attachment 3, which is represented by three colours coded as *Koala habitat - High, Moderate and Poor* as described in the map legend, and which overlaps with the hatched area defined in the map legend as *The Project - Disturbance footprint*.

Large-eared Pied Bat means the animal species (*Chalinolobus dwyeri*), listed as threatened under the **EPBC Act**.

Large-eared Pied Bat habitat means the area of habitat represented on the map at Attachment 4 by polygons of all the three colours designated in the map legend as *Large-eared Pied Bat habitat (High, Moderate and Poor).*

Listed threatened species and ecological communities means threatened species and/or ecological communities listed under the **EPBC Act**.

Minister means the Australian Government Minister administering the **EPBC Act** including any delegate thereof.

Plan(s) means any of the documents required to be prepared, approved by the **Minister**, implemented by the approval holder and/or published on the **website** in accordance with these conditions (includes action management plans and/or strategies).

Protected matter(s) means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

Retire/retired/retirement – means to change the status of a **credit** such that the **credit** can no longer be bought or sold (*Biodiversity Conservation Act 2016* (NSW)).

Sensitive ecological data means data as defined in the Australian Government Department of the Environment (2016) *Sensitive Ecological Data – Access and Management Policy V1.0.*

Shapefile means location and attribute information of the action provided in an Esri shapefile format. Shapefiles must contain '.shp', '.shx', '.dbf' files and a '.prj' file that specifies the projection/geographic coordinate system used. Shapefiles must also include an '.xml' metadata file that describes the shapefile for discovery and identification purposes**.**

State development consent means the NSW State development consent for the application number SSD 7009 approved on 19 August 2021.

Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

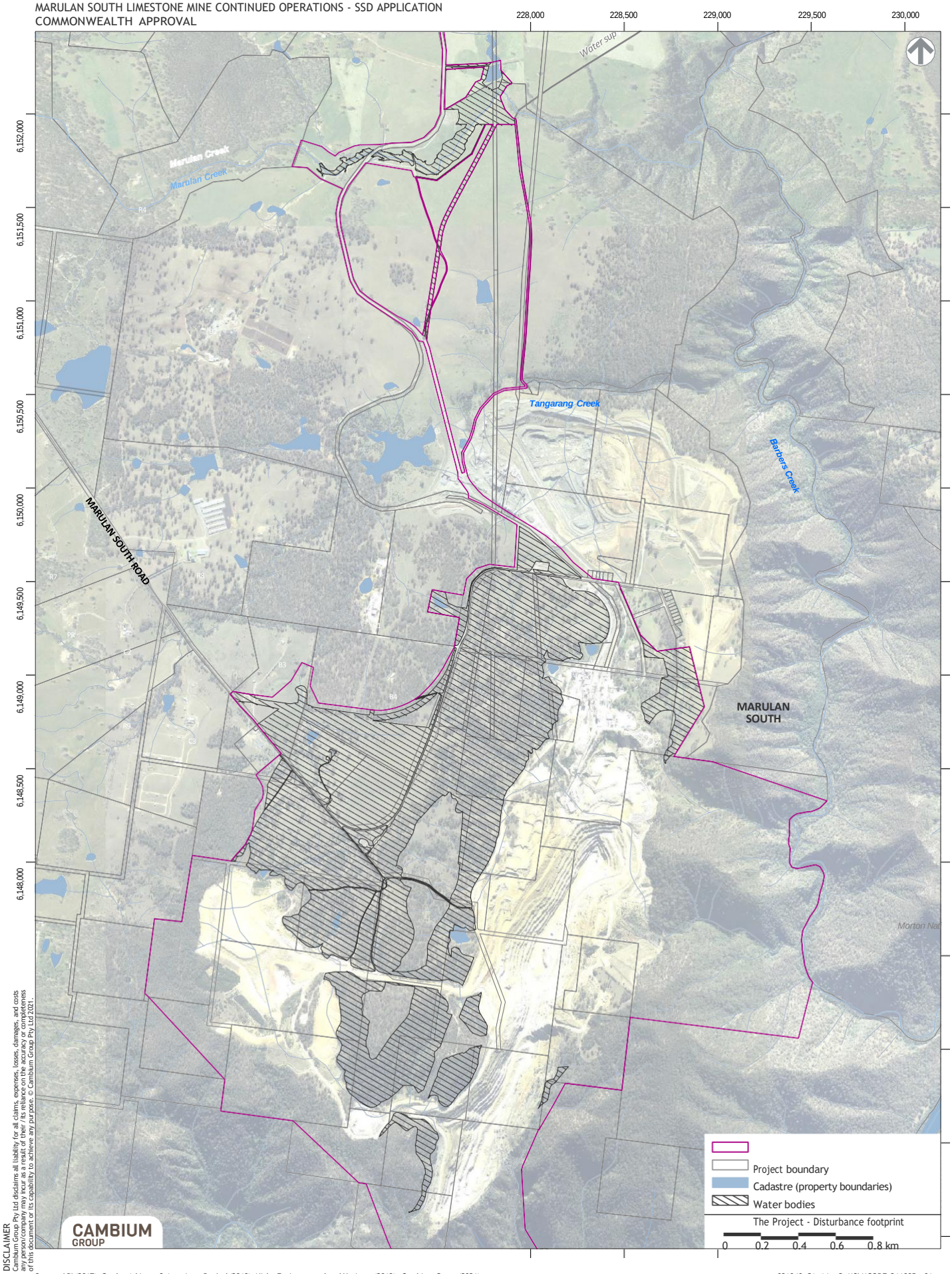
Website means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland means the ecological community of that name listed as critically endangered under the **EPBC Act**.

Attachment 1a

Overview - Marulan South limestone mine continued operations development footprint

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
COMMONWEALTH APPROVAL



Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), Niche Environmental and Heritage (2018), Cambium Group (2021).

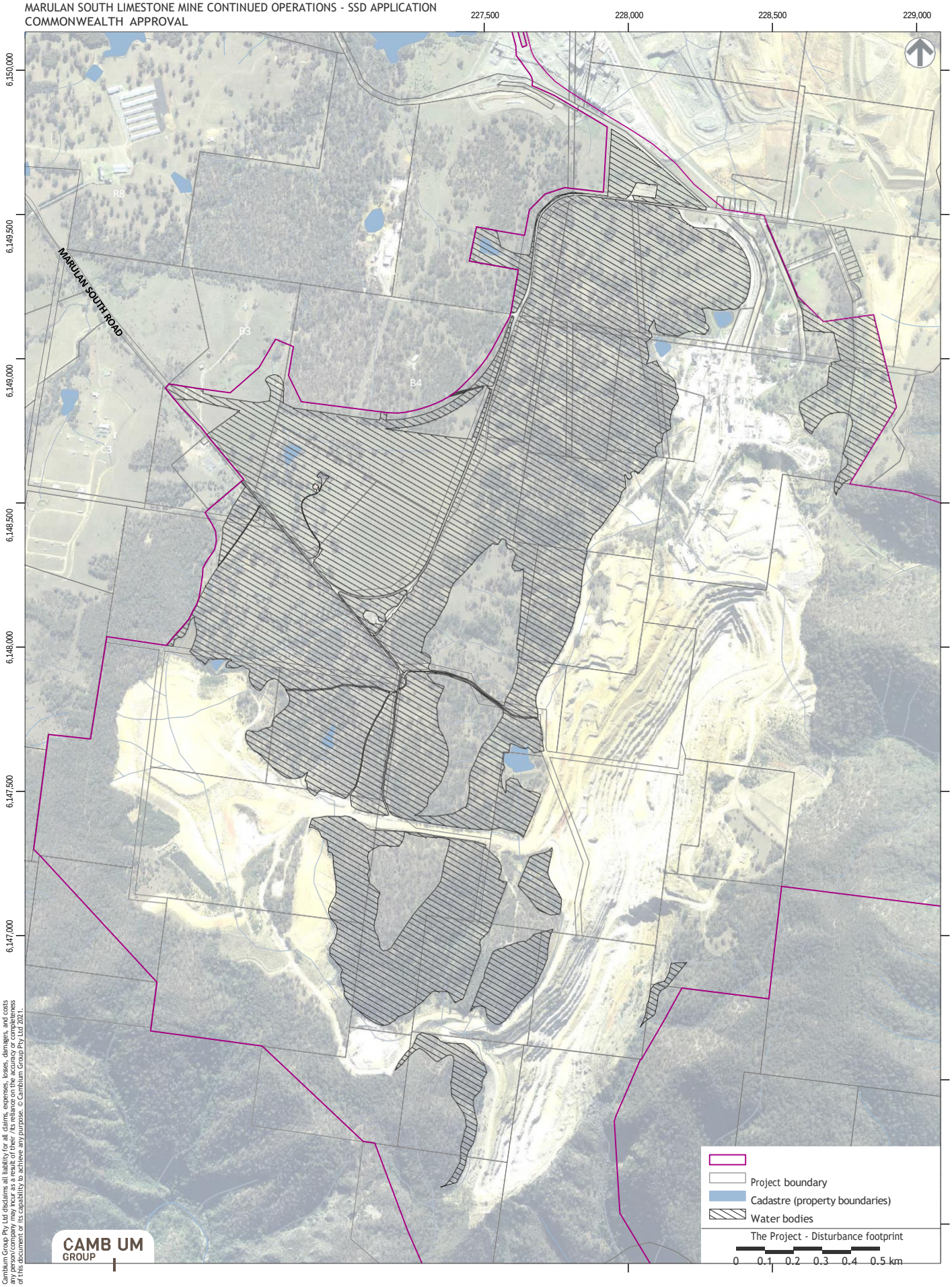
Coordinate system: GDA94 MGA Zone 56

031040_CA_A1a_O_MSLMCODF_211005_v01

Attachment 1b

Marulan South limestone mine continued operations development footprint

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
COMMONWEALTH APPROVAL



Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), Niche Environmental and Heritage (2018), Cambium Group (2021).

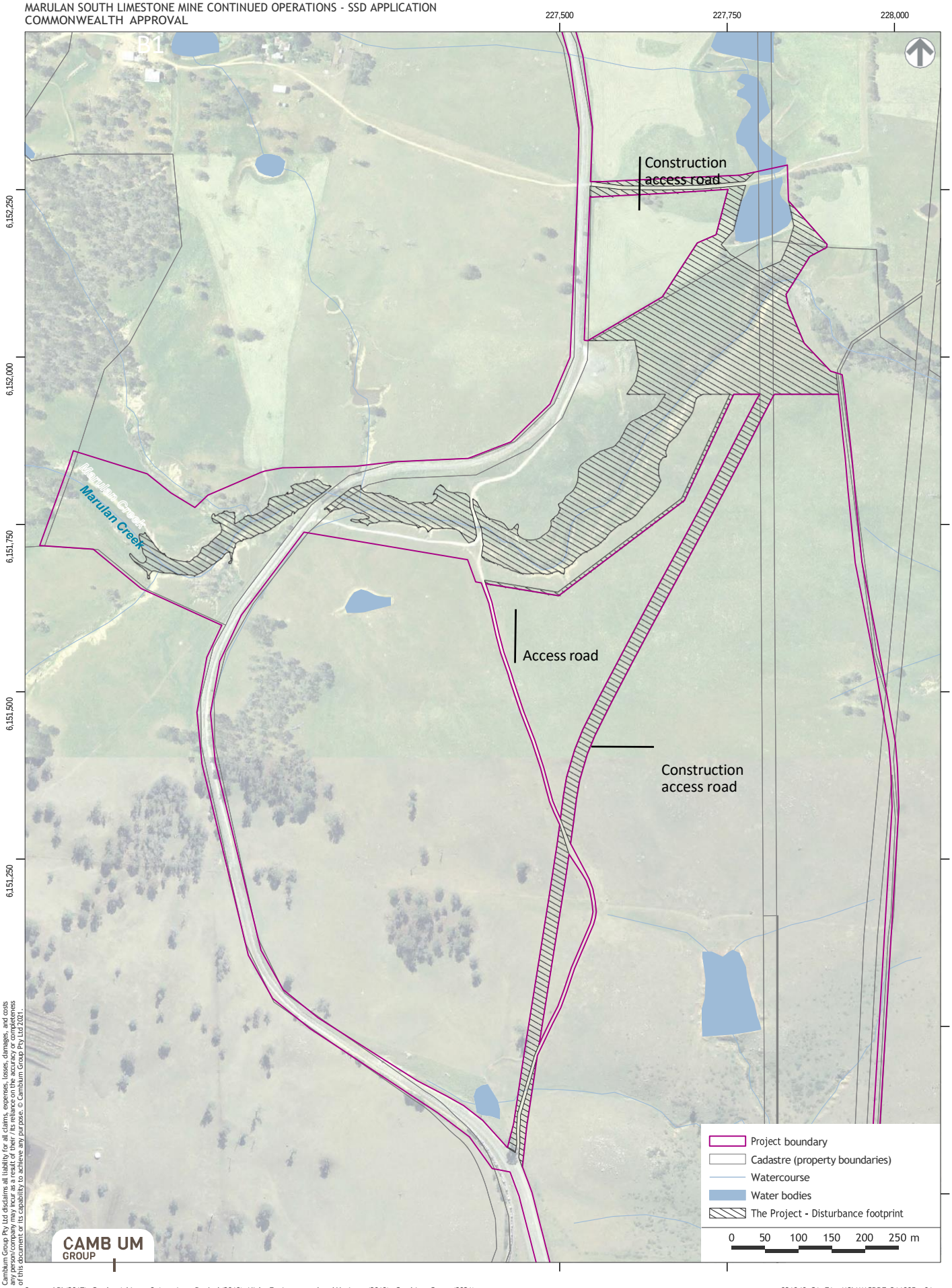
Coordinate system: GDA94 MGA Zone 56

031040_CA_A1b_MSLMDF_211005_v01

Attachment 1c

Marulan South limestone mine continued operations Marulan Creek development footprint

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
COMMONWEALTH APPROVAL



Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), Niche Environmental and Heritage (2018), Cambium Group (2021).
Coordinate system: GDA94 MGA Zone 56

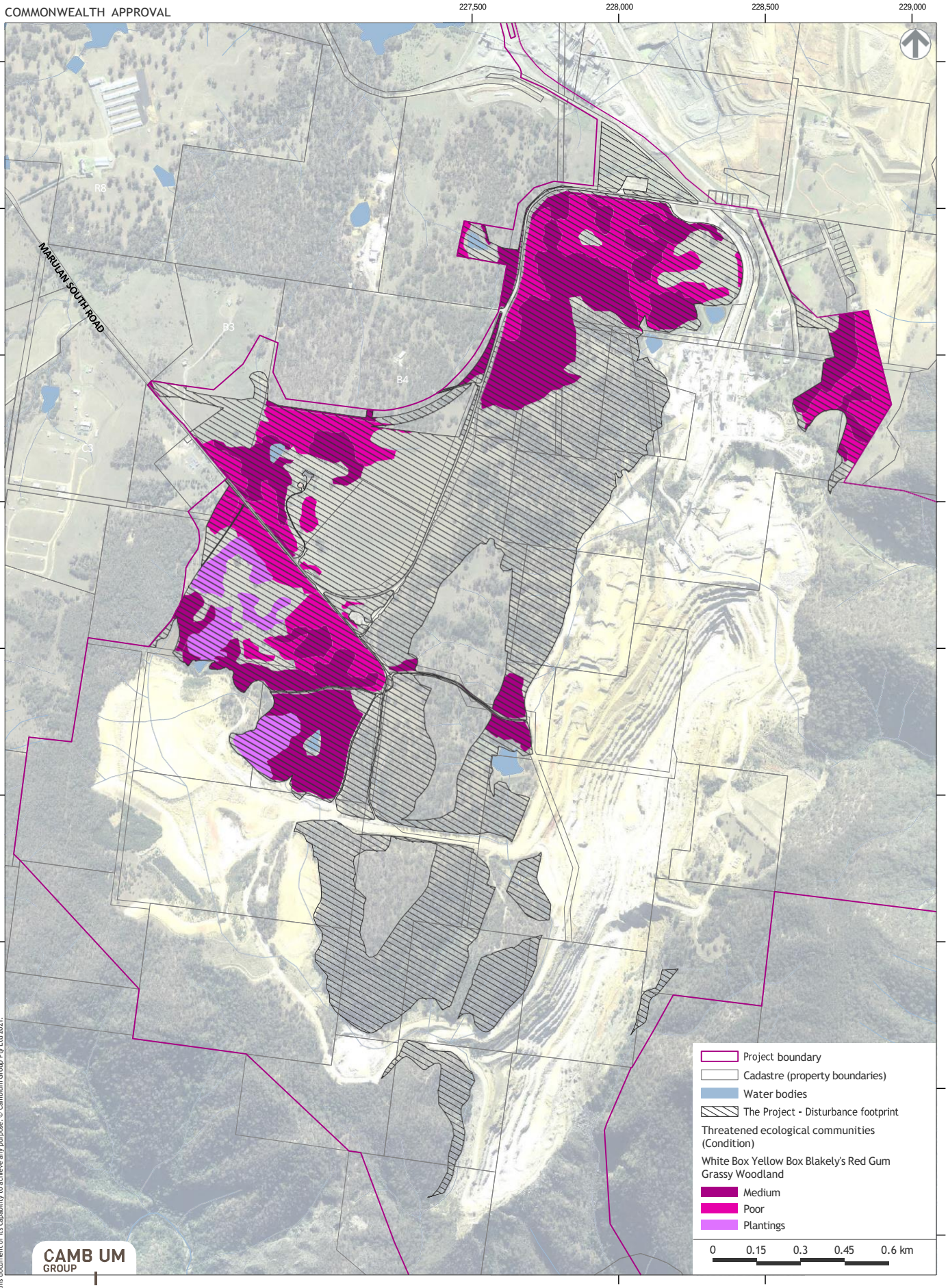
031040_CA_F1c_MSLMMCDDF_211005_v01

Attachment 2

Location of the White Box Yellow box Blakely's Red Gum Woodland and derived native grasslands in the development footprint

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION

COMMONWEALTH APPROVAL



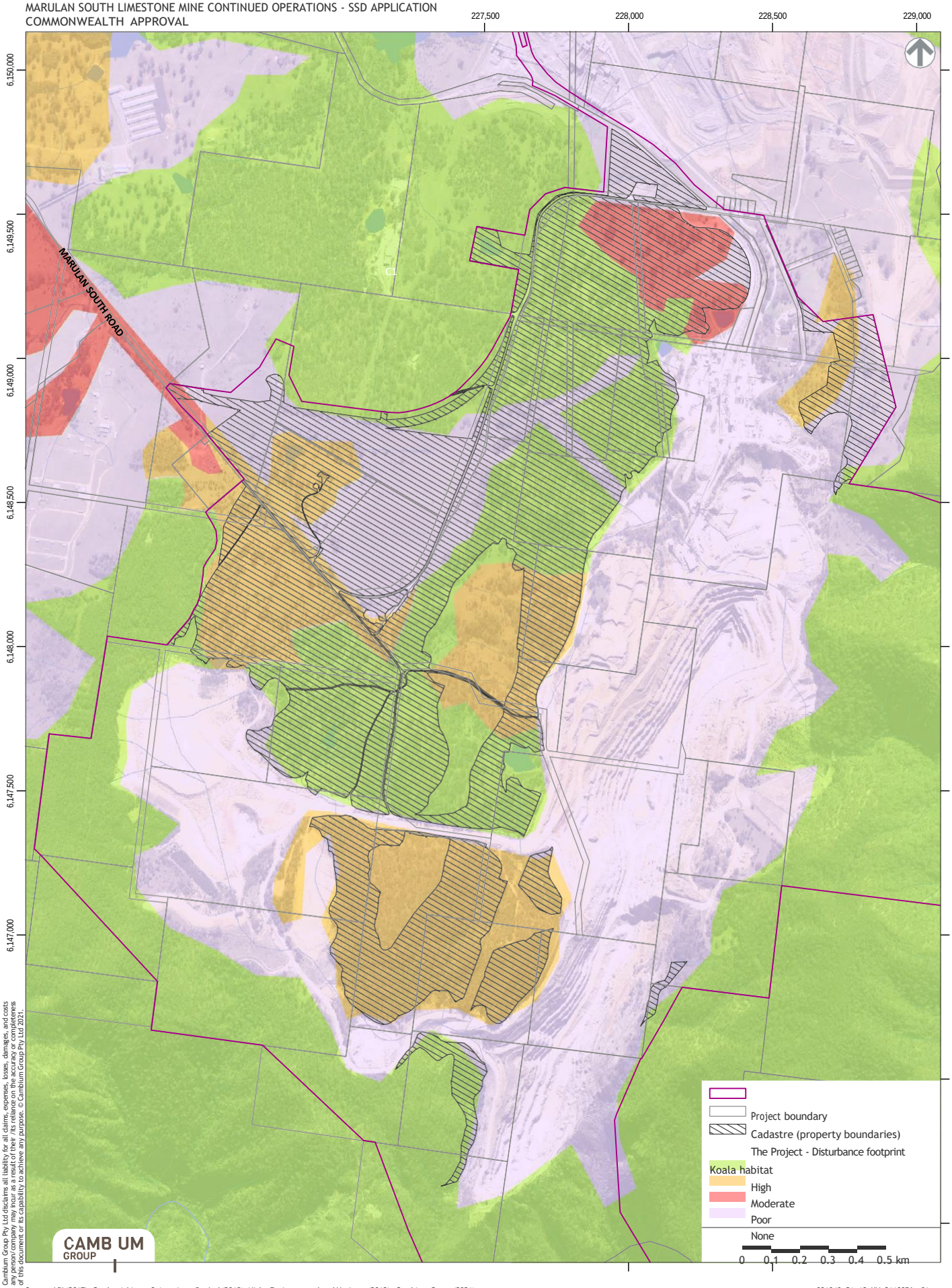
Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), Niche Environmental and Heritage (2018), Cambium Group (2021).

Coordinate system: GDA94 MGA zone 56

031040_CA_A2_TEC_211005_v01

Attachment 3
Location of Koala habitat in the development footprint

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
COMMONWEALTH APPROVAL



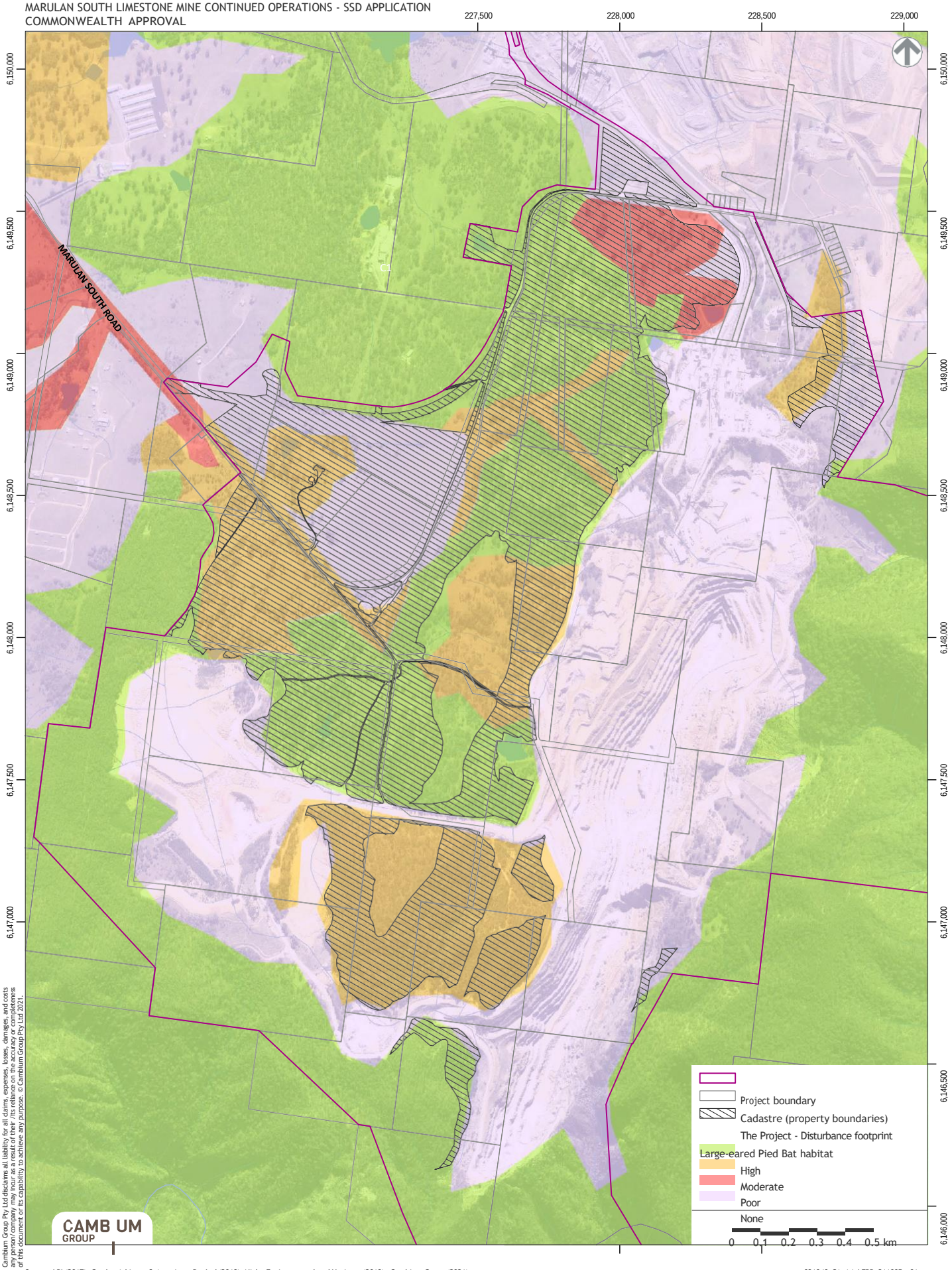
Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), Niche Environmental and Heritage (2018), Cambium Group (2021).

Coordinate system: GDA94 MGA zone 56

031040_CA_A3_KH_2110056_v01

Attachment 4
Location of Large-eared Pied Bat habitat in the development footprint

MARULAN SOUTH LIMESTONE MINE CONTINUED OPERATIONS - SSD APPLICATION
COMMONWEALTH APPROVAL



Source: LPI (2017), Gordon Atkinson & Associates Pty Ltd (2018), Niche Environmental and Heritage (2018), Cambium Group (2021).

Coordinate system: GDA94 MGA zone 56

031040_CA_A4_LEPB_211005_v01

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