



Marulan South Limestone Mine Continued Operations Project

State Significant Development Assessment SSD 7009

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Cover image: Aerial view of Marulan South Limestone Mine, looking north east (EIS Appendix S)

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Executive Summary

The Mine

Boral Cement Limited (Boral) owns and operates the Marulan South Limestone Mine, an open cut limestone mine located approximately 10 kilometres south-east of Marulan, in the Goulburn Mulwaree local government area. The mine is the oldest and largest limestone mining operation in Australia and currently operates under a combination of development consents and continuing use rights.

The mine is adjacent to the Bungonia Gorge and Bungonia National Park to the south and Barbers Creek Gorge and Morton National Park to the east. Boral's Peppertree Quarry is located to the north of the mine and the two operations share resources and infrastructure.

The Project

The Marulan South Limestone Mine Continued Operations Project (the Project) involves the extraction and processing of up to 4 million tonnes of limestone and 200,000 tonnes of clay/shale per year for a further 30 years, until 2051. The Project would also involve extending the size and depth of the existing mine pit, expanding overburden emplacement areas, constructing a new 118 megalitre (ML) water storage dam on Marulan Creek, and partially realigning Marulan South Road.

The Project is declared to be State Significant Development (SSD) and the Minister for Planning and Public Spaces is the consent authority for the application under the *Environmental Planning and Assessment Act 1979* (EP&A Act). However, under the Minister's delegation of 26 April 2021, the Executive Director, Energy, Resources and Industry Assessments may determine the application.

The Project has also been declared a controlled action under section 75 of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* and is being assessed in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments.

Engagement

The Department placed the Project on public exhibition from Wednesday 3 April until Wednesday 1 May 2019. The Department received 70 community and special interest group submissions, all in the form of objections. Of these, 14 were unique submissions and the remainder were form letters.

The key issue raised in community submissions is the potential surface water impacts on Marulan Creek Dam. A range of other issues were also raised including noise and blasting, air quality, visual impacts, the Project's compatibility with zoning objectives, traffic, biodiversity and heritage impacts.

The Department also received advice on the Project from 11 Government agencies. While a number of agencies sought additional information regarding aspects of the Project, they were all satisfied that the Project could be appropriately managed through conditions of consent.

Assessment

The Department has led a comprehensive, whole of government assessment of the Project. The Department has assessed the application, Environmental Impact Statement, submissions, Response to Submissions and additional information provided by Boral in accordance with the requirements of the EP&A Act.

The Department considers that the key assessment issues are:

- Surface water

The proposed Marulan Creek Dam would likely have minor impacts on the flow regime, geomorphic characteristics and ecological condition of the downstream creek system. However, to mitigate this, a riparian release regime would be implemented to maintain the frequency and duration of flow events, and ensure that average flows are only reduced by approximately 15% (i.e. from 1,023 mega litres (ML) to 865 ML per year). This water take must be licensed in accordance with the *Water Management Act 2000*. Further, the Department's recommended conditions including strict performance measures for the proposed dam and the implementation of a detailed Marulan Creek Dam Management Plan.

Community submissions also raised concern that Tallong Dam, which currently supplies water to the mine via an existing pipeline, would be drained in order to fill the proposed Marulan Creek Dam. However, the proposed dam would be passively filled by flows along Marulan Creek, and within seven years of construction of the new dam, water take from Tallong Dam would not be required.

- Biodiversity

The Department considers that the Project has been designed to avoid biodiversity impacts to the greatest extent practicable, given the availability of the limestone resource. Nevertheless, the Project involves the removal of 182 hectares of native vegetation and fauna habitat. Boral must implement a range of avoidance, minimisation and mitigation measures to further reduce impacts, and any residual impacts will be offset in accordance with the NSW Biodiversity Offsets Scheme.

- Aboriginal cultural heritage

The Department notes that the avoidance of Aboriginal sites and items is a feature of the mine design. Consequently, 26 sites would be avoided. The impact to the remaining 49 sites is considered unavoidable given the constraints within the site to locate key structures such as the Marulan Creek Dam and the Overburden Emplacements. These structures are large and there are no viable alternative locations within the project land.

Of the directly impacted sites, one site is of high significance. The Project also has the potential to indirectly impact a highly significant women's cultural site in the vicinity of the proposed Marulan Creek Dam, by altering flow regimes within the creek. Both the Department and Heritage NSW consider that these impacts can be suitably managed in accordance with a detailed Aboriginal Cultural Heritage Management Plan, prepared in consultation with Registered Aboriginal Parties.

- Visual impacts

While there would be views of the Project from public vantage points in the nearby National Parks and at private residences, the visual impacts would be minimal, with views from most vantage points substantially screened by topography and vegetation. Over the short to medium term, the Project would increase visual impacts at the Bungonia Lookdown, a viewing platform in the Bungonia National Park with existing views of the mine. However, these views would improve over time with the progressive rehabilitation of emplacement areas.

The Department has carefully assessed other issues associated with the Project, including potential amenity impacts raised in community submissions. The Department considers that these impacts are similar to existing mining operations at the site. Nevertheless, the Department has recommended a range of conditions to minimise the environmental and amenity impacts, including requirements for a comprehensive suite of management plans.

Evaluation

The Marulan South Limestone Mine is the oldest and largest limestone mining operation in Australia. It is strategically located adjacent to Boral's Peppertree Quarry and has established transport links with Boral's cement and concrete production facilities in Berrima and Maldon.

While the Project would extend the size and depth of the existing mine pit, there would only be a small increase in the annual limestone production rate and the mine would largely rely on established infrastructure. The Project represents a logical brownfield extension of an existing limestone mine to facilitate the recovery of 120 million tonnes of limestone and up to 5 million tonnes of shale.

The Department acknowledges that extending the mine to access the available limestone and shale deposits would inevitably result in additional impacts on biodiversity and heritage values, as well as ongoing amenity impacts to the community.

However, the Department considers that the Project has been designed to minimise environmental and amenity impacts to the greatest extent practicable, particularly given the location and availability of the resources. Further, the Department has worked closely with Boral and key government agencies throughout the assessment process to reduce the potential impacts of the Project.

While there would be some residual impacts on water, biodiversity, Aboriginal cultural heritage and views, the Department's assessment has concluded that these can be mitigated and managed in accordance with relevant government legislation and policies.

The Department has carefully weighed the impacts of the Project against the benefits. The Project would have significant employment and economic benefits, including the continued employment for the mine's 118 workers and an additional 73 off-site workers at Boral's facilities in Berrima and Maldon, and an estimated net benefit to NSW of \$166 million. Further, the Project would ensure the continued supply of a range of lime products, which are critical for cement and concrete production, steel-making and agriculture within the region and NSW.

Importantly, the Department's recommended conditions would allow continued mining operations to be regulated under a single, consolidated development consent which reflects contemporary community expectations and current best practice.

On balance, the Department considers that the benefits of the Project outweigh its costs, and the Project is in the public interest and approvable, subject to strict conditions.

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1 Introduction

Boral Cement Limited (Boral) is seeking to continue and expand open cut mining operations at the Marulan South Limestone Mine, approximately 10 kilometres (km) south-east of Marulan, in the Goulburn Mulwaree local government area (see **Figure 1**).

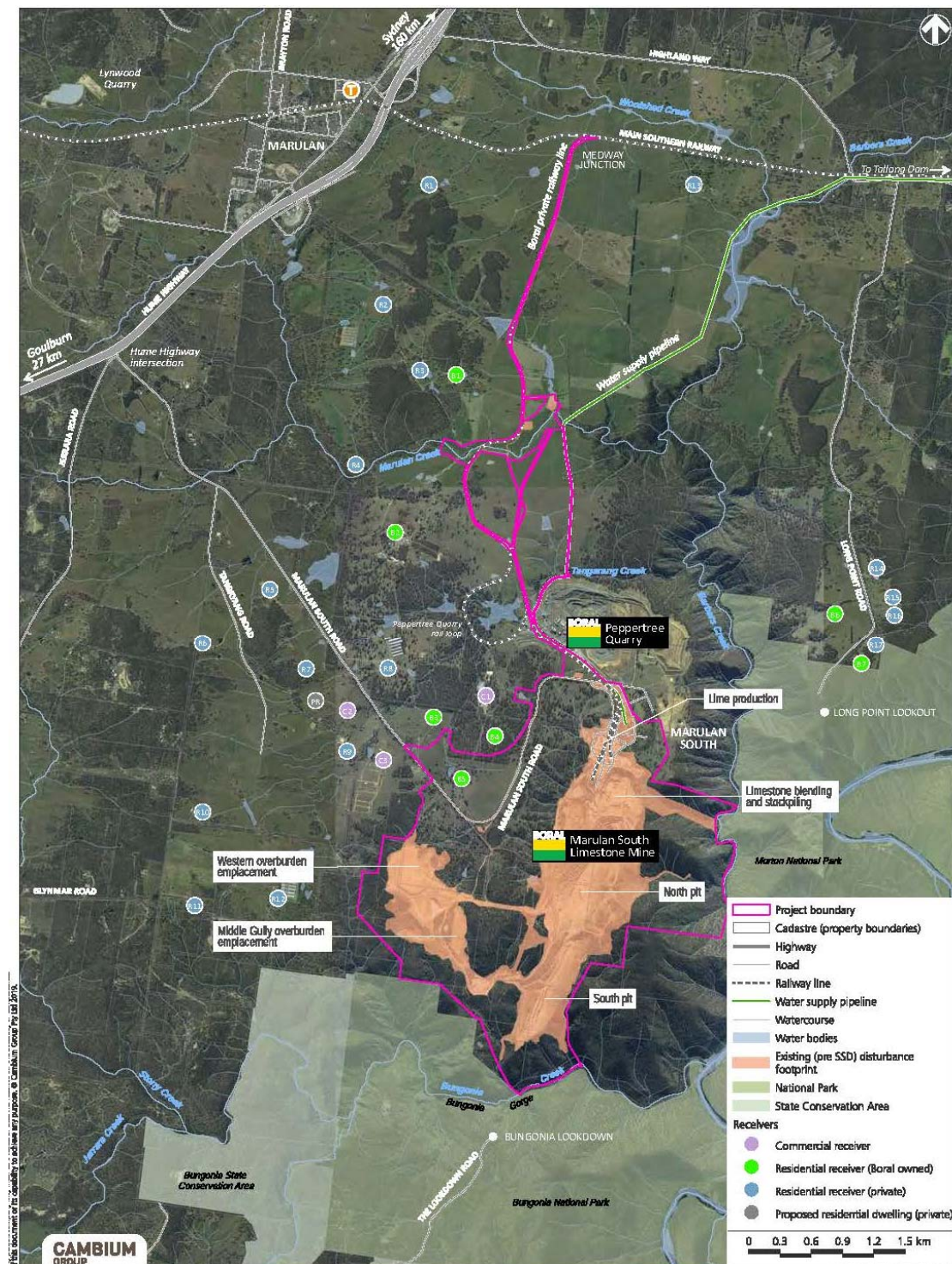


Figure 1 | Local context and site layout

1.1 Existing Operations

The Marulan South Limestone Mine is the oldest and largest limestone mining operation in Australia. Mining operations commenced at the site in 1929 and are currently permitted under a combination of continuing use rights and development consents issued by Goulburn Mulwaree Council (Council).

As the mine largely operates under continuing use rights, day-to-day operations are primarily regulated under an Environment Protection Licence (EPL) issued under the *Protection of the Environment Operations Act 1997* and a Mining Operations Plan (MOP) approved in accordance with the *Mining Act 1992* (the Mining Act).

Boral's approved MOP for the site will expire in February 2023. Boral must obtain a new development consent for continued operations beyond 2023.

The existing operation involves the extraction and processing of up to 3.38 million tonnes per annum (Mtpa) of limestone and 200,000 tonnes per annum (tpa) of shale. Saleable products are transported from the site by both road and rail as follows:

- rail transport is via Boral's private rail line which joins the Main Southern Rail Line to the north (see **Figure 1**); and
- road transport is via Marulan South Road and the Hume Highway via an existing grade-separated highway interchange (see **Figure 1**).

Existing mine infrastructure includes crushing and screening equipment, conveyors, stockpiling facilities, a lime kiln, hydration plant, manufactured sand plant, water management infrastructure, employee facilities, a weighbridge and rail loading facilities. Overburden emplacement is permitted in the southern end of the existing pit and in out-of-pit emplacements to the south and west of the mining area (see **Figure 1**).

1.2 Local Context

The mine adjoins Peppertree Quarry, a hard rock quarry which is owned and operated by a related entity, Boral Resources (NSW) Pty Ltd (see **Figure 1**). Peppertree Quarry currently operates under MP 06_0074, which was approved by the former Minister for Planning in 2007. The mine and the quarry share Boral's private rail line and have long-standing arrangements which permit the transfer of products and overburden between the two sites. These arrangements discussed further in **Sections 2** and **3**.

The site also adjoins the Bungonia Gorge and Bungonia National Park to the south and the Barbers Creek Gorge and Morton National Park to the east (see **Figure 1**).

The wider locality of Marulan South comprises a mixture of rural residential and commercial land uses, including poultry farms and Aglime Fertilisers, which sources limestone products from the mine. These properties are accessed via Marulan South Road. Sensitive receivers in the vicinity of the mine are shown in **Figure 1**.

2 Project

On 21 March 2019, Boral submitted a State significant development (SSD) application for the Marulan South Limestone Mine Continued Operations Project (the Project).

The key components of the Project are outlined in **Table 2-1** and shown in **Figure 2**. A detailed project description is provided in the Environmental Impact Statement (**Appendix A**).

Boral proposes to surrender its existing development consents and continuing use rights and consolidate all mining operations under SSD 7009.

Table 2-1 | Key Components of the Project

| Component | Existing Development | Proposed Development |
|---|---|--|
| Mine Life | Until 26 February 2023 (when the current MOP expires) | Until August 2051 (30 Years) |
| Mine Products | Limestone products (including aggregates, manufactured sand, agricultural lime and quicklime) clay/shale | No change |
| Total Resource Recovery | Unknown, due to the long-standing nature of mine operations | 120 million tonnes (Mt) of limestone and 5 Mt of clay/shale |
| Annual Production | <ul style="list-style-type: none"> 3.38 million tonnes per annum (Mtpa) of limestone products (including 500,000 tonnes per annum (tpa) of manufactured sand) 200,000 tpa of clay/shale | <ul style="list-style-type: none"> 4 Mtpa of limestone products (including 1 Mtpa of manufactured sand) 200,000 tpa of clay/shale |
| Mining Method | Drilling and blasting, removal by excavator and front-end loader | No change |
| Mining Depth | Maximum depth of 350 metres (m) Australian Height Datum (AHD) | Maximum depth of 335 m AHD |
| Disturbance Area | 341.5 hectares (ha) | An increase of 256.5 ha |
| Mine Infrastructure | Established infrastructure including a lime kiln and production plant, crushing plant, conveyor network, rail loading facility, underground diesel storage, internal haul roads, administration offices and employee facilities | Use of existing infrastructure, with the following changes: <ul style="list-style-type: none"> Processing infrastructure and stockpile and reclaim areas to be relocated to the northwest of the North Pit Development of a road sales stockpiling area to include a weighbridge and wheel washing facility (to be shared with Peppertree Quarry) Realignment of the eastern end of Marulan South Road approximately, 1.4 km, to facilitate the expansion of the WOE (see Figure 2). |
| Transportation to/from Peppertree Quarry | <ul style="list-style-type: none"> Up to 500,000 tpa of manufactured sand transported to Peppertree Quarry for blending and dispatch | <ul style="list-style-type: none"> Up to 1 Mtpa of manufactured sand transported to Peppertree Quarry for blending and dispatch |

| Component | Existing Development | Proposed Development |
|--|---|--|
| | | <ul style="list-style-type: none"> Up to 150,000 tpa of Peppertree Quarry products transported to shared road sales stockpiling area and dispatched by road |
| Product Transportation | <ul style="list-style-type: none"> Approximately 450,000 tpa of limestone, lime and clay/shale products transported by road, with the remainder transported by rail Up to 75 laden trucks dispatched per day, or 5 per hour) Up to 139 light vehicles visiting the site per day Up to 6 laden trains dispatched per day | <ul style="list-style-type: none"> Up to 720,000 tpa of limestone, lime and clay/shale products transported by road, with the remainder transported by rail Up to 58 additional laden trucks dispatched per day, or an additional 5 per hour No change to light vehicle movements No change to train movements |
| Water Supply | <ul style="list-style-type: none"> Water sourced primarily from Tallong Dam Supplementary water supply from on-site dams and groundwater bores | <ul style="list-style-type: none"> Water sourced primarily from proposed Marulan Creek Dam Supplementary water supply from on-site dams and groundwater bores |
| Waste Management | <ul style="list-style-type: none"> In-pit and out of pit overburden emplacement at the Southern Overburn Emplacement (SOE) Out-of-pit emplacement at the Western Overburden Emplacement (WOE) and Middle Gully Emplacement Area (see Figure 1) Receival of overburden from Peppertree Quarry for in-pit emplacement | <ul style="list-style-type: none"> In-pit and out of pit overburden emplacement at the expanded SOE¹ Out of pit emplacement at the expanded WOE Out of pit emplacement at the NOE (Northern Overburden Emplacement) Receival of overburden from Peppertree Quarry at the NOE only (approved under Peppertree Quarry Modification 5) |
| Blasting | <ul style="list-style-type: none"> Blasting during daylight hours on weekdays only Up to one blast per day | <ul style="list-style-type: none"> No change |
| Rehabilitation and Final Landform | <ul style="list-style-type: none"> North Pit void retained South Pit partially backfilled Progressive rehabilitation of the site | <ul style="list-style-type: none"> North Pit void retained, but split into two (North and West Pit voids) South Pit partially backfilled Progressive rehabilitation of the site The proposed final landform is shown in Figure 3. |
| Workforce | <ul style="list-style-type: none"> 118 on-site workers 73 off-site workers (located elsewhere within Boral's cement supply chain) | <ul style="list-style-type: none"> No change to workforce numbers, the Project would provide continued employment for the existing workforce |
| Hours of Operation | <ul style="list-style-type: none"> 24 hours per day, 7 days per week | <ul style="list-style-type: none"> No change |
| Capital Investment Value (CIV) | <ul style="list-style-type: none"> Unknown, due to the long-standing nature of mine operations | <ul style="list-style-type: none"> \$111 million |

¹ The Middle Gully Emplacement Area would be progressively merged into the expanded SOE

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

Marulan South Limestone Mine Continued Operations Project (SSD 7009) | Assessment Report

Figure 4.21
The Project - Final landform

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

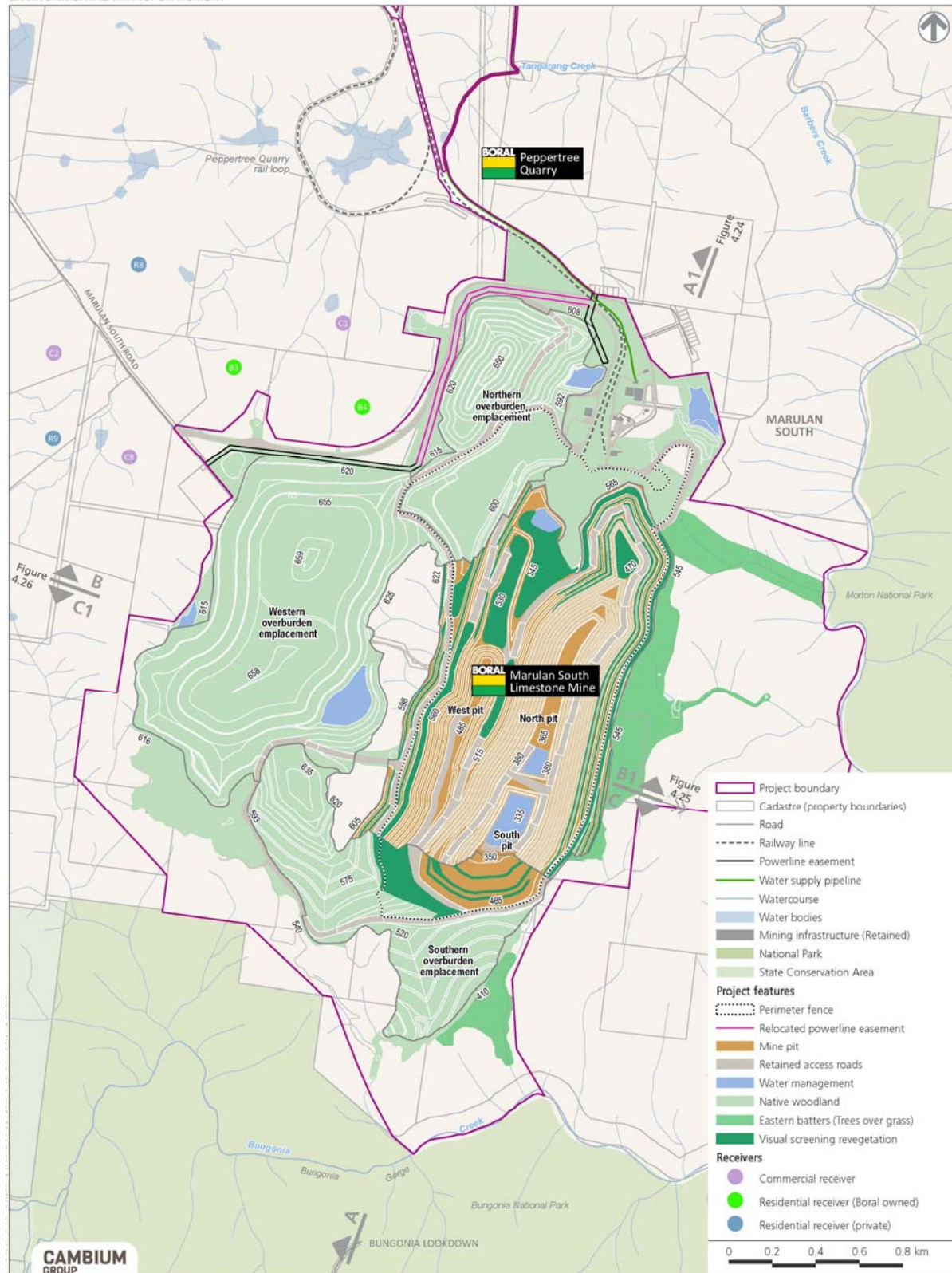


Figure 3 | Proposed final landform

Interactions with Peppertree Quarry

Boral is proposing to continue and expand mutually beneficial interactions between the mine and the quarry.

As shown in **Table 2-1**, Boral is seeking to increase the production and dispatch of manufactured sand to Peppertree Quarry for blending purposes. This blended material would be dispatched from the quarry by rail for use in concrete production (see **Section 3**).

In addition, Boral is seeking to establish a road sales stockpiling area on the northern side of Marulan South Road. This stockpiling area would incorporate a weighbridge and wheel wash and would be shared by both the mine and Peppertree Quarry.²

As outlined in **Table 2-1**, Boral proposes to dispatch up to 720,000 tpa of products from the site by road. Of this, approximately 200,000 tpa would be dispatched from the proposed road sales stockpiling area.³ This would include up to 150,000 tpa of products from Peppertree Quarry.⁴

Truck movements associated with the transportation of products from Peppertree Quarry are included in the proposed traffic volumes for the Project as outlined in **Table 2-1**. The Department notes that the proportion of material proposed to be transported from Peppertree Quarry via the road sales stockpiling area is very small, relative to the quarry's annual production rate of 3.5 Mtpa. Approximately 95 percent (%) of quarry products would continue to be transported by rail under MP 06_0074.

While the proposal would increase the overall volume of heavy vehicle traffic along Marulan South Road, it would also allow virtually all heavy vehicle movements for Boral's combined operations to be regulated under a single development consent. The Department considers that this should assist in managing cumulative traffic impacts in the locality.

² Earthworks to establish the road sales stockpiling area were approved under Peppertree Quarry Modification 5, however the use of this area for stockpiling and dispatch of products (from both the mine and the quarry) would be authorised solely under SSD 7009

³ The remainder would be dispatched from the mine's existing limestone plant area

⁴ MP 06_0074 does not permit road transport of products from Peppertree Quarry, except in very limited circumstances

3 Strategic context

The construction of housing, roads and other infrastructure within the Greater Sydney Region relies on the supply of construction materials from mines and quarries in four key feeder areas to the north, west, south and south-west of Sydney.

Boral's Marulan South Limestone Mine and Peppertree Quarry are a key component of the south-west feeder area. This area also contains Gunlake, Lynwood and Ardmore Park quarries, as shown in **Figure 4** below. This feeder area is strategically significant, due to the size and quality of hard rock and mineral resources, its proximity to Greater Sydney and its accessibility by both road and rail.

The four quarries (Peppertree, Gunlake, Lynwood and Ardmore Park) primarily produce aggregates and together, the south-west feeder area is the largest producer of hard rock material in NSW.

The Marulan South Limestone Mine is a unique component of the south-west feeder area. The mine supplies a range of limestone and lime products critical for the production of cement and concrete, as well as steel-making and agriculture, throughout NSW. The Department notes that there are no comparable sites within NSW which are readily capable of producing limestone and lime products at the scale proposed by Boral without significant capital investment and associated environmental impacts.

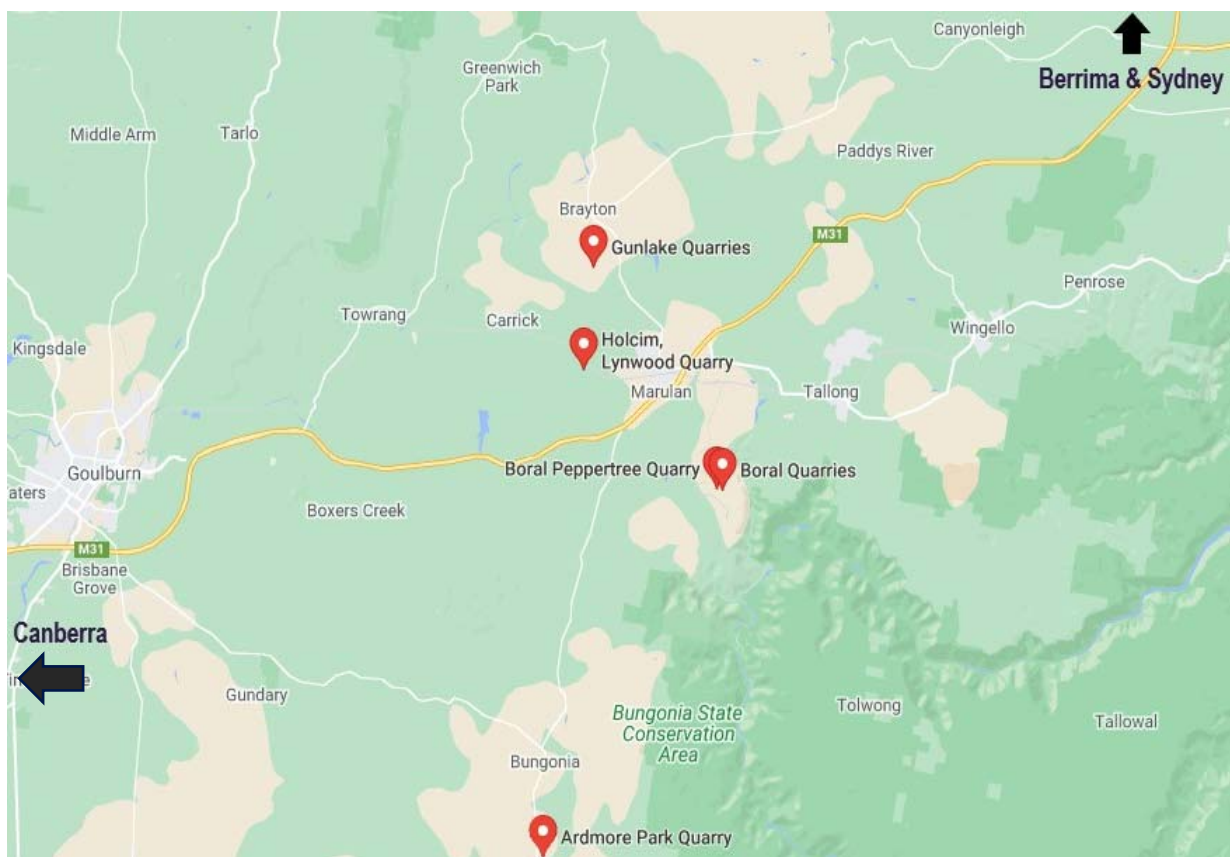


Figure 4 | Strategic Context

Table 3-1 summarises the various products which would be supplied by Boral's continued mining operations, as well as their destination and usage.

Table 3-1 | Mine products and destination

| Product | Estimated Production (tpa) | Transport Mode | Destination | Use |
|--|----------------------------|-------------------------|---|--|
| Berrima limestone | 2,150,000 | Rail | Berrima Cement Works | Cement production |
| Tertiary limestone | 480,000 | Rail | BlueScope, Port Kembla | Steel manufacturing |
| Manufactured sand | 1,000,000 | Road (adjacent to mine) | Peppertree Quarry, Marulan South Road | Concrete production (following blending) |
| Agricultural lime | 120,000 | Road (adjacent to mine) | Aglime Fertilisers | Fertiliser production |
| Other lime products (including aggregates, quick lime and hydrated lime) | 250,000 | Road | Goulburn and regional NSW, Melbourne and Queensland (various locations) | Soil and road stabilisation, soil and water treatment, mining, iron and steel production |
| Clay/shale | 200,000 | Road | Berrima and Maldon Cement Works | Cement production |
| Total | 4,200,000 | | | |

More than 2 Mtpa of limestone produced at the mine would be transported to Boral's Berrima Cement Works, located approximately 50 km north-east of the site, in the NSW Southern Highlands. The Berrima Cement Works produces approximately 60% of cement sold in NSW and more than 30% of all concrete sold in Sydney.

Up to 1 Mtpa of manufactured sand would be dispatched to Peppertree Quarry by truck. There, it would be blended with fines from the quarry and transported by rail to Boral's Maldon Operations, near Picton, for use in concrete production.

Approximately 480,000 tpa of limestone would be supplied to Bluescope at Port Kembla for use in steel-making. A further 120,000 tpa of agricultural lime would be transported to Aglime Fertilisers, which is reliant on the ongoing supply of products from the mine.

4 Statutory context

4.1 State significance

The Project is a mining development with a CIV of more than \$30 million. Accordingly, the Project is SSD under Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP).

4.2 Consent Authority

Following the March 2020 amendment to the SRD SEPP, the Minister for Planning and Public Spaces (the Minister) is the consent authority for the application, as fewer than 50 unique submissions by way of objection were made in respect of the Project, Council does not object to the Project and Boral has not disclosed any reportable political donations.⁵

Under the Minister's delegation of 26 April 2021, the Executive Director – Energy, Resources and Industry Assessments may determine any application if less than 50 unique submissions in the form of objections were made in respect of the Project.

On 13 May 2020, the Department advised Council and all community members who made submissions in relation to the Project that the application would be determined by the Department under delegation.

4.3 Permissibility

The Project area is zoned RU1 Primary Production and E3 Environmental Management under the *Goulburn Mulwaree Local Environmental Plan 2009* (LEP 2009).

The Project is defined as 'open cut mining' under the LEP 2009, and is permissible with consent in the RU1 zone, but prohibited in the E3 zone. However, by operation of clause 7(1)(b)(i) of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (the Mining SEPP), the Project is permissible with consent in the E3 zone.⁶

4.4 Site Verification Certificate

The Project area extends beyond the boundaries of Boral's existing surface mining leases. Pursuant to Clause 50A of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), Boral applied for a Site Verification Certificate (SVC) to confirm that the Project area does not contain Biophysical Strategic Agricultural Land (BSAL). An SVC was issued for the Project in 17 November 2015. Following the expiry of this certificate on 17 November 2020, a new SVC was issued on 14 May 2021.

⁵ Under clause 8A(5) of the SRD SEPP, submissions that contain the same or substantially the same text are counted as one submission for the purposes of determining the relevant consent authority for the application

⁶ As 'agriculture' is permitted with consent under the LEP 2009, 'mining' is also permitted with consent

4.5 Other Statutory Licences and Approvals

Mining Tenements

Boral currently holds two mining leases relevant to the Project area as shown in **Table 4-1**.

Table 4-1 | Existing mining tenements

| Mining Lease | Permitted Activities |
|------------------------------------|---|
| Mining Lease (ML) 1716 | Mining of limestone, marble, clay/shale, structural clay and iron minerals |
| Consolidated Mining Lease (CML) 16 | Prospecting and mining of limestone, agricultural lime, marble, clay/shale, structural clay and iron minerals |

As the Project involves mining activity beyond the boundaries of its existing mining leases, Boral will need to obtain a new mining lease under the Mining Act to carry out the development.

Environment Protection Licence

As noted in **Section 1.1**, Boral holds an existing EPL for operations at the mine (EPL 944). A licence variation would be required, should development consent be granted.

Water Access Licences

Boral holds a number of existing Water Access Licences (WALs) to support its existing operations. These WALs permit the annual extraction of up to:

- 76 ML of surface water from the Tallong Dam via Boral's existing water supply pipeline (see **Figure 1**);
- 10 ML of surface water from Barbers Creek; and
- 12 ML of groundwater via two existing bores in the North Pit.

Boral also has a groundwater allocation of 838 ML which was granted in 2017.

Boral has committed to obtain all necessary WALs for the Project in accordance with the *Water Management Act 2000* (WM Act).

Approvals under Roads Act 1993

Both the realignment and upgrading of Marulan South Road would require a separate approval from Council, as the relevant roads authority, under section 138 of the *Roads Act 1993*.

In October 2020, Boral and Council executed Heads of Agreement (HoA) regarding both the realignment and upgrade. The HoA is an in-principle agreement which will form the basis of future Deeds of Agreement between the parties. Under the terms of the HoA, Boral must:

- commission a survey and pavement condition assessment of the existing Marulan South Road alignment;
- prepare scoping and design documents for the road upgrade, in consultation with Council;

- fund and complete the road upgrade within two years of the grant of a new mining lease; and
- fund and complete the road realignment within four years of the grant of a new mining lease.

Under the HoA, the proposed road realignment would be constructed to a minimum 80 km/hr design standard (including a 7 m wide sealed carriageway), unless an alternative standard is agreed by Council. This is reflected in the Department's recommended conditions.

The remainder of Marulan South Road would be upgraded to the same standard, however, the HoA specifies that these works would be undertaken by or on behalf of Council, in accordance with relevant provisions of *State Environmental Planning Policy (Infrastructure) 2007* and Part 5 of the EP&A Act. Consequently, these works do not form part of the Project. However, the Department's recommended conditions would prohibit any increase to existing truck movements until the road upgrade is completed to Council's satisfaction.

4.6 Commonwealth Approval

On 10 September 2015, the Commonwealth Department of Agriculture, Water and the Environment (DAWE) determined that the Project is a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), due to its potential impacts on threatened species and communities.

In its determination dated 10 September 2015, DAWE agreed that the proposal may be assessed by the NSW Government, in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments. The Secretary issued supplementary SEARs for the Project addressing matters of national environmental significance (MNES) on 27 October 2015.

The Department's assessment of impacts on MNES is provided in **Section 6.2** and **Appendix G**.

Following the determination of SSD 7009, the matter will be referred to DAWE for determination in accordance with the relevant provisions of the EPBC Act.

4.7 Mandatory Matters for Consideration

The Department has undertaken a detailed assessment of the Project, taking into consideration each of the relevant matters in section 4.15 of the EP&A Act, including:

- applicable environmental planning instruments (EPIs, see **Appendix F**);
- issues raised in submissions on the Project (see **Section 5**);
- the likely environmental, social and economic impacts of the Project (see **Section 6**);
- the suitability of the site for the Project (see **Sections 3 and 6**);
- the objects of the EP&A Act (see **Appendix F**); and
- the public interest (see **Section 7**).

5 Engagement

After accepting the EIS, the Department exhibited the application from Wednesday 3 April until Wednesday 1 May 2019. The documents were made available on the Department's website and at the offices of the Department, Council, and the Nature Conservation Council.

The Department advertised the exhibition in *The Australian*, *Sydney Morning Herald*, *Daily Telegraph* and the *Goulburn Post* on 3 April 2019. The Department also notified adjoining and nearby landowners and sought advice from relevant Government agencies, including Council.

The Department also carried out a site visit at both the mine and Peppertree Quarry on 1 February 2019.

The Department considers that its engagement process met the community participation requirements under the EP&A Act and associated EP&A Regulation. The Department also considers that this process has fulfilled the State's obligations under the Bilateral Agreement with the Commonwealth Government.

5.1 Summary of Submissions

The Department received a total of 81 submissions in response to the exhibition, including:

- 11 submissions from Government agencies; and
- 70 community and Special Interest Group (SIG) submissions, all objecting.

Of the 70 community and SIG submissions received in relation to the Project, 19 were unique submissions. The remainder were form letters. Copies of all submissions are included in **Appendix B**.

Agency Submissions - Key Issues

Surface water

The **Water Group** within the Department (DPIE Water) and **WaterNSW** requested additional information on several surface water aspects of the Project, particularly in relation to the proposed Marulan Creek Dam and its potential impact on flow regimes, water quality and geomorphology in the downstream creek system. Boral provided detailed responses in the Submissions Report (see **Appendix C**) and supplementary reports (see **Appendix D**). This included specific commitments regarding surface water monitoring and mitigation measures to protect ecological values and maintain water quality. Both DPIE Water and WaterNSW have indicated that they are satisfied with the information provided subject to recommended conditions of approval. This is discussed further in **Section 6.1**.

WaterNSW also raised concerns regarding the long-term geomorphological stability of the proposed overburden emplacement areas. The Department has recommended specific conditions to address these concerns (see **Section 6.1**). WaterNSW has advised that it is satisfied with the Department's recommended conditions.

WaterNSW also requested details regarding all on-site sewage management systems, noting that existing systems did not appear to meet contemporary standards. The Department's recommended conditions would require Boral to manage on-site sewage systems in accordance with Council's requirements. WaterNSW has not raised any further concerns in this regard.

The **Environment Protection Authority** (EPA) also requested further consideration of surface water discharges and downstream water quality impacts. The Department has recommended conditions in this regard, in consultation with the EPA (see **Section 6.1**).

The **Primary Industries Group** (DPI) commented that the proposed Marulan Creek Dam should be constructed to maintain environmental flows to downstream aquatic habitats and requested that Boral consult with DPI Fisheries in the development of relevant management plans for the Project. This is reflected in the Department's recommended conditions.

Biodiversity and cultural heritage

The Department's **Biodiversity and Conservation Division** (BCD) sought further information regarding biodiversity impacts, particularly with respect to impacts on MNES. In response, Boral provided a revised BDAR (see **Appendix D**). BCD advised that it was satisfied with the revised BDAR and provided recommendations for the ongoing monitoring and mitigation of impacts on biodiversity values. Biodiversity impacts are discussed in **Section 6.2**.

BCD advised that it was satisfied with the Aboriginal cultural heritage impact assessment in the EIS and provided advice on conditions. Aboriginal cultural heritage impacts are discussed in **Section 6.3**.⁷

Groundwater

DPIE Water and EPA recommended the installation of additional piezometers to monitor the groundwater impacts of the Project. DPIE Water also recommended periodic review and validation of the groundwater model of the life of the Project. This advice has been reflected in the Department's recommended conditions (see **Section 6.5**).

Amenity impacts

The EPA requested additional information regarding noise, blasting and air quality impacts. After reviewing Boral's Submissions Report, the EPA advised that it was satisfied with the information provided. The Department has considered advice from the EPA in preparing its recommended conditions for noise, blasting and air quality. These issues are discussed further in **Section 6.5**.

Council raised concerns regarding potential noise from airbrakes and headlight spillage following the realignment of Marulan South Road. The Department's recommended conditions would require Boral to develop and implement a Driver's Code of Conduct, which would ensure that all vehicles travelling to and from the site implement safe and quiet driving practices. Recommended conditions would also require Boral to take all reasonable steps to minimise night lighting impacts along Marulan South Road, in consultation with Council.

Council also commented that the proposed Rehabilitation Strategy in the EIS demonstrates a progressive approach to rehabilitation and that the overall visual impacts of the Project were acceptable.

⁷ Responsibility for Aboriginal cultural heritage assessment was subsequently transferred to Heritage NSW within the Department of Premier and Cabinet. The Department has consulted with Heritage NSW in preparing its recommended conditions for the Project.

Traffic and transport

Transport for NSW (TfNSW) requested additional information regarding potential traffic impacts at the Hume Highway interchange. TfNSW also sought to clarify how potential traffic conflicts on Marulan South Road at the intersection of the internal access roads to the mine and Peppertree Quarry would be managed, should the eastern end of the road remain accessible to the public. Boral provided supplementary SIDRA modelling and further details regarding its proposed traffic management measures in its Submissions Report. TfNSW subsequently advised that it was satisfied with the information provided. Traffic impacts are discussed further in **Section 6.5**.

Council commented that the existing condition of Marulan South Road is of concern to local residents. Boral and Council subsequently engaged in extended negotiations and in October 2020, both parties executed a Heads of Agreement for the realignment and upgrading of Marulan South Road. The terms of this agreement are reflected in the Department's recommended conditions (see **Section 4.5**).

Other issues

The **Heritage Council of NSW** (Heritage Council) noted that no State-listed heritage items would be impacted by the Project and advised that the mitigation measures outlined in the EIS were appropriate to manage impacts on items of local historic significance. Historic heritage impacts are discussed further in **Section 6.5**.

Mining, Exploration and Geoscience (MEG) advised that the Project represents an 'efficient development and utilisation of mineral resources which will foster significant social and economic benefits.' MEG's submission included a Resource and Economic Assessment (REA), which provided an independent calculation of project royalties over the life of the Project. The conclusions of the REA are discussed in **Section 6.5**.

MEG also requested to be consulted in respect of any proposed biodiversity offset areas, to ensure that resource sterilisation issues are considered. This is reflected in the Department's recommended conditions.

The **Resources Regulator** advised that the EIS adequately addressed mine rehabilitation issues. The Resources Regulator also considered that sustainable rehabilitation outcomes can be achieved because of the Project and that any potential risks could be effectively regulated under the Mining Act. Rehabilitation is discussed further in **Section 6.5**.

NSW Health advised that it does not object to the Project, subject to the preparation and implementation of a comprehensive suite of management plans for the site. NSW Health also recommended that conditions be imposed requiring Boral to:

- demonstrate that drinking water supplied to the site meets relevant requirements under the *Australian Drinking Water Guidelines*; and
- develop a quality assurance program for drinking water supplies in accordance with the *Public Health Act 2010*.

In response, Boral advised that all drinking water is purchased from commercial suppliers and is pre-packaged for use on site. Consequently, the above conditions are not considered necessary.

The **NSW Rural Fire Service** advised that it does not object to the Project, subject to the implementation of suitable management and mitigation measures, including management of potential

ignition sources and the development of a Bush Fire Emergency Management and Evacuation Plan. The Department has recommended conditions in this regard.

DPIE Crown Lands provided comments regarding potential impacts on Crown land and roads, particularly with respect to Boral's proposed road closures. Following its review of the Submissions Report, DPIE Crown Lands advised that it had no further comments regarding the Project. The Department's recommended conditions would require Boral to continue to consult with DPIE Crown Lands regarding its obligations under the Mining Act in respect of Crown land.

Community and Special Interest Group (SIG) Submissions - Key Issues

The key issues raised in community and SIG submissions are summarised in **Figure 5**. For the purpose of issues analysis, **Figure 5** includes both unique submissions and form letters.

Of the total submissions received, 80% were made by Tallong residents. Only five submissions were made from Marulan residents, and of these, only one submitter appears to reside on Marulan South Road (i.e. the road transport route). The remaining submissions originated primarily from other localities within the region, including Towrang, Greenwich Park and Goulburn.

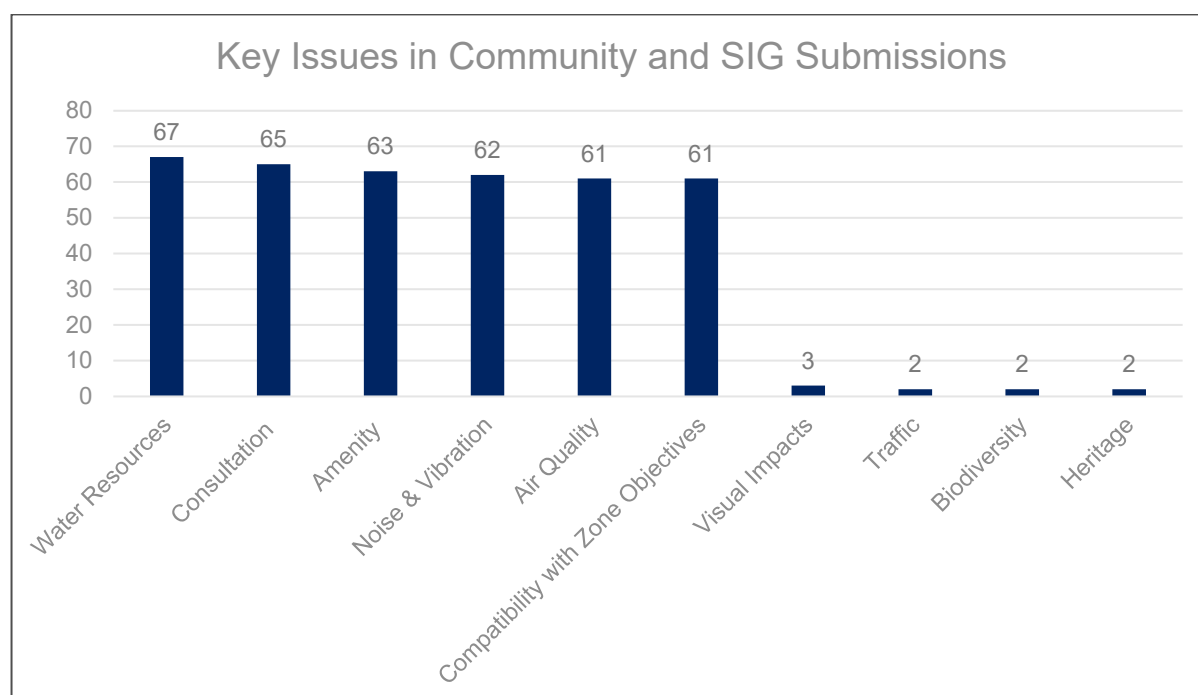


Figure 5 | Key issues raised in community and SIG submissions

Surface water

Impacts on water resources were the key issue of concern raised. In particular, the submissions expressed strong objections regarding the taking of water from the Tallong Dam. Numerous submissions stated that the 'the application proposes construction of a 118 ML dam, to be filled and maintained from Tallong Dam which only has an 85 ML capacity'. Many submissions referred to the proposed 'draining' of Tallong Dam, noting that this would have significant, adverse impacts on private water users, outdoor recreation, bushfire fighting capabilities and biodiversity in Tallong. Boral subsequently clarified that the Project does not involve the draining of the Tallong Dam (see **Section 5.2**). Surface water impacts are discussed further in **Section 6.1**.

Consultation

Tallong residents raised concerns with the adequacy of the consultation undertaken by Boral. Some submissions also raised concerns regarding the length of the public exhibition period and commented that the EIS documentation was difficult to access. While a 28-day exhibition period is consistent with the requirements of the EP&A Act, the Department will consider any representations received following the conclusion of the exhibition and received during the assessment period of a project. No late representations were received following exhibition.

Amenity impacts

Community submissions also raised concerns regarding the impacts of the proposal on rural amenity. In particular, submissions raised concerns regarding dust emissions from the proposed overburden emplacement areas and questioned the effectiveness of proposed mitigation measures. The submissions also expressed concern regarding potential visual impacts (including lighting impacts and impacts at the Bungonia Lookdown) and well as noise and blasting impacts. Impacts on amenity are discussed in **Sections 6.4** (visual impacts) and **6.5** (noise, blasting and air quality).

Compatibility with zone objectives

Submissions also raised concerns that the proposal is incompatible with the objectives of the RU1 Primary Production zone. In particular, the submissions suggest that the Project would conflict with established rural land uses and have a detrimental impact on agricultural productivity and visual character within the locality. **Appendix F** summarises the Department's consideration of zone objectives under the LEP 2009.

Biodiversity

Community submissions raised concerns regarding the biodiversity impacts of the proposal, noting the extent of clearing proposed, the associated loss of habitat for threatened flora and fauna and the potential for indirect impacts on the Bungonia National Park. Biodiversity impacts are discussed further in **Section 6.2**.

Traffic and transport

Two submissions raised concerns regarding proposed traffic increases on Marulan South Road. One submission expressed concerns regarding potential road safety issues and loss of rural amenity suggesting alternative transport routes to the Hume Highway should be pursued. One submission also questioned the timeframe for the proposed upgrade of Marulan South Road and expressed concern regarding potential disruption to residents. Road noise and traffic safety are discussed in **Section 6.5**.

Other issues

A SIG submission also raised concerns regarding Boral's compliance history, both at the mine and at Peppertree Quarry, and suggested that an independent environmental audit (IEA) should be undertaken. Issues relating to compliance are not a relevant matter for consideration under section 4.15 of the EP&A Act. The Department also notes that the recommended conditions of consent (which include a requirement for recurring IEAs), in combination with Boral's EPL and mining leases would provide a robust regulatory framework for Boral's continued operations.

5.2 Submissions Report

Boral provided a Submissions Report responding to issues raised in agency and community submissions in September 2019. The Submissions Report was published on the Department's website and copies were provided to relevant agencies for further comment. A copy of the Submissions Report is provided in **Appendix C**.

In response to community concerns, the Submissions Report clarified that the Project would not increase water take from the Tallong Dam in order to fill the proposed Marulan Creek Dam. Rather, the dam would be filled solely by surface water flows along Marulan Creek.

In addition, Boral confirmed that within seven years of the dam's construction, water take from Tallong Dam would no longer be required. Boral has committed to cease all water take from Tallong Dam when the Marulan Creek Dam reaches 75% of its storage capacity. Boral also committed to terminate its water supply pipeline (see **Figure 1**) on the northern side of the Marulan Creek Dam, to prevent any further take from Tallong Dam.

Boral carried out further community consultation to clarify its intentions regarding Tallong Dam. Boral held a community meeting in May 2019 and wrote to all community members who made submissions prior to finalising its Submissions Report.

The Department is satisfied with Boral's response and with its additional community engagement in this regard.

5.3 Additional Information

The Department's assessment of the Project was delayed pending the resolution of outstanding issues, primarily relating to landowner's consent and Boral's HoA with Council. Boral provided several tranches of additional information addressing these outstanding issues between November 2019 and July 2021. This information is included in **Appendix D**.

6 Assessment

In assessing the merits of the Project, the Department has considered all the requirements of the EP&A Act and EP&A Regulation, and all relevant information including:

- the EIS accompanying the development application;
- advice provided by government agencies;
- community and SIG submissions;
- the Submissions Report and additional information provided by Boral;
- relevant EPIs, policies and guidelines.

The Department considers that the key assessment issues relate to surface water, terrestrial biodiversity, Aboriginal cultural heritage and visual impacts. These issues are discussed in **Sections 6.1 to 6.4** below. A summary of the Department's assessment of other issues is provided in **Section 6.5**.

6.1 Surface Water

Marulan Creek Dam

Both DPIE Water and WaterNSW raised concerns regarding the proposed Marulan Creek Dam and its potential impacts on flow regimes, water quality and geomorphic characteristics of the downstream creek system.

Marulan Creek is a 4th order ephemeral drainage line located immediately north of Peppertree Quarry (see **Figure 2**). Marulan Creek is a tributary of Barbers Creek, which flows to the Shoalhaven River approximately 1.5 km east of the mine. Existing flows in Marulan Creek are highly variable, with short duration flow events following rainfall, and longer periods of low/no flow between events.

To mitigate the impacts of the proposed dam on downstream water quality, ecological condition and geomorphic integrity, Boral proposes to implement a riparian release regime. Boral's proposed release rules for the dam are shown in **Table 6-1** below.

Table 6-1 | Proposed Marulan Creek Dam release rules

| Upstream Flow | Downstream Riparian Release |
|---------------|-----------------------------|
| <1 ML/day | = inflow |
| 1 – 10 ML/d | 1 ML/d |
| >10 ML/d | 10% of flow |

Modelling indicates that while the proposed flow regime would maintain the frequency and duration of flow events, average annual flows in Marulan Creek would reduce from 1,023 ML/year to 865 ML/year. This represents a reduction of approximately 15%. The typical flow downstream of the dam would be similar to existing baseline conditions in terms of water level and velocity. As such, the Surface Water Assessment (SWA) and supplementary reports (**Appendices A** and **D**, respectively) indicate that downstream geomorphology in Marulan Creek and Barbers Creek is unlikely to change.

Water quality in the proposed dam would be similar to baseline water quality in the creek, with some seasonal variation depending on catchment conditions and rainfall. As modelling predicts only a small quantum difference in stream power pre- and post-dam construction, erosion scour potential is unlikely to change from current conditions downstream. Boral's proposed riparian releases are also expected to maintain nutrient transport down Marulan Creek, similar to baseline conditions. On this basis, the proposed dam is unlikely to have a significant impact on downstream water quality.

Both DPIE Water and WaterNSW have indicated that they are satisfied with the additional information provided. DPIE Water has recommended a range of post-approval requirements to manage impacts on flow regimes, including requirements to:

- develop detailed dam design plans (including potential bypass and flow-through measures) in consultation with DPIE Water;
- engage a fluvial geomorphologist to develop a remediation and rehabilitation strategy for Marulan Creek above and below the proposed dam; and
- develop a detailed monitoring and reporting strategy to detect changes in downstream water quality, ecological function and geomorphic processes.

The Department's recommended conditions would require Boral to prepare a Marulan Creek Dam Management Plan (MCDMP) addressing each of the above requirements, as a component of an overarching Water Management Plan (WMP), in consultation with both DPIE Water and WaterNSW. (see **Monitoring and Management** below).

Water licensing

The proposed dam would be located within the Barbers Creek Management Zone under the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources* (Surface Water WSP). The total surface water entitlement within this zone is 1,176 ML/year.

The maximum predicted water take associated with the Marulan Creek Dam is 183 ML/year. Boral has indicated it will seek to transfer its existing entitlements associated with water take from the Tallong Dam and/or acquire additional licences from within the Barbers Creek Management Zone to meet the water licensing requirements for the Project. The Department is satisfied that there are sufficient entitlement shares within the water source for Boral to purchase the required WALs to account for its surface water take.

Flooding impacts

The proposed dam is not expected to significantly alter flood behaviour or increase flood risks to private property or public infrastructure. The maximum predicted extent of flooding in the vicinity of the dam during a 1% Annual Exceedance Probability flood event is shown in **Figure 2**. During this event, floodwaters in the vicinity of the dam would be largely contained within the Project area.

Other Surface Water Issues

Site water balance

A daily water balance model has been developed to assess the performance of the Project's proposed water management system for the 10th percentile to 90th percentile climate scenarios. DPIE Water reviewed the site water balance modelling however it only raised concerns relating to downstream flows, which have been dealt with above.

The model indicates that the water supply for the Project would have a high level of reliability (greater than 95%). However, during extended periods of drought there would be a deficit of up to 5 ML in the water balance. During these conditions, water use for dust suppression could be reduced by 50% with chemical dust suppressants, therefore reducing the overall site demand and ensuring water security over the life of the Project. Alternatively, the residual shortfall could be addressed by purchase of additional water entitlements.

Under median climatic conditions, the mine's on-site sediment basins would overflow on an average of 1.6 days per year. Water quality impacts associated with these discharges are discussed below.

Off-site discharges

The Project area is located within the Sydney drinking water catchment. *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011* (Sydney Drinking Water Catchment SEPP) provides that a consent authority must not grant consent to a proposed development in a drinking water catchment unless it is satisfied that the proposed development would have a neutral or beneficial effect on water quality.

All sediment basins for the Project have been designed in accordance with *Managing Urban Stormwater Soils and Construction, Volume 2E: Mines and Quarries (DECC 2008)* using the highest standard to capture the runoff from a 95th percentile five-day storm for discharge to a 'sensitive' environment. Water treatment within the sediment basins is expected to result in water quality that is better or comparable to that in the receiving environment.

The EPA requested further consideration of downstream water quality impacts associated with discharges from sediment basins and the risk of alkaline seepage from emplacement areas. In response, Boral submitted that downstream water quality risks would be low, as off-site discharges are predicted to be relatively infrequent and would be substantially diluted by surface water runoff from the wider catchment. In addition, Boral noted that bicarbonate alkalinity levels in overburden emplacements on the site are lower than baseline conditions in the receiving environments of Barbers and Bungonia Creeks.

Nevertheless, the EPA recommended further consideration of downstream water quality impacts during the post-determination phase of the Project, including identification of:

- natural background levels of alkalinity based on reference sites unaffected by mining activities;
- a full range of potential impact mitigation measures that could be implemented in respect of bicarbonate alkalinity, total suspended solids and settling agents; and
- appropriate water quality criteria for the Project, having regard to the sensitivity of downstream waters (ie National Parks and drinking water catchments).

The Department's recommended conditions requiring this information to be included as part of a detailed Surface Water Management Plan (SWMP), prepared in consultation with the EPA and other relevant agencies prior to the commencement of construction.

The recommended conditions would also require the preparation and implementation of Erosion and Sedimentation Control Plans (ESCPs) for both construction activities and mining operations. Further the Department notes Boral would be required to submit a variation application for EPL 944 to permit offsite discharge of water.

The Department is satisfied that there is a robust regulatory framework in place resulting from both the implementation of these recommended conditions and the requirement of the EPL to ensure the project would have a neutral effect on downstream water quality. Further information of mitigation measures within the framework are discussed below.

Stability of overburden emplacements

WaterNSW raised concerns regarding the long-term geomorphological stability of the proposed overburden emplacement areas. In response, the Department has recommended conditions requiring Boral to commission an independent audit of the long-term stability of the WOE and SOE upon completion of their respective surface water management systems, in consultation with WaterNSW.⁸ WaterNSW has advised that it is satisfied with the Department's recommended conditions in this regard.

Mitigation and Management

Boral proposes to continue and expand the mine's existing surface monitoring network over the life of the Project. Boral currently undertakes monthly surface water monitoring at three locations within the mine site and quarterly creek and river monitoring at 11 sites, including: locations on Marulan Creek, Barbers Creek, Bungonia Creek and the Shoalhaven River. Boral has also committed to undertake daily water quality monitoring at three sediment basin discharge points when discharges occur.

The Department's recommended conditions include strict surface water performance measures, including negligible impacts on downstream water quality, riparian ecosystems and channel stability, beyond those predicted in the EIS and supplementary reports.

The recommended conditions also would require Boral to develop and implement a comprehensive WMP for the site, in consultation with DPIE Water, WaterNSW, the EPA and DPI Fisheries. The WMP would include robust monitoring programs and Trigger Action Response Plans (TARPs) to detect, investigate and respond to any exceedances of the recommended performance measures.

Conclusion

The Department has carefully assessed surface water impacts associated with the proposed Marulan Creek Dam, in consultation with DPIE Water and WaterNSW. Both agencies have indicated that they are satisfied with the assessment of surface water impacts and with Boral's proposed riparian release regime. DPIE Water has recommended a range of measures to mitigate and monitor downstream impacts on flow regimes, water quality, ecological processes and geomorphology. These measures are reflected in the Department's recommended conditions. The Department is also satisfied that water take from Marulan Creek would be relatively minor and would be appropriately licensed in accordance with the WM Act.

Overall, the Department is satisfied that the impacts from the Marulan Creek Dam are acceptable and can be suitably managed under recommended conditions and a detailed MCDMP. The Department considers that the other surface water related impacts of the Project would be minor and generally consistent with existing mining operations. The Department is satisfied that these impacts can be appropriately managed under recommended conditions and a comprehensive WMP.

⁸ Similar requirements already apply to the NOE under the development consent for Peppertree Quarry (MP 06_0074)

6.2 Terrestrial Biodiversity

Agency and community submissions raised concerns regarding the Project's potential impacts on biodiversity. The Project involves the removal of 182 ha of native vegetation and fauna habitat. In particular, the Project would remove 88.6 ha of a Critically Endangered Ecological Community (CEEC) and 132.4 ha of occupiable Koala habitat. The Project also has the potential to indirectly impact surrounding biodiversity values (including in the nearby National Parks), by way of dust, noise and lighting impacts and increased incursion of weeds and feral pests.

Impacts to Native Vegetation

The Project covers an area of approximately 252 ha, including 182 ha of native vegetation in medium to poor condition, as well as cleared pasture, dams, existing infrastructure and mining areas. **Figure 6** shows the five Plant Community Types (PCTs) which would be impacted by the Project.

The Project would remove:

- 88.6 ha of PCT 1334: *Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands* (Box Gum Woodland);^{9,10}
- 65.4 ha of PCT 778: *Coast Grey Box – stringybark dry woodland on slopes of the Shoalhaven Gorges -Southern Sydney Basin*;
- 16.3 ha of PCT 1150: *Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion*;
- 12 ha of PCT 731: *Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion*; and
- 0.1 ha of PCT 1334: *Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands*.¹¹

Box Gum Woodland is listed as a CEEC under the *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act. The remaining PCTs are not commensurate with any threatened ecological community under the BC Act or EPBC Act.

The directly impacted Box Gum Woodland is considered to be in a modified state, due to previous land clearing, grazing activities and incursion by Serrated Tussock and feral pests. The revised BDAR indicates that the Project would reduce the extent of the Bungonia IBRA subregion of the CEEC by approximately 0.5%.

Boral has committed to a range of measures to avoid and minimise impacts on the CEEC, including the maintenance of appropriate buffer zones and the management of dust, weeds and pests in accordance with detailed management plans (see **Avoidance and Mitigation** below).

The Project's residual impacts on the CEEC would be appropriately offset in accordance with the *NSW Biodiversity Offsets Scheme*.

⁹ Commensurate with *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* CEEC under the BC Act

¹⁰ 80.7 ha of this vegetation meets the definition of *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* CEEC under the EPBC Act

¹¹ This small area of PCT 1334 is not commensurate with Box Gum Woodland CEEC

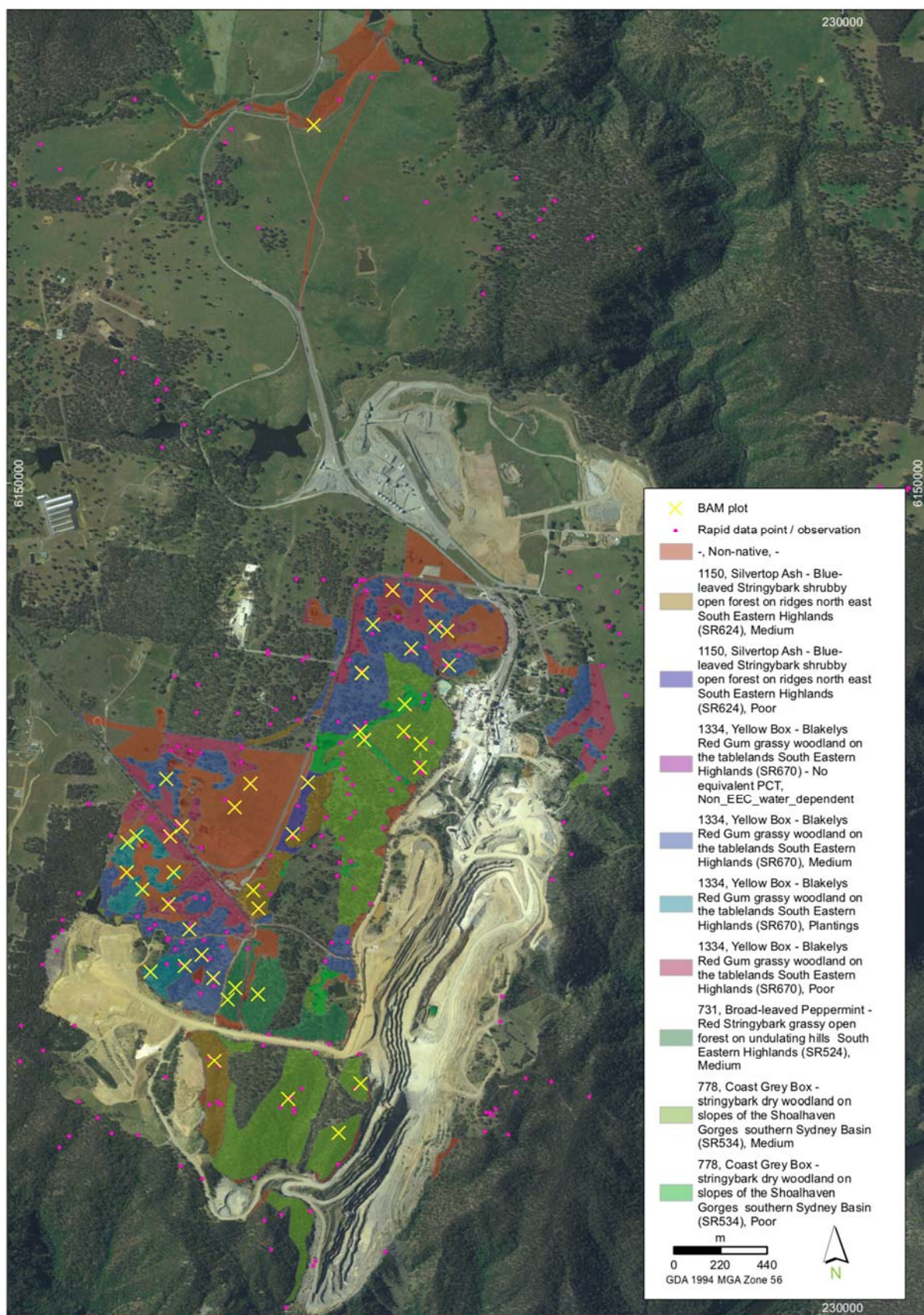


Figure 6 | Vegetation Mapping

Impacts on Threatened Fauna

A total of 19 threatened fauna species were recorded in and around the Project area during field surveys. Seven of these species, including the Large-eared Pied Bat, Greater Broad-nosed Bat, Eastern Bent-wing Bat, Yellow-bellied Sheath-tail-bat, Eastern Freetail-bat, Scarlet Robin and Diamond Firetail, were recorded in or immediately adjacent to the proposed disturbance area. The remaining 12 threatened species (Glossy Black Cockatoo, Koala, Southern Myotis, Eastern False Pipistrelle, Rufous Fantail, Grey-headed Flying-fox, Golden-tipped Bat, Powerful Owl, Sooty Owl, Turquoise Parrot, Yellow-bellied Glider and Varied Sittella) were recorded outside of the Project area, mainly within the habitat features of Bungonia Gorge and the Shoalhaven River.

All threatened fauna species recorded in and around the Project area are listed as vulnerable under the BC Act, and three species (Koala, Large-eared Pied Bat and Grey-headed Flying-fox and) are also listed as vulnerable under the EPBC Act. The Rufous Fantail is a listed migratory species under the EPBC Act.

Koala

While no Koalas were recorded within the Project area during the targeted surveys, previous sightings have been recorded throughout the locality, and the revised BDAR indicates that the Koala may use the habitat features of the Project area on occasion. The Project would remove 132.4 ha of occupiable Koala habitat.¹²

Given species' limited use of the Project area, and the small size of the proposed disturbance area, relative to similar habitat for the Shoalhaven Gorge Koala population (which is in the order of 7,500 ha) the revised BDAR concluded that the removal of this occupiable habitat alone is unlikely to result in population decline or place the Koala at risk of extinction.

Other threatened fauna

The Project would remove 140.3 ha of foraging habitat for the Grey-headed Flying-fox, Large-eared Pied Bat, Regent Honeyeater and six migratory species listed under the EPBC Act (see **Table 6-2** below).

The revised BDAR indicates that the Project is unlikely to have a significant impact on these species, given the lack of critical habitat and roosting/breeding sites within the Project area, the high mobility of the species and the extent of alternative foraging habitat in the surrounding locality (including in the nearby National Parks).

Mitigation and Offsetting for Fauna

Boral has committed to a range of measures to avoid and minimise impacts on threatened fauna (see **Avoidance and Mitigation** below). Residual impacts on threatened fauna would be offset in accordance with the *NSW Biodiversity Offsets Scheme*. In accordance with the *Biodiversity Assessment Methodology* (BAM), the Koala and the Large-eared Pied Bat are the only species credit fauna impacted by the Project. The remaining species are regarded as ecosystem credit species and are accounted for within credit requirements for the PCTs identified above.

¹² 'Occupiable Koala habitat' includes areas where either two or more known feed tree species occurred, or a single feed species occurred and occupied more than 50% of the canopy cover within a 400 m² floristic quadrat (in accordance with the *Recovery Plan for the Koala*, DEC 2008)

Impacts on Threatened Flora

Following extensive surveys, only one listed threatened flora species was identified within the Project area. One individual of *Solanum celatum* would be directly impacted by the Project. This species is listed as threatened under the BC Act. As a large population of *Solanum celatum* is known to occur throughout the Bungonia region, the removal of one individual is unlikely to significantly impact the species. The loss of this individual would be appropriately offset in accordance with the *NSW Biodiversity Offsets Scheme*.

Consideration of Impacts to MNES

Table 6-2 provides a summary of the Project's potential impacts to MNES. The Project could have a potential significant impact on Box Gum Woodland CEEC and the Koala. Detailed consideration of impacts to MNES is provided in **Appendix G**. It must be noted that, the BDAR also indicates that, subject to the avoidance, mitigation and offsetting measures outlined below, such impacts are unlikely.

Table 6-2 | MNES potentially impacted by the Project

| CEEC | Threatened Fauna | Threatened Flora | Migratory Species |
|------------------|---|--|--|
| Box Gum Woodland | Koala | Plumed-Midge-orchid | Fork-tailed Swift |
| | Grey-headed Flying-fox | Wingless Rasport | Great Egret |
| | Large-eared Pied Bat | Contoneaster Pomaderris | Cattle Egret |
| | Regent Honeyeater | Mountain swamp gum/broad-leaved Sallee | Rainbow Bee-eater |
| | Macquarie Perch | | Black-faced Monarch |
| | Golden Sun Moth | | Rufous Fantail |
| | Pectoral Sandpiper | | |
| | Common Greenshank | | |
| Key: | <i>Potential significant impact predicted</i> | <i>No significant impact predicted</i> | <i>Unlikely to occur within the Project area</i> |

Avoidance and Mitigation

The Department considers that the Project has been designed to avoid impacts on threatened species and communities to the greatest extent practicable. In reviewing the Project, BCD commented that the proposal represents a greater loss to biodiversity values than other alternatives considered in the EIS. The Department notes that biodiversity impacts are but one factor which must be considered in the evaluation of Project alternatives. Amenity impacts and economic viability must also be considered. In addition, the Department notes that the location and extent of proposed disturbance areas are dictated by the location of the limestone resource and the available area for large structures such as overburden emplacements and water storage dams within the boundaries of Boral-owned land.

Boral has committed to a range of avoidance and mitigation measures to reduce direct and indirect impacts on biodiversity values, such as:

- maintaining appropriate buffers around sensitive vegetation;

- locating Project infrastructure and ancillary works to minimise disturbance areas and avoid areas of remnant native vegetation and fauna habitat, where possible;
- undertaking pre-clearance surveys and progressively clearing;
- salvaging topsoil and habitat features;
- implementing weed, pathogen and feral animal controls;
- managing noise, vibration, waste, air and light pollution adjacent to sensitive habitat areas; and
- progressively rehabilitating the site, including re-establishment of woodland ecosystems and habitat features.

The Department and BCD are satisfied with the proposed avoidance and mitigation measures outlined in the revised BDAR. The Department considers that these measures would appropriately manage potential indirect biodiversity impacts within the nearby National Parks.

The Department has recommended a condition of consent requiring Boral to prepare and implement a Biodiversity Management Plan (BMP) that incorporates these avoidance and mitigation measures, as well as other contemporary biodiversity management practices.

Biodiversity Offset Strategy

The Department's recommended conditions would require Boral to offset the residual impacts of the Project in accordance with the BAM and the *NSW Biodiversity Offsets Scheme*.

Boral has advised that the majority of the required credits would be retired through the establishment of two Biodiversity Stewardship Sites:

- **Property 1:** Boral-owned land (known as 'Coolumburra') covering 1,000 ha within the Bungonia subregion. Field surveys have confirmed that the site would satisfy all of the ecosystem credit requirements (except for Box Gum Woodland) and the majority of the species credit requirements for the Project; and
- **Property 2:** privately-owned land covering 360 ha, subject to an existing Biodiversity Stewardship Agreement, for which Boral has negotiated security of credits to satisfy the full State and Commonwealth offset liabilities for Box Gum Woodland.

Boral is currently negotiating a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust in respect of Property 1. Boral has acquired the necessary credits for Box Gum Woodland in respect of Property 2. The residual species credit requirements would be met using one or more of the mechanisms available under *NSW Biodiversity Offsets Scheme*. This could include, for example, payment into the Biodiversity Conservation Fund.

The Department considers that the proposed biodiversity offset strategy is appropriate. The recommended conditions would require all credits to be retired prior to the commencement of construction, unless otherwise agreed by the Planning Secretary.

Conclusion

The Department has carefully assessed the biodiversity impacts of the Project in consultation with BCD. BCD has advised that it is satisfied with the information provided and supports the avoidance, mitigation and offsetting measures proposed.

Overall, the Department is satisfied that the biodiversity impacts of the Project are acceptable and can be appropriately managed and offset under recommended conditions and a detailed BMP.

6.3 Aboriginal Cultural Heritage

The Project would directly impact 49 Aboriginal heritage sites, including one site of high significance. The Project also has the potential to indirectly impact a highly significant women's cultural site in the vicinity of the proposed Marulan Creek Dam.

Aboriginal Cultural Heritage Objects

The EIS included an Aboriginal Cultural Heritage Assessment (ACHA), which included the results of an archaeological survey and test excavation. The ACHA was undertaken in accordance with applicable guidelines and in consultation with local Aboriginal groups, including 19 Registered Aboriginal parties (RAPs).

The identified Aboriginal sites within the vicinity of the Project Area are shown in **Figure 7** and **Figure 8**. The ACHA identified a total of 75 Aboriginal heritage sites within the Project area and its immediate surrounds, comprising a combination of subsurface deposits, artefact scatters, and isolated finds.

The Department notes avoidance of Aboriginal sites and objects is a feature of the mine design. Consequently, 26 sites would be avoided. The impact to the remaining 49 sites is considered unavoidable given the constraints within the site to locate key structures such as the Marulan Creek Dam and the overburden emplacements. These structures are large and there are no viable alternative locations within the project land.

Of the 49 sites directly impacted one, MSL 046, is considered of high significance. MSL 046 is a subsurface deposit containing a high number of artefacts, located in the vicinity of the proposed dam (see **Figure 8**). Notwithstanding the significance of the site, and the potential archaeological sensitivity of the surrounding area (see **Figure 8**), the ACHA indicates that the proposed disturbance area represents only a small portion of the areas of archaeological sensitivity along Marulan Creek.

Of the remaining sites that would be directly impacted, six are of moderate significance and 42 are of low significance.

Mitigation and Management

Boral has committed to demarcate and protect all identified sites within 20 m of the Project disturbance footprint. Boral has committed to undertake archaeological salvage excavation of five subsurface artefact deposits within areas of high or moderate archaeological sensitivity. This includes four sites which would be impacted by the Marulan Creek Dam (including MSL 046) and one site within the proposed mining area. A surface collection program would be implemented in relation to 35 additional sites. Management measures for individual sites are shown in **Figure 7** and **Figure 8**.

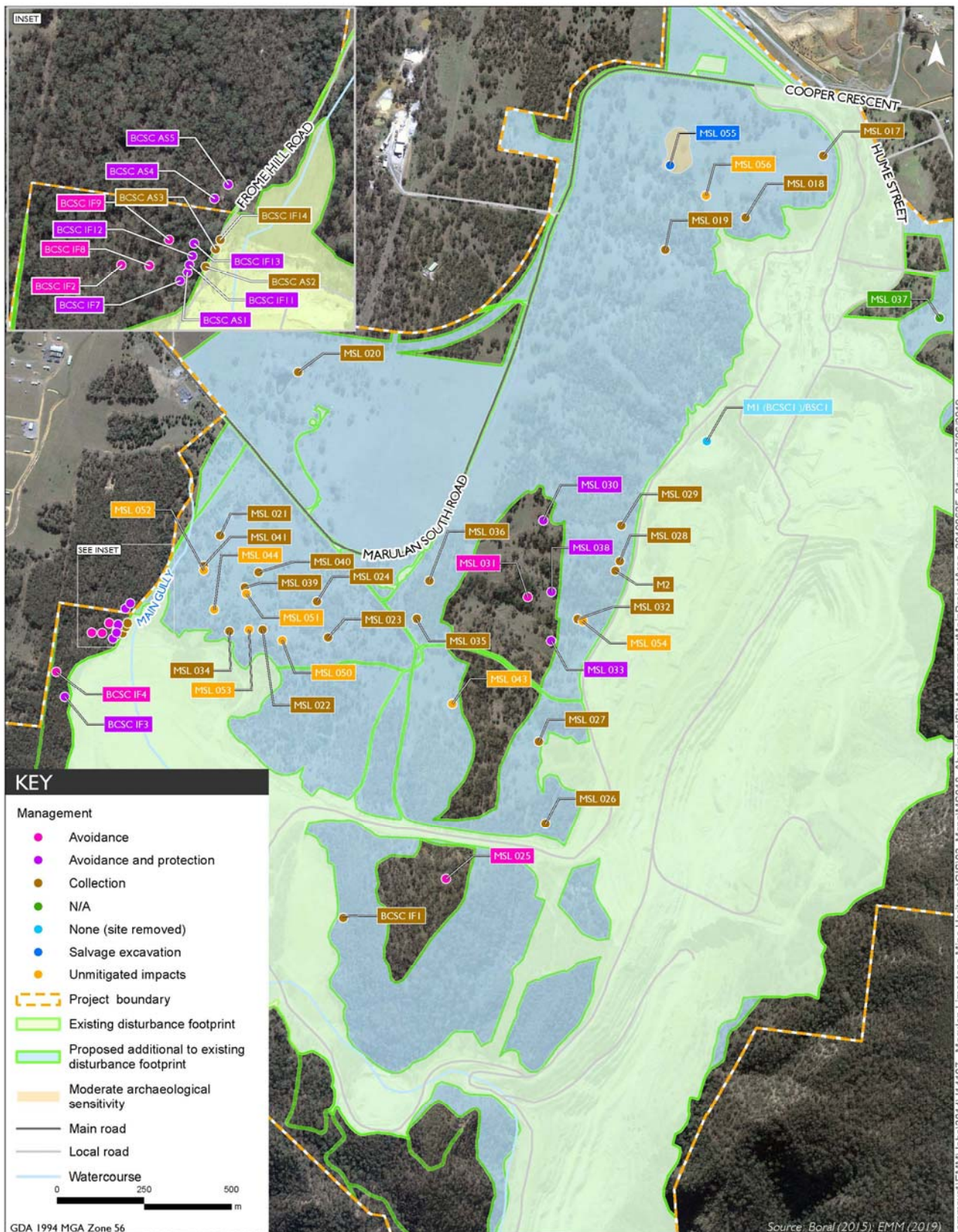
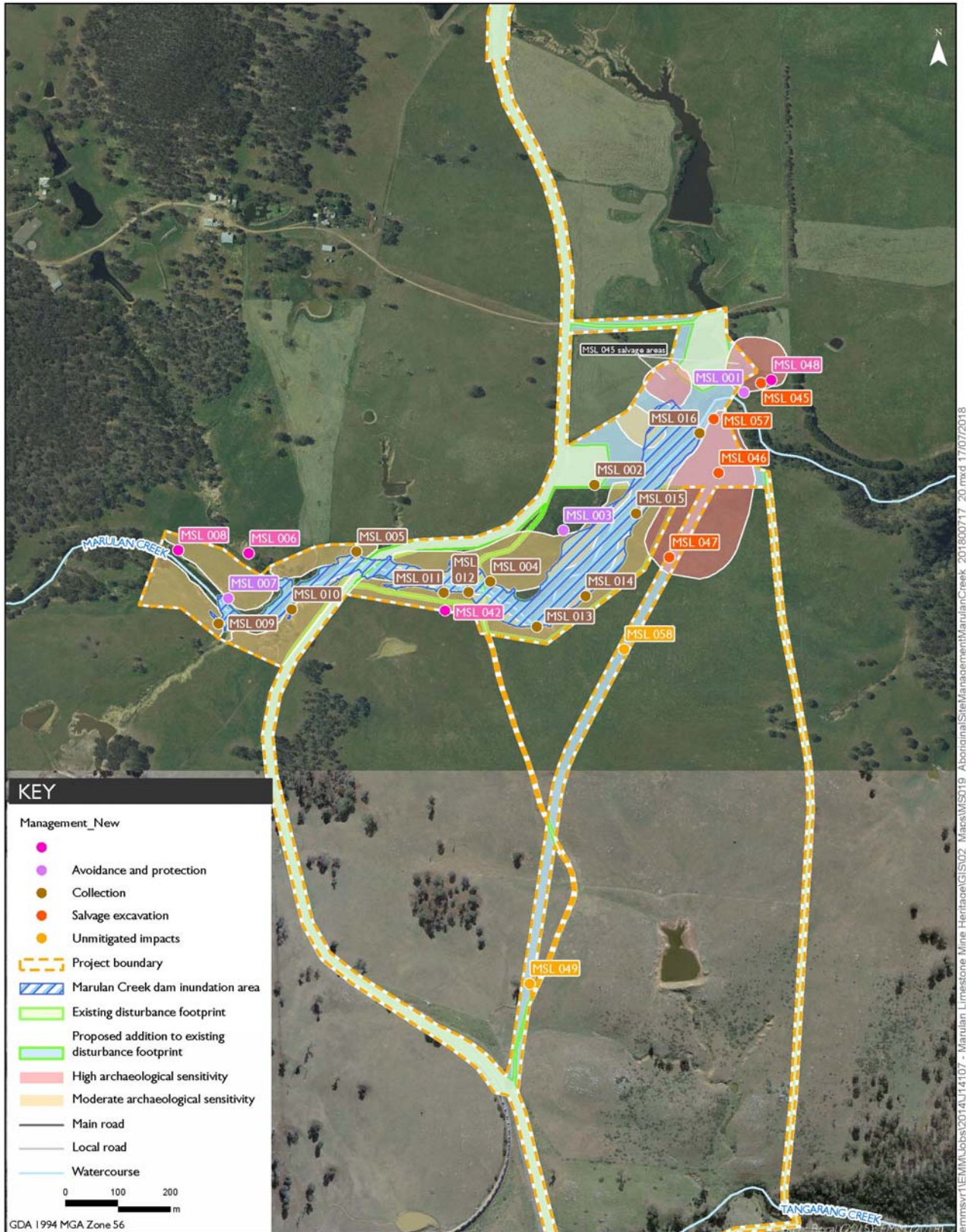


Figure 7 | Management of Aboriginal objects



Note: The women's cultural site has not been identified on this figure for confidentiality reasons

Figure 8 | Management of Aboriginal objects - Marulan Creek Dam

No specific mitigation measures are proposed in relation to the remaining nine sites which would be directly impacted by the Project. These are subsurface artefact deposits which are considered to be of low overall significance and which are located in areas of low archaeological sensitivity.

Heritage NSW (formerly BCD) has indicated that it is satisfied with the mitigation and management measures proposed in the ACHA.

The Department's recommended conditions would require Boral to prepare a detailed Aboriginal Cultural Heritage Management Plan (ACHMP) for the Project, in consultation with RAPs and Heritage NSW. This would include specific procedures for the salvage and collection of Aboriginal objects, the demarcation and protection of sites outside the approved disturbance footprint and a protocol for managing unexpected finds.

Women's Cultural Site

The women's cultural site is centred on the utilisation of water pools and flows along Marulan Creek and is of high significance. While the proposed dam has been designed to avoid direct impacts on the women's site, knowledge holders expressed concern that alterations to flow regimes on Marulan Creek may indirectly impact the site.

The ACHA included a specialist assessment of the women's cultural site, which recommended a range of measures to avoid and mitigate potential impacts to the site.¹³ Consistent with these recommendations, Boral has committed to erect permanent fencing at a distance of 20 m from the outer edge of the site, engage an intangible cultural heritage specialist to undertake a further assessment of potential impacts to the site once the detailed design of the Marulan Creek Dam has been completed and a prepare specific ACHMP for the site, in consultation with knowledge holders.

Heritage NSW has indicated that it is satisfied with the proposed management measures.

The Department notes that Boral's proposed riparian release regime (see **Section 6.1**) would minimise changes in flow regimes along Marulan Creek. Consequently, the risk of indirect impacts on the women's site is considered low. Nevertheless, the recommended conditions would require Boral to engage an intangible cultural heritage specialist to:

- undertake a further assessment of the impacts of altered flow regimes on the women's site, once the detailed dam design has been completed; and
- determine whether further mitigation measures, such as periodic cultural flows, are required.

This assessment would need to be undertaken in consultation with knowledge holders, prior to the commencement of construction, and any recommendations arising from this assessment would need to be addressed by specific commitments in Boral's ACHMP.

Conclusion

The Department is satisfied that Boral has taken reasonable steps to avoid and minimise impacts to numerous Aboriginal sites, including the highly significant women's site. Both Heritage NSW and the Department are satisfied with the mitigation and management measures proposed in respect of the 49

¹³ This specialist assessment has not been made publicly available for cultural sensitivity reasons

sites which would be directly impacted by the Project. The Department notes that only nine sites, all of which are considered to be of low significance, would have unmitigated impacts as a result of the Project.

The Department has recommended conditions to protect the women's cultural site and to minimise indirect impacts associated with the Marulan Creek Dam. Heritage NSW supports these measures.

Overall, the Department considers that the Project's impacts on Aboriginal cultural heritage can be appropriately avoided, mitigated and managed under the recommended conditions and a detailed ACHMP.

6.4 Visual Impacts

Community submissions raised concerns regarding the visual impacts of the Project, both at key public vantage points in the nearby National Parks and at private residences.

Due to the nature of the local terrain and the density of surrounding woodland, the Project is only expected to be visible from a small number of vantage points. Visual impacts at these locations are likely to be minor or negligible.

Impacts on Private Residences

Active mining areas associated with the Project would not be visible from any privately-owned residences. Four residences (R10, R13, R14 and R15) are expected to have partial views of the expanded overburden emplacements. These views would be substantially screened by vegetation, and in some cases, by approved overburden emplacement activities at Peppertree Quarry. As such, visual impacts at these residences are expected to be very minor.

Boral has committed to establish a tree screen to mitigate visual impacts.

No changes to existing night lighting arrangements at the mine are proposed, however, the Department notes that light sources would shift to the west and the north with the establishment of the western and northern overburden emplacements, respectively. Consequently, the Department considers that there is potential for night-time glow emanating from the Project area. The Department has recommended conditions in this regard (see below).

Impacts on the Public Domain

The most notable visual impact associated with the Project would occur at the Bungonia Lookdown, a viewing platform located within Bungonia National Park. Views at this location are already impacted by mining activities (see **Figure 9**). Active mining and expanded emplacement activities would continue to be visible from the Bungonia Lookdown over the life of the Project. However, visual impacts would diminish over time as the South Pit is partially backfilled and progressively rehabilitated (see **Figure 9** and **Figure 10**). The Department acknowledges the Project may increase visual impacts from the Bungonia Lookdown over the short to medium term, however given the viewshed has included mining for decades the impact must be considered in relation to the relative increase of the visible mining areas. Therefore, the mine pit and emplacement expansion within the viewshed are considered a comparatively small increase at this distance. Furthermore, these impacts would be mitigated which is discussed further below. .

The Project area would be visible from segments of Marulan South Road. In particular, the WOE would be visible at the eastern end of the road and along the proposed road realignment. The Department notes that this section of Marulan South Road does not serve through traffic, and consequently, visual impacts during the establishment of the WOE are considered acceptable.

Medium range and distant views of the Project would also be available from segments of Glynmar Road (to the west), Jerrara Road (to the north west) and Long Point Road (to the east). These views would be fleeting and would be partially screened by topography and vegetation.

Impacts on Private Residences

Active mining areas associated with the Project would not be visible from any privately-owned residences. Four residences (R10, R13, R14 and R15) are expected to have partial views of the expanded overburden emplacements. These views would be substantially screened by vegetation, and in some cases, by approved overburden emplacement activities at Peppertree Quarry. As such, visual impacts at these residences are expected to be very minor.

Boral has committed to establish a tree screen to further mitigate visual impacts at R13.

No changes to existing night lighting arrangements at the mine are proposed, however, the Department notes that light sources would shift to the west and the north with the establishment of the WOE and NOE, respectively. Consequently, the Department considers that there is potential for night-time glow emanating from the Project area. The Department has recommended conditions in this regard (see below).

Mitigation and Management

The Department's recommended conditions would require Boral to take all reasonable steps to minimise the visual impacts of the Project, including ensuring:

- the site is progressively rehabilitated;
- that all fixed and mobile lighting equipment is directed downward, except where required for safety purposes; and
- that all new works and structures are designed to blend in with the surrounding landscape.

In response to concerns raised by Council (see **Section 5.1**), the Department's recommended conditions would also require Boral to take all reasonable steps to minimise headlight spillage along Marulan South Road. This may include, for example, the construction of earth bunds within the realigned road reserve, in consultation with Council.

Conclusion

The Department has recommended strict conditions to ensure that the site is progressively rehabilitated and to minimise the residual visual and lighting impacts of the Project to the greatest extent practicable. Subject to the implementation of these measures, the Department considers that the visual impacts of the Project are acceptable and are unlikely to materially alter the scenic character of the surrounding landscape.



Figure 9 | Existing view from Bungonia Lookdown (top) and projected view in Year 13 (bottom)



Figure 10 | Projected view from Bungonia Lookdown in Year 19 (top) and 5 years after the completion of mining (bottom)

6.5 Other issues

Other issues associated with the Project include groundwater, aquatic ecology, noise, blasting, air quality, greenhouse gas emissions (GHGEs), traffic and transport, historic heritage, mine rehabilitation and social and economic impacts. The Department's assessment of these issues is summarised in Table 6-.

Table 6-2 | Other issues considered in the Department's assessment

| Issue | Recommended Conditions |
|---|--|
| Groundwater | |
| <ul style="list-style-type: none"> Groundwater take from the mined ore body and fractured bedrock aquifers is predicted to range between 7 ML/year to 23 ML/year, with an average take of 14.2 ML/year over the life of the Project. Baseflow losses due to the Project are predicted to be very minor. Groundwater flows from the bedrock to the Bungonia and Barbers Creek alluvium are predicted to decrease by an average of 1.8 ML/year, peaking at the end of mining period at 4.2 ML/year. Baseflow to the Shoalhaven River alluvium is predicted to decrease on average by 0.003 ML/year, peaking at the end of mining period at 0.03 ML/year. These predictions are conservative, as they do not consider the return of water associated with seepage through the pit floor. Groundwater springs and dependent ecosystems at the base of the steep slopes of Bungonia Gorge are not predicted to be impacted by the Project as they would continue to be recharged by groundwater seepage through the pit floor. The Project is not predicted to have any significant impact on groundwater quality in the vicinity of the site. Groundwater levels in the vicinity of the pit are predicted to reach equilibrium by approximately 2300. There are 22 registered and 2 unregistered bores around the Project area, which are used for both domestic water supply and industrial purposes. All privately-owned bores are located outside of the modelled 1 m drawdown contour, at the end of mining. Consequently, the Project complies with the Level 1 minimal impact considerations under the <i>NSW Aquifer Interference Policy (AIP)</i>. Boral holds sufficient WALs for the Goulburn Fractured Rock Groundwater Source under the <i>Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011</i> to account for groundwater take from the ore body and fractured bedrock aquifers. With respect to baseflows, Boral holds sufficient WALs to account for passive take from the Barbers Creek Management Zone under the Surface Water WSP, but would need to acquire additional entitlements within the Bungonia Creek Management Zone. Boral has indicated that there is sufficient market depth to acquire the necessary entitlements. DPIE Water has indicated that it is satisfied with the assessment of groundwater impacts and has provided advice on recommended conditions with respect to groundwater monitoring (including installation of monitoring bores within the Mt Frome Middle Limestone) and the periodic validation and review of the groundwater model. This advice is reflected in the Department's recommended conditions. The EPA recommended that Boral install additional monitoring bores to replace bores removed by progressive mining. Boral has provided additional commitments in this regard. | <ul style="list-style-type: none"> The Department's recommended conditions include strict groundwater performance measures, including negligible impacts to groundwater springs, alluvial aquifers and riparian ecosystems, beyond those predicted in the EIS. Boral would also be required to develop and implement a comprehensive Groundwater Management Plan (GWMP) as a component of the site's WMP. This would include a detailed monitoring program and TARPs to identify and respond to any exceedances of the performance measures. Consistent with DPIE Water's advice, the recommended conditions would require Boral to install additional monitoring bores within the Mt Frome Middle Limestone, to periodically validate the groundwater model and to commission an independent review of the model every three years. The Department considers that the groundwater impacts of the Project are acceptable and can be suitably managed under recommended conditions and a detailed GWMP. |

Aquatic Ecology

- The proposed Marulan Creek Dam has the potential to impact on downstream aquatic ecology.
- No threatened aquatic ecology species listed under the *Fisheries Management Act 1994*, BC Act or the EPBC Act were recorded during field surveys of the Project area. The existing fish community in Marulan Creek consists primarily of introduced invasive fish.
- Subject to the implementation of Boral's proposed riparian release regime and the required remediation and rehabilitation strategy (see **Section 6.1**), the Marulan Creek Dam is unlikely to have any significant impact on downstream aquatic ecology.
- DPI Fisheries did not raise any concerns regarding the Project, but requested to be consulted during the preparation of relevant management plans.
- The Department's recommended conditions would require Boral to consult with DPI Fisheries during the preparation of the MCDMP and to carry out ongoing monitoring of downstream aquatic ecosystems over the life of the Project.
- The Department considers that the impacts of the Project on aquatic ecology are likely to be negligible and can be suitably managed under the recommended conditions.

Noise Impacts

- The Project is predicted to comply with all relevant assessment criteria for operational, construction and transport noise at all privately-owned receivers, over the life of the development.
- The receiver most affected by operational noise from the Project would be Receiver R9, a privately-owned residence on Marulan South Road. Noise levels at R9 are predicted to peak at 36 dB(A)_{L_{Aeq} (15 minute)} during the day, evening and night periods during the first five years of the Project, and remain at or below 35 dB(A)_{L_{Aeq} (15 minute)} for the remainder of the Project life. These predictions are well below the project-specific noise criteria under the *Noise Policy for Industry* (NPfI).
- The Project would involve four discrete construction periods of up to four months each during the first five years of the Project.¹⁴ Construction noise generated by these activities is predicted to comply with the recommended 'noise-affected' criteria under the Interim Construction Noise Guideline.
- The Project involves a moderate increase in truck movements along Marulan South Road, relative to the Boral's existing operations. Boral is also seeking flexibility to transport products by road 24 hours per day, 7 days per week, consistent with its existing operations. The Project is predicted to increase road traffic noise at privately-owned residences along Marulan South Road by up to 1 dB at night and noise levels are predicted to comply with the relevant assessment criteria under the *NSW Road Noise Policy* at all times.
- The Department notes that the nearby Gunlake and Ardmore Park quarries are not permitted dispatch trucks on Sundays or public holidays in order to provide respite days for residents along their respective transport routes. The Department considers that trucking on Sundays and public holidays is acceptable, based on the unique circumstances of the current Project. In particular, the Department notes that the Project represents a continuation of longstanding mining operations within a mixed rural/industrial area, and which has historically included 24/7 trucking of lime products to meet market demands. The Department also notes that increased traffic noise generated by the Project is unlikely to be discernable at any sensitive receiver.
- Boral currently dispatches up to six laden trains from the mine per day, via its private rail line and the Main Southern Railway. No changes to these existing arrangements are proposed and rail noise impacts at privately-owned residences is predicted to comply with the relevant assessment criteria under the *Rail Infrastructure Noise Guideline*.
- The Department has recommended a range of conditions to minimise the noise impacts of the Project. These conditions would require Boral to implement best practice noise management, in accordance with a comprehensive Noise Management Plan (NMP).
- The Department has conservatively recommended operational noise criteria for the evening and night periods which are lower than the applicable noise criteria under the NPfI. As such, noise levels from Boral's operations during the evening and night periods would need to remain at or below 36 dB(A)_{L_{Aeq} (15 minute)} at R9 and 35 dB(A)_{L_{Aeq} (15 minute)} at all other privately-owned receivers. Boral has reviewed and accepted these more stringent criteria.
- The recommended conditions would require Boral to take all reasonable steps to minimise road traffic noise along Marulan South Road. This would include the implementation of quiet driving practices (such as limiting the use of airbrakes) under a Driver's Code of Conduct.
- The Department considers that the noise impacts of the Project would be acceptable and can be appropriately managed under recommended conditions and a detailed NMP.

¹⁴ These construction periods relate to (1) the construction of the Marulan Creek Dam, (2) the relocation of the stockpile reclaim area (see **Table 2-1**), (3) the establishment of the roads sales stockpiling area and (4) the realignment of Marulan South Road

- Following review of Boral's Submissions Report, the EPA advised that it is satisfied with the assessment of noise impacts for the Project. The Department has also consulted with the EPA regarding its recommended conditions.

Blasting

- Boral does not propose to change the timing, frequency or size of blasts at the mine.
- Overpressure and vibration impacts are predicted to remain well below the ANZEC criteria at all privately-owned residences over the life of the Project. The most significant blast impacts are predicted at Receivers R8 and R9. Overpressure and vibration levels at these receivers are predicted to be in the order of 110 dB(Lin) and 0.83 mm per second (mm/s) during the first five years of mining. These impacts are considered to be very minor.
- Blast impacts are predicted to be slightly higher at nearby commercial receivers, including the Aglime Fertilisers facility, where overpressure is predicted to peak at 116 dB(Lin) in the early years of the Project and vibration levels are predicted to remain well at or below 2.06 mm/s at all times. Such impacts would be well below the relevant assessment criteria for occupied, non-sensitive sites.
- Blast impacts at R13 (Glenrock) are predicted to peak at 100 dB(Lin) and 0.18 mm/s, which would remain significantly below the structural damage criteria for heritage items.¹⁵
- Given the size of proposed blasts, the low elevation of blasting areas (relative to adjacent properties) and the availability of suitable buffers within Boral-owned land, flyrock-related risks are likely to be negligible and could be managed in accordance with Boral's established blasting protocols.
- The EPA has advised that it is satisfied with the assessment of blasting impacts for the Project. The Department has also consulted with the EPA regarding its recommended conditions.
- The Department has recommended strict conditions to manage the potential blast impacts of the Project. These conditions would require Boral to adaptively manage blasting activities to maintain compliance with the relevant blast criteria and to develop and implement a comprehensive Blast Management Plan describing detailed measures to mitigate, manage and monitor blast impacts on sensitive receivers and key infrastructure.
- Boral would also be required to undertake baseline inspections of any privately-owned properties within 2 km of the open cut pit upon request and repair any damage to buildings or structures resulting from blasting, to the satisfaction of the Planning Secretary.
- The Department is satisfied that the blasting impacts of the Project would be generally consistent with longstanding mining operations at the site. The Department considers that these impacts can be appropriately managed under recommended conditions and a detailed Blast Management Plan.

Air Quality

- The Project is predicted to comply with all relevant assessment criteria for PM₁₀, PM_{2.5}, total suspended particulate matter and deposited dust at all privately-owned receivers, at all times.
- The Air Quality Impact Assessment (AQIA) indicates that there are occasional days when background 24-hour average PM₁₀ levels in the locality can exceed 50 µg/m³. These isolated events are typically caused by bushfires and windblown dust during summer. The Project is unlikely to result in any additional days where cumulative PM₁₀ concentrations exceed 50 µg/m³ at sensitive receivers. Nevertheless, the Department's recommended conditions would require Boral to minimise the air quality impacts of its operations during extraordinary events, such as bushfires and dust storms.
- Stack emissions from the site's lime hydration plant and kiln are predicted to comply with the relevant assessment criteria for nitrogen dioxide (NO₂) and sulphur dioxide (SO₂).
- Blast fumes were not modelled in the AQIA. Given the relatively small size of blasts proposed and the separation distance to receivers, the AQIA indicates that blast fumes are unlikely to pose a risk to neighbouring properties. Nevertheless, the Department's recommended conditions would require Boral to develop and implement a Blast Fume Management Strategy for the Project.
- The Department has recommended conditions requiring Boral to implement best practice air quality management during the construction and operational phases of the Project, and to monitor compliance with the air quality criteria in accordance with a detailed Air Quality and Greenhouse Gas Management Plan (AQGGMP).
- The Department considers that the air quality impacts of the Project are acceptable and can be appropriately managed under recommended conditions and an AQGGMP.

¹⁵ The Glenrock homestead and outbuildings are a listed heritage item of local significance

- Following review of the Submissions Report, the EPA advised that it is satisfied with the assessment of air quality impacts for the Project. The Department has also consulted with the EPA regarding its recommended conditions.

Greenhouse Gas Emissions (GHGEs)

- The Project is predicted to generate greenhouse gas emissions in the order of 4 million tonnes of carbon dioxide equivalent over the 30-year life of the mine. The majority of these emissions would be Scope 1 emissions associated with the production of lime and the consumption of natural gas.
- The Department has given consideration to both national and State-level commitments made under the 2016 Paris Agreement and *NSW Climate Change Policy Framework* in its assessment of the Project.
- The Department has weighed the Project's projected emissions against its potential social and economic benefits.
- The Department has recommended conditions requiring Boral to implement best practice management of Scope 1 and 2 emissions. This would include initiatives to improve energy efficiency on the site, which would need to be detailed in Boral's AQGGMP.
- On balance, the Department considers that the emissions generated by the Project are acceptable, subject to the implementation of the recommended conditions.

Traffic & Transport

- Boral is seeking to increase truck movements to and from the site, to permit a maximum of 133 laden truck dispatches per day (an increase of 58) and 10 laden truck dispatches per hour (an increase of 5).
- SIDRA modelling indicates that with the additional traffic generated by the Project, the Hume Highway interchange would continue to operate at a Level of Service A during peak AM and PM periods.
- During construction periods for the Project, there may be up to 80 additional traffic movements per day (ie 40 additional vehicles visiting the site). This would include a combination of light and heavy vehicles. These construction periods would be of limited duration (up to four months) and the Department is satisfied that the Hume Highway interchange has ample capacity to accommodate the temporary construction traffic generated by the Project.
- TfNSW is satisfied with the assessment of potential impacts on traffic flows on the Hume Highway and Marulan South interchange and does not object to the Project.
- Boral has committed to implement traffic management measures (including the installation of stop signs or traffic signals) at the eastern end of Marulan South Road, to manage traffic flows and ensure public safety in the event that the planned road closures do not eventuate. The Department has also recommended conditions in this regard.
- Boral has negotiated HoA with Council regarding the realignment and upgrading of Marulan South Road (see **Section 4.5**). The terms of this agreement has been reflected in the Department's recommended conditions, which have been developed in consultation with Council.
- The proposed road realignment is expected to have a positive impact on traffic safety, by removing an existing sweeping bend.
- The recommended conditions would ensure that truck movements to and from the mine do not increase until the Marulan South Road upgrade is completed to Council's satisfaction.
- The Department has recommended a range of conditions to manage the traffic impacts of the Project and to minimise disruption to local road users. These conditions would require the development of a detailed Traffic Management Plan (TMP), incorporating a Driver's Code of Conduct, in consultation with TfNSW and Council.
- The Department considers that the traffic and transport impacts of the Project are acceptable and can be appropriately managed under recommended conditions and a detailed TMP.

Historic Heritage

- There are no listed heritage items within or immediately adjacent to the Project area.
- The Project would involve the demolition of a Boral-owned residence (B5). This residence was constructed in the 1990s and is of no heritage significance.
- During field surveys, 12 items of potential local heritage significance were identified. All items were associated with historic mining activities. Following further assessment, 11 were considered to be of local heritage significance. One item, an explosives hut, was not considered to possess any heritage significance.
- The Project would destroy/remove seven of the items, which include former lime kilns and camp sites. The remaining five items would be avoided.
- Boral has committed to implement mitigation and management measures for historic heritage items, including:
 - photographic archival recording and archaeological investigations involving excavation for the majority of sites;
 - demarcation and signposting to protect avoided sites;
 - removal and storage of some moveable items; and
 - preparation and implementation of a Historic Heritage Management Plan (HHMP).
- Heritage NSW has confirmed that the mitigation measures proposed are appropriate.
- The Department has recommended a condition requiring Boral to prepare and implement a HHMP in consultation with Heritage NSW, prior to the commencement of development.
- The Department considers that the historic heritage impacts of the Project are acceptable and can be appropriately managed under the recommended conditions and a HHMP.

Rehabilitation & Final Landform

- Boral has committed to continue to progressively rehabilitate the site to achieve a final landform which is geotechnically stable, non-polluting and visually compatible with the surrounding natural landscape. The proposed final landform is shown in **Figure 3**.
- The post-mining land use goal for the site, particularly the overburden emplacements, is the re-establishment of native woodland communities.
- A total area of 442 ha (excluding the final void) is proposed for rehabilitation, of which 327 ha (mainly overburden emplacements) would be returned to native woodland areas and 67 ha would be returned to tree, shrub and groundcover vegetation. The remaining areas would include the water management system (sediment basins, storage dams and drains) and retained infrastructure (mainly roads) to be incorporated into the rehabilitated landscape.
- Boral has committed to emplacing an estimated 30 Mt of overburden at the southern end of the pit, resulting in a final mine void covering an area of approximately 156 ha. The Department considers that this outcome appropriately balances resource utilisation with environmental considerations. Boral has indicated that potential post-mining use options for the final void include:
 - temporary water storage;
 - landfill/backfill capacity (additional overburden emplacement or for metropolitan infrastructure projects); or
 - potential recreation area consistent with adjacent conservation areas.Boral committed to further investigate these options as part of the preparation of a detailed Rehabilitation Strategy for the site.
- While approximately 215,510 m³ of stripped topsoil would be available for rehabilitation, this would not be sufficient to cover all rehabilitation areas. Boral has indicated that topsoil would be prioritised for rehabilitation of the high and moderate erosion risk areas on overburden emplacement slopes and alternative growth media would be used on lower slopes and flats.
- The Resources Regulator concluded that mine rehabilitation was adequately assessed in the EIS and provided advice on recommended conditions. In particular, the Resources Regulator recommended that Boral be required to undertake further erosion
- The Department has recommended a range of conditions with respect to mine rehabilitation, including requirements for progressive rehabilitation and strict performance objectives to ensure the final landform is stable, non-polluting and appropriately integrated with the surrounding landscape.
- The Department has recommended specific objectives regarding the re-establishment of self-sustaining woodland ecosystems (particularly Box Gum Woodland CEEC) and habitat and foraging resources for the Koala.
- The recommended conditions would require Boral to develop a detailed Rehabilitation Strategy (including a post-mining land use strategy) and Rehabilitation Management Plan, in consultation with relevant agencies. These documents would need to demonstrate how the rehabilitation objectives would be met, and include programs to monitor and report on progressive rehabilitation over the life of the Project.
- The Rehabilitation Strategy would be reviewed and updated over the life of the Project, to provide ongoing opportunities to refine and improve the final landform (including final void outcomes).
- The Department is satisfied that rehabilitation outcomes can be

control works on existing rehabilitated landforms to address any long-term stability issues that may be identified. This is reflected in the Department's recommended conditions.

effectively managed under recommended conditions, a detailed Rehabilitation Strategy and a Rehabilitation Management Plan.

Social Impacts

- The EIS included a Social Impact Assessment (SIA) which was prepared by Element Environment in accordance with the Department's guidelines.
- The SIA was informed by a comprehensive community engagement program undertaken between 2015 and 2018.
- This program identified noise, dust and visual impacts (particularly lighting impacts), traffic impacts on Marulan South Road and impacts on surrounding property values as the key issues of concern for nearby residents.
- Each of these issues, with the exception impacts on property values, has been considered in **Section 6**. The Department's assessment has concluded that, subject to the recommended conditions, the Project is unlikely to significantly impact the health, wellbeing or way of life of nearby residents.
- The Project is expected to have positive social benefits through the continued employment of the mine's existing workforce and the upgrading of Marulan South Road.
- The Department has a recommended a range of conditions to manage the amenity and traffic impacts of the Project. These conditions are discussed throughout **Section 6**.
- The Department's recommended conditions would also require Boral to:
 - establish and operate a Community Consultative Committee; and
 - establish and implement a complaints handling protocol, for the life of the development.
- Overall, the Department considers that the social impacts of the Project are acceptable and could be suitably managed under the recommended conditions.

Economic Impacts

- The EIS included an Economic Assessment, incorporating both a Cost Benefit Analysis (CBA) and Local Effects Analysis (LEA) prepared in accordance with the relevant NSW Government Guidelines.
 - The CBA indicates that the Project would have a net present benefit to NSW of at least \$166 million, assuming a 7% discount rate.
 - The CBA included sensitivity analysis for a range of alternative scenarios, including increases in operating costs and decreased resource values, based on discount rates of 4 and 10%. All under all scenarios, the Project is predicted to result in a substantial net benefit to NSW.
 - MEG's REA estimates that the Project would generate \$49 million in royalty payments over the 30 year mine life, or \$20 million applying a 7% discount rate.
 - The Project would provide continued employment for the mine's 118 on-site workers, and another 73 off-site workers based at Boral's cement works at Berrima and Maldon.
 - The LEA estimates that the Project would generate up to \$14 million of direct and indirect household income within the Goulburn Mulwaree LGA.
- No conditions considered necessary

7 Evaluation

The Department has assessed the Project in accordance with the relevant requirements of the EP&A Act. The Department has carefully considered the potential impacts of the Project on the natural and cultural environments, nearby residents and commercial operations in the locality.

The Department considers that the Project has been designed to minimise environmental and amenity impacts to the greatest extent practicable. The Department's assessment has also concluded that the residual impacts of the Project would comply with relevant assessment criteria, policies and guidelines. The Department has recommended strict conditions to manage residual impacts on water resources and biodiversity, cultural heritage and amenity (including noise and blasting, dust and visual impacts).

The Department's recommended conditions are included in **Appendix H**. The Department has consulted with relevant agencies regarding the recommended conditions and has amended the conditions in response to advice received from these agencies. Boral has reviewed and accepted the recommended conditions.

The recommended conditions would enable continued mining operations to be regulated under a single development consent and a comprehensive suite of management plans which reflect contemporary community expectations and current best practice. These conditions would strengthen and clarify Boral's regulatory obligations for continued operations (including ongoing monitoring, reporting and auditing requirements) and enhance transparency and community confidence.

The Project represents a logical brownfield extension of a limestone mine which has operated for near a century. The Project would recover 120 Mt of limestone and up to 5 Mt of clay/shale over 30 years. This would ensure the continued supply of a range of beneficial limestone and lime products essential for cement and concrete production, steel-making and agriculture within the Southern Highlands, Southern Tablelands, Illawara and Greater Sydney regions.

The mine is strategically located adjacent to Boral's Peppertree Quarry and has established road and rail transport links with Boral's cement and concrete production facilities in Berrima and Maldon, as well as the Bluescope steelworks at Port Kembla. The Project would support ongoing operations at each of these facilities.

The Project is expected to generate a net benefit to NSW of at least \$166 million. The Project would also provide continued employment for the mine's 118 workers and an additional 73 off-site workers at Berrima and Maldon.

The Department considers that the benefits of the Project outweigh its potential negative impacts. Consequently, the Department considers that the Project is in the public interest, and should be approved, subject to strict conditions.

8 Recommendation

It is recommended that the Executive Director – Energy, Resources and Industry Assessments, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to approve the application;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **grants** approval for the application in respect of SSD 7009, subject to the conditions in the attached development consent; and
- **signs** the attached development consent and recommended conditions of consent (**Appendix H**).

Recommended by:



11 August 2021

Carl Dumbleton

A/Director

Resource Assessments

9 Determination

The recommendation is **Adopted** by:



19 August 2021

Clay Preshaw

Executive Director

Energy, Resources and Industry Assessments

as delegate of the Minister for Planning and Public Spaces

Appendices

Appendix A – Environmental Impact Statement

<https://www.planningportal.nsw.gov.au/major-projects/project/9691>

Appendix B – Submissions

<https://www.planningportal.nsw.gov.au/major-projects/project/9691>

Appendix C – Submissions Report

[Boral Submissions Report dated September 2019](#)

Appendix D – Additional Information

- [Boral's response dated 6 November 2019, relating to impacts on infrastructure, greenhouse gas emissions and Aboriginal cultural heritage](#)
- [Boral's response dated 19 February 2020, relating to issues raised by BCD and DPIE Water](#)
- [Boral's revised BDAR dated 7 May 2020](#)
- [Boral's response dated 6 July 2020, relating to issues raised by DPIE Water](#)
- [Boral's response dated 27 July 2020, relating to surface water](#)
- [Boral's response dated 23 March 2021, relating to figures and the status of biodiversity offsets](#)
- [Boral's response dated 22 April 2021, relating to progressive rehabilitation and the shared road sales stockpiling area](#)
- [Boral's response received May 2021, relating to Matters of National Environmental Significance](#)
- [Boral's response dated 18 June 2021, relating to groundwater](#)
- [Boral's response dated 6 July 2021, relating to blasting and noise bunds](#)

Appendix E – Agency Advice on Assessment

- [DPIE Water Advice dated 30 July 2020](#)
- [BCD EPBC Bilateral Assessment dated 31 March 2020](#)
- [BCD Supplementary Advice dated 1 June 2020](#)

Appendix F – Consideration of Statutory Requirements, Policies and Strategies

F1 Objects of the EP&A Act

The objects of the EP&A Act are the underpinning principles for all decision-making under the Act. They must be considered by the consent authority when determining a development application under the Act. **Table F1** summarises how the relevant objects of the EP&A Act have been considered in the Department's assessment of the Project.

Table F1 | Consideration of objects of the EP&A Act

| Objects of the EP&A Act (section 1.3) | Consideration |
|--|--|
| (a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources; | <ul style="list-style-type: none">• The Project would provide significant economic benefits to the local community and to the State of NSW.• While the Project has the potential to result in both positive and negative social impacts, overall, the Department considers that any negative social impacts can be appropriately managed under recommended conditions.• Social and economic impacts are discussed further in Section 6.5. |
| (b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment; | <ul style="list-style-type: none">• The Department's assessment has sought to integrate all significant environmental, social and economic considerations.• The Department considers that the Project can be carried out in a manner that is consistent with the principles of ESD. |
| (c) to promote the orderly and economic use and development of land; | <ul style="list-style-type: none">• The Project involves a brownfield expansion of an existing limestone mine, which can be largely carried out using existing infrastructure. The Department considers that this represents an orderly and economic use of land. |
| (e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats; | <ul style="list-style-type: none">• The Department has assessed the biodiversity impacts of the Project in accordance with relevant State and Commonwealth legislation, policies and guidelines.• The Department considers that the Project avoids and minimises, to the greatest extent practicable, impacts on threatened species and communities and key habitats.• The Department has recommended conditions to ensure that the residual biodiversity impacts of the Project would be appropriately managed and offset (see Section 6.2). |
| (f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage); | <ul style="list-style-type: none">• The Department has assessed the likely impacts of the Project on Aboriginal cultural heritage and historic heritage. These matters are discussed further in Section 6. |
| (i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State; | <ul style="list-style-type: none">• The Department has led a whole-of-government assessment of the Project in consultation with other NSW Government agencies. This consultation process is discussed further in Section 5. |
| (j) to provide increased opportunity for community participation in environmental planning and assessment. | <ul style="list-style-type: none">• The Department has carefully considered issues raised by the community during the public exhibition period in its assessment of the Project. These issues are discussed further in Section 5. |

F2 Environmental Planning Instruments

F2.1 Mining SEPP

Table F2 | Mandatory matters for consideration under Part 3 of the Mining SEPP

| Clause | Matters for Consideration | Consideration |
|--------|--|---|
| 12AB | Non-discretionary development standards for mining | <ul style="list-style-type: none"> The Project is predicted to comply with non-discretionary standards with respect to noise, air quality and blasting. The Project is predicted to comply with the Level 1 minimal impact considerations under the AIP at all privately-owned groundwater bores. |
| 12 | Compatibility of proposed mine, petroleum production or extractive industry with other land uses | <ul style="list-style-type: none"> The Department has carefully considered the merits of the Project, having regard to existing and approved land uses in the vicinity of the site. The Department has also considered what it understands to be the preferred uses of land in the area, having regard to relevant EPIs and strategic plans. The Department is of the view that, subject to the recommended conditions of consent, the Project can be carried out in a manner that is compatible with surrounding rural-residential and commercial land uses and nature conservation areas. |
| 12A | Consideration of voluntary land acquisition and mitigation policy (VLAMP) | <ul style="list-style-type: none"> The Department has considered the VLAMP in its assessment of noise and air quality impacts. No acquisition or mitigation rights apply in respect of the Project. |
| 13 | Compatibility of proposed development with mining, petroleum production or extractive industry | <ul style="list-style-type: none"> The Project maximises opportunities for infrastructure and resource sharing with the adjacent Peppertree Quarry. The Department is of the view that the Project would likely complement, rather than conflict with, existing extractive industry in the locality. |
| 14 | Natural resource management and environmental management | <ul style="list-style-type: none"> The Department has recommended a robust suite of conditions to ensure that the Project is undertaken in an environmentally responsible manner. These include conditions to avoid or minimise, to the greatest extent practicable, impacts on significant water resources, impacts on biodiversity (including threatened species) and GHGs. The Department has considered the assessment of GHGs in the EIS and supplementary information (including the assessment of downstream emissions), having regard to applicable State and national policies, programs and guidelines and has recommended conditions to ensure that GHGs are appropriately minimised and managed in accordance with an AQGGMP. |
| 15 | Resource recovery | <ul style="list-style-type: none"> Both MEG and the Department are of the view that the Project represents an efficient recovery of resources and no specific conditions in this regard are considered necessary. |
| 16 | Transport | <ul style="list-style-type: none"> The Department consulted with Council and TfNSW during its assessment of the Project. The Department has recommended conditions requiring significant improvements to Marulan South Road, the payment of contributions for ongoing maintenance, and the preparation of a Traffic Management Plan for the Project, in consultation with Council and TfNSW. |
| 17 | Rehabilitation | <ul style="list-style-type: none"> The Department has recommended strict conditions to ensure that the site is rehabilitated in a timely and integrated manner and that the final landform is safe, stable and non-polluting. |

F2.2 Sydney Drinking Water Catchment Catchment SEPP

Subject to the implementation of the recommended conditions, the Department is satisfied that the Project would have a neutral impact on water quality (see **Sections 6.1**).

F2.3 SEPP (Koala Habitat Protection) 2019

The Revised BDAR indicates that two tree species listed under *SEPP (Koala Habitat Protection) 2020* occur within the Project area and these would comprise at least 15% of the total number of trees in the Project area. However, the revised BDAR indicates that it is unlikely that a resident population of Koalas would rely on the habitat features of the Project area on a regular basis. As such, vegetation within the Project area is not considered to constitute 'core habitat' in accordance with the SEPP.

F2.4 SEPP No. 33 – Hazardous and Offensive Development (SEPP 33)

The EIS indicates that all hazardous substances used in the carrying out of the Project fall below the relevant screening thresholds under SEPP 33. The EIS also indicates that, subject to Boral's existing and proposed management measures, the Project is unlikely to constitute an offensive industry for the purposes of SEPP 33.

The Department considers that the hazards and risks associated with the Project would be consistent with Boral's established operations on the site and can be appropriately managed under the recommended conditions.

F2.5 SEPP No. 55– Remediation of Land

The EIS includes a Phase 1 and 2 Environmental Site Assessment (ESA) prepared by ZOIC Environmental, as required under clause 7 of SEPP 55 and having regard to *Managing Land Contamination Planning Guidelines: SEPP 55 – Remediation of Land* (1998).

Soil and water samples collected within the Project area typically comply with relevant screening criteria. However, hydrocarbon levels exceeding relevant National Environment Protection Measure criteria were identified in soil samples in the vicinity of a former above ground oil storage tank in the existing mine infrastructure area. The ESA indicates that this area of contamination is isolated and presents a low risk of migration. This area is not proposed to be disturbed. Isolated areas containing asbestos material and potential asbestos material were also identified within the proposed disturbance area.

Consistent with the conclusions of the ESA, the Department's recommended conditions would require Boral to prepare and implement a Contaminated Materials Protocol. This protocol would include procedures for the testing, removal and disposal of potentially contaminated material (including asbestos) in accordance with the requirements of SafeWork NSW and other relevant guidelines.

Overall, the Department considers that the land within the Project area is suitable for the intended use and the Project is generally consistent with the aims, objectives and provisions of SEPP 55.

F2.6 Goulburn Mulwaree LEP 2009

The Department considers that the Project is generally consistent with the aims, objectives and provisions of the LEP 2009.

Public submissions raised concerns that the Project is incompatible with the objectives of the RU1 Primary Production zone. Relevant objectives of the RU1 zone include the minimisation of land use conflicts, avoidance or minimisation of impacts on the natural environment, minimisation of visual impacts on the rural landscape and the enhancement of water quality. The Department considers that the project would avoid and/or minimise, to the greatest extent practicable, impacts on environmental

and scenic values within the RU1 zone. The Department is also satisfied that the potential for land use conflict would be appropriately minimised by the recommended conditions.

The Project area includes land identified on the *Terrestrial Biodiversity Map* under clause 7.2 of the LEP 2009. The Department considers that the BDAR addresses the relevant requirements of clause 7.2(3). The Department is satisfied that the development has been designed and sited so as to have a minimum adverse impact on terrestrial biodiversity (having regard to other considerations, including the location of the limestone resource). The Department is also satisfied that the recommended conditions of consent incorporate effective measures to minimise, mitigate and offset biodiversity impacts in accordance with the *NSW Biodiversity Offsets Scheme* and to progressively re-establish impacted woodland communities over the life of the Project. As such, the Department is satisfied that the development is consistent with the objectives and requirements of clause 7.2.

F3 Regional Plans and Strategies

The Department has considered a number of relevant policies and strategies in its assessment of the Project, including the *Strategic Regional Land Use Policy*, *South East and Tablelands Regional Plan 2036*, *Tablelands Regional Community Strategic Plan 2016-2036* and *Goulburn Mulwaree Council Local Strategic Planning Statement 2020-2040*. The Department considers that the Project is consistent with the aims and objectives of these documents.

Appendix G – Matters of National Environmental Significance

The Marulan South Limestone Continued Operations Project (the Project) was declared to be a ‘controlled action’ under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in 2015, due to its potential impacts on listed threatened species and communities.

In its determination, the Commonwealth Department of Agriculture, Water and the Environment (DAWE) agreed that the proposal may be assessed by the NSW Government, in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments.

The Department provides the following additional information for the Commonwealth Minister to take into account when deciding whether or not to approve the Project under the EPBC Act.

The Department’s assessment has been prepared based on the information contained in:

- the Environmental Impact Statement (EIS) for the Project, particularly Appendices K, L and M, (located in **Appendix A** of this Report);
- the Submissions Report (see **Appendix C**);
- environmental assessment requirements issued by DAWE;
- advice provided by the Biodiversity Conservation Division (BCD) within the Department, in particular its assessment of impacts on MNES (see **Appendix E**); and
- additional information provided by Niche Environment and Heritage (Niche) on behalf of the Applicant (Boral) during the assessment process, in particular the revised Biodiversity Development Assessment Report (BDAR) dated 7 May 2020 and supplementary response regarding MNES (received May 2021), both included in **Appendix D**.

This Appendix is supplementary to, and should be read in conjunction with, **Section 6.2** of the Department’s Assessment Report.

G1 – Potential Impacts to EPBC Act listed Threatened Species and Communities

In its referral decision, the Commonwealth determined that the Project is a controlled action in that the proposed action is likely to have a significant impact on four EPBC Act listed threatened fauna species (Koala, Grey-headed Flying-fox, Large-eared Pied Bat and Regent honeyeater) and one critically endangered community (CEEC), White Box-Yellow Box-Blakeley’s Red Gum Grassy Woodland and Derived Native Grassland. The Commonwealth also considered that there may be some risk of significant impacts to three threatened flora species (Plumed-Midge-orchid, Wingless Rasport and Contoneaster Pomaderris) and one threatened fauna species (Macquarie Perch).

Further, BCD’s assessment of Matters of National Environmental Significance (MNES) considered that there is some risk that there may significant impact on six EPBC Act listed migratory species (Fork-tailed Swift, Great Egret, Cattle Egret, Rainbow Bee-eater, Black-faced Monarch and Rufous Fantail), and that three threatened fauna species (Golden sun moth, Pectoral sandpiper and Common greenshank) and one flora species (Mountain swamp gum/broad-leaved Sallee) have been recorded within 10 km of the site and should also be considered.

The revised BDAR and supplementary information provided by the Applicant provided consideration of impacts of the Project on these species and community, including completion of significant impact tests for key species and communities in accordance with the *Significant Impact Guidelines 1.1 – Matters of*

National Environmental Significance (DoE, 2013). BCD has confirmed that it is satisfied with the information contained in the revised BDAR. Further consideration by the Department is provided below.

Critically Endangered Ecological Community (CEEC): White Box-Yellow Box-Blakeley's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland)

Extensive vegetation survey effort undertaken by Niche confirmed that a total of 80.7 ha of EPBC Act listed Box Gum Woodland occurs within the Project area, including 48.8 ha in moderate condition and 31.9 ha in poor condition. Niche has also mapped a total of 185.6 hectares of the CEEC surrounding the Project area and estimated that approximately 1,652 ha occurs within a larger local context.

Niche's Assessment of Significance considered that the Project would result in a significant impact on the Box Gum Woodland CEEC due to the direct impact on 80.7 ha of this CEEC, primarily associated with vegetation clearing required for the emplacement areas. The impacted Box Gum Woodland is in a modified state, due to previous land clearing, feral pest grazing, over abundant herbivore grazing and due to the abundance and spread of Serrated Tussock.

Niche also considered that the CEEC located adjacent to the Project disturbance areas could potentially be indirectly impacted by weed incursion, dust and feral pests. Boral has committed to implement a range of measures to prevent or minimise the indirect impacts specific to this CEEC, including preparing and implementing Erosion and Sediment Control Plans and an Air Quality and Greenhouse Gas Management Plan, and undertaking weed, pathogen and feral animal controls. Niche concluded that through successful implementation of these measures, significant impacts to the CEEC would not extend outside of the Project area.

BCD advised that the revised BDAR adequately addressed impacts on MNES. The Department agrees with these findings and considers that indirect impacts to this CEEC can be controlled by the proposed mitigation measures. To ensure this is the case, the Department has recommended a comprehensive range of conditions, including a condition requiring Boral to prepare and implement a Biodiversity Management Plan that incorporates these mitigation measures, as well as other contemporary biodiversity management practices. As discussed below, the residual impacts to this CEEC would be adequately offset through the retirement of ecosystem credits. On this basis, the Department considers the Project's impacts on this CEEC are acceptable.

Threatened Fauna: Koala, Grey-headed Flying-fox, Large-eared Pied Bat; Regent Honeyeater, Macquarie Perch, Golden sun moth, Pectoral sandpiper and Common greenshank

Koala

The Koala was not recorded within the Project area during the targeted surveys, previous sightings have been recorded throughout the locality, and it was accepted that the Koala may use the habitat features of the Project area on occasion. Niche considered occupiable habitat exists as either two or more known feed tree species occurred, or a single feed tree species occurred and occupied more than 50% of the canopy cover within a 400 m² floristic quadrat (in accordance with the *Recovery Plan for the Koala*, DEC 2008). Based on these criteria, Niche determined that 132.4 ha of occupiable habitat for the Koala may exist in the Project area.

Niche's Assessment of Significance considered that the Project could result in a significant impact due to the direct impact of clearing of 132.4 ha of potentially occupiable critical habitat for the Koala. However, Niche considered that due to the limited use of the Project area and its extremely small extent in relation to similar habitat for the Shoalhaven Gorge Koala population (7,500 ha), it is unlikely that

removal of this habitat alone would significantly adversely impact the relevant Koala population such that a decline would occur or that the population is placed at risk of extinction.

The BDAR also indicates that indirect impacts to Koalas, such as a decline in quality and extent in adjacent habitat to the Project area due to weeds and pest species, are unlikely due to the proposed mitigation measures.

BCD advised that the revised BDAR adequately addressed impacts on MNES. The Department agrees with these findings and considers that indirect impacts to Koala populations can be controlled by the proposed mitigation measures. As discussed below, the residual impacts to Koalas would be adequately offset through the retirement of species credits. On this basis, the Department considers the Project's impacts on Koalas are acceptable.

Grey-headed Flying-fox

The Grey-headed Flying-fox has been recorded outside the Project area in 2014 and was recorded flying overhead by the survey team during field studies. However, the field survey and analysis confirmed that no camp/breeding/roosting sites occur within, or immediately adjacent to, the Project area. The closest known camp site is in Moss Vale which is approximately 30 km north of the Project area.

The Project involves the removal of 140.3 ha area of potential foraging habitat for the species. Niche estimated that approximately 6,541 ha of feeding trees for this species exists locally. Niche concluded that the Project would therefore not cause a substantial loss to potential foraging habitat.

Further, given the mobility of the species, and the ability for the species to use isolated trees/urban area for foraging, Niche considered that the Project would also not result in any significant fragmentation of potential foraging habitat. Indirect impacts are also unlikely to cause any substantial impacts to potential foraging habitat.

Niche's Assessment of Significance for impacts on the Grey-headed Flying-fox concluded that the Project is unlikely to result in a significant impact on the species.

BCD advised that the revised BDAR adequately addresses impacts on MNES and the Department agrees that the Project would not result in unacceptable impacts on the Grey-headed Flying-fox, particularly given that no roosting or critical habitat would be impacted, the habitat to be removed is not considered to be particularly important foraging habitat in terms of its constitution or size, similar foraging habitat (that contains important feed trees) occurs throughout the locality and indirect impacts into adjacent potential foraging habitat are likely to be minimal, subject to the proposed mitigation measures.

Large-eared Pied Bat

The Large-eared Pied Bat was recorded at all the anabat survey locations within, and adjacent to the Project area. Portions of native vegetation within the Project area are therefore considered foraging habitat for the species. However, Niche indicated that as no rocky areas containing caves, overhangs or crevices, cliffs or escarpments, or old mines, tunnels, culverts or derelict concrete buildings exist in the Project area, breeding habitat is unlikely to be present.

The Project involves the removal of 140.3 ha area of potential foraging habitat for the species. Niche estimated that approximately 6,541 ha of habitat for this species exists locally. Niche concluded that

the Project would therefore not cause a substantial loss (less than 2%) to potential foraging habitat in the locality.

Given the mobility of the species, and the ability for the species to use isolated trees/urban area for foraging, Niche considered that the Project would not result in any significant fragmentation of potential foraging habitat. Indirect impacts are also unlikely to cause any substantial impacts to potential foraging habitat. Further, Niche indicated that the extent of the 2019/2020 bushfires occurred approximately 3 km to the east of the Project and did not substantially impact upon foraging habitat immediately surrounding the mine.

Niche's Assessment of Significance for impacts on the Large-eared Pied Bat concluded that the Project is unlikely to result in a significant impact on the species.

BCD advised that the revised BDAR adequately addresses impacts on MNES and the Department agrees that the Project would not result in unacceptable impacts on the Large-eared Pied Bat, particularly given that no roosting or breeding habitat would be impacted, the habitat to be removed is not considered to be particularly important foraging habitat in terms of its constitution or size, much of the foraging habitat in the surrounding locality will be protected in perpetuity within Morton National Park and the Bungonia State Conservation Area and indirect impacts into adjacent potential foraging habitat are likely to be minimal subject to the proposed mitigation measures.

The Department notes that whilst a significant impact was not determined, the species would be subsequently offset in accordance with the BAM to satisfy the offsetting requirement under the NSW *Biodiversity Conservation Act 2016* (BC Act). This is discussed further in **Section 6.2** of the Department's Assessment Report.

Regent Honeyeater

The Regent Honeyeater is endemic to mainland south-east Australia. The Project area does not occur within the four known key breeding areas where the species is regularly recorded. The species also is highly mobile, occurring only irregularly in most sites, and in variable numbers, often with long periods with few observations anywhere. The Regent Honeyeater was not recorded during field surveys and there have been only three recorded sightings within 12 km of the Project area since 1983.

The Project involves the removal of 140.3 ha of foraging habitat for the species. Niche estimated that 9,672 ha of potential habitat occurs within the locality. The Project would therefore impact 1.5% of foraging habitat within the locality, which is not considered significant.

Niche confirmed that no breeding habitat occurs within the Project area, and no known breeding areas would be directly or indirectly impacted. Indirect impacts are also unlikely to cause any substantial impacts to potential foraging habitat. Further, Niche indicated that the extent of the 2019/2020 bushfires occurred approximately 3 km to the east of the Project and did not substantially impact upon foraging habitat immediately surrounding the mine.

Niche's Assessment of Significance for impacts on the Regent Honeyeater concluded that the Project is unlikely to result in a significant impact on the species.

BCD advised that the revised BDAR adequately addresses impacts on MNES and the Department agrees that the Project would not result in unacceptable impacts on the Regent Honeyeater, particularly given that no known breeding habitat or critical habitat would be impacted by the Project and scant sightings within the Bungonia region suggests that the species potential usage of the Project area is

likely to be marginal/low. Consequently, the Department considers that the Project is unlikely to impact upon any flight movement of the species, impact upon the life cycle of the species or introduce or contribute to the establishment of any invasive species that would impact the species.

Macquarie Perch, Golder sun moth, Pectoral sandpiper and Common greenshank

Niche's assessments for these four EPBC Act listed threatened fauna species concluded a low likelihood of occurrence in the Project area as there is no preferred habitat and no records from within the locality or from extensive surveys for these species. Given the low likelihood of occurrence (and therefore the low likelihood of impact), no formal Assessments of Significance were conducted for these species.

BCD advised that the revised BDAR adequately addresses impacts on MNES. The Department accepts that these species are unlikely to be present in the Project area and therefore are unlikely to be impacted by the Project.

Threatened Flora: Plumed-Midge-orchid, Wingless Rasport and Contoneaster Pomaderris and Mountain swamp gum/broad-leaved Sallee

Niche confirmed that none of these threatened flora species were recorded within the Project area, or the immediate surrounds during the intensive field survey. The absence of detection during the field survey coupled with an analysis of suitable habitat and previous records resulted in Niche concluding that there is a low likelihood that these threatened flora species are present within the Project area. Given this, Niche concluded that no threatened flora as listed on the EPBC Act would be directly impacted by the Project.

Given the low likelihood for impact to Commonwealth threatened flora, no formal Assessments of Significance and subsequent biodiversity offsetting, were conducted.

BCD advised that the revised BDAR adequately addresses impacts on MNES. The Department accepts that these species are unlikely to be present in the Project area and therefore unlikely to be impacted by the Project.

Migratory Species: Fork-tailed Swift, Great Egret, Cattle Egret, Rainbow Bee-eater, Black-faced Monarch and Rufous Fantail

Niche confirmed that during the field survey, no migratory species listed under the EPBC Act were recorded within the Project area, however one individual of the Rufous Fantail was recorded outside of the area. A number of listed migratory species have also been recorded within the locality and in some cases have the potential to fly over the Project area.

Niche indicated that the migratory species listed above have a relatively wider distribution across NSW and broad habitat preferences, and as such, have been considered as potentially using the Project area on occasion. Niche conservatively assigned 140.3 ha of foraging habitat for all species within the Project area. The Project would result in clearing of this potential foraging habitat.

Given the proposed mitigation measures, Niche considered that indirect impacts to the species are unlikely to occur within adjacent areas of habitat, or ultimately have an effect on the migration pathways for any of the species.

Niche's Assessment of Significance for these migratory species concluded that a significant impact to any migratory species was unlikely.

BCD advised that the revised BDAR adequately addresses impacts on MNES and the Department agrees that the Project would not result in unacceptable impacts on the migratory species, particularly given the Project would not impact upon roosting, feeding, breeding or resting behaviour of the migratory species and the Project area and immediate surrounds are not known to support a significant proportion of the migratory species.

G2 – Demonstration of ‘Avoid, Mitigate, Offset’ for MNES

Avoidance and Mitigation Measures

Boral has committed to implement a suite of avoidance and mitigation measures to reduce direct and indirect impacts on biodiversity values. In summary, the measures include:

- locating the Project infrastructure and ancillary works to minimise disturbance areas and avoid areas of remnant native vegetation and fauna habitat, where possible;
- demarcation and signposting the boundaries of clearing and no-go areas;
- undertaking pre-clearing surveys and progressively clearing;
- salvaging topsoil and habitat features;
- preparing and implementing Erosion and Sediment Control Plans;
- undertaking weed, pathogen and feral animal controls;
- managing noise, vibration, waste, air and light pollution adjacent to sensitive habitat areas; and
- preparing and implementing a Rehabilitation Management Plan and undertaking progressive rehabilitation.

The Department and BCD are satisfied with the avoidance and mitigation measures proposed by Boral to minimise impacts on the MNES. The Department understands that the disturbance areas are controlled by the availability of the limestone resource and boundaries of Boral-owned land. The Department considers that the Project has been designed to avoid impacts on EPBC Act listed threatened species and communities to the greatest extent practicable. The Department also notes that the Project would have a considerably smaller disturbance footprint than a comparable greenfield mining project.

The Department has recommended a condition requiring Boral to prepare and implement a Biodiversity Management Plan that incorporates avoidance and mitigation measures outlined above, as well as other contemporary biodiversity management practices.

Biodiversity Offsets

The Department’s recommended conditions would require Boral to develop a biodiversity offset strategy to account for the residual impacts of the Project which cannot be addressed through the proposed avoidance and mitigation measures, as outlined in **Table G1**.

Table G1 | Summary of biodiversity credit requirements for MNES

| Table 31 Summary of biodiversity credit requirements for MINES | | | | | |
|--|---------------------|-------------------------------|--|------------|------------------------|
| Offset Liability | Area of Impact (ha) | Biodiversity Credits Required | Approximate Credits Within Stewardship Sites | | % Offset Liability Met |
| | | | Property 1 | Property 2 | |
| Ecosystem Credits | | | | | |
| PCT 1334 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands (SR670) | 80.7 ^a | 935 ^a | - | >1500 | 100% |
| Species Credits | | | | | |
| Koala | 132.4 | 2,454 | 2000 | - | 100% ^b |
| Large Eared Pied Bat | 140.3 | 3,836 | 2500 | | 100% ^b |

^a Based on EPBC definition of Box Gum Woodland CEEC

^b As area of land exceeds that required per EPBC Act policy calculator – the residual credits required under the BC Act would be retired using one or a combination of measures available under the NSW Biodiversity Offsets Scheme (eg payment into the Biodiversity Conservation Fund)

Credits associated with MNES would be retired by way of two Biodiversity Stewardship Sites under the BAM to provide in-perpetuity protection and management of biodiversity values. The proposed Stewardship Sites include:

- **Property 1:** Boral-owned land (known as 'Coolumburra') covering 1,000 ha within the Bungonia subregion. Niche has completed field surveys on the property which has confirmed that the biodiversity values at the site would satisfy 100% of Commonwealth offset liabilities for the Koala and Large-eared Pied Bat; and
- **Property 2:** privately-owned land covering 360 ha, subject to an existing Biodiversity Stewardship Agreement, for which Boral has negotiated security of credits to satisfy 100% of Commonwealth offset liabilities for PCT 1334 (Box Gum Woodland).

Boral is currently negotiating a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust in respect of Property 1. Boral has acquired the necessary credits for Box Gum Woodland in respect of Property 2.

The Department considers the proposed offsetting approach to be acceptable and has recommended a condition requiring all credits to be retired prior to the commencement of construction, unless otherwise agreed by the Planning Secretary.

G3 - Requirements for Decisions About Threatened Species and Endangered Ecological Communities

In accordance with section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of a subsection of either section 18 or section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved Conservation Advice.

G.3.1 Australia's International Obligations

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The recommendations of this report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (as has been undertaken for this proposal) to avoid and minimise adverse impacts on biological diversity. The Department's recommended conditions require avoidance, mitigation and management measures for listed threatened species and communities and all information related to the proposed action is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (Apia Convention) include encouraging the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using best endeavours to protect fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006. Nonetheless, Australia's obligations under the Convention have been taken into consideration. The recommended approval is not inconsistent with the Convention which generally aims to promote the conservation of biodiversity.

The *Convention on International Trade in Endangered Species of Wild Flora and Fauna* (CITES) is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommended approval is not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

G.3.2 Recovery Plans and Approved Conservation Advices

The Department has undertaken a detailed and comprehensive assessment of the potential impacts of the Project on listed threatened species and communities under the BC Act and the EPBC Act. The Department has taken into consideration approved Conservation Advice and Recovery Plans for the species and communities which may be impacted by the Project, including the:

- *National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland;*
- *Conservation Advice for Phascolarctos cinereus (Koala);*
- *National Recovery Plan for the Large-eared Pied Bat (Chalinolobus dwyeri);*
- *National Recovery Plan for the Grey-headed Flying-fox;*
- *National Recovery Plan for the Regent Honeyeater (Anthochaera Phrygia);*
- *Conservation Advice Anthochaera phrygia (Regent Honeyeater);*
- *National Recovery Plan for the Macquaria australasica (Macquarie perch);*

- *Conservation Advice for Macquaria australasica* (Macquarie perch);
- *Conservation Advice for Haloragis exalata subsp. exalata* (Wingless Raspwort); and
- *National Recovery Plan for Pomaderris cotoneaster* (Cotoneaster Pomaderris).

As discussed above, the Project is not predicted to significantly impact any of these threatened species and communities, with the exception of Box Gum Woodland CEEC and the Koala.

The Project may interfere with recovery of the CEEC given that 80.7 hectares of the community would be cleared. The overall aim of the *National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* is to promote the recovery and prevent the extinction of the CEEC. The specific objectives of the recovery plan is to minimise the risk of extinction of the ecological community through:

- achieving no net loss in extent and condition of the ecological community throughout its geographic distribution;
- increasing protection of sites in good condition;
- increasing landscape function of the community through management and restoration of degraded sites;
- increasing transitional areas around remnants and linkages between remnants; and
- bringing about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of Box-Gum Woodland.

The Department considers that the offsetting arrangements for the Project would ultimately secure and improve the condition of the CEEC elsewhere within the region to the extent that a 'no net loss' outcome would be achieved. In the long-term, the offset is expected to benefit the recovery of the community given that a larger area of CEEC would be protected and managed in perpetuity.

The *Conservation Advice for Phascolarctos cinereus* (Koala) was adopted in April 2012. The Advice identifies key threats to the species as loss and fragmentation of habitat, vehicle strike, disease, and predation by dogs.

The Advice also identified a number of priority management actions for the species, some of which include implementing protocols to prevent loss of important habitat, populations or connectivity options, mitigating vehicle strike where development occurs, monitoring progress of recovery and management actions and investigating formal conservation arrangements on private land.

The Project would clear approximately 132.4 ha of Koala habitat. However, it has been concluded that the removal of this habitat would have minimal impact on the Koala population and would not affect connectivity within the region. The Department has recommended that mitigation and recovery measures are implemented via a Biodiversity Management Plan, including measures to mitigate vehicle strikes and rehabilitate the site with Koala tree species.

Additionally, Boral would be required to retire species credits to offset the loss of Koala habitat, which would result in conservation of Koala habitat in perpetuity. On this basis, the Department considers the Project would not be inconsistent with the Approved Conservation Advice.

G.3.3 Threat Abatement Plans (TAPs)

The Department has considered the Threat Abatement Plans (TAPs) relevant to the Project under the EPBC Act. These TAPs are available at <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>. The TAPs which are considered relevant to the Project include:

- *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs*

This TAP is relevant to the Box Gum Woodland CEEC.

- *Threat Abatement Plan for competition and land degradation by rabbits*

This TAP is relevant to the Regent Honeyeater.

- *Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi**

This TAP is relevant to the Box Gum Woodland CEEC.

The Project has the potential to:

- facilitate the spread, or lead to a higher abundance of feral pigs and rabbits (and other unmanaged or feral fauna) through the clearance and modification of habitat; and
- increase the risk of infection of native plants by the pathogen *Phytophthora cinnamomi* through human activities such as transportation and land disturbance.

The Department has included measures for the control of feral animals and disease spread under the recommended Biodiversity Management Plan for the Project, including specific requirements for the Applicant to consider the actions identified in relevant TAPs. With these measures in place, the Department considers that the action can be carried out in a manner which is compatible with the relevant TAPs.

G4 - Additional EPBC Act Considerations

Table G2 contains a range of further mandatory considerations to be taken into account and factors to have regard to under the provisions of the EPBC Act.

Table G2 | Additional Considerations for the Commonwealth Minister under the EPBC Act

| EPBC Act Section | Consideration | Conclusion |
|---|---|---|
| <i>Mandatory considerations</i> | | |
| 136(1)(b) | Social and economic matters are discussed in the EIS and Section 6.5 of this Report. | The Department considers that the proposed development would result in a range of benefits for the local and regional economies and would allow for the continued and valuable production of limestone within the region. |
| <i>Factors to be taken into account</i> | | |

| | | |
|----------------------------------|--|--|
| 136(2)(a) | <p>Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular in:</p> <ul style="list-style-type: none"> • long and short-term economic, environmental, social and equity considerations relevant to this decision; • conditions that restrict environmental impacts, impose monitoring and adaptive management requirements and reduce uncertainty concerning the potential impacts of the Project; • conditions requiring the Project to be operated in a sustainable way that protects the environment for future generations and conserves MNES; • advice provided within this report which reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for this Project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms that promote a financial cost to the applicant to mitigate the environmental impacts of the Project. | <p>The Department considers that, subject to the recommended conditions of consent, the Project could be undertaken in a manner that is consistent with the principles of ESD.</p> |
| 136(2)(e) | <p>Other information on the relevant impacts of the action.</p> | <p>The Department considers that all information relevant to the impacts of the Project has been taken into account.</p> |
| Factors to have regard to | | |
| 176(5) | <p>Bioregional plans</p> | <p>The Project is located in the South Eastern Highlands Bioregion. The Project will result in clearing of some vegetation in this region, however it would involve an offset that would contribute to in-perpetuity managed conservation areas in the bioregion. The Project is unlikely to significantly impact the water resources in this bioregion.</p> |

Considerations on deciding conditions

| | | |
|--------|---|--|
| 134(4) | <p>Must consider:</p> <ul style="list-style-type: none"> • information provided by the person proposing to undertake the action or by the designated applicant of the action; and • desirability of ensuring as far as practicable that the condition is a cost-effective means for the Commonwealth and the person taking the action to achieve the object of the condition. | <ul style="list-style-type: none"> • Documents provided by the Applicant are provided at Appendices A, C and D of this report. • The Department considers that the recommended conditions of consent in Appendix H are a practicable and cost-effective means to achieve their purposes. • These conditions have been prepared following careful considerations of material provided by the Applicant and following consultation with DAWE. |
|--------|---|--|

G5 - Conclusions on Controlling Provisions

G.5.1 Threatened Species and Communities (sections 18 and 18A of the EPBC Act)

The information provided to date identifies that the Project has the potential to result in significant impacts on the following threatened species and communities listed under the EPBC Act:

- Box Gum Woodland CEEC; and
- Koala.

The Department considers that the impacts of the proposed action on this threatened species and CEEC would be acceptable, subject to the avoidance, mitigation, offsetting and management measures described in the Applicant's environmental assessment documents and the requirements of the Department's recommended conditions of consent (see **Appendix H**).

The Applicant has committed to offset the impacts of the Project on threatened species and communities, as outlined in **Table G1**, in accordance with the requirements of the NSW *Biodiversity Offsets Scheme* (see conditions B51 and B52).

The credit retirement for impacts to MNES would be achieved by establishing two Stewardship Sites under the BAM to provide in-perpetuity protection and management of biodiversity values. BCD has advised that it was satisfied with the calculated offset liability for MNES. The Department considers the proposed offsetting approach to be acceptable and has recommended a condition requiring all credits to be retired prior to the commencement of construction, or other timeframe agreed by the Planning Secretary.

The Department has also recommended a condition requiring the Applicant to prepare a detailed Biodiversity Management Plan (see condition B54). This plan would describe the measures to be implemented to:

- minimise impacts to Box Gum Woodland CEEC including potential edge effects within identified buffer zones, and contribute to conservation strategies for this CEEC; and
- control feral pests and disease with consideration of actions identified in relevant threat abatement plans.

The Department has also recommended a rehabilitation objective requiring the re-establishment of habit and foraging resources for the Koala (see Table 6 in condition B76).

The Department recommends that the Commonwealth Minister require the Applicant to implement the State's conditions, where they relate to the management of impacts on threatened species and communities listed under the EPBC Act.

G6 - Other Protected Matters

DAWE has determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage places, National Heritage places, migratory species, Ramsar wetlands, the Commonwealth marine environment, Commonwealth land, Commonwealth actions, nuclear actions, the Great Barrier Reef Marine Park and Commonwealth Heritage places located overseas.

G7 - Conclusions

The Department considers that the recommended conditions would provide suitable protection for MNES listed under the EPBC Act. The Department notes that, if approved, the Project would be referred to the Commonwealth Minister for the Environment for determination under the EPBC Act.

Appendix H – Recommended Instrument of Consent

<https://www.planningportal.nsw.gov.au/major-projects/project/9691>