Department of Planning, Housing and Infrastructure

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Moolarben OC3 Extension Project

State Significant Development Assessment Report (SSD-33083358)

December 2025

Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Cover photo: View of project area (Source: Amended BDAR)

Executive Summary

This report details the Department of Planning, Housing and Infrastructure's (the Department) assessment of the Moolarben OC3 Extension Project (the project) and will be provided to the Independent Planning Commission of NSW (IPC) as the consent authority.

Project

The Moolarben Coal Complex (the complex) is an existing coal mining operation located approximately 40 kilometres (km) north of Mudgee in the Mid-Western Regional local government area (LGA).

Moolarben Coal Operations Pty Ltd (MCO) is seeking consent for the Moolarben OC3 Extension Project. The project involves the progression of open cut mining at the complex, including extending the existing OC3 pit and developing four new open cut pits along the floor of the Moolarben Valley. The project has been designed to avoid disturbance of Moolarben Creek and Murdering Creek which runs along the valley floor. The project is proposed to be undertaken within the approved life of the existing complex (ie 2038).

MCO lodged a State significant development application for the project in November 2022, which was subsequently amended in March 2024 to reduce the extent of surface disturbance and incorporate additional avoidance measures.

Strategic context

The project has been considered in accordance with key relevant Commonwealth, State and regional strategies including Australia's Long-Term Emissions Reductions Plan, NSW Climate Change Policy Framework, Strategic Statement on Coal Exploration and Mining in NSW and Mid-Western Regional Local Strategic Planning Statement.

Statutory context

The project is classified as State significant development (SSD) under section 4.36 *Environmental Planning and Assessment Act 1979* (EP&A Act) because it meets the criteria specified in section 5(1)(a) of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* as development for the purpose of coal mining.

The IPC is the consent authority for the project under section 4.5A of the EP&A Act, as more than 50 unique public objections to the project were received during its exhibition.

On 2 May 2022, a delegate of the Commonwealth Minister for the Environment (Commonwealth Minister) determined that the project was a controlled action under section 75 of the *Environment*

Protection and Biodiversity Conservation Act 1999 (EPBC Act). The project has been assessed under the Bilateral Agreement between the NSW and Commonwealth Government.

Engagement

The Department exhibited the environmental impact statement (EIS) from 17 November until 14 December 2022. During the exhibition period, the Department received 75 public submissions including 73 objections and two supportive submissions from members of the public and special interest groups.

Key issues raised include impacts on biodiversity, greenhouse gas emissions and associated climate change impacts, water resources, Aboriginal cultural heritage, agriculture and adverse economic and social impacts.

The Department sought advice from relevant State government agencies, including Mid-Western Regional Council (Council) on the EIS and the amendment report. Some agencies provided further advice in response to additional information provided by MCO.

Many concerns were addressed by MCO in its submissions report, amendment report and provision of additional information. A number of residual concerns remain, particularly with NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW), Conservation Programs, Heritage and Regulation (CPHR) and National Parks and Wildlife Service (NPWS).

The Department sought targeted advice from the Independent Expert Advisory Panel for Mining (Mining Panel) on these matters as well as advice on water-related impacts and greenhouse gas emissions. The Department also referred the project with the Department and the Australian Government Department of Climate Change, Energy, the Environment and Water (AG DCCEEW) to the Commonwealth's Independent Expert Scientific Committee on Coal Seam Gas and Large Mining Development (IESC) for advice on the project's potential surface water and groundwater impacts.

Key Assessment Issues

Biodiversity

The project would directly disturb approximately 675 hectares (ha) of land, including 480 ha of native vegetation. Key biodiversity impacts include disturbance of 401 ha of Box Gum Woodland Critically Endangered Ecological Community (CEEC) and 81 ha of Regent Honeyeater 'important mapped' habitat, which are candidate species for serious and irreversible impacts (SAII).

The project would also impact habitat for the Koala and Squirrel Glider (113 ha), Swift Parrot (106 ha), Pink-tailed Legless Lizard (207 ha) and Gang-gang Cockatoo (106 ha). Due to the proximity to rocky features in the Munghorn Gap Nature Reserve, the project has potential to indirectly impact threatened microbat habitat as a result of blasting.

MCO has proposed a range of measures to avoid and minimise impacts on biodiversity. The amended project reduced the disturbance footprint by 150 ha which included greater avoidance of impacts on the woodland component of Box-Gum Woodland CEEC (ie 59% reduction) and a 56% reduction on 'important mapped' habitat for the Regent Honeyeater. MCO also proposed to establish a habitat enhancement area to revegetate and enhance areas outside of the disturbance footprint and substantially increase native woodland in the project footprint post mining.

Key residual issues raised by CPHR include the assessment methodology and designation of Category 1 Land[1] and that the project would result in SAII on Box-Gum Woodland CEEC and the Regent Honeyeater. NPWS also recommended a range of conditions to manage noise, blasting and other impacts on the Munghorn Gap Nature Reserve.

The Department sought targeted advice from the Mining Panel on these matters which concluded that the project is unlikely to cause SAII for either entity. The Department shares this view although has recommended strict conditions to ensure all reasonable minimisation measures are in place. The decision of whether the project is SAII is ultimately to be made by the consent authority, who in their right, may form an alternative conclusion.

The Mining Panel also carefully reviewed the Category 1 Land Assessment methodology which concluded that it meets the requirements of the *Local Land Services Act 2013* and *Biodiversity Conservation Act 2016*. Additionally, the Mining Panel advised that blast impacts on rocky habitat features could be managed subject to strict performance measures, blast vibration criteria and a bat monitoring program.

MCO has proposed reasonable, feasible and genuine avoidance and minimisation measures for impacts on other threatened flora and fauna including the Koala, Squirrel Glider, Swift Parrot and *Pomaderris cotoneaster*. Residual impacts would be offset in accordance with the Biodiversity Offset Scheme.

The Department has carefully considered the matters raised by NPWS regarding indirect impacts on the Munghorn Gap Nature Reserve and has, should the IPC determine to approve the project, recommended strict conditions consistent with NSW Government policy.

Water

The project would impact groundwater and surface water resources as a result of open cut mining activities. Key impacts include groundwater drawdown in the shallow alluvium of up to 5 metres (m) and potential impacts on groundwater dependent ecosystems (GDE). Other impacts include

[1] Under Section 60H(2a) of the *Local Land Services Act 2013* (LLS Act), land is to be designated as Category 1 land if the Environment Agency Head reasonably believes that the land contains low conservation value grasslands. Category 1 areas are excluded from the assessment of the impacts of clearing native vegetation under the Biodiversity Assessment Method.

catchment loss, changes to flooding regime and disturbance associated with the construction of three haulage road creek crossings.

The project is designed to be set back 200 m of the high bank of Moolarben Creek and Murdering Creek to minimise impacts on these watercourses.

The IESC and the Mining Panel raised concern with the accuracy of local-scale predictions of the groundwater model noting it was more suitable at a regional scale. The Mining Panel advised that there is a moderate risk to deep-rooted groundwater dependent vegetation and recommended conditions to manage this risk, including the expansion of the groundwater monitoring network, trigger action response plan and an update to the groundwater model.

No significant impacts are predicted to result from the establishment of creek crossings, changes to flood regimes and catchment loss.

The Department has, should the IPC determine to approve the project, recommended conditions consistent with recommendations from the Mining Panel and IESC, as well as strict water performance measures and a comprehensive water management plan with trigger action response.

Greenhouse Gas

The project would generate approximately 64.6 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e) emissions. Most of these emissions (ie around 99%) would be scope 3 emissions associated with the combustion of coal by end users.

In accordance with the requirements of *State Environmental Planning Policy (Resources and Energy) 2021,* the Department has carefully considered downstream emissions of the project and understands that all but one key receiving country (Taiwan) are party to the Paris Agreement.

The project area contains low gas geological conditions resulting in a low estimation of the intensity of scope 1 fugitive emissions. A greater proportion of scope 1 emissions would be generated by onsite diesel combustion.

The complex is a participant of the Commonwealth's Safeguard Mechanism being a facility that emits over 100,000 tonnes of CO2-e emissions per year. MCO would be required to incorporate the project into the existing facility to operate as one complex under the Safeguard Mechanism.

EPA advised that MCO would also be required to prepare and implement a Climate Change Mitigation and Adaption Plan, in accordance with the NSW Climate Change Policy regulatory framework. This would include measurable emission goals, a detailed energy efficiency plan, and monitoring and reporting requirements.

The additional emissions from the project (ie scope 1, 2 and 3) would contribute to global climate change. Climate projections for the Central West Orana region and project area indicate rising

temperatures, increased fire risk, and more frequent extreme weather events. Community submissions highlighted concerns about these risks and their social and economic consequence.

The Department has considered the additional greenhouse gas emissions of the project in the context of NSW and Commonwealth Government policy frameworks

Aboriginal Cultural Heritage

The project would increase the number of Aboriginal heritage sites impacted within the locality and broader region, including direct disturbance of 55 sites within the project footprint, most of which are artefacts and isolated finds. The Department considers that this incremental impact could be appropriately managed and would not significantly increase cumulative loss.

The project also has potential to impact twelve Aboriginal heritage rock shelters located outside of the disturbance area, as a result of blasting. MCO advised that blasting would be appropriately designed and managed to avoid impacts on these sites. The Department has, should the IPC determine to approve the project, provided recommended conditions to this effect.

The Department has also recommended other conditions including (but not limited to) an Aboriginal cultural heritage management plan to be prepared in consultation with Registered Aboriginal Parties and Heritage NSW, prior to disturbance of any identified sites.

Other

The Department has assessed the impacts of the project for a range of other matters, including amenity (noise, air quality, blasting and visual), rehabilitation and agriculture, historic heritage and social and economic impacts. The Department has included strict conditions of consent to assist in managing these issues should the IPC determine to approve the project.

Evaluation

The Department has carefully considered the likely environmental, social, and economic impacts of the project in accordance with the requirements of section 4.15 of the EP&A Act.

Overall, the Department's assessment concludes that the project would result in benefits to the State of NSW including economic benefits through continuing employment, royalties and flow-on effects. However, the project would also result in a range of impacts including additional greenhouse gas emissions, biodiversity impacts that will need to be mitigated and offset, and residual impacts on Aboriginal heritage and groundwater resources.

The Department has not provided an overall recommendation but rather has undertaken a comprehensive assessment and evaluation of the Project to inform the IPC as the consent authority and assist it in its need to conclude if the project is in the public interest. . Should the IPC determine to approve the project, the Department has provided recommended conditions.

Contents

1 Introduction

1. Moolarben Coal Operations Pty Ltd (MCO) is proposing to develop the Moolarben OC3 Extension Project (the project), a further progression of open cut mining at the existing Moolarben Coal Complex (the complex).

2. The complex is located on Wiradjuri Country, approximately 40 kilometres (km) north of Mudgee in the Mid-Western Regional local government area (LGA) (see **Figure 1**).

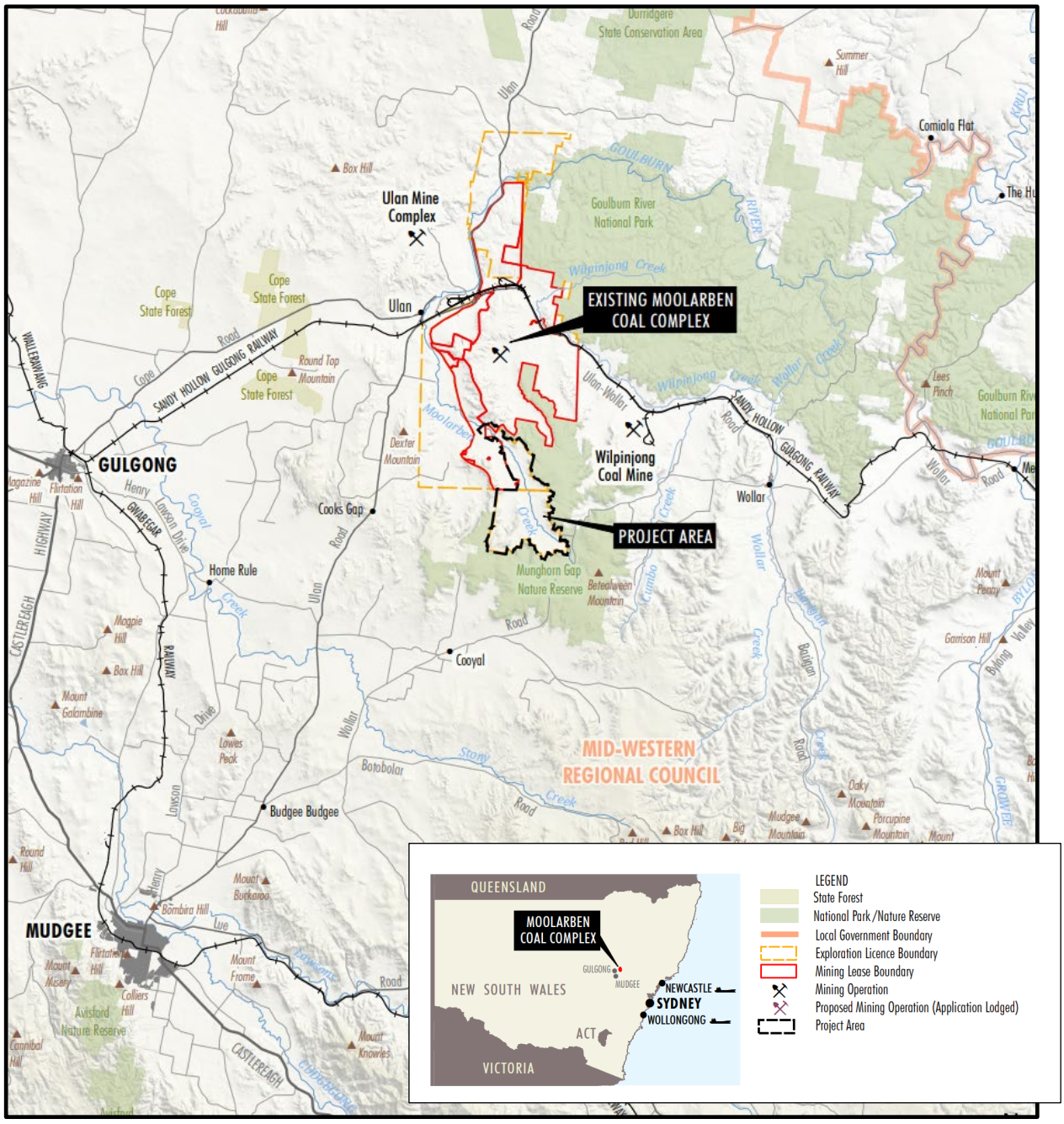

Figure 1 | Project location (Source: EIS)

3. The complex currently operates under two integrated development consents referred to as 'Stage 1' (MP 05_0117) and 'Stage 2' (MP 08_0135). The approved layout of both consents is depicted in **Figure 2**.

4. Stage 1 was approved by the then Minister for Planning in September 2007 and comprises three open cut pits (OC1, OC2 and OC3), one underground mining area (UG4) and coal processing and transport facilities. This consent has been modified on 16 occasions.

5. Stage 2 was approved by the then Minister for Planning in January 2015 and comprises one open cut pit (OC4) and two underground mining areas (UG1 and UG2). Coal extracted by the Stage 2 operations is transported to the Stage 1 processing and transport facilities. This consent has been modified on five occasions.

6. Collectively the development consents permit:

    - the extraction of up to:
        - 16 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal from open cut pits; and
        - 8 Mtpa of ROM coal from underground mining areas;
    - mining operations at the complex until 31 December 2038;
    - operation of ancillary mining infrastructure including a coal handling and preparation plant (CHPP), site facilities and water management infrastructure; and
    - the transport of product coal via rail.

7. The approved final landform for the complex includes backfilling and rehabilitation of overburden emplacement areas and open cut pits, with the exception of three final voids to be retained in OC1, OC3 and OC4.

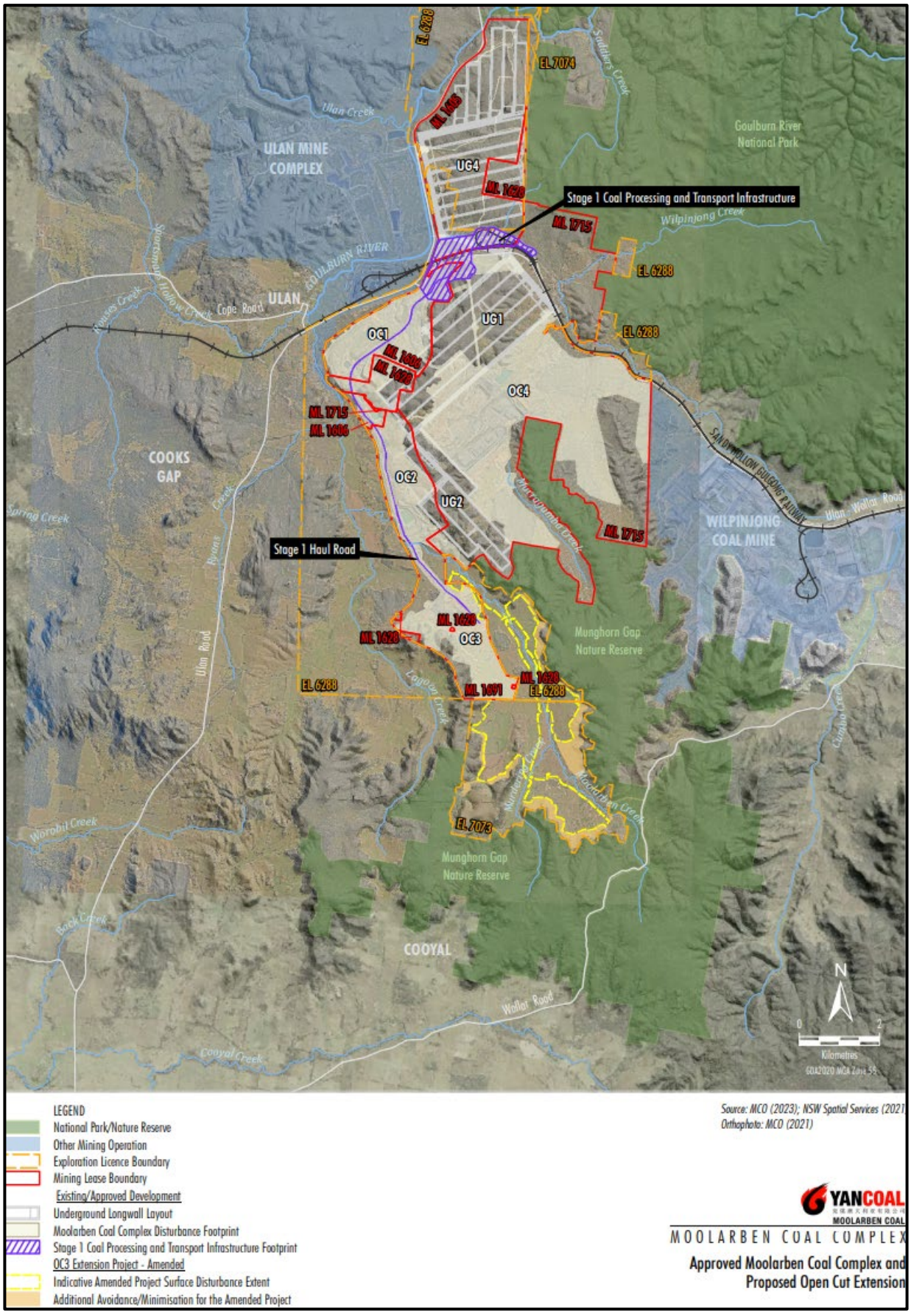

Figure 2 | Approved layout of the Moolarben Coal Complex (Stage 1 and Stage 2)

2 Project

8. In November 2022, MCO lodged a State significant development application for the project. The project seeks to extend open cut mining to the south of the existing OC3 pit and construct ancillary infrastructure to support the extended mining operations. The project is proposed to be undertaken within the approved life of the existing complex (ie 2038).

9. MCO amended its development application in March 2024 to reduce the extent of surface disturbance and incorporate additional avoidance measures. The key components of the project as amended are summarised in **Table 1** and depicted in **Figure 3** and **Figure 4**.

10. **Figure 5** shows the area of additional avoidance of the amended project against that proposed in the original application. The project is described in detail in the environmental impact statement and amendment report (see **Appendix A**).

Table 1 | Key components of the project

Aspect	EIS	Amended Project
Mining life	• 10 years until ~2034 – within the approved mine life of the complex (ie 2038)	• No change
Mine layout	• Extension of existing OC3 pit • Four new open cut pits	• Reduced extent of mining areas
Disturbance area	• ~ 825 hectares (ha)	• ~ 675 ha
Total ROM coal extraction	• ~ 40Mt	• ~ 30 Mt
Annual ROM coal extraction	• Up to 9 Mt • 4 Mtpa average over project life	• Up to 8.5 Mt • 3 Mtpa average over project life
Total waste rock extraction	• ~ 154 Million bank cubic metres (Mbcm)	• ~ 112 Mbcm
Coal Processing and Transport	• All ROM coal to be hauled to existing CHPP facilities for processing and transport under the Stage 1 consent • No change to Stage 1 production and transport limits	• No change
Site access	• Access via existing complex site entry and internal haul roads	• No change

Aspect	EIS	Amended Project
Ancillary and water management infrastructure	• Three haul road crossings of Moolarben and Murdering Creeks, including culverts and flood bunds • Temporary stockpiles, ROM pads, hardstands, electricity generation and/or distribution infrastructure, internal haul roads, potable water supply and site communications • Sediment dams, clean water diversion system, water storages, and other ancillary water management infrastructure (including pumps, pipes and drains)	• Location of some components changed to reflect reduced mining areas.
Final landform and Rehabilitation	• Progressive backfill of open cut voids, including the existing OC3 pit. • ~ 500 ha of agricultural pasture • ~ 325 ha of native woodland rehabilitation	• No change • ~ 140 ha of agricultural pasture • ~ 535 ha of native woodland rehabilitation
Habitat enhancement area	• Habitat enhancement of riparian zone along Moolarben Creek and Murdering Creek of ~ 160 ha	• Increased area of habitat enhancement to ~ 188 ha
Operating hours	• 24 hours per day, 7 days per week as per existing complex	• No change
Employment	• No increase in peak workforce of the complex (ie 1,000 employees) • Extension of time that peak workforce would be required. • ~ 400 employees of existing workforce required to implement the project.	• No change

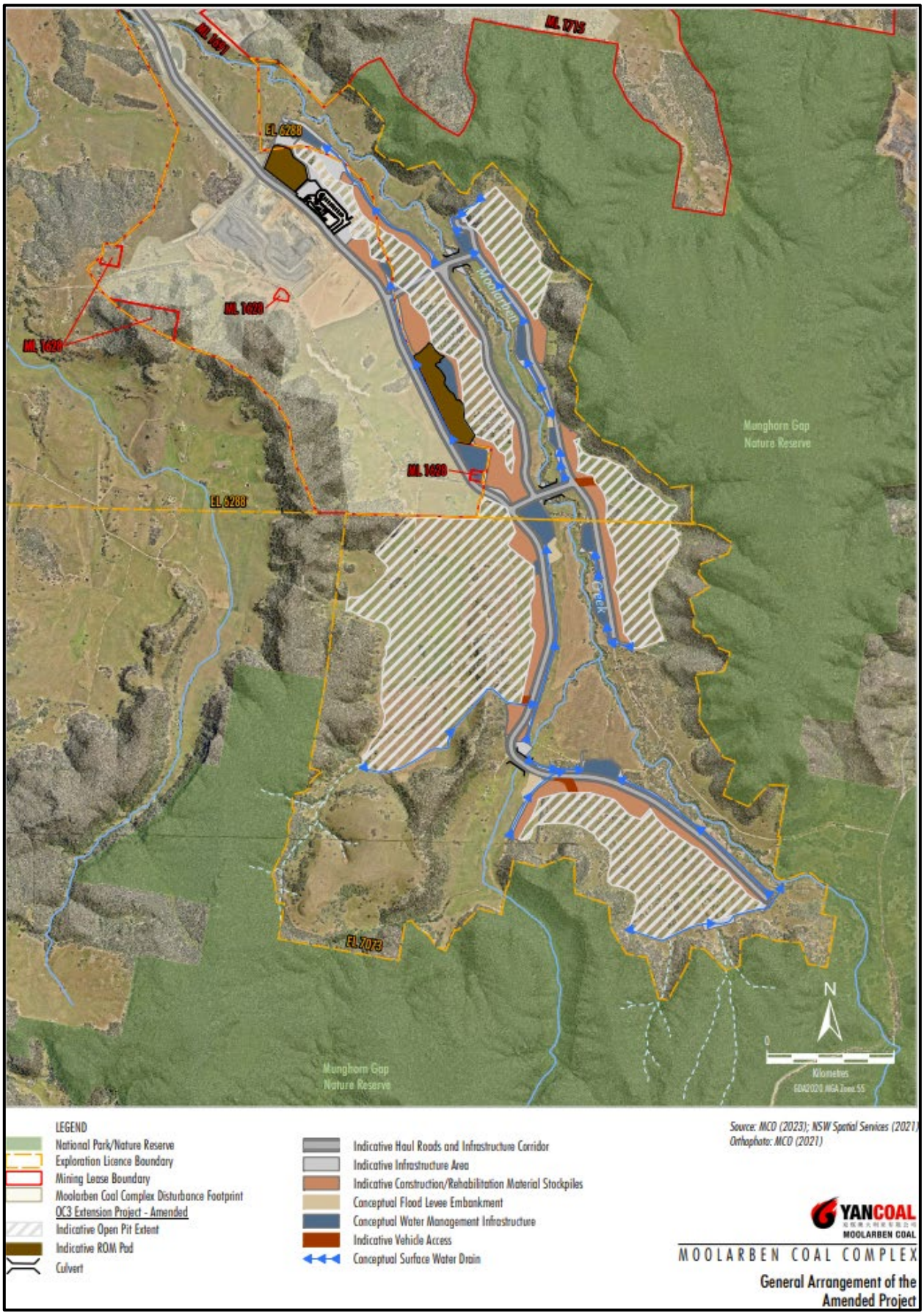

Figure 3 | Indicative Project layout

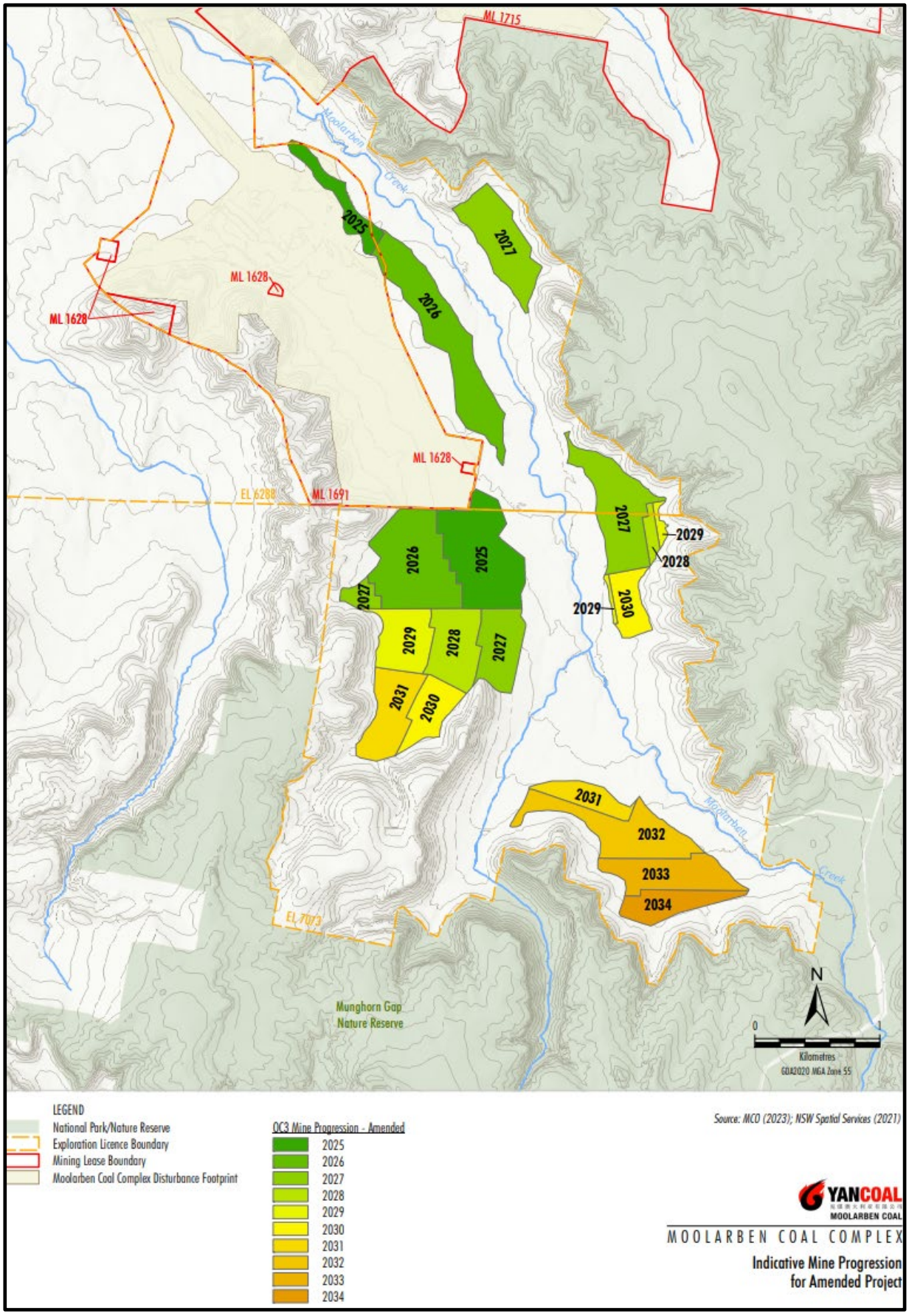

Figure 4 | Extraction sequence OC3

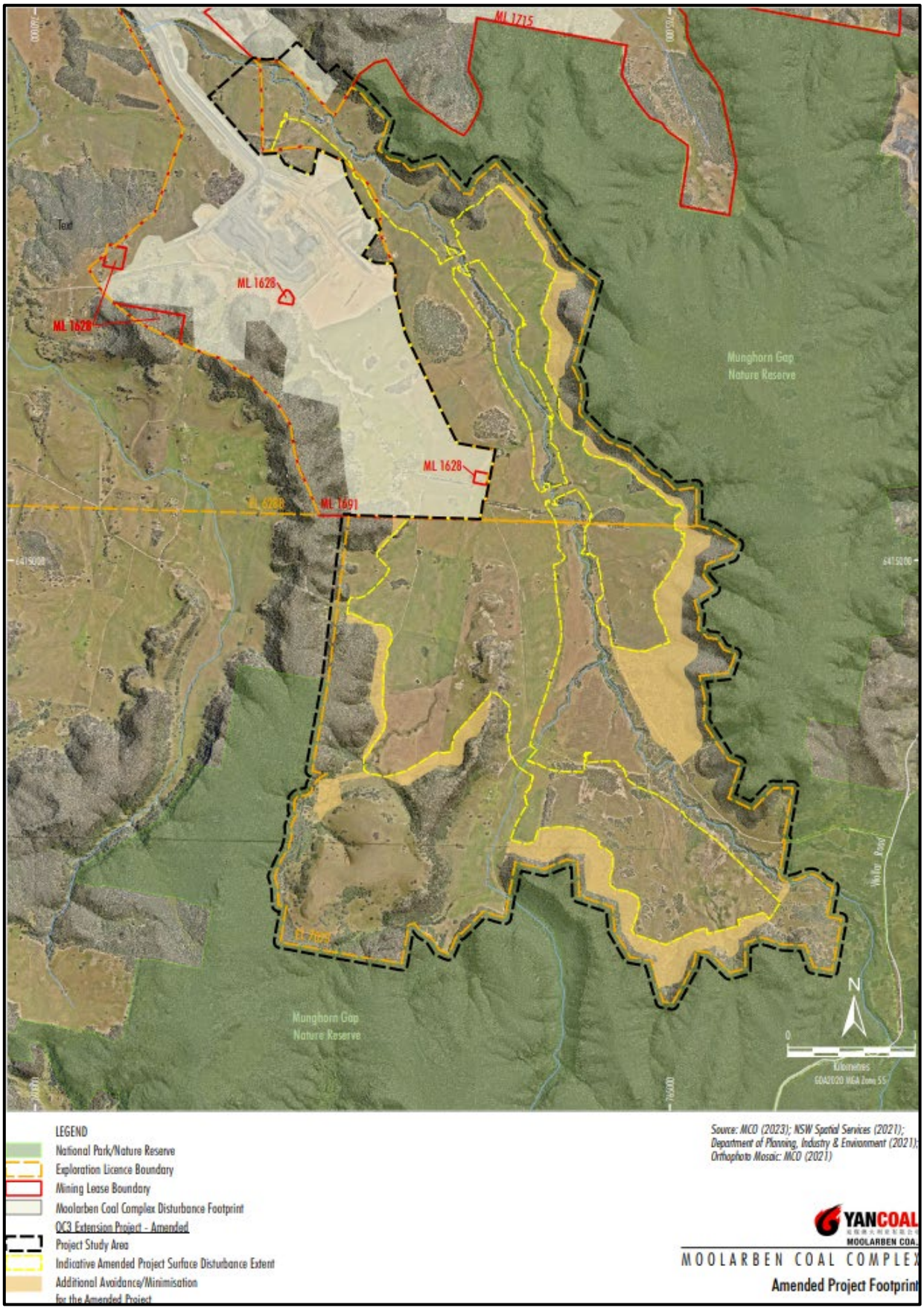

Figure 5 | Project Amendments (Orange shaded areas reflect further avoidance under amended project)

11. The project would occur concurrently with extraction of other open cut pits in the complex for approximately ten years, within the life of the approved complex (see **Figure 6**).

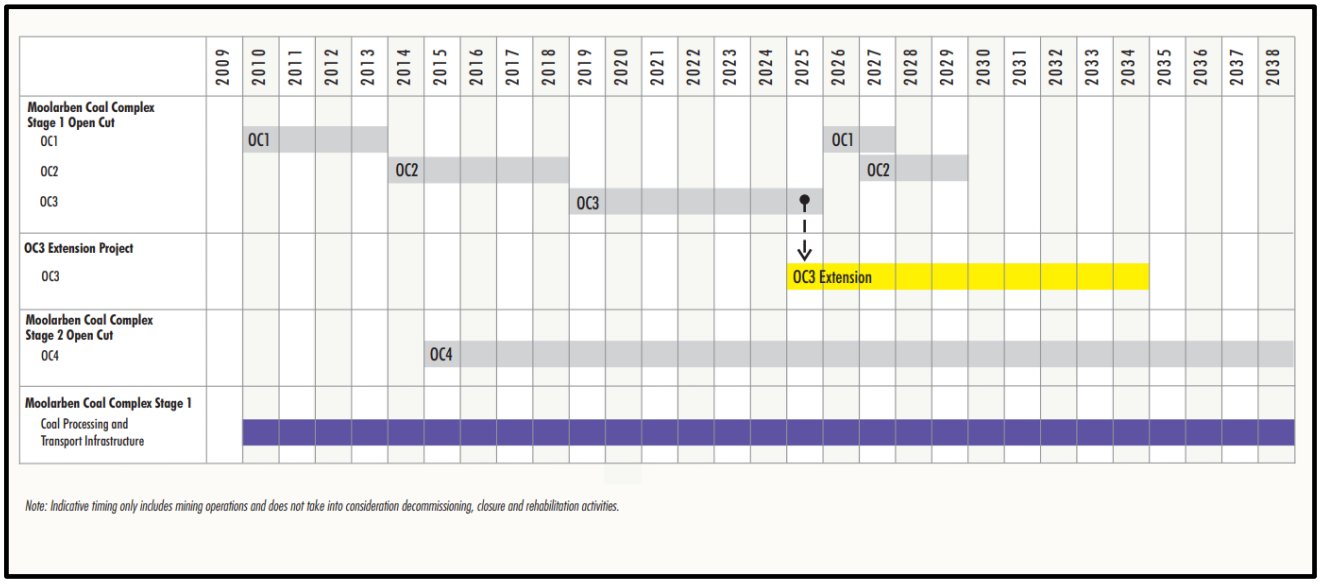

Figure 6 | Indicative mining schedule within the broader complex

12. MCO are seeking to operate the project under a new development consent. However, a number of components of the project would integrate with the existing complex, including:

- ROM coal would be transported via internal haul roads to the existing CHPP for processing and transport;
- some waste rock from the project would be used to backfill the existing OC3 pit;
- coal rejects from the CHPP would be emplaced in open cut pits across the complex; and
- the water management system.

13. A modification to the Stage 1 consent would be required to facilitate these activities. This would be subject to a separate merit assessment under Section 4.55 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

14. **Figure 7** shows the conceptual final landform for the project depicting areas proposed for rehabilitation to native woodland and pasture. The figure also shows areas proposed for habitat enhancement of biodiversity values outside the proposed disturbance area.

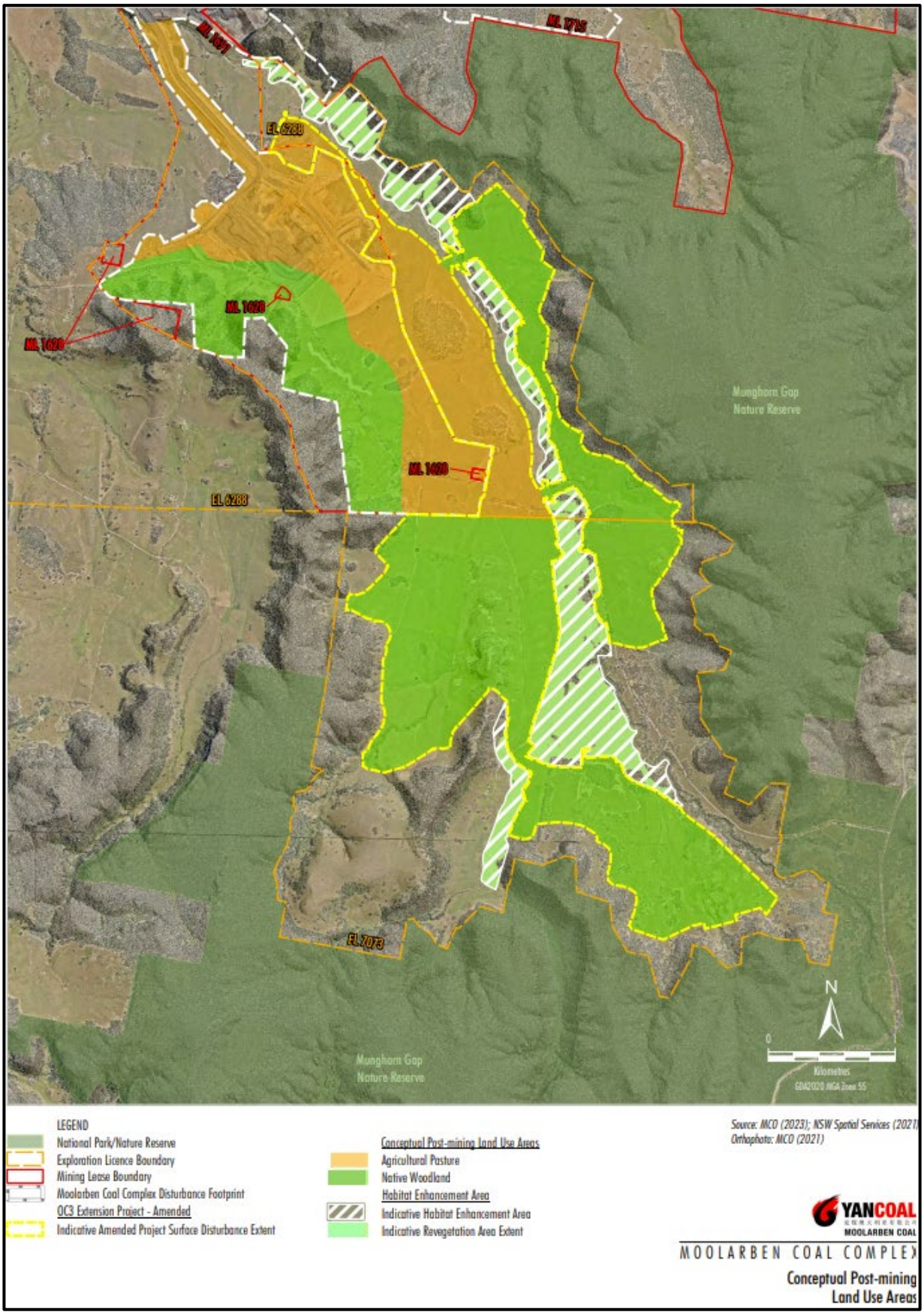

Figure 7 | Conceptual Final Landform

3 Strategic context

3.1 Project setting

15. The complex is one of three coal mines in the local vicinity. The Wilpinjong Coal Mine (Peabody Energy) is located approximately 2 km to the east of the complex and the Ulan Coal Mine (Glencore Australia) is located approximately 1 km to the north (see **Figure 1**). Mining has occurred in the area since the 1980's at the Ulan Coal Mine.

16. Other land uses in the vicinity include agriculture, rural residential, commercial, industrial and conservation areas (including Munghorn Gap Nature Reserve and Goulburn River National Park).

17. The project area is located within the Moolarben Valley and is bound by the Munghorn Gap Nature Reserve (east, south and south-west), the existing mine (north) and MCO owned land (west). Most land within the project area has historically been used for low intensity agriculture and cropping.

18. The closest public recreation area is located approximately 1 km to the south (Moolarben Picnic Area within the Munghorn Gap Nature Reserve). The closest private residence is 2.5 km to the south in Cooyal. Other residences in the vicinity are in Cooks Gap and Ulan, located approximately 5 km to the west and north of the project area, respectively.

3.2 Regional Setting

19. The *Mid-Western Regional Local Strategic Planning Statement - Our Place 2040* sets out the 20-year vision for land use planning in the LGA and identifies five key goals including "looking after our community", protecting our natural environment", "building a strong local economy", "connecting our region" and 'good government".

20. Mining is identified as the largest employing industry in the region, accounting for approximately 17.6% of the region's workforce. The statement recognises that mining has been a significant and long-standing industry in the region and has directly contributed to economic diversity and growth, through the creation of new employment and business opportunities.

21. The *Central West and Orana Regional Plan 2041* is also applicable to the project area providing a strategic framework for 19 LGAs, in central NSW. Objective 3 of this plan aims to sustainably manage extractive resource land and grow the critical minerals sector. Resource extraction is identified as a transitional land use requiring planning throughout the physical and economic life cycle of projects. The three coal mines in the Mid-Western LGA, including the complex, are

identified to be strong contributors to other major industries in the region. The plan also draws on initiatives to support a more sustainable and lower carbon future, including a transition away from coal mining and coal-fired power.

3.3 Climate Change and Coal Mining

UNFCCC Paris Agreement 2015

22. Under the *United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement 2015* (Paris Agreement), each signatory must identify its own post-2020 climate actions to achieve a balance between anthropogenic emissions and removal by greenhouse gas sinks.

23. Australia adopted a target of net zero emissions by 2050 by committing to seven low emissions technology stretch goals. These include clean hydrogen production, ultra-low-cost solar, energy storage, low emissions steel production, low emissions aluminium production, carbon capture and storage and soil carbon measurements.

Australia's Long Term Emissions Reduction Plan

24. *Australia's Long-Term Emissions Reduction Plan (2021)* was developed by the Commonwealth Government and includes a commitment to achieve net zero emissions by 2050 (as per Australia's commitments under the Paris Agreement), while growing the economy and delivering jobs.

25. Australia's long-term strategy and domestic actions are underpinned by emissions monitoring, reporting and management. This includes the *National Greenhouse and Energy Reporting Scheme* (NGERS) and the associated 'Safeguard Mechanism', to which the complex is a participant. As an existing participant of the NGERS, MCO is required to undertake regular reviews of the technology being used and abatement measures being implemented across the complex to continue to reduce emissions.

26. The project would be captured under the Safeguard Mechanism, as it would form part of a facility that emits over 100,000 tonnes of carbon dioxide equivalent (t CO_2-e) per year. Safeguard facilities are subject to an emissions intensity "baseline" for scope 1 emissions.

27. Amendments under the *Safeguard Mechanism (Crediting) Amendment Act 2023* facilitate the progressive decline in greenhouse gas emissions, consistent with the objects of the *Climate Change Act 2022*. These reforms apply a decline rate of a facility's baselines so that they are reduced predictably and gradually over time on a trajectory consistent with achieving Australia's emission reduction targets of 43% below 2005 levels by 2030, 62-70% by 2035 and net zero by 2050. Most facilities, including coal mines have a standard decline rate of

4.9% through to 2030. However, some trade-exposed industries may be subject to lower decline rates.

Climate Change (Net Zero Future) Act 2023

28. The *Climate Change (Net Zero Future) Act 2023* (Climate Change Act) aims to give effect to the international commitments established in the Paris Agreement to hold global average temperatures to below 2 degrees Celsius (C) above pre-industrial levels, to pursue efforts to limit temperature increases to 1.5 degrees C, and to increase the ability of NSW to adapt to the adverse impacts of climate change.

29. The objects of the Climate Change Act include principles to address climate change and sets targets to reduce greenhouse gas emissions in NSW of at least 50% by 2030, 70% by 2035 and net zero emissions by 2050. The Department has considered the principles and targets of the Climate Change Act in its assessment of the project (see **Section 6.3** and **Appendix B**).

30. The Net Zero Commission was established under the Climate Change Act to monitor and advise on the state's progress towards these targets.

31. In April 2024, the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) released projections of NSW's progress against the emissions reduction targets. Commentary from the Net Zero Commission in their first Annual Progress Report advised that NSW has made significant progress in reducing emissions since 2005, however an acceleration in effort will be required to keep targets in reach. Recent correspondence (September 2025) from the Net Zero Commission encouraged the Department to consider scope 1 emissions of any proposal compared to NSW legislated targets as well as a number of other recommendations regarding the assessment of proposals which have greenhouse gas emissions.

32. NSW DCCEEW has recently (May 2025) updated its projections out to 2050 of predicted NSW greenhouse gas emissions based on an analysis of existing and proposed developments (including the coal sector) and assumptions about mitigation measures adopted by sectors of the NSW economy. The modelling predicts that NSW greenhouse gas emissions are not currently on track to meet targets and are predicted to be reduced by 46% by 2030 – compared to the target of 50% and 62% by 2035 – compared to the target of 70% reduction.

NSW EPA Climate Change Policy

33. The NSW EPA has developed the Climate Change Policy (2023) and Climate Change Action Plan 2023-2026, which adopts, supports and builds on the NSW Government's overarching climate change objectives and provides a framework to support industry to decarbonise and build greater preparedness and resilience to climate change risks.

34. The key NSW policy and guidance for development applications and existing coal mining operations includes:

    - *NSW Guide for Large Emitters* – providing clear assessment and mitigation requirements for applicants of proposals with large projected greenhouse gas emissions. A draft version of this guide was published in May 2024, and a final version was published in January 2025.
    - Climate change mitigation and adaptation plans (CCMAPs) - to be progressively required under existing and new environment protection licenses (EPLs).

35. CCMAPs will require licensees to demonstrate how they can minimise their greenhouse gas emissions and exposure to climate risk. The EPA is currently finalising guidance for the preparation of CCMAPs and have recently exhibited a draft document *Climate Change Mitigation and Adaptation Plans: Proposed Mitigation Requirements, July 2025, Consultation Draft*, along with a *Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines Consultation Draft, July 2025.*

Strategic Statement on Coal Exploration and Mining in NSW

36. On 24 June 2020, the then NSW Government released its *Strategic Statement on Coal Exploration and Mining in NSW* (the Strategic Statement) which sets out its approach to transition to a low carbon future (consistent with Australia's commitments under the Paris Agreement), and how to manage the impact on coal-reliant communities.

37. The Strategic Statement identifies that there is a global transition away from fossil fuels to low carbon sources of energy in order to meet Australia commitments made under the Paris Agreement. The Strategic Statement also recognises the importance of coal production to NSW (ie. energy source throughout the world and key material for steel manufacturing), including how regional NSW communities depend on the industry.

38. The transition to new energy sources (ie. renewables) is recognised as a long-term economic change that will continue to reshape our regional communities, which currently rely on the export coal industry. The Strategic Statement advises that these communities will be able to adapt, however they will need time to diversify their economies and develop new sources of employment.

39. To support the intentions of the statement a proportion of the State's coal regions was designated where mining is not supported and/or is prohibited, and areas considered for proactive release for coal exploration. The project is not located in any of these prohibited areas, and is adjacent to an existing mining area.

40. The Department notes that there are commitments by the NSW Government to update the Strategic Statement based on contemporary climate change settings, however at the time of this assessment there has been no revisions that can further guide the consent authority.

Upper Hunter Strategic Regional Land Use Plan

41. The plan provides a framework for balancing strong economic growth with the protection of high value agricultural land within the Upper Hunter. Categories of strategic agricultural land (SAL) in the region were identified and mapped and include Biophysical Strategic Agricultural Land (BSAL), which is essentially the best farming land in the region and the Equine and Viticulture Critical Industry Clusters.

42. Under clause 30 of the EP&A Regulation, any development application relating to mining and petroleum development on land shown on the SAL Map is required to include a Gateway Certificate or Site Verification Certificate (SVC). An SVC was issued by the Planning Secretary in October 2022, verifying that the project area is not located on BSAL.

4 Statutory context

43. In accordance with the requirements of section 4.15 of the EP&A Act, the Department's assessment of the project has considered a number of statutory requirements. These include the:

- objects found in section 1.3 of the EP&A Act; and
- the matters listed in section 4.15 (1) of the EP&A Act, including applicable environmental planning instruments.

44. The Department has considered these matters in its assessment of the project and has provided a summary of this consideration below. Further consideration of other relevant provisions of the EP&A Act and environmental planning instruments is provided in **Appendix B**.

4.1 State Significant Development

45. The project is declared to be State significant development under section 4.36 of the EP&A Act as it meets the criteria in section 5 of Schedule 1 of *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) as development for the purpose of mining that is coal mining or has a capital investment value of more than $30 million.

46. Under section 4.5 of the EP&A Act and section 2.7(1) of the Planning Systems SEPP, the Independent Planning Commission of NSW (IPC) is the consent authority and must determine

the application because more than 50 unique public objections to the project were received during the exhibition period

47. On 16 December 2025, the Minister for Planning and Public Spaces issued terms of reference requesting that the IPC conduct a public hearing on the project in accordance with Section 2.9(1) (d) of the EP&A Act.

4.2 Permissibility

48. The project is located immediately adjacent to the existing complex on land zoned RU1 (Primary Production) and C3 (Environmental Management) under the *Mid-Western Regional Local Environmental Plan 2012* (LEP). Development for the purpose of open cut mining is permissible with consent in these zones.

49. In accordance with section 2.9(1) of *State Environmental Planning Policy (Resources and Energy) 2021,* mining developments are permissible with consent on land where development for the purpose of agriculture and industry may be carried out. These land uses are also permissible in the relevant zones and therefore, the proposed development is permissible with consent.

4.3 Mandatory matters for consideration

50. In determining the project, the consent authority must take into consideration the matters referred to in section 4.15(1) of the EP&A Act. Table 2 indicates key areas where the matters have been considered in this report.

Table 2 | Matters for consideration

Matter for consideration	Department's assessment
Environmental planning instruments, proposed instruments, development control plans & planning agreements	• Section 4 (Statutory Context) & Appendix B (Statutory Considerations)
EP&A Regulation	• Appendix B (Statutory Considerations(
Likely impacts	• Section 6 (Assessment) & Section 7 (Evaluation)
Suitability of the site	• Section 1 (Introduction), Section 3 (Strategic Context), Section 4 (Statutory Context) and Section 6 (Assessment)
Public submissions	• Section 5 (Engagement) and Section 6 (Assessment)
Public interest	• Section 5 (Engagement), Section 6 (Assessment) and Section 7 (Evaluation)

4.3.1 Objects of the EP&A Act

51. In determining the project, the consent authority should consider whether the project is consistent with the relevant objects of the EP&A Act (s 1.3) including the principles of ecologically sustainable development. Consideration of those factors is described in Appendix B.

4.3.2 Biodiversity development assessment report

52. Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all SSD applications to be accompanied by a Biodiversity Development Assessment Report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the project is not likely to have any significant impact on biodiversity values (as identified in the BC Act and in the *Biodiversity Conservation Regulation 2017*). A BDAR was submitted with the original EIS and updated in the amendment report. The BDAR and the overall impact of the project on biodiversity values is assessed in Section 6.1.

4.3.3 Other approvals and authorisations

53. The project will require an environment protection licence (EPL) issued by the NSW Environment Protection Authority under section 42 of the *Protection of the Environment Operations Act 1997*. There is an existing EPL for the complex that includes both Stage 1 and Stage 2 operations. It would be expected that this EPL would be varied to include the project, should it be approved.Under section 4.41 of the EP&A Act, a number of other approvals are not required to be separately obtained for the project. These include:

- a permit under section 201, 205 and 219 of the *Fisheries Management Act 1994*;
- an approval under part 4, or an excavation permit under section 139 of the *Heritage Act 1997;*
- an Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*;
- a bush fire safety authority under section 100B of the *Rurals Fires Act 1997*; and
- a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act 2000*.

54. The Department has considered the matters covered by this legislation in consultation with the relevant agencies and considers that conditions could be developed and imposed to assist in

mitigating and/or offseting the potential impacts of the project on these matters, should the project be approved.

55. Under section 4.42 of the EP&A Act, a number of further approvals are required, but must be granted substantially consistent with any development consent granted for SSD. These include:

    - any new mining leases under the *Mining Act 1992*;
    - an environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997*; and
    - consent for road works under section 138 of the *Roads Act 1993*.

56. The Department has consulted with the authorities responsible for granting these approvals during the assessment process.

4.4 Commonwealth matters

57. Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), assessment and approval are required from the Australian Government if a project is likely to impact on a Matter of National Environmental Significance (MNES), as it is considered to be a 'controlled action'.

58. On 2 May 2022, a delegate of the Commonwealth Minister for the Environment (Commonwealth Minister) determined that the project was a controlled action under section 75 of the EPBC Act and identified that the project is likely to have a significant impact on MNES relevant to the project, specifically:

    - listed threatened species and communities (sections 18 and 18A); and
    - a water resource – large coal mines (section 24D and 24E)

59. Consequently, should the IPC determine to approve the project, the approval of the Commonwealth Minister for the Environment in addition to any State approvals would be required before the project may proceed.

60. Under section 45 of the EPBC Act, the assessment process under the EP&A Act has been accredited under a Bilateral Agreement with the Australian Government. Accordingly, the NSW Government has undertaken the assessment of MNES on behalf of the Australian Government. However, the Commonwealth's decision-maker maintains a separate approval role, which would be exercised following the IPC's determination of the development application (if approved).

61. The project was jointly referred by the Department and the Australian Government Department of Climate Change, Energy, the Environment and Water (AG DCCEEW) to the Commonwealth's Independent Expert Scientific Committee on Coal Seam Gas and Large Mining Development (IESC) for advice on the project's potential surface water and groundwater impacts. The IESC's advice and MCO's subsequent responses are provided in **Appendix A**.

62. The assessment of the project's impacts on MNES under the EPBC Act are considered in **Section 6** and **Appendix C** of this report.

5 Engagement

5.1 Department's engagement

63. After accepting the development application and EIS, the Department publicly exhibited the EIS on its website from Thursday 17 November 2022 until Wednesday 14 December 2022. The Department advertised the exhibition in *The Australian* and notified private landowners in the vicinity of the site and Registered Aboriginal Parties (RAPs).

64. The Department notified and sought advice from relevant State government agencies, including Mid-Western Regional Council (Council) on the EIS and the amendment report. Some agencies provided further advice in response to additional information provided by MCO.

65. During its assessment of the project, the Department sought advice from the Commonwealth Independent Expert Scientific Committee (IESC) and the Independent Expert Advisory Panel for Mining (Mining Panel), inspected the project area on four occasions and met with key stakeholders face-to-face or virtually, including the Mudgee District Environmental Group and Nature Conservation Council.

66. In undertaking these processes, the Department considers that its engagement met the requirement of the EP&A Act and the relevant environmental planning instruments. The Department also considers that this process has fulfilled the State's obligations under the Bilateral Agreement with the Commonwealth Government.

5.2 Submissions and Agency Advice

67. During the exhibition period, the Department received 75 submissions from members of the public and special interest groups. **Table 3** summarises the number and type of submissions received. The Department also received advice from government agencies including Mid-Western Regional Council (Council).

68. In response to issues raised, MCO provided a submissions report and amended the project in March 2024. The Department published these documents on the NSW planning portal and requested further advice from the relevant government agencies and Council. Additional information and further responses from some agencies were also provided throughout the assessment process. All submissions, advice and additional information is provided in Appendix A.

Table 3 | Summary of submissions

Submitter	Support	Object	Total
Special interest groups	0	18	18
Individual submissions	2	55	57
TOTAL	**2**	**73**	**75**

5.2.1 Public Submissions

69. Most submissions received objected to the project. The key issues raised in public objections are summarised in **Table 4** and depicted in **Figure 8.** Of the 57 public submissions received, 26 (ie 46%) were from within the Mid-Western Regional LGA. The Department has carefully considered these matters in its assessment of the project.

Table 4 | Summary of issues raised in objections

Issue raised	Summary
Biodiversity	• Most submissions raised concern about the project's potential impacts on biodiversity, including (but not limited to): o close proximity of the project to the Munghorn Gap Nature Reserve; o the loss of native vegetation, Box Gum Woodland and fauna habitat due to clearing; o indirect impacts on wildlife from noise, light and blasting; and o impacts on habitat connectivity.
Greenhouse gas emissions	• Most submissions raised concern with the additional greenhouse gas emissions associated with the project, including: o the future of coal in relation to State and national targets to achieve net zero emissions; and o climate change impacts, including rising temperatures and extreme weather events.
Water resources	• Most submitters raised concern about potential impacts on surface and groundwater resources, including flow and water quality impacts on water courses and springs in the vicinity including Moolarben Creek, Murdering Creek and the Goulburn River.
Aboriginal cultural heritage	• Many submissions raised concern about impacts on Aboriginal cultural heritage including: o the extent of survey conducted for the EIS; o disturbance of sites within or proximal to the project area; and o cultural values and the broader cultural landscape.

Issue raised	Summary
Amenity and health impacts	• Many submitters raised concern about additional amenity impacts associated with the project, including noise, dust and light. Concern was also raised about associated physical and mental health impacts on nearby landowners.
Agriculture	• Some submitters considered that the project would result in the loss of agricultural land and have associated impacts on agricultural enterprises.
Economic and Social impacts	• Submitters raised concern the project's potential social impacts including on local tourism and labour and accommodation shortages. Some concerns were also raised about the economic costs of additional greenhouse gas emissions and limited taxpayer benefits.
Other	• A range of other issues were raised including concerns about MCO, compliance history and the engagement/assessment process.

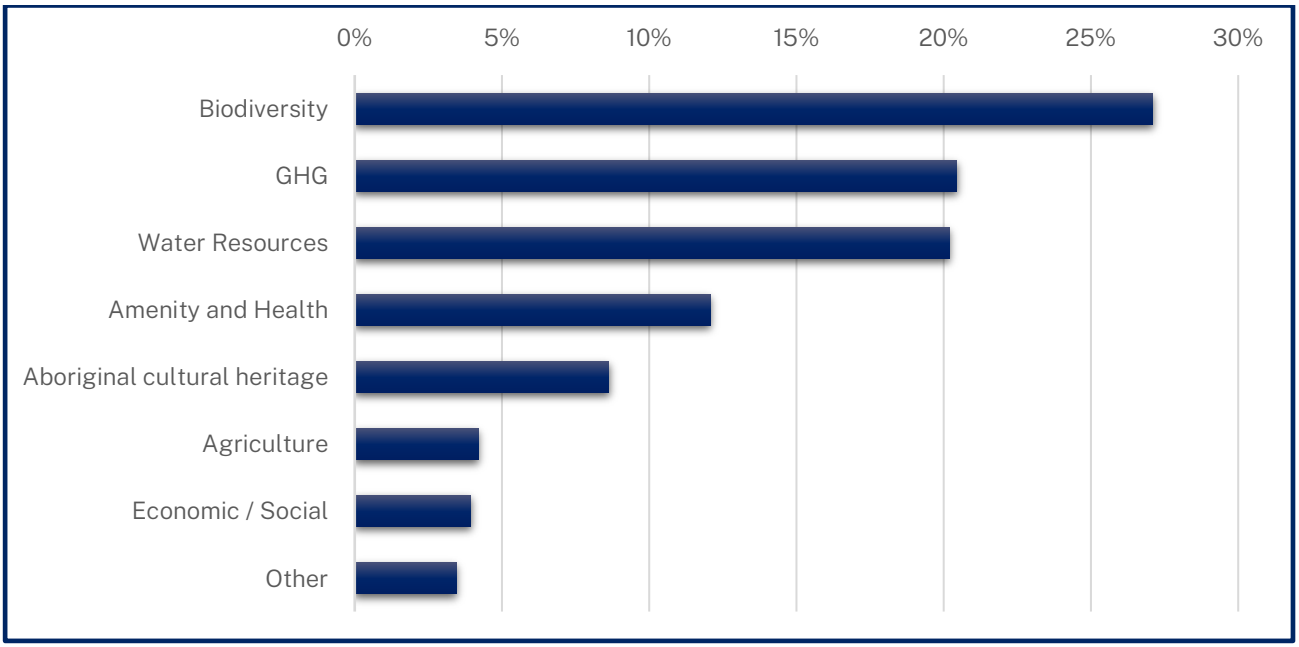

Figure 8 | Proportion of issues raised in submissions

70. Supportive submissions considered that the project would bring benefits to the local community and the people of NSW, including the continued employment and investment in the region during the transition to renewable energy.

5.2.2 Agency Advice

A summary of the advice received from government agencies is provided in **Table 5**.

Table 5 | Summary of agency advice

Agency	Advice summary
NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)	
Conservation Programs, Heritage and Regulation (CPHR) **and** **National Parks and Wildlife Service (NPWS)**	• Initially requested additional information in the BDAR prepared by Niche Environment and Heritage associated with technical aspects of the BDAR, and additional survey work, modelling, and mapping of potential biodiversity impacts. MCO subsequently provided a range of additional information and many of these matters were addressed. • Initially, considered there would be a serious and irreversible impact on five entities including Box Gum Woodland CEEC, Regent Honeyeater, Broad-headed Snake, Large-eared Pied Bat and Eastern Cave Bat. Following additional information provided by MCO, CPHR advised it still considered SAII could occur for Box Gum Woodland CEEC and Regent Honeyeater. • Advised that further avoidance and minimisation measures should be undertaken. • Raised a number of issues with the assessment of Category 1 – Exempt land within the BDAR. • Raised concern about potential impacts to Munghorn Gap Nature Reserve and recommended a range of conditions relating to the management of blasting and noise. • Raised concern about groundwater impacts on Munghorn Gap Nature Reserve and recommended there be no drawdown or water quality affects on the reserve and the Goulburn River National Park. • Recommended that the project be setback 500 m from the boundary of the Munghorn Gap Nature Reserve. • These matters are discussed in **Section 6.1**.

Heritage NSW	• Requested additional information to inform the Aboriginal cultural heritage assessment, including:
	  ○ address the concerns raised by Registered Aboriginal Parties (RAPs);
	  ○ consolidated presentation of newly and previously identified sites;
	  ○ additional archaeological survey and test excavation;
	  ○ further information on the significance assessment of some sites and proposed mitigation measures;
	  ○ reference to all recorded sites within the impact area, and further consideration of ESD and additional mitigation measures.
	• MCO provided an updated assessment within the amendment report which addressed most of these requests.
	• Heritage NSW maintained some residual concerns with the information presented in the Aboriginal cultural heritage assessment. These matters are discussed in **Section 6.4**.

Water Group	• Requested quantification of water requirements in comparison to the entitlement held and demonstration that sufficient entitlements are available for the project. • Recommended that a Water Management Plan is prepared for the project. • Advised that MCO must adhere to relevant guidelines relating to activities on waterfront land and bore construction.

Agency	Advice summary
Environment Protection Authority (EPA), including Climate and Atmospheric Science group	• Recommended that noise limits from the existing complex be applied for the project and recommended that compliance monitoring be undertaken for low frequency noise. • Recommended conditions in relation to sediment basin sizing, surface water quality monitoring, effluent discharges and brine management. MCO accepted these recommendations but noted that offsite discharges are regulated under the Stage 1 consent. • Requested additional information to inform air quality dispersion modelling. • Recommended that air, noise, blast and water management plans be updated to reflect the project. • Provided recommendations to improve the calculation of greenhouse gas emissions. MCO's submission report responded to these recommendations. • Recommended a condition requiring MCO to prepare a Greenhouse Gas Mitigation Plan in accordance with its requirements. • Consideration of greenhouse gas emissions is provided in **Section 6.3**.
Department of Planning, Housing and Infrastructure	
Crown Lands	• Advised of the agreements/licences required under the *Mining Act 1992* for Crown land subject to a Mining Lease or Exploration Licence. • MCO advised it would comply with these requirements.
Hazards team	• Advised that suitable controls are in place to manage the handling of dangerous goods. • Considered that the project would meet the land use safety risk criteria.
Department of Regional NSW	
NSW Resources (formerly Mining, Exploration and Geoscience)	• Considered the project to be an efficient use of resources that would provide an appropriate return to the State.
Resources Regulator	• Advised that MCO would be required to comply with rehabilitation and work health safety requirements regulatory obligations. • Requested clarification as to whether vegetation achieved in rehabilitation would contribute to the biodiversity offset strategy. The Department confirms that rehabilitation commitments would be separate from offset requirements, should the project be approved.
Department of Primary Industries	
Agriculture	• Considered that the project would not have a significant impact on any agricultural land use or agricultural production.

Fisheries	• Advised that:
	  ○ the design of haul road crossings should be in accordance with the relevant guidelines and that the design should consider scour protection.
	  ○ adequate riparian buffers should be maintained adjacent to the watercourses.
	• Recommended the preparation of management plans to minimise the extent of the disturbance footprints and re-establish riparian and aquatic habitat features.
	• Recommended that existing stream health and surface water monitoring plans for the complex are updated.

Agency	Advice summary
Transport for NSW (TfNSW)	• Considered that the project is unlikely to increase demand for road infrastructure, transport facilities and services • Recommended that a traffic management plan is prepared for the project, consistent with the existing consents for the complex.
Fire and Rescue NSW (FRNSW)	• Recommended that an Emergency Response Plan and Emergency Services Information Package are prepared for the site.
Australian Rail Track Corporation (ARTC)	• Advised that the existing mine has access to rail loading infrastructure, connecting into the Hunter Valley rail network. • Confirmed that the existing mechanisms in place can enable sufficient capacity for the project.
Mid-Western Regional Council	• Requested MCO to consider funding towards conservation plans within the LGA as an option for offsetting. MCO advised that offsetting would be undertaken in accordance with the NSW Biodiversity Offset Scheme, however, planning agreement with Council has been executed. • Suggested consultation with other State significant project operators in the region to minimise cumulative impacts, as well as an updated road transport assessment to account for these other projects. Transport impacts are considered in **Section 6.5**. • Requested additional information on potable and construction water sources. MCO advised that water requirements would be sourced from the existing complex water management system. • Raised concern about potential fly rock impacts on features within the Munghorn Gap Nature Reserve (see **Section 6.5**).

5.2.3 Independent Expert Advice

71. Having regard to the range and complexity of issues raised during the assessment of the project, the Department requested that the Independent Mining Panel provide advice targeting the:

- scale and likelihood of potential biodiversity impacts, including advice to inform the Department's consideration of SAII and indirect impacts on the Munghorn Gap Nature Reserve;
- scale and likelihood of potential water-related impacts and environmental consequences on key water features including groundwater dependent ecosystems and cumulative groundwater impacts from nearby mining operations.
- greenhouse gas assessment including avoidance and mitigation measures proposed to minimise Scope 1 and Scope 2 emissions.

72. The Mining Panel provided comprehensive advice and a range of recommendations on each of these matters, which is further discussed in the relevant assessment sections below.

6 Assessment

73. The Department has assessed the project (as amended) in accordance with the relevant requirements of the EP&A Act, including the matters for consideration, as set out in section 4.15(2) of the EP&A Act.

74. The Department considers that the key assessment issues for the project relate to impacts on biodiversity, water resources, greenhouse gas emissions and Aboriginal cultural heritage. The Department's assessment of these issues is detailed in **sections 6.1** to **6.4**. Consideration of other relevant assessment issues is also provided in **Section 6.5**.

6.1 Biodiversity

6.1.1 **Introduction**

75. The project's key impacts on biodiversity relate to clearing of native vegetation including threatened ecological communities and habitat for threatened fauna species. Additionally, vibration from blasting has the potential to indirectly impact biodiversity values in adjacent habitat and the Munghorn Gap Nature Reserve.

76. Potential impacts on biodiversity were assessed in a Biodiversity Development Assessment Report (BDAR) submitted with the EIS and updated in the amendment report (including an updated BDAR). Additional reports and information were also provided by MCO throughout the assessment process.

77. The Department sought advice on the project's potential biodiversity impacts from DCCEEW CPHR, including NPWS. These agencies raised a range of concerns throughout the assessment process which MCO responded to. A number of residual issues remain between MCO and CHPR, and the Department sought advice from the Mining Panel to inform its consideration of these issues. A summary of the key reports and advice relevant to biodiversity impacts is provided in **Appendix A**.

78. Key issues raised by CPHR and/or NPWS include:

- that the project would result in SAII on Box Gum Woodland and the Regent Honeyeater;
- that further avoidance should be undertaken, including a 500 m buffer from the Munghorn Gap Nature Reserve (instead of the proposed 100 m buffer);
- that further evidence should be provided to support the method used for categorising land areas currently determined to be 'Category 1 – exempt land';

- that upper vibration limits and a range of monitoring and management measures should be imposed for blasting in proximity to the Munghorn Gap Nature Reserve; and
- noise and groundwater impacts on the Munghorn Gap Nature Reserve.

79. The Department sought advice from the Mining Panel and has considered each of these matters in detail in the sections below, as well as other biodiversity impacts associated with the project.

6.1.2 Existing Environment

80. The project is wholly located in the Kerrabee sub-region within the broader Sydney Basin IBRA[2] Region. Features of the sub-region include a variety of eucalypt forest and woodlands, sandstone escarpments, temperate climate and a diverse range of flora and fauna species.

81. The project would be an extension of mining along the floor of the Moolarben Valley, adjacent to existing mining to the north and the Munghorn Gap Nature Reserve to the east, south and west.

82. Most of the project area has historically been used for livestock grazing and cropping and the majority of the footprint is either exotic or native grassland. Areas of woodland/forest exist mainly on the periphery of the mining disturbance footprint or as isolated patches or scattered trees upon the valley floor. Patches of surface rock also lie within the project area, with greater amounts present on the edges adjacent to the Munghorn Gap Nature Reserve.

83. The Munghorn Gap Nature Reserve (the Reserve) is one of the lowest points of the Great Dividing Range and contains diverse biodiversity, cultural heritage sites, threatened species habitat and sandstone features. The Reserve is adjacent to and integrates with the Goulburn River National Park to the north.

84. Open cut mining has previously and continues to occur in the vicinity of the reserve. At the complex, approximately 5 lineal km of the OC4 pit is adjacent to the Reserve. At the Wilpinjong mine, the reserve is directly adjacent to approximately 15 lineal km of mining areas including pits 1, 2, 5 and 6. Both developments were subject to various conditions of consent relating to the protection of the Reserve including, setbacks, blast management and noise limits for publicly accessible areas when in use.

[2] Interim Biogeographic Regionalisation Australia

6.1.3 Impact Summary

6.1.3.1 Vegetation

85. The project would clear approximately 675 ha of land, comprised of 480 ha of native vegetation, 186 ha of non-native Category 1 land and nine ha of access roads, dams and buildings.

86. Native vegetation conforms to nine plant community types (PCTs) in the form of derived native grassland (DNG - 76%), remnant woodland/forest/shrubland (19.5%), regenerating woodland/forest (3.6%), scattered trees and planted native vegetation (<1%). Detail of each PCT and associated credit liability is presented in **Appendix E** and depicted in **Figure 9** below.

87. Four of the PCT's within the project footprint conform with threatened ecological communities (TEC) listed under the BC Act and EPBC Act, including Box Gum Woodland[3] critically endangered ecological community (CEEC) and Hunter Valley Footslopes Slaty Gum Woodland CEEC[4]. The type, formation and area of these PCTs is summarised in **Table 6**.

Table 6 | Type and Formation of TEC within the project footprint

PCT	Impact Area (ha)	Formation
Box Gum Woodland CEEC		
266 *White Box grassy woodland in the upper slopes sub-region of NSW South Western Slopes Bioregion*	35.3	• 28 ha (79.3%) DNG • 6.7 ha (18.9%) remnant woodland • 0.6 ha (1.7%) scattered trees
281 *Rough-Barked Apple – red gum – Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion*	365.9	• 339 ha (92.6%) DNG • 25.3 ha (7%) remnant woodland • 1.58 ha (0.4%) scattered trees
483 *Grey Box White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley*	0.04	• Remnant woodland (100%)
Total	**401**	• **367 ha (92%) DNG** • **34 ha (8%)) woodland**

[3] *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* and are listed as a Critically Endangered Ecological Community (CEEC) under the BC Act and *White Box – Yellow Box –Blakely's Red Gum Grassy Woodland and Derived Native Grassland* CEEC listed under the EPBC Act (Box-Gum Woodland CEEC)

[4] *Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion* are listed as a Vulnerable ecological community under the BC Act and *Central Hunter Valley eucalypt forest and woodland* CEEC are listed as CEEC under the EPBC Act (Eucalypt Forest and Woodland CEEC).

Hunter Valley Footslopes Slaty Gum Woodland		
1655 *Grey Box – Slaty Box shrub – grass woodland on sandstone slopes of the upper Hunter and Sydney Basin*	16.19	• Remnant woodland (100%)

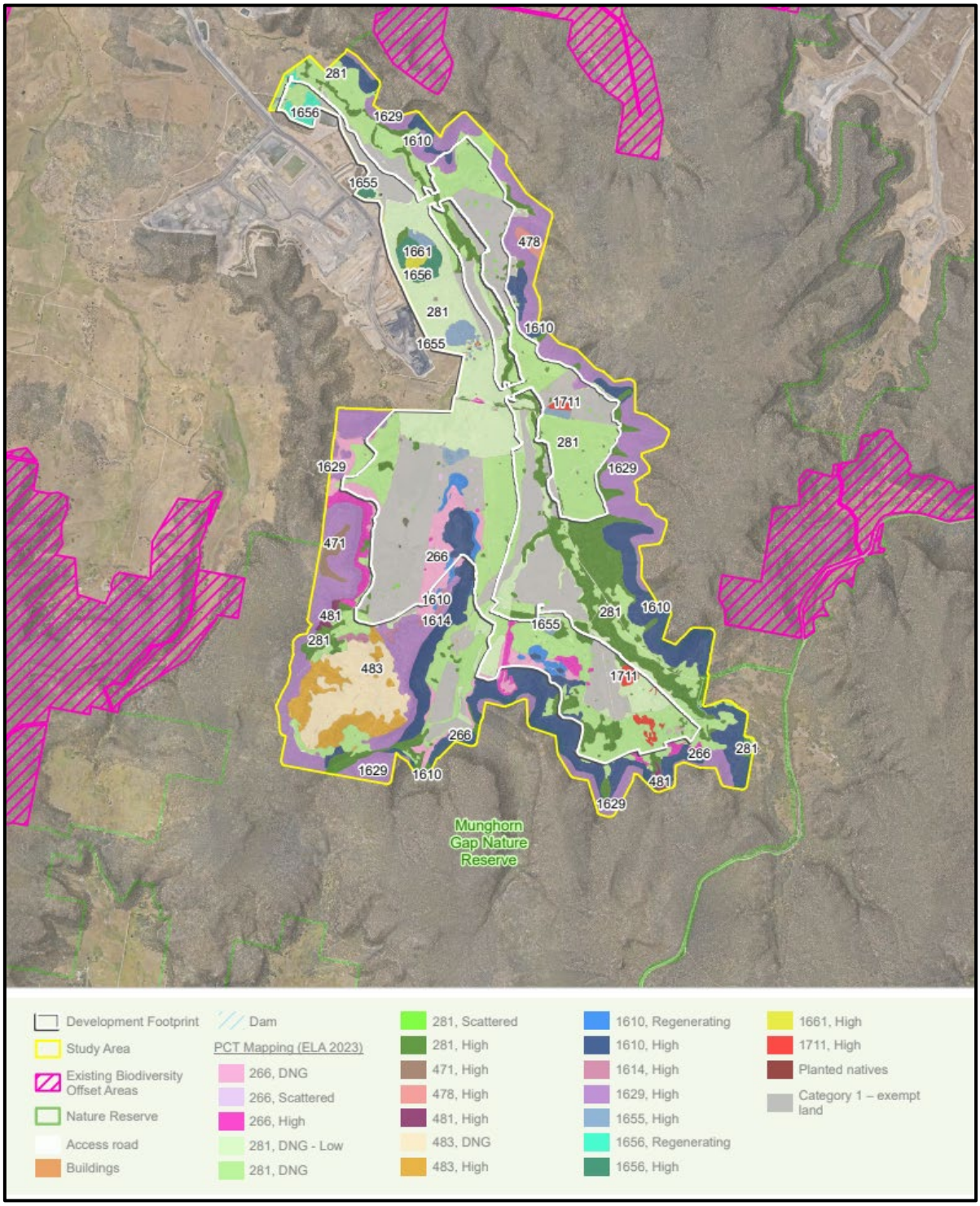

Figure 9 | PCTs within the project footprint

6.1.3.2 Fauna species

88. Vegetation within and surrounding the proposed disturbance area is suitable for a range of threatened fauna species. Targeted surveys recorded 23 threatened fauna species within the broader study area. Table 7 identifies these species and their corresponding credit type in accordance with the BAM.

Table 7 | Threatened species recorded in the broader study area

Credit type	Species
Species credit species	• Pink-tailed Legless Lizard (*Aprasia parapulchella*), Large-eared Pied Bat (*Chalinoblbus dwyerl*), Koala (*Phascolarctos cinereus*), Squirrel Glider (*Petaurus norfolcensis*), Eastern Cave Bat (*Eastern Cave Bat*)
Dual credit species	• Gang-gang Cockatoo (*Callocephalon fimbriatum*), Little Eagle (*Hieraaetus morphnoides*), Broad-headed Snake (*Hoplocephalus bungaroides*), Large Bent-winged Bat (*Miniopterus orianae oceanensis*), Powerful Owl (*Ninox strenua*), Masked Owl (*Tyto novaehollandiae*)
Ecosystem credit species	• Dusky Woodswallow (*Artamus cyanopterus cyanopterus*), Speckled Warbler (*Chthonicola sagittate*), Brown Treecreeper (*Climacteris picumnus victoriae*), Varied Sittella (*Daphoenositta chrysoptera*), Black Falcon (*Falco subniger*), Little Lorikeet (*Glossopsitta pusilla*), Black-chinned Honeyeater (*Melithreptus gularis gularis*), Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*), Grey Crowned Babbler (*Pomatostomus temporalis temporalis*), Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*), Greater Broad-nosed Bat (*Scoteanax rueppellii*), Diamond Firetail (*Stagonopleura guttata*)

89. Although not recorded in targeted surveys, the Regent Honeyeater is assumed to be present as the project footprint contains areas mapped as 'important habitat'. The Swift Parrot is also assumed to be present as it is considered highly likely to occur based on proximity of local records and the associated PCTs in the project footprint.

90. Five of the identified species are listed as entities at risk of SAII, including Broad-headed Snake, Swift Parrot, Regent Honeyeater, Large-eared Pied Bat and Eastern Cave Bat.

6.1.3.3 Flora Species

91. One threatened flora species, *Pomaderris cotoneaster*, was recorded in targeted surveys in areas directly adjacent to the project footprint. An additional two species, *Monotaxis macrophylla* and *Commersonia procumbens* were initially assumed to be present due to a lack of conditions conducive to detection (ie fire and/or disturbance) but subsequently ruled out following expert advice sought by MCO from Dr Stephen Bell. This advice concluded that neither species is likely to occur as the microhabitats required by the species are absent within the project footprint. CPHR raised no concern with these conclusions.

6.1.3.4 Indirect and Prescribed Impacts

92. Potential indirect impacts on biodiversity as a result of the project include:

- reduced viability of adjacent habitat due to edge effects, including vibration, noise, light, dust;
- the spread of weeds and pathogens and increased access of Noisy Miners into adjacent woodland areas; and
- loss of shade or shelter for resident fauna.

93. The BC Act identifies additional 'prescribed' impacts' for threatened species and/or ecological communities that must be assessed under the biodiversity offsets scheme. Potential prescribed impacts associated with the project include impacts on:

- rocky habitat features (caves, crevices, cliffs and rocks) used by the Broad-headed Snake, Large-eared Pied Bat, Eastern Cave Bat and Pink-tailed Legless Lizard;
- habitat connectivity for a range of species, including threatened woodland birds and marsupials, threatened bat foraging habitat and the Pink-tailed Legless Lizard;
- non-native vegetation used mobile species, including the Pink-tailed Legless Lizard;
- creek lines within the project area likely to be used by threatened species; and
- fauna through vehicle strike.

6.1.4 Avoidance, Minimisation and Offsetting

94. The general layout of the project is constrained by the location of the coal resource, which lies either side of Moolarben Creek up to the boundary of the Munghorn Gap Nature Reserve (refer to EIS Attachment 12 JORC Summary). MCO proposed avoidance measures in the original and amended applications. Key measures of avoidance and mitigation are summarised in Table 8 and Table 9 below and depicted in Figure 10.

Table 8 | Key avoidance measures

Item	EIS	Amendment Report
Project Footprint	• 825 ha	• 675 ha - reduced by 150 ha (ie 18%)
Native Vegetation	• 624 ha residual disturbance	• 480 ha residual disturbance - reduced by 144 ha (ie 23%)
Box Gum Woodland CEEC	• 478 ha of residual disturbance, including: ○ 84 ha woodland ○ 394 ha DNG	• 401 ha of residual disturbance, including, ○ 34 ha woodland – reduced by 50 ha (ie 59%) ○ 367 ha DNG – reduced by 27 ha (ie 7%)

Item	EIS	Amendment Report
Threatened species		
Regent Honeyeater	• 184 ha of residual disturbance of mapped 'important habitat'	• 103 ha residual disturbance of mapped 'important habitat' – reduced by 81 ha (ie 56%)
Swift Parrot	• 223 ha residual disturbance of foraging habitat	• 106 ha residual disturbance – reduced by 117 ha (ie 52%)
Koala & Squirrel Glider	• 230.5 ha residual disturbance	• 113 ha residual disturbance – reduced by 117.5 ha (ie 51%)
Broad-headed Snake	• No direct impact on rocky habitat features	• 100 m buffer surrounding rocky habitat to achieve 100 percent avoidance on habitat • 39 ha reduced disturbance (ie 100%) • 113 ha residual disturbance on microbat foraging habitat – reduced by 117 ha (ie 49%)
Threatened bats	• No direct impact on rocky habitat features • Disturbance of 230.56 foraging habitat	
Munghorn Gap	• 50 m buffer to Munghorn Gap Nature Reserve;	• 100 m buffer to Munghorn Gap Nature Reserve – increased by 50 m
Design Principles	• 200 m setback from Moolarben and Murdering Creek. • Use of existing infrastructure at the complex • Maximising disturbance on category 1 land or on native vegetation in poorest condition • Locate creek crossings in previously cleared areas; • Progressively backfilling mining pits to avoid out-of-pit emplacement • Further avoidance of woodland under the amendment report	

Table 9 | Key biodiversity mitigation measures

Minimisation	Description
Habitat enhancement area	• Enhancement works to improve the condition of the riparian zone along Moolarben and Murdering Creek. Increased in size under the amended application by 28 ha (ie from approximately 160 ha to 188 ha). Improvement works to include ecological restoration, revegetation of cleared areas and maintenance with works proposed to commence in the first year of mining.
Rehabilitation to increase native vegetation	• Increasing native woodland in the project footprint post mining including 535 ha of woodland/forest/shrubland ha and 140 ha of native grassland. Woodland rehabilitation to include species of Box-Gum Woodland CEEC (see **Figure 11**). • Proposed area of woodland rehabilitation increased under the amended application by 160 ha (ie from 375 to 535).
Limits for blast vibration	• Minimising direct and indirect impacts of blasting by applying a vibration criteria of 50 mm/s for rocky features.
Noisy Miner Management Plan	• Implementing a Noisy Miner monitoring and management program prior to and during Regent Honeyeater breeding season.
Pink-tailed Legless Lizard	• Surface rock during rehabilitation to see whether habitat can be restored.

Minimisation	Description
Other Measures	• Vegetation clearance protocol, wood and pest management, bushfire management, fencing between known Pomaderris cotoneaster plants and development footprint, minimise light spill and vehicle speeds.

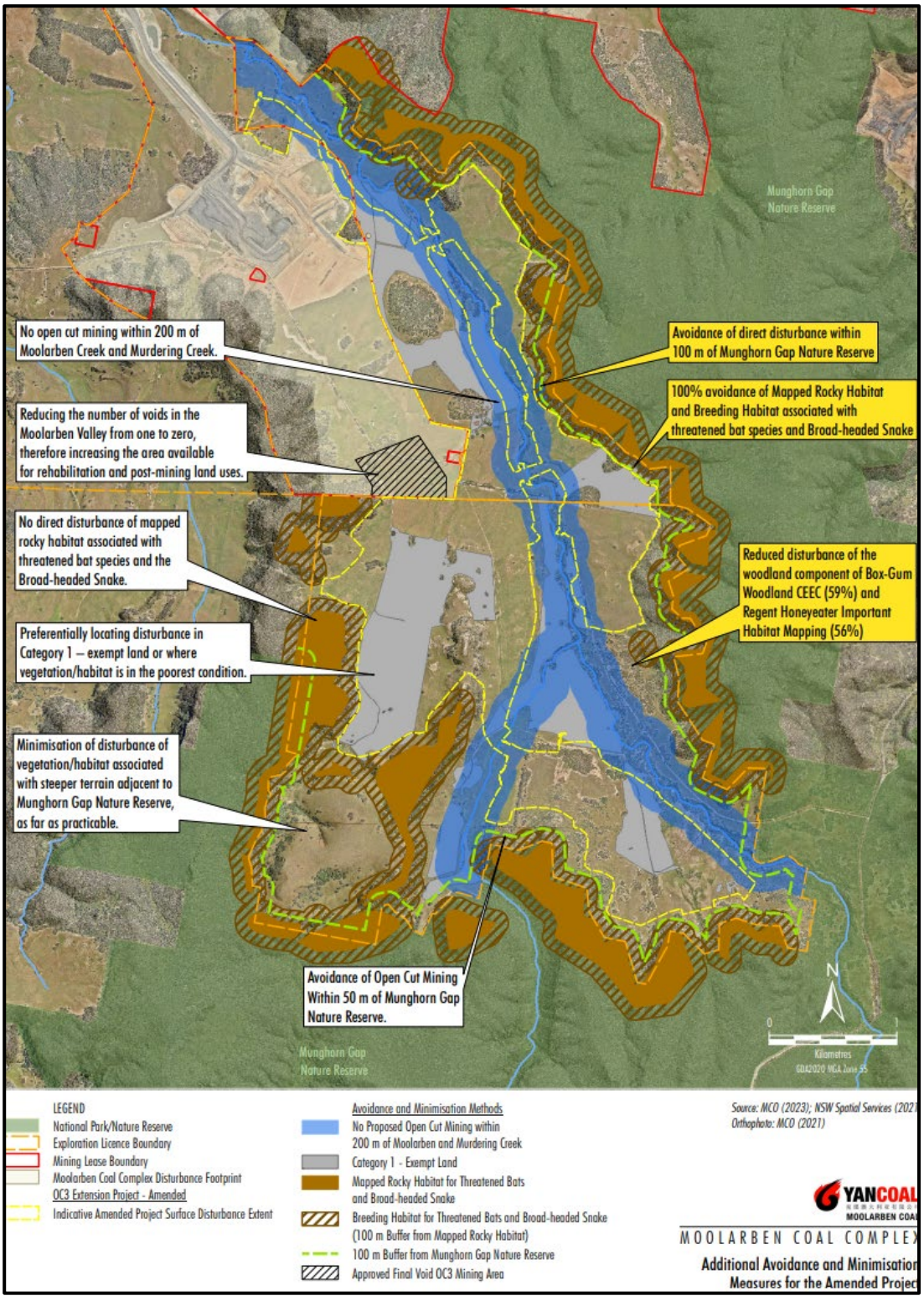

Figure 10 | Avoidance and minimisation measures in amended project

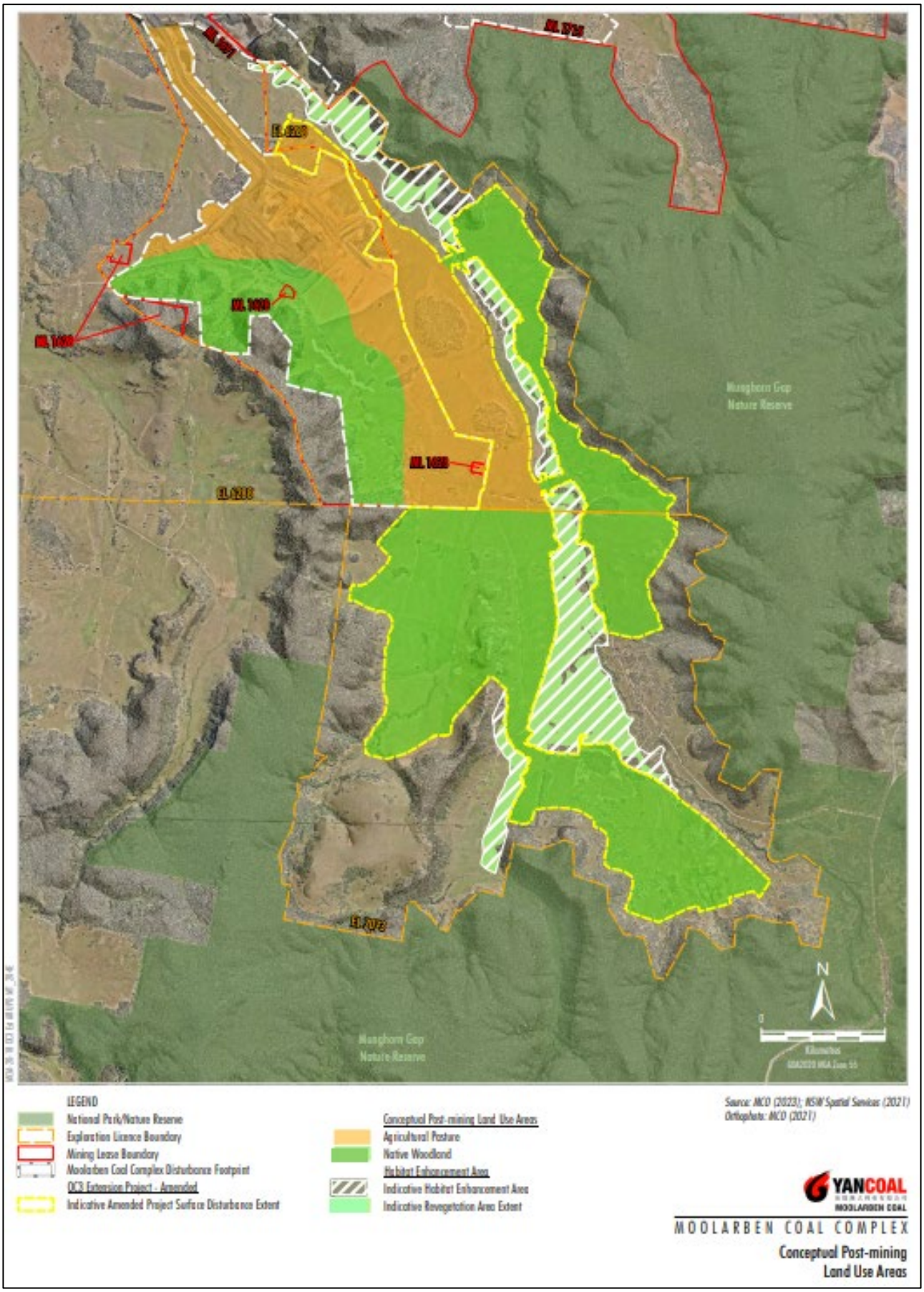

Figure 11 | Proposed indicative final landform including rehabilitation efforts

95. The updated BDAR included an offset strategy which includes the retirement of 11,177 ecosystem credits and 24,683 species credits. MCO propose to stage the retirement of credits in three stages that align with the sequence of project disturbance. Credit stages and associated credit breakdown are presented in **Appendix E**. CPHR have confirmed that the calculation of the offset credits is correct.

96. MCO are investigating four options to retire credits in accordance with the Biodiversity Offset Scheme. These options include establishing a biodiversity stewardship site, retiring credits from existing MCO biobanking or stewardship sites, purchasing credits from the market or paying into the Biodiversity Conservation Fund. MCO are investigating potential offset sites on MCO-owned land which includes approximately 1,170 ha of mapped 'important habitat' for the Regent Honeyeater.

6.1.5 Matters of National Environmental Significance

97. The updated BDAR considered the potential impact of the project on EPBC Act listed species and ecological communities, including those identified in the Commonwealth referral decision EPBC 2022/9162 dated 2 May 2022 (Referral Decision).

98. The Referral Decision determined that the project is a "controlled action" under the EPBC Act and identified four species as likely to be "significantly impacted" by the project. These included one ecological community (White Box-Yellow Box-Blakely's Gum Grassy Woodland and Derived Native Grassland) and four threatened species (*Cotoneaster Pomaderris*, Regent Honeyeater, Koala and Large-eared Pied Bat). Additionally, the referral decision identified a further 16 species possibly at risk of being significantly impacted. Impacts on threatened flora and fauna are discussed in **Section 6.1.6.3**.

99. The Department considered Commonwealth matters in consultation with CPHR and AG DCCEEW, as well as relevant Commonwealth approved conservation advice, recovery plans and threat abatement plans. CPHR provided guidance to the Department on the assessment of EPBC Act-listed threatened species and communities (see **Appendix A5**). A detailed assessment of Commonwealth matters is provided in **Appendix C.**

100. The Department considers the impacts of the controlled action (EPBC 2022/9162) would be acceptable, subject to the avoidance, mitigation and offsetting measures described in the amendment report, updated BDAR, and the recommended conditions of consent, should the IPC determine to approve the project.

6.1.6 Key Issues

6.1.6.1 Land Categorisation

101. Throughout the course of this assessment, CPHR raised issues with the assessment methodology and designation of 'Category 1 – Exempt Land' within the project area. Under Section 60H(2)(a) of the *Local Land Services Act 2013* (LLS Act), land is to be designated as Category 1 land if the Environment Agency Head reasonably believes that (among other things) the land contains low conservation value grasslands. Section 110 of the *Local Land Services Regulation 2014* identifies the *Interim Grassland and Other Groundcover Assessment Method* (IGGAM, OEH 2017) as the method for determining whether grasslands are low conservation value grassland.

102. The identification of Category 1 land is an important step in the preparation of a BDAR because those areas are excluded from the assessment of the impacts of clearing native vegetation under the BAM (refer to section 6.8 of the BC Act). Within the project area, most areas identified as Category 1 land have been subject to ongoing intensive agriculture and are dominated by exotic pasture species.

103. Key issues raised by CPHR relate to potential underestimation of the extent of Box-Gum Woodland CEEC present in the project area, as it is described in the *NSW Threatened Species Scientific Committee final determination* (TSSC 2020) and per the precautionary approach to land categorisation recommended in *Determining native vegetation land categorisation for application in the Biodiversity Offset Scheme* (DCCEEW 2022). CPHR consider that data presented via the IGGAM method and subsequent information from MCO does not clearly demonstrate the absence of CEEC and requested a site-based assessment.

104. MCO provided three studies to supports its land categorisation assessment, including a report from Hunter Eco which discusses the potential for the areas of concern to meet the definition of Box-Gum Woodland CEEC as per the TSSC final determination. The Department requested the Mining Panel's consideration of the matter having regard to all advice provided by both CPHR and MCO.

105. Advice from the Mining Panel provides detailed commentary on the process of land categorisation and the suitability of the updated assessment prepared by MCO. This advice should be read in conjunction with this section and is available at **Appendix A.**

106. Key commentary from the Mining Panel included:

- The land is eligible to be assessed using the IGGAM method because it is not mapped as a PCT associated with CEEC (ie Category 2 land) on the *Statewide Vegetation Map* (DCCEEW 2024). This is pursuant to Section 60I(2)(m) of the LLS Act which advises that land is

designated as Category 2 land if the land has been mapped as containing CEEC by the Environment Agency.

- The initial reports submitted by MCO (ie Ecological 2023 – EIS, and Niche 2024a – Amendment Report) contained deficiencies in the application of the IGGAM method and did not present sufficient evidence to support the determination of Category 1 land.
- However, the updated land category assessment (Niche 2024b – Additional Information Attachment 2) has been completed in accordance with requirements of the LLS Act and BC Act and the subject areas are demonstrated to be low conservation grasslands (ie Category 1 Land) in accordance with the IGGAM.
- There is a lack of clarity of how the process in *Determining native vegetation land categorisation for application in the Biodiversity Offset Scheme* (DCCEEW 2022) aligns with requirements of the LLS Act.
- The subject areas are highly degraded and may not require offsetting if they were assessed under the BAM, as they have a low vegetation integrity score.

107. On the basis of this advice, the Department agrees that the land categorisation assessment has met the requirements of the LLS Act and BC Act. The Department has assessed the projects' impacts on biodiversity values, based on the areas presented in the BDAR.

6.1.6.2 Serious and Irreversible Impacts

108. An impact is regarded to be SAII if, after all relevant avoidance and minimisation measures area undertaken, the relevant impact is still likely to "contribute significantly to the risk of a threatened species or ecological community becoming extinct": section 6.5 of the BC Act, clause 6.7 of the BC Regulation.

109. The question of whether an impact will "contribute significantly" to the risk of extinction is governed by four principles under clause 6.7 of the BC Regulation. Two of those principles apply to Box-Gum Woodland CEEC and the Regent Honeyeater, including:

- *The impact will cause a further decline of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline.*
- *The impact will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very small population size.*

110. Guidance on the consideration of SAII matters is provided in *Guidance to assist a decision-maker to determine a serious and irreversible impacts (DPIE 2019).* This guideline should also be

considered when determining SAII and outlines five steps in determining whether impacts are SAII.

111. Initially, CPHR advised that the project would result in SAII on five candidate entities, including Box-Gum Woodland CEEC, Regent Honeyeater, Large-eared Pied Bat, Broad-headed Snake and Eastern Cave Bat.

112. Following review of additional information provided by MCO regarding blast impacts, CPHR considered that Large-eared Pied Bat, Broad-headed Snake and Eastern Cave Bat would not be at risk of SAII subject to the implementation of specific blast management measures. Blast-related impacts on these three species are discussed in **Section 6.1.6.3** below.

113. CPHR consider that the project is likely to result in a SAII on the two remaining entities, Box-Gum Woodland CEEC and the Regent Honeyeater. MCO's accredited assessor and expert peer-reviewers Dr Colin Driscoll and Dr Stephen Bell consider that the project would not result in SAII to these entities. In considering these competing positions, the Department sought targeted advice from the Mining Panel. All relevant documentation and advice are identified in **Appendix A**.

114. It is the role of the consent authority to determine whether the project is likely to result in a SAII. In the case of the project, that is the IPC. In the Department's role of providing an assessment of the project for consideration by the IPC, the Department has outlined below the respective positions of CPHR, MCO and the Mining Panel, before presenting its own consideration. In doing so, the Department has focused on the key statement from the BC Regulation Clause 6.7(2) that "*An impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct*".

Box Gum Woodland CEEC

Overview

115. The project would disturb approximately 401 ha of Box-Gum Woodland CEEC[5], which includes 34 ha of woodland in good condition and 367 ha of DNG in low to moderate condition[6]. The BDAR identifies that the condition of the DNG is the result of historical clearing of tree and shrub layers, some of which was cultivated for agriculture and cropping.

[5] White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland

[6] Condition of the TEC is categorized according to vegetation integrity scores for the relevant vegetation zones.

116. The Threatened Species Scientific Committee (TSSC 2020[7]) note that Box-Gum Woodland has undergone a very large historical reduction in geographic distribution, including disruption to over more than 90% of its distribution since 1750.

117. Avoidance and minimisation measures put forward by MCO specific to this community are discussed in **Section 6.1.4**. Key measures include reducing the project footprint in the amended application to avoid a further 78 ha of Box Gum Woodland, including 50 ha in woodland formation. Additionally, MCO has committed to rehabilitating 535 ha of the project area to native woodland and undertaking approximately 135 ha of native woodland revegetation in the proposed habitat enhancement of an area, both of which would include species consistent with Box-Gum Woodland.

CPHR Position

118. CPHR consider that the project is likely to cause SAII for Box-Gum Woodland CEEC. Key arguments put forward by CPHR include:

- *"..there is no minimum clearing threshold identified within relevant databases which could be considered an insignificant decline in this community; therefore, any incremental loss in extent would be contributing to the principles…."*.
- *"The project will contribute to further decline of the geographic extent for this community, as it will create areas where it will be completely cleared, and as such SAII is considered likely based on Principle 1"*.
- *"The project will also reduce the ecological function and increase the environmental degradation experienced by this community and as such is considered likely based on Principle 2"*.
- *"According to our analysis, the proposal will remove 30.2% of intact Box Gum Woodland within a 5km radius based on an identified 926.42 ha of Box Gum Woodland associated PCTs"*.
- "*The SAII assessment must focus on Box Gum Woodland CEEC and not proposed restoration activities*" and "*Restoration outcomes may be indeterminate and unsecured*".
- *"The development footprint comprises large, connected areas of Box Gum Woodland including substantial areas of woodland in the south-eastern portion of Stage 3 of the development footprint"*.

[7] Threatened Species Scientific Committee (TSSC) (2020) Conservation Assessment of White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

- *"The proposal will further fragment Box Gum Woodland CEEC within the landscape, contributing to loss of connectivity that could place component species at risk of local extinction".*

MCO position

119. MCO considered that the project is unlikely cause SAII for Box-Gum Woodland CEEC and has provided a range of information to support its argument. In addition to a SAII assessment of Box-Gum Woodland in the updated BDAR, the amendment report included an expert peer review by Dr Colin Driscoll (Hunter Eco) of the SAII assessment. Key arguments put forward by MCO include:

- The impact of the project on the ecological community as a whole would be extremely low and unlikely to change the trajectory of the ecological community by causing a further decline.
- Impacts of the project on Box-Gum Woodland represent 0.0012% of the current geographic extent (EOO[8]) and 0.0027% of the area of occupancy (AOO[9]) of the TEC in NSW, as per the reported distribution by the TSSC (2020).
- The majority of the project's impacts on Box-Gum Woodland (92%) would be on low-moderate quality DNG, that has previously been disturbed by livestock grazing and cropping.
- No Box-Gum Woodland would be isolated by the project and remnants at the outer boundaries of the project retain connectivity with natural forest, offset areas and the Munghorn Gap Nature Reserve.
- Substantial avoidance and minimisation measures have been incorporated into the project, and undertaking further avoidance of surface disturbance would have significant economic losses and practical implications for the project.
- The CEEC is likely to respond to measures to improve its habitat and vegetation integrity and as such, is it possible to mitigate and offset the impacts so that the project could result in no net loss.

[8] The EOO is one contiguous area that comprises maximum spatial extent of suitable habitat for a species or community. As areas of suitable habitat within the EOO may not be connected, therefore it is not an estimate of the amount of occupied or potential habitat.

[9] The AOO is the total area of suitable habitat within the EOO. A species or community will generally not occur throughout the entire area of the AOO as not all suitable habitat will be occupied.

Mining Panel

120. The arguments of both parties were considered by the Mining Panel in its review of the project. Overall, the Mining Panel concluded that the project's impacts on Box-Gum Woodland would not be at a level where they would contribute significantly to the risk of extinction of the community. On this basis, the Mining Panel considered that the project would not result in SAII for Box-Gum Woodland CEEC.

121. Supporting commentary from the Mining Panel on this matter included:

- *"The penultimate test that a project "is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct . . ." is a very high bar. Whether a single project is likely to contribute **significantly** to the risk of extinction is open to substantial interpretation and debate".*
- *"The ability to apply additional measures to avoid and minimise impacts are, in the opinion of the Panel, limited within the current design due to the fragmented nature of patches which have not been avoided (i.e. they are isolated from other patches of the CEEC) and the location of the resource".*
- *"The DCCEEW (2024) assessment appears to focus on impacts to the local extent of the community but does not clearly demonstrate how the project will contribute significantly to the risk of the CEEC becoming extinct across NSW, as required".*
- *"Whilst the project will result in impacts which contribute to the loss of the community (i.e. it is "likely to contribute") these losses are negligible (<0.01%) when considered in the context of the community as a whole".*

122. Despite this overarching conclusion about SAII, the Mining Panel made a number of recommendations to manage impacts on Box-Gum Woodland CEEC for the consent authority's consideration. These recommendations, and MCO's response are presented in Table 10.

Table 10 | Mining Panel recommendations regarding Box-Gum Woodland CEEC and MCO's response

Mining Panel	MCO Response
The Department and/or the IPC may wish to determine whether further avoidance of impacts in Stages 1 and 3 (as shown in Figure 9) are warranted to avoid impacts to Box-Gum Woodland and habitat for threatened species. **The Mining Panel identified two areas of potential additional avoidance and compensatory alternative project layout (refer to Figure 9 on page 26 of their advice). This suggestion was**	• The additional avoidance areas proposed by the Mining Panel would result in the loss of an additional 8 Mt of resource worth approximately $70 million in royalties to the NSW government. • The proposed avoidance areas align with vegetation mapping and would result in extended areas that could not be mined due to practicality constraints. • The removal of the proposed areas would compromise the project ability to achieve the desired free-draining final landform, including to backfill the approved OC3 pit.

Mining Panel	MCO Response
prefaced acknowledging that they may not be feasible for other mine planning reasons.	• There is no coal resource in the proposed compensatory mining area. • The amended project demonstrates reasonable avoidance and minimisation measures have been applied. • Additional and appropriate measures are not relevant if the project does not result in SAII.
The consent authority may wish to seek rehabilitation of 401.12 ha of Box-Gum Woodland in addition to offsets required. **The proposed rehabilitation measures may result in an overall net gain in woodland but it is questionable whether it would contribute to a no net loss outcome for Box-Gum Woodland CEEC. Additional areas within the study area could be included in the habitat enhancement area to contribute to a better outcome for the CEEC.**	• The proposed habitat enhancement areas are additional to offset requirements. • The 'potential additional areas' identified by the Mining Panel for inclusion in the habitat enhancement areas include an area of the derived native grassland (DNG) component of Box-Gum Woodland CEEC which occurs 'naturally' in this form as it is associated with a basalt plug feature. On this basis, revegetation of this area of DNG to develop the woodland component of Box-Gum Woodland CEEC is not considered ecologically appropriate.

Regent Honeyeater

Overview

123. The project would disturb approximately 81 ha of 'important habitat' for the Regent Honeyeater. 'Important habitat' for the species is mapped by DCCEEW (2024b) and reflects suitable breeding areas. This habitat is comprised of intact woodland conforming with a range of PCTs in the project footprint.

124. The Regent Honeyeater population is estimated to have declined by approximately 80% over 15 years, with the current population estimated to be less than 250 individuals (Crates et al 2021[10]). The species forages and breeds in a range of flowering eucalypts.

125. Avoidance and minimisation measures put forward by MCO specific to this species are discussed in **Section 6.1.4**. Key measures include reducing the project footprint in the amended application to avoid a further 103 ha (56%) of mapped 'important habitat', implementing a Noisy Miner management plan to minimise edge effects, rehabilitating 535 ha of native woodland across the project area and undertaking 135 ha of native woodland revegetation in the habitat enhancement area. Both native woodland rehabilitation and the

[10] Crates et al (2021) Population viability in data deficient nomadic species: What it will take to save regent honeyeaters from extinction

habitat enhancement area would include plant species consistent with habitat for the Regent Honeyeater.

CPHR Position

126. CPHR consider that the project is likely to cause SAII for the Regent Honeyeater. Key arguments put forward by CPHR include:

- "*NSW DCCEEW reasons that SAII should be considered likely for regent honeyeater based on the loss of 80.5 ha of regent honeyeater habitat, a key threat to this species, contributing to further decline of the species*".
- "*The project will contribute to further decline of the geographic extent for this entity, and as such SAII is considered likely based on Principle 1. The project will also increase the environmental degradation experienced by this entity and as such is considered likely based on Principle 2*".
- *"The development footprint includes large, connected areas of regent honeyeater Important Habitat Mapping including substantial areas of woodland in the south-eastern portion of Stage 3 of the development footprint. … It is unclear why greater efforts to avoid or minimise impacts on mapped regent honeyeater habitat were not undertaken*".
- "*Breeding events have occurred within the regent honeyeater important habitat map area centred on Goulburn River National Park every year since 2019 (except for 2022)… Historically, breeding has occurred in Box Gum Woodland CEEC immediately adjacent to the project site. It is reasonable to assume that breeding could occur within or near the project site, should favourable conditions exist*.
- "*Given the conservation status of the regent honeyeater, and the recommendations of the species recovery plan, we recommend that the precautionary principle applies to impacts on regent honeyeater habitat*".

MCO Position

127. MCO consider that the project is not likely to cause SAII for the Regent Honeyeater. Key arguments put forward by MCO include:

- The project would impact 0.01% of the approximately 556,841 ha total mapped 'important habitat', which is not known to be used.
- The calculated area of impact in the project footprint includes all areas mapped as 'important habitat' which includes 10 ha of DNG that is unsuitable habitat for the species as it is not in woodland formation.
- The habitat to be cleared is made up of fragmented patches within grazing paddocks and edges of extensive areas of habitat within Munghorn Gap Nature Reserve.

- No species were detected in targeted surveys, however presence was assumed due to important habitat' mapping within the project footprint.
- The most significant breeding population of the Regent Honeyeater appears now to be in the Lower Hunter, in the Tomalpin woodlands (Cessnock-Kurri Kurri). Regent Honeyeaters are occasionally sighted throughout their contemporary range (in which the Project is located), but known breeding activity is now restricted to sites not near the project.
- There is a high likelihood of close to 0% of the total NSW population using the project area and a low likelihood that any of the total NSW population would be lost as a result of the project.
- A key concern is Noisy Miners, because the project would increase the edge effect along the boundary with Munghorn Gap Nature Reserve. However, this issue would be managed under a Noisy Miner management program.
- There is good potential for successful rehabilitation to provide habitat for threatened species.
- Substantial avoidance, minimisation and mitigation of biodiversity values have been incorporated into the project and offsets would include the retirement of 3,410 credits that is equivalent to multiple times the area to be cleared.

Mining Panel

128. The arguments of both parties were considered by the Mining Panel in its review of the project. Overall, the Mining Panel concluded that the project would not result in impacts that would contribute significantly to the risk of extinction and thus would not result in SAII for the Regent Honeyeater.

129. Supporting commentary from the Mining Panel on this matter included:

- "*The DCCEEW (2024) assessment states that SAII is likely but does not outline how this conclusion was reached with regards to the factors required to be considered under the BAM (DPIE 2020)".*
- *"the penultimate test for determining whether a Project will result in SAII is whether it will "contribute significantly to the risk of a threatened species or ecological community becoming extinct"*.
- *"Due to the fragmented nature of mapped important habitat for the Regent Honeyeater, the ability to further avoid and minimise impacts is minimal without removing areas of open pit."*
- *"The restoration of 134.7 ha of habitat in the Habitat Enhancement Areas and planting of 535 ha of native woodland in the rehabilitation areas could result in a benefit for the Regent*

Honeyeater ….. It is noted that the outcomes here would be dependent on successful rehabilitation..”

- *The impacts are small in nature but will result in increased edge effects and potential for invasion by Noisy Miners. These impacts will be mitigated by restoration of 134.7 ha of habitat in the Habitat Enhancement Areas and a Noisy Miner management plan….. In this context, impacts are not considered to contribute “significantly” to the risk of extinction*”.

130. Despite this overarching conclusion about SAII, the Mining Panel made a number of recommendations to manage impacts on the Regent Honeyeater for the consent authority’s consideration. These recommendations, and MCO’s response, are presented in Table 11.

Table 11 | Mining Panel recommendations regarding the Regent Honeyeater and MCO’s response

Mining Panel	MCO Response
The Panel recommends that impacts to and offsets for the Regent Honeyeater ought to be determined based on site-based assessment rather than mapped important areas derived from less accurate regional vegetation mapping products. Based on mapping by Niche (2024a) the project will result in impacts to 76.3 ha of woodland habitat for the Regent Honeyeater	• Offset requirements for the project have been appropriately calculated based on current policy
For the habitat enhancement area to be effective in contributing to the recovery of the species: • **there is a benefit to this occurring within five years rather than over 10 years as proposed, and** • **restoration needs to include details on planting of key nectar producing feed tree species.**	• This recommendation could be addressed through conditioning. • Recommended timing is consistent with the works schedule provided in the Habitat Enhancement Plan for the habitat enhancement area.
The Department and/or the IPC may wish to determine whether further avoidance of impacts in Stages 1 and 3 (as shown in Figure 9) are warranted to avoid impacts to Box Gum Woodland and habitat for threatened species.	• See response in Table 12 above.

Department consideration

131. Having regard to all information that has been presented, the Department has carefully considered the principles outlined in the BC Act and BC Regulation, as well as the steps in the *Guidance to assist a decision-maker to determine a serious and irreversible impacts* (DPIE 2019).

Steps 1 and 2 – Identify impacted relevant entities and evaluate risk of extinction

132. Since CPHR, MCO, and the Mining Panel are in agreement that the Large-eared Pied Bat, Broad-headed Snake, and Eastern Cave Bat will not be at risk of SAII, it remains that the SAII entities for consideration for the project are Box-Gum Woodland and the Regent Honeyeater (Step 1).

133. The risk of extinction for both entities is related to Principles 1 and 2 set out in clause 6.7(2)(a) and (b) of the BC Regulation (Step 2). Box-Gum Woodland CEEC has undergone a very large historical reduction in geographic distribution since the 1750's and is considered to be in a rapid rate of decline. The Regent Honeyeater population is also understood to have significantly reduced with only a small population size remaining.

134. It is open to the consent authority to consider other entities not listed as candidate species by CPHR. The BDAR has not identified any other species potentially impacted by the project that would require assessment against the SAII criteria. The Department has carefully considered impacts on other threatened biodiversity in **Section 6.1.6.3**.

Step 3 – Avoidance and minimisation

135. Step 3 requires the consideration of the proposed measures to avoid and minimise impacts on the entities. The avoidance and minimisation measures proposed by MCO have progressed since the initial lodgement of the application to specifically address concerns raised by CPHR. The Department has carefully considered whether MCO has proposed all reasonable avoidance and minimisation measures and whether these measures are genuine. The Department has considered each of these matters separately below.

Avoidance

136. The project footprint has been substantially reduced with efforts targeted at the woodland component of Box-Gum Woodland CEEC and mapped 'important habitat' for the Regent Honeyeater.

137. CPHR consider that MCO has not undertaken all reasonable avoidance and that further avoidance should be considered in the Stage 3 disturbance area (see **Appendix E - Figure E1**) to reduce impacts on Box-Gum Woodland CEEC and Regent Honeyeater habitat. This area was also identified by the Mining Panel as an area for further consideration, additional to another potential avoidance area within the Stage 1 disturbance area. However, it was acknowledged by the Mining Panel that the identified areas was solely based to the location of vegetation within the project area and that their removal may not be feasible due to other project constraints.

138. Additional avoidance of the proposed areas would have a substantial impact on resource extraction, project layout and final landform initiatives to backfill the approved OC3 void. MCO also advised that the proposed compensatory area identified by the Mining Panel did not

contain any coal resource (see **Figure 12**). This is consistent with the layout of resource presented in the JORC Summary (EIS - Attachment 12).

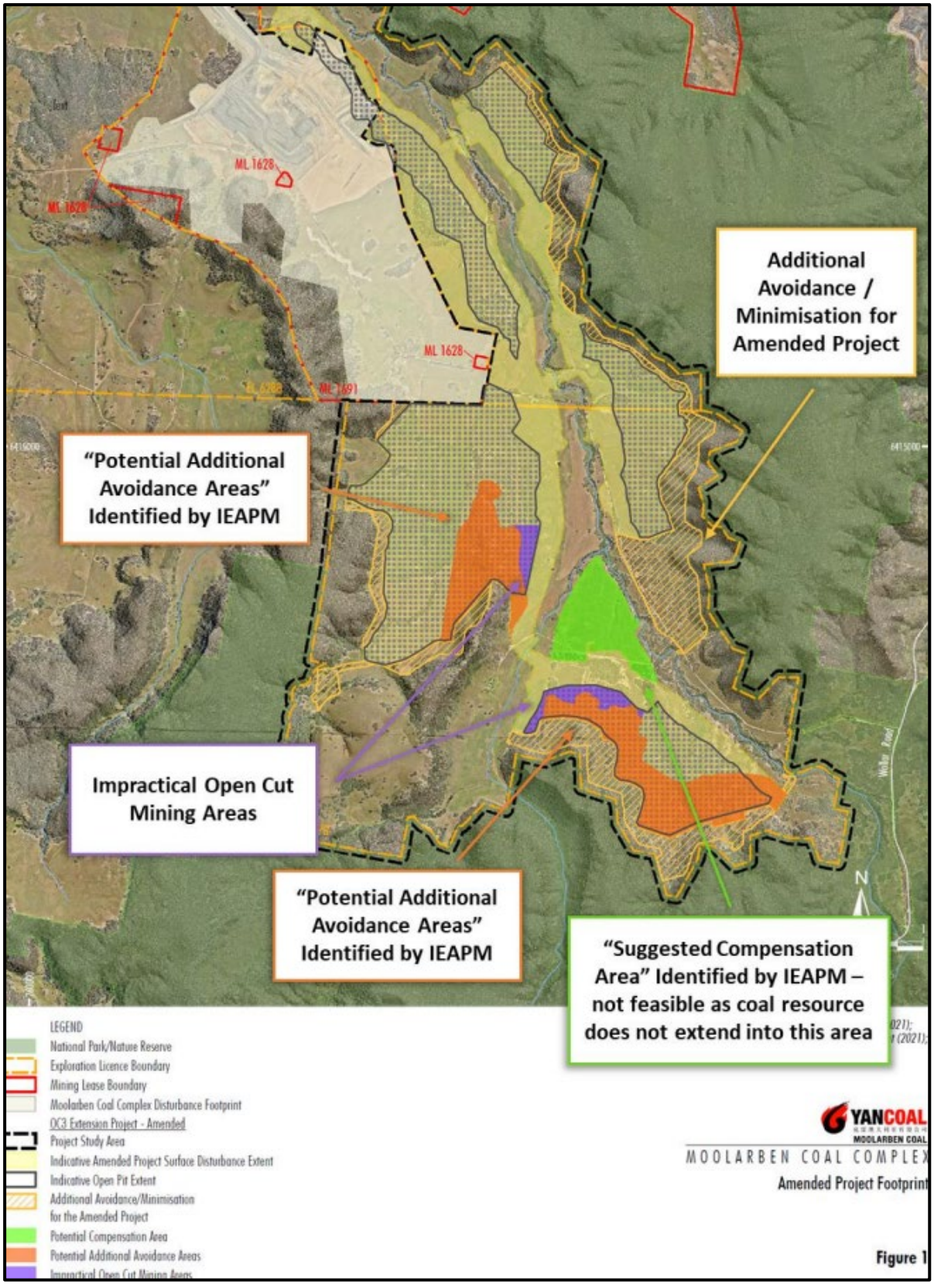

Figure 12 | Areas of further avoidance recommended for consideration by the Mining Panel

139. The Stage 3 area contains fragmented patches and edges of mapped 'important habitat' for the Regent Honeyeater. Some of this habitat coincides with the woodland component of Box-Gum Woodland CEEC. Remaining areas in Stage 3 consist predominantly of Box-Gum Woodland DNG or Category 1 land.

140. The fragmentation of the subject vegetation in this area makes it difficult to implement further avoidance without affecting the entire stage. MCO contend that the environmental gain that would result from this avoidance would be minimal in comparison to the lost benefits of the project.

141. In the case of Box-Gum Woodland, the Department generally agrees that the avoidance of this stage would not provide an environmental benefit that would warrant such implications to the project. This is because the area has previously been subject to disturbance from agriculture and cropping activities and there is a high degree of fragmentation of the woodland CEEC components. Additionally, residual quantities of Box-Gum Woodland that would be affected by the project would be negligible (<0.01%) in the context of the remaining extent of the entity in NSW.

142. In the case of the Regent Honeyeater, the Department considers that further avoidance of the Stage 3 area would also be unlikely to result in significant benefits and protection of the species. This is because the existing habitat is highly fragmented and unlikely to be frequently utilised by the current population.

143. The Department considers that further avoidance of the Stage 3 area could be reasonable if it was close to a known breeding area for the Regent Honeyeater, as the NSW distribution of the species is considered to be confined to these areas[11].

144. CPHR identified that historically, breeding has occurred adjacent to the project site and that it could occur within or near the site in the future, should favourable conditions exist. However, MCO's expert report identified that individuals are occasionally sighted near the project area, but current known breeding activity is now restricted to sites not near the project. MCO's expert report also considered there to be a high likelihood that the project area is not utilised by the species. The Mining Panel generally agreed with these findings.

Minimisation

145. Minimisation measures have been geared towards enhancement and rehabilitation efforts that have good potential to result in an increase of native woodland vegetation and suitable habitat for the Regent Honeyeater in the mid to long term. The Mining Panel recommended that regeneration initiatives in the habitat enhancement area commence within the next five years

[11] Regent Honeyeater - profile | NSW Environment, Energy and Science

to be of benefit to the recovery of the Regent Honeyeater. MCO has advised that this timeframe is feasible.

146. Both CPHR and the Mining Panel identified that the habitat enhancement area and the rehabilitated site would not be secured in perpetuity and considered that this poses some uncertainty for its long-term management. However, the Department considers that these measures, if conditioned under a development consent, provide sufficient certainty as a measure to minimise impacts on the entities. Any future land users would be similarly constrained by the rehabilitation objectives and performance measures in a development consent, if granted. Such measures would be focused on achieving a conservation outcome. Any future proposal to impact these areas would be subject to a separate development application processes, including environmental assessment and offsetting.

147. MCO has committed to including tree and ground layer species that are characteristic of Box-Gum Woodland CEEC in its rehabilitation and revegetation efforts. The Department acknowledges that this may not result in the re-establishment of a recognisable PCT of Box-Gum Woodland CEEC. However, in areas of Category 1 land and DNG, this regeneration would be of greater environmental benefit than the status quo.

148. The Mining Panel suggested that the consent authority may wish to consider requiring an equivalent amount of disturbed Box-Gum Woodland (ie 401.2 ha) to be protected and enhanced within the proposed habitat enhancement area. This approach was suggested to ensure that the project does not result in a reduction in the geographic range of Box Gum Woodland CEEC or the further environmental degradation, specific to Principle 2 of Clause 6.7 of the BC Regulation.

149. Two areas of Box Gum Woodland within the study area were identified by the Mining Panel for potential inclusion in the habitat enhancement area (see **Figure 13**). MCO identified that one of these areas (left red polygon on **Figure 13**) consists mostly of DNG that sits atop of a basalt plug which would constrain revegetation of this area to achieve woodland formation. The other area (right red polygon on **Figure 13**) lies in between the proposed project stages and the Munghorn Gap Nature Reserve and is mostly in woodland formation.

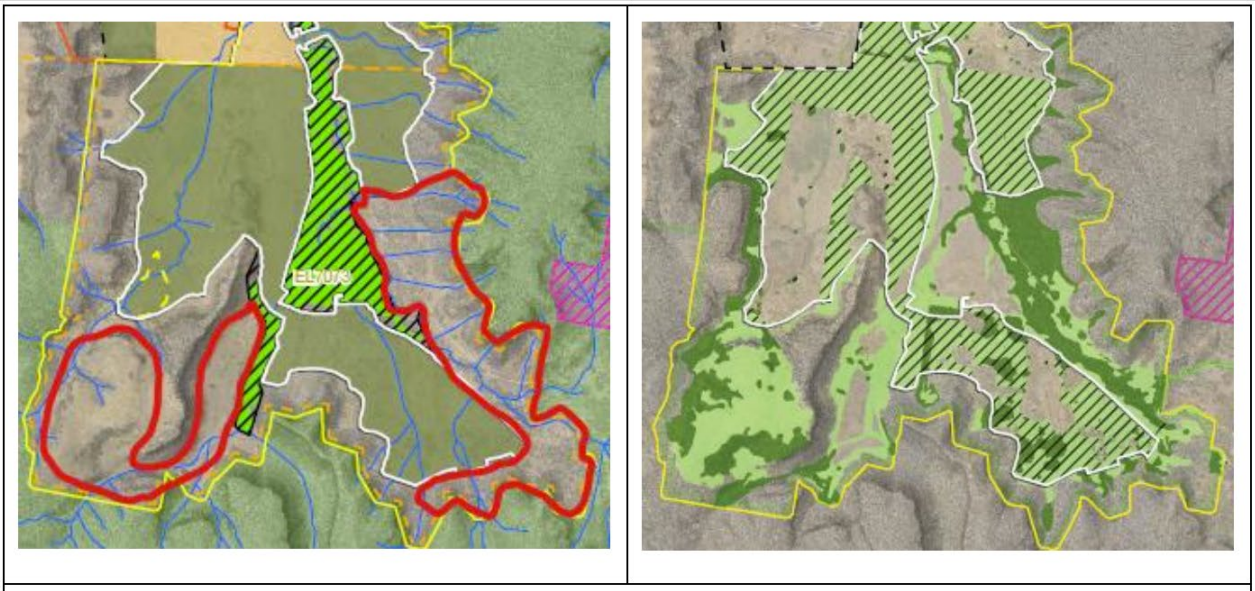

Figure 7: Potential additional areas for inclusion in the Habitat Enhancement Areas (shown in red on the left) resulting in improved management and revegetation of large areas of Box Gum Woodland (shown on the right)

Figure 13 | Areas proposed for potential inclusion in the Habitat Enhancement Area

150. The Department considers that the inclusion of these areas could be considered reasonable, however only for enhancement of the CEEC in its existing form. This is because:

- their inclusion would provide a good outcome for the valley by retaining connectivity of Box Gum Woodland across the valley floor, post mining;
- their inclusion would result in an equivalent amount of Box Gum Woodland retained within the valley to that which would be disturbed by the project. This would be additional to offsetting requirements;
- further minimisation measures appear to be warranted as they would over time potentially provide a net positive outcome for the SAII entities, consistent with recent reforms to the BC Act; and
- their inclusion provides an additional level of habitat protection in the unlikely event that rehabilitation is not successful.

151. It should be noted that MCO did not support the inclusion of additional areas within the habitat enhancement area as it considered that sufficient compensatory measures had already been proposed.

152. In regards to the Regent Honeyeater, the Department considers that suitable habitat established and in the proposed habitat enhancement area and native woodland rehabilitation reflects reasonable measures to minimise impacts on the species. The Department has recommended specific rehabilitation objectives that include the establishment of plant

species commensurate with habitat for the Regent Honeyeater as well as a habitat enhancement area plan that describes in detail how its objectives will be achieved.

Step 4 – Evaluate SAII

153. Step 4 requires the evaluation of whether the residual impact of the project (ie after the application of all relevant avoidance and minimisation measures: see section 7.16(1) of the BC Act) would be "*likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct*". The residual footprint of the project on Box Gum Woodland and Regent Honeyeater habitat is presented in **Figure 14** and **Figure 15**, respectively.

154. This phrase, or the individual words within, are not defined within the BC Act or BC Regulation. Whether a project would cause SAII to a specific species or community is a matter of fact and degree, and there is no simple 'rule' or 'formula' that can be applied. However, the Department considers that the phrase should be interpreted to mean that the residual impacts of the project would have a real chance or possibility of contributing to the extinction of the entities and that this contribution would be important or significant to the risk of extinction.

155. The Department acknowledges CPHR's position that the project would contribute to the relevant principles of the BC Regulation for Box-Gum Woodland CEEC and the Regent Honeyeater, particularly because it would result in a further decline of the CEEC and mapped 'Important habitat' due to clearing. However, the Department considers that sufficient information has been provided to demonstrate that the project's impacts would not be significant to the point where it would be likely to contribute significantly to extinction. This is because:

- the proportion of clearing in relation to the remaining extent of CEEC and 'important habitat' is negligible;
- majority of impacts on Box-Gum Woodland CEEC would be low to moderate condition DNG and there is a high degree of fragmentation of the woodland components;
- it is unlikely that habitat within the project area is highly utilised by the current population of the Regent Honeyeater;
- it is unlikely that the project would impact a Regent Honeyeater breeding population; and
- the proposed mitigation strategies for habitat enhancement and native woodland rehabilitation would provide benefits to the entities in the mid-long term, including additional Regent Honeyeater habitat and improved vegetation connectivity across the valley floor.

156. On this basis, the Department agrees with the Mining Panel that the project would be unlikely to result in a SAII on either entity.

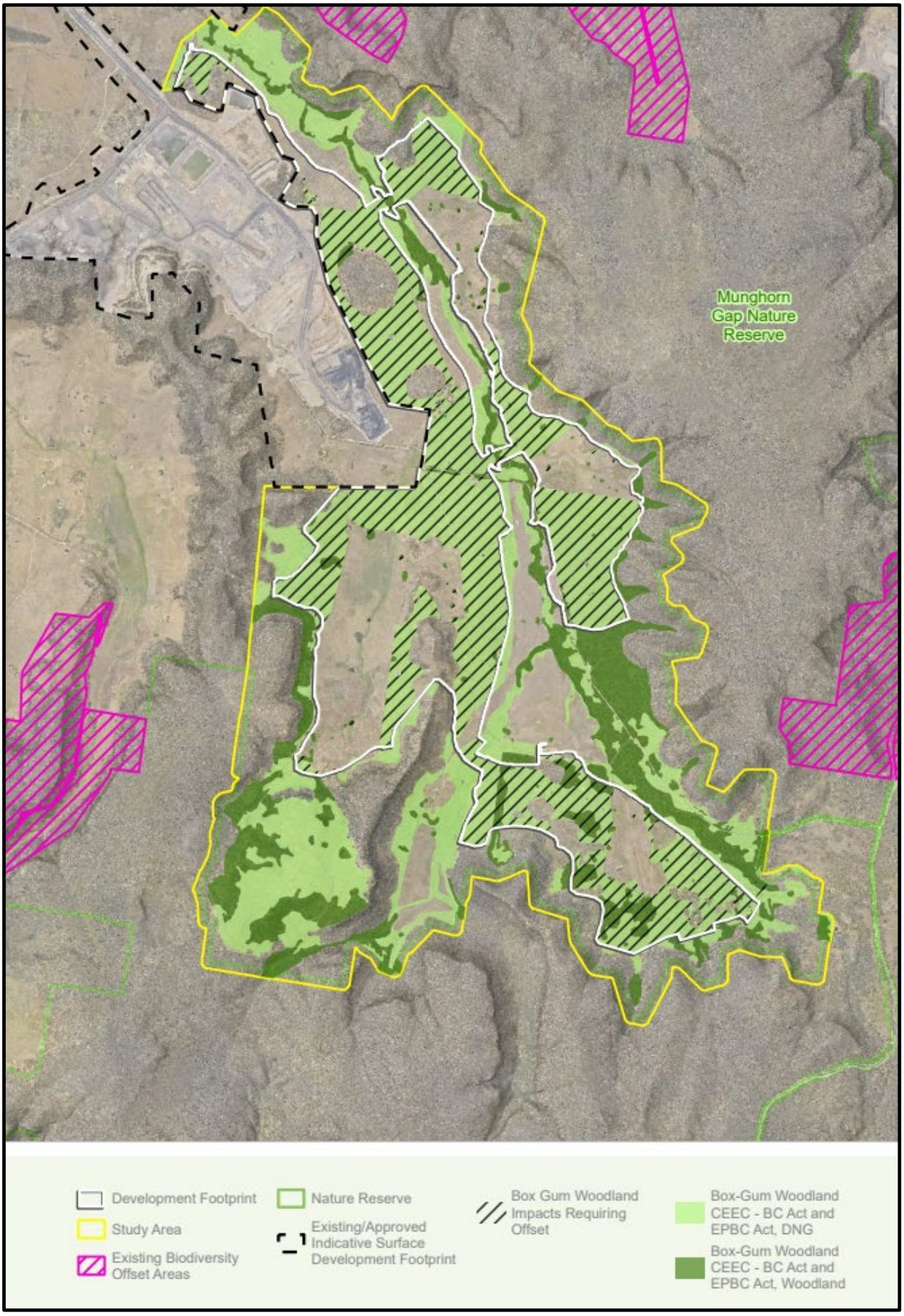

Figure 14 | Residual extent of Box Gum Woodland within project footprint

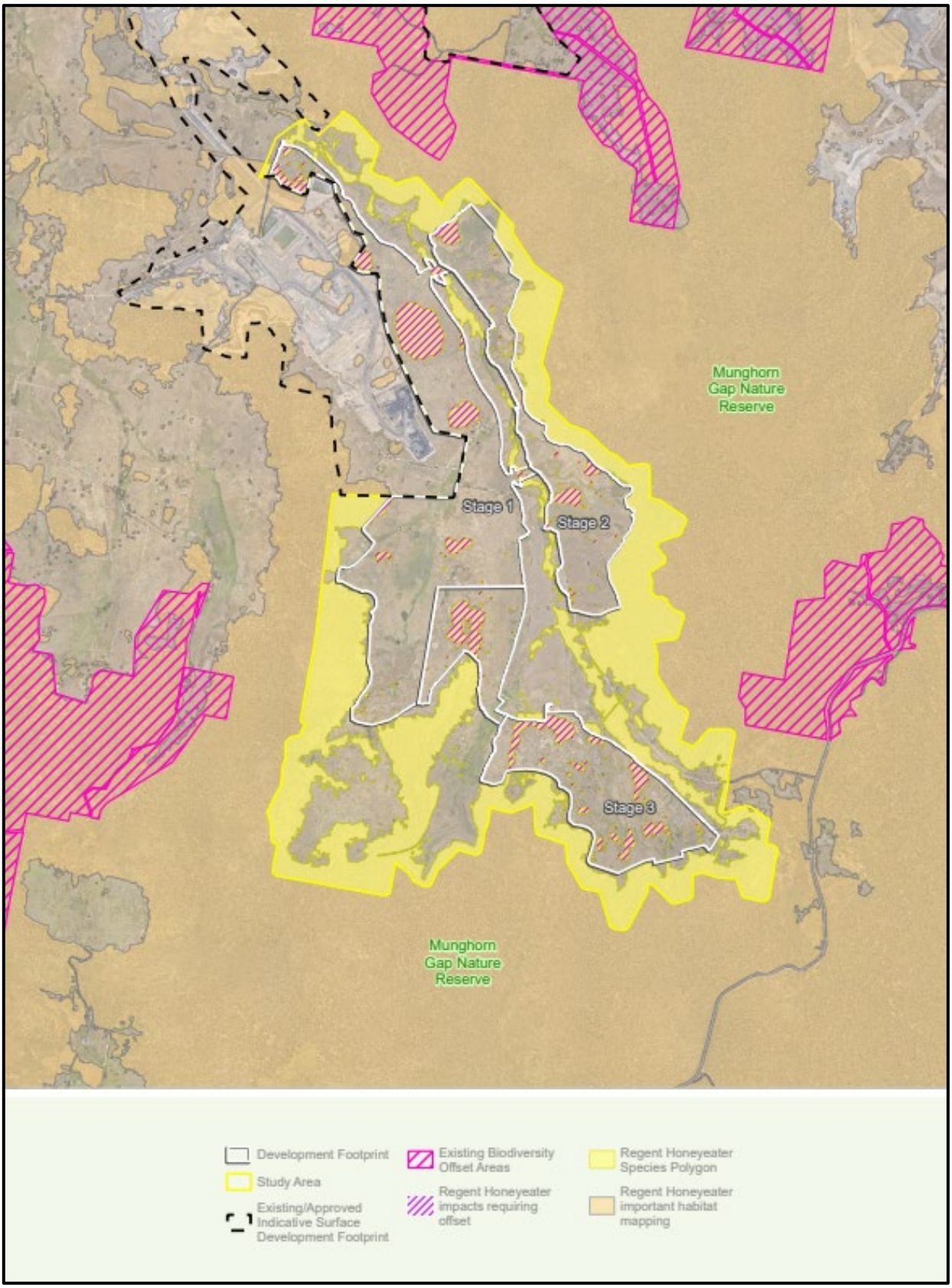

Figure 15 | Residual extent of Regent Honeyeater habitat within project footprint

Step 5 – Decision Making

157. This step is only enacted if a project is evaluated by the consent authority as likely to result in a SAII. For Part 4 application types, the determination of SAII requires a consent authority to refuse the application. However, for State significant development projects, a consent authority may consider whether additional and appropriate measures could be imposed that would minimise the impact of the project, if consent is granted.

158. Despite the Department's conclusion that the project would unlikely result in SAII, the Department acknowledges that this decision is ultimately to be made by the consent authority, who in their right, may form an alternative conclusion.

159. An outcome of SAII as a result of the project would be a significant environmental loss for the state of NSW and is not an outcome that would be supported by the Department for this project. Importantly, under the BC Act, any additional and appropriate measures that could be considered by the consent authority cannot change the conclusion that the impact is likely to be SAII.

6.1.6.3 Impacts on threatened flora and fauna

Pomaderris Cotoneaster

160. Targeted surveys recorded a cluster of *Pomaderris Cotoneaster* in the northern part of the project area. Impacts on the species and associated habitat was reduced in the amended application by 4.5 ha.

161. The project's residual impact on the species would be 0.07 ha of habitat that is located within a buffer area surrounding suitable habitat (as required to be included under the BAM), and no loss of individuals would occur.

162. MCO propose to minimise impacts on the species by erecting a fence between the known cluster and the development footprint and monitoring the population following clearing. Residual impacts would be offset through the retirement of two species credits (see **Appendix E**).

163. The Department considers that MCO has applied reasonable avoidance and minimisation measures and that impacts on the species are acceptable, subject to the recommended conditions, should the IPC determine to approve the project.

Koala and Squirrel Glider

164. The project would clear approximately 113 ha of habitat for the Koala and Squirrel Gilder. Habitat for these species includes all woodland and forest PCTs within the project area, which extends into the broader study area.

165. Public submissions raised concerns about the project's potential impacts on the Koala. Supplementary representations from Lock the Gate (LtG) also raised concern about the presence of the species in the project area due to the detection of a mother and joey in self-conducted drone footage. LtG also raised concerns about commentary in the BDAR about impacts on habitat 'critical to the survival' of the species.

166. CPHR recommended that MCO implement further measures to avoid and minimise impacts on Koala and Squirrel Glider habitat noting that areas of woody vegetation had been retained that are in good proximity to Munghorn Gap Nature Reserve. The Department understands that these areas overlap with habitat for Box-Gum Woodland and the Regent Honeyeater, with a greater amount present in the southern eastern portion of the project area (ie Stage 3).

167. Both Koala and Squirrell Glider species were recorded in targeted surveys on multiple occasions in the broader study area and potential impacts on the Koala formed part of the controlling provisions for EPBC 2022/9162.

168. The Department sought information from MCO regarding the additional drone footage conducted by LtG and concerns raised about the project's impacts on an important Koala breeding population. MCO advised that breeding activity within the study area was known and acknowledged in the BDAR.

169. The BDAR identified that the project would remove foraging and sheltering resources for both species and present a physical barrier across the valley floor and to Moolarben and Murdering Creek. However, the BDAR also identified that habitat within the project area was unlikely to be exclusively used by both species and that the Munghorn Gap contains approximately 5,000 ha of potential habitat which would limit the project's population fragmentation effects. It was considered that animals displaced by the project would likely move out into the other areas of connected suitable habitat and the project would be unlikely to substantially alter the area of occupancy of the species within the locality.

170. MCO propose to minimise impacts on Koala connectivity and access to the creek lines via the habitat enhancement area. This area would contain potential habitat for both species, including 53 ha of existing woodland and 135 ha of areas to be revegetated to provide additional habitat. Additionally, 535 ha of native woodland is proposed to be rehabilitated across the project area, which would include habitat for both species. Residual impacts on

both species would be offset through the retirement of 3,425 species credits each. MCO also propose to conduct pre-clearance surveys to avoid impacts on any resident individuals.

171. The Department acknowledges concerns raised by LtG regarding the impacts of habitat coined 'critical to the survival of the species'. Habitat deemed 'critical to the survival' of the Koala includes any habitat that provides foraging, breeding or refuge in accordance with *Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (DAWE 2022).*

172. It is important to note that whether habitat is "critical to the survival of the species" is one of a range of factors that is considered in declaring whether a project is likely to cause a significant impact on Commonwealth listed species. In this context, the assessment of a project as 'likely to significantly impact' a species results in its declaration as a Commonwealth controlled action, that is subject to further assessment to determine whether that impact is acceptable.

173. The Department has, should the IPC determine to approve the project, recommended strict conditions relating to the commitments made by MCO to minimise and offset impacts on these species. Subject to these conditions, the Department considers that impacts are acceptable.

Microbat species

174. Threatened microbats, including the Large-eared Pied Bat and the Eastern Cave Bat, were recorded in targeted surveys throughout the study area. These species utilise rocky features for roosting and breeding which are abundant along the periphery of the study area within the Munghorn Gap Nature Reserve (see **Figure 16**).

175. The proximity of the project area to bat habitat has been raised as a concern by CPHR, particularly due to the presence of lactating females and juveniles recorded in the study area, indicating that breeding occurs locally.

176. Breeding caves are a significant habitat feature for microbat species due to their high fidelity (ie individuals return to the same breeding site) and specific structural and climatic configuration. There are limited known breeding caves in the surrounding landscape, however it is acknowledged that there are likely to be many more present based on the high juvenile recordings in the vicinity.

177. Both bat species are listed as threatened entities at risk of SAII based on Principle 4 under clause 6.7 of the BC Regulation, which provides that the impacted species or ecological community is unlikely to respond to measures to improve its habitat and vegetation integrity, and therefore its members are not replaceable. This is because any impacts on breeding habitat would not be rectifiable and has the potential to disrupt breeding cycles for species.

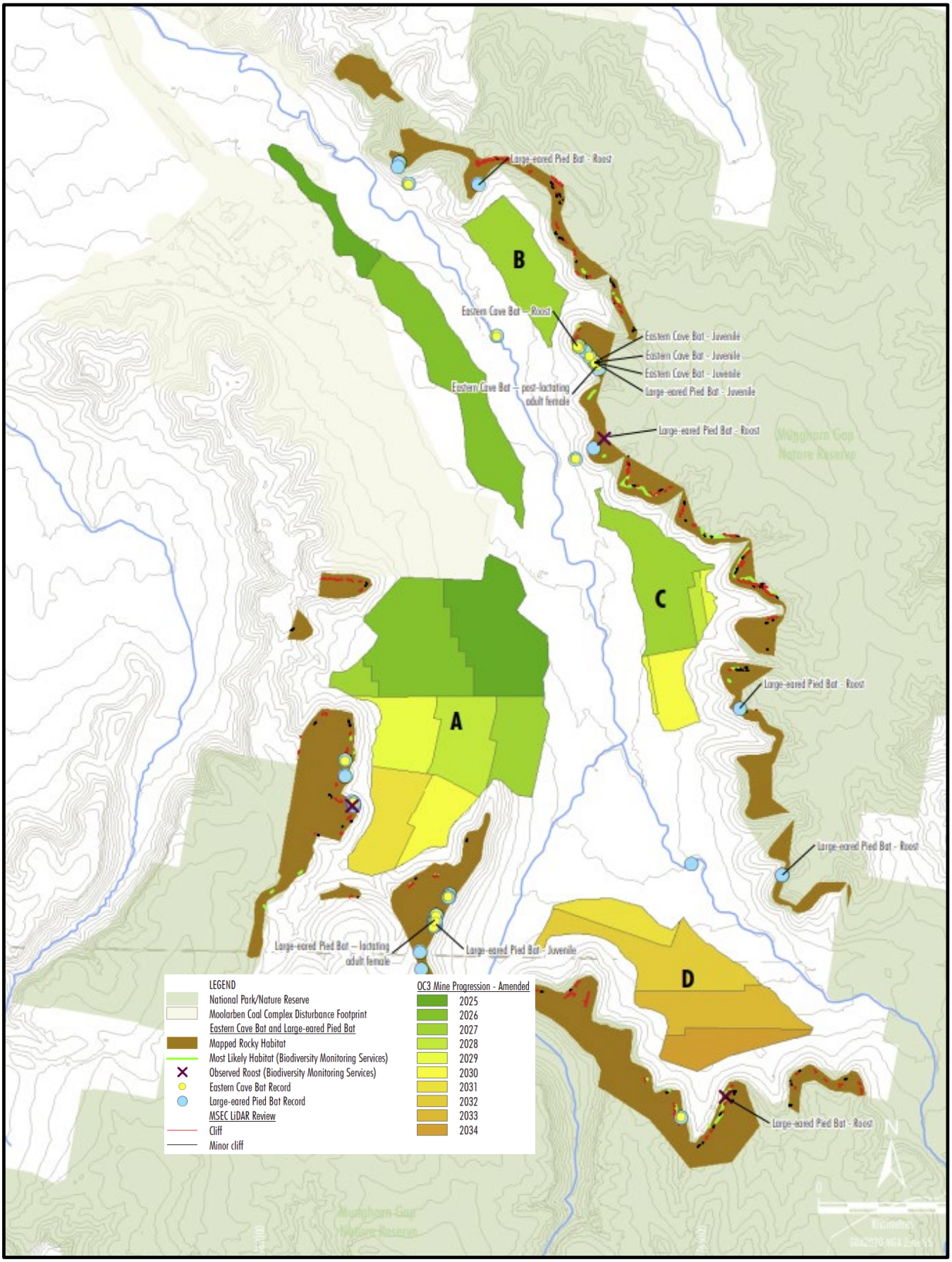

Figure 16 | Location of threatened microbat habitat and survey records

178. The trigger for considering SAII for these species is disturbance within 100 m of the rocky habitat (particularly breeding roosts). The amended project was redesigned to avoid disturbance within this buffer and therefore no direct impacts on rocky habitat features would occur. However, blasting in the vicinity of these features may have potential indirect impacts on the physical structure of the habitat and behavioural impacts on the species.

179. MCO propose to mitigate impacts on bat species by imposing an upper blast vibration limit of 50 mm/s peak particle velocity (PPV) at rocky habitat features. This limit was recommended based on analysis of historical monitoring data and inspection of rocky habitat surrounding existing and proposed mining areas. MCO sought a peer review of the proposed limit by geotechnical experts PSM who concluded that it would be appropriate to achieve a performance measure of '*no damage that is distinguishable from natural processes'.*

180. MCO also committed to prepare a blast management plan and bat monitoring program. The proposed objectives of the monitoring program are to avoid:

- adverse impacts to roosting behaviour including maternity roost abandonment or loss of fitness due to continual rousing from torpor over winter;
- a statistically significant reduction in activity at a maternity roost site; and
- physical impacts on bat breeding habitat.

181. The Mining Panel recommended that additional performance measures be developed to ensure adverse impacts on roosting behaviour are avoided, particularly during the breeding season or when the species are in torpor. The Mining Panel recommended that measures be presented in a detailed trigger action response plan (TARP) which should include:

- a performance indicator based on bat activity at the roost entrance immediately following a blast;
- processes for measuring damage and behavioural disturbance at vibration levels of less than 50 mm/s;
- baseline monitoring of known roosts and inspections to identify any additional roosts; and
- monitoring should be undertaken during pre, during and post blasting.

182. MCO generally agreed to the development of conditions for the management of blasting impacts on bat habitat but considered that performance indicators, monitoring methods and TARPs should be developed by suitably qualified bat experts.

183. The Mining Panel and CPHR agreed that potential blast impacts on threatened microbats could be managed through blast vibration limits, performance measures and management strategies. The Department also agrees with this approach and has, should the IPC determine to approve the project, recommended conditions of consent including:

- a blast management plan, including blast management strategies and vibration limits;
- strict performance measures for known maternity caves or roosts of significance, as well as behaviour of bats when in torpor; and
- a bat monitoring program, including a trigger action response plan, to be approved by the Planning Secretary prior to the commencement of construction.

184. The Department acknowledges that mining activities have occurred adjacent to the Munghorn Gap Nature Reserve and other areas with potential habitat for many years and existing consents for the Wilpinjong Coal Mine and Moolarben Stage 2 allow open cut mining to occur within 20 m and 50 m of the reserve, respectively. Nonetheless, the Department considers a precautionary approach to protecting key habitat features should be undertaken.

185. The National Recovery Plan for the Large-eared Pied Bat acknowledges that there is a lack of detailed information regarding the distribution and abundance of the species, however the main known cause of decline is the destruction of and interference with maternity and other roosts.

186. Recovery actions under the plan include (but are not limited to) mapping and modelling bat colonies, identifying priority colonies for conservation management, surveying the species to clarify distribution and abundance to inform management and protecting known roosts and associated foraging habitats. The recommended management measures and conditions are consistent with these actions..

Pink-tailed legless Lizard

187. The project would disturb approximately 207 ha of habitat for the Pink-tailed legless Lizard. Habitat within the study area consists of surface rocks and native grasses and includes areas of Category 1 land. One individual was recorded in targeted surveys.

188. MCO advised that the disturbance area was designed to avoid large areas of potential habitat, and that vegetation clearance protocols would include searches for the species to relocate out of the disturbance area. MCO also propose to develop a surface rock trial site during mine rehabilitation to assess if introducing new surface rock can restore rocky habitat for the species.

189. The residual impact on the species requires the retirement of both ecosystem and species credits. Additional species credits were required to be calculated outside of the BAM to account for areas of impact on Category 1 land. CPHR accepted the method used to calculate these additional credits.

190. The Department considers that impacts on the Pink-tailed legless Lizard could be managed under conditions of consents, including the preparation of a Biodiversity Management Plan that details vegetation clearance protocols, a surface rock trial, and the retirement of ecosystem and species credits.

Broad-headed Snake

191. One broad-headed snake individual was recorded in targeted surveys approximately 200 m outside the development footprint. However, the amended project was redesigned to avoid disturbance within 100 m of rocky habitat to ensure no direct impacts. On this basis, no biodiversity credits are required to be retired for this species in accordance with the BAM.However, the species may be affected indirectly by blast vibration, noise and light.

192. Vibration impacts are proposed to be managed through a blast management plan, including an upper blasting limit of 50 mm/s ppv for mapped rocky habitat. Following additional information provided by MCO about blast management measures, CPHR agreed that blast management conditions could manage potential adverse impacts.

193. The Department considers that other indirect impacts (ie noise, dust and light) are unlikely to significantly affect the species, should the IPC determine to approve the project, subject to appropriate management under the recommended conditions and relevant NSW policy frameworks.

Swift Parrot

194. The project would disturb approximately 106 ha of foraging habitat for the Swift Parrot. This habitat is not mapped as 'important habitat' as per NSW mapping. Although no individuals were detected in targeted surveys, the species was assumed present as it has previously been recorded in the local area. Indirect impacts on adjoining foraging habitat may also occur through noise and light

195. MCO advised that existing woodland areas of the habitat enhancement area contain suitable habitat for the species and areas targeted for regeneration would include Eucalypt species that could provide suitable foraging habitat. MCO also propose to manage indirect impacts through various management plans. Residual impacts on foraging habitat would be offset via ecosystem credit species, including PCTs 266, 281, 1629 and 1655.

196. The BDAR concluded that the proposed impacts would be unlikely to impact on foraging resources that are important for the lifecycle of the species as no areas of mapped 'important habitat' would be disturbed by the project. Additionally, the project would not impact breeding habitat which only occurs in Tasmania.

197. The Department considers that impacts on the Swift Parrot could be managed under conditions of consents, including the preparation of a Biodiversity Management Plan and the retirement of ecosystem credits.

Gang-gang Cockatoo

198. The project would disturb approximately 106 ha of habitat associated with the Gang-gang Cockatoo. Targeted surveys recorded the species on five occasions however no breeding activity was detected. For this reason, species credits are not required to be retired in accordance with the BAM. CPHR advised that no further assessment was required.

199. Avoidance and minimisation measures were incorporated into the amended application, and rehabilitation efforts would include plant species consistent with foraging habitat for the Swift Parrot. Residual impacts on habitat would be offset via ecosystem credit species, including PCTs 266, 281, 1629 and 1655

Frog Species

200. Potential habitat for two candidate frog species is located within the project area, including the Giant Burrowing Frog and the Red-crowned Toadlet. These species are associated with PCT 1629 located on the perimeter of the project area and PCT 1711 located in patches within the Stage 1 and 2 disturbance areas. Both species are NSW and Commonwealth listed species.

201. The updated BDAR excluded these species from further assessment on the basis that microhabitats[12] for the species are not present within the study area. Exclusion of a candidate species is permitted in accordance with specific requirements under Section 2(a) (i) of the BAM. However, CPHR consider that insufficient justification has been provided to exclude both species.

202. MCO provided additional information to support that microhabitat for both species is not present on the site, including a supplementary report by Niche (2024). The Department considers this additional information to be reasonable, noting that it was supported by referenced published literature. Additionally, the Mining Panel conducted a review of the BDAR, including advice from CPHR, and no specific commentary on this matter was provided. On this basis, the Department considers no further assessment or offsetting is required.

[12] Microhabitat are smaller parts of the habitat, a habitat component or a habitat constraint used by a threatened species (BAM, 2020).

Other

203. A range of other fauna species were detected in targeted surveys, including threatened bird and bat species (see Table 8). In addition to the avoidance and minimisation measures proposed, impacts on these species would be offset via ecosystem credits.

6.1.6.4 Impacts on Munghorn Gap Nature Reserve

204. NPWS has raised various concerns regarding the close proximity of the project to the Munghorn Gap Nature Reserve (the reserve) and recommended a 500 m setback between the project and the edge of the reserve to adequately manage potential environmental impacts. Concerns raised include:

- blasting and potential vibration impacts on geological features and rocky habitat;
- risks to public safety;
- light and noise impacts on biodiversity values; and
- groundwater drawdown beneath the reserve and associated impacts on GDEs.

205. MCO advised that the areas surrounding the project are not accessible to the public and agreed to minimise light spill on the reserve through directional lighting. The Department considers these responses to be reasonable. Further consideration of blasting, noise and groundwater is provided below.

Blasting and vibration

206. NPWS raised concern with the proposed vibration limit for rocky features and cultural heritage sites in the reserve, noting that lower vibration thresholds may be required for areas of poor-quality rock.

207. MCO engaged geotechnical expert PSM to advise whether the proposed 500 m setback is required to ensure no damage occurs to geological features in the reserve. PSM noted that case studies of other projects with lower vibration limits involved very different geological context and advised that a level of 50 mm/s PPV would be appropriate to achieve a performance measure of 'no damage this is distinguishable from natural processes'. The Mining Panel agreed with this advice.

208. Setback from the reserve was increased under the amended application from 50m to 100m. This setback is consistent with or greater than those approved at the existing complex and the Wilpinjong mine (ie 100 m and 20 m, respectively).

209. Discussion on potential impacts on mapped rocky habitat and cultural heritage is provided in section 6.1.6.3 and 6.4, respectively. The Department considers that the recommended blast

criteria, operating conditions and management plan would provide strict and appropriate controls for managing vibration impacts on the reserve.

210. On the basis that potential impacts could be managed, the Department considers that a setback of 100 m is appropriate and has, should the IPC determine to approve the project, recommended a condition to this effect. Additionally, the Department has recommended that the boundary of the reserve where it adjoins the site is clearly delineated at all times.

Noise

211. The existing consents for the complex include noise criteria for the Munghorn Gap Nature Reserve (and Goulburn River National Park) for 50 dB(A) $L_{Aeq(15min)}$. In accordance with the *Noise Policy for Industry* (2017, NPfI), this criterion is to be assessed at the most-affected point that is reasonably expected to be used by people (ie picnic areas or walking tracks) and only applies when in use.

212. NPWS considers that this prescribed noise level (*ie areas reserved for passive recreation (eg national parks)*) is not appropriate for application to the reserve and recommended noise limits consistent with sensitive receivers (ie 40 dB(a) during the day and 30 dB(A) at night) to account for noise impacts to values such as remoteness, solitude and biodiversity.

213. The Department does not consider this approach to be reasonable for two reasons. Firstly, it would not be consistent with the NPfI and would create disparity between mining and other industries that operate adjacent to conservation areas. Secondly, the proposed noise criteria are inconsistent with noise limits of the approved complex and the Wilpinjong mine, which have been operating adjacent to the reserve for many years.

214. The closest publicly accessible areas within the reserve include the Moolarben Picnic Area, Honeyeater Flat (~1.5 km) and Castle Rock (~2km). Noise modelling indicates that the project would not exceed the prescribed amenity criteria at these locations and the Department has recommended noise criteria to this effect including regular monitoring in accordance with the NPfI. Night-time noise criteria for privately-owned receivers in the vicinity of the complex, would also minimise excessive noise from the complex.

215. To manage indirect impacts, the Department has recommended MCO prepare a comprehensive biodiversity management plan that details measures to be implemented to minimise indirect impacts on biodiversity.

Groundwater

216. NPWS raised concern with the adequacy of the groundwater model and potential impacts on groundwater within the Munghorn Gap Nature Reserve. Specifically, NPWS recommended a

condition requiring *no drawdown of groundwater, variation to groundwater quality, or affects on groundwater dependent ecosystems on Munghorn Gap Nature Reserve or Goulburn River National Park*.

217. Drawdown impacts of the project have been assessed in accordance with relevant groundwater modelling guidelines and the *Aquifer Interference Policy*. These guidelines, and associated legislation under the *Water Management Act 2000,* do not specifically prohibit groundwater drawdown from occurring under conservation areas. Rather, they provide guidance for assessing impacts to key water-dependent assets.

218. The Department has carefully considered the project's potential incremental and cumulative impacts on groundwater, including groundwater dependent ecosystems in the reserve (see **section 6.2.2**). This consideration included expert advice from the IESC, Mining Panel and DCCEEW Water. The Department considers that potential impacts on water resources has been subject to a robust and thorough assessment which concluded that there would be no impacts on GDEs within the Munghorn Gap Nature Reserve.

6.1.7 Conclusion

219. The project would have substantial impacts on biodiversity and seeks to clear 480 ha of native vegetation. Vegetation within the disturbance area conforms with nine PCTs and provides habitat for a range of threatened species.

220. MCO has undertaken two distinct attempts at avoiding impacts on biodiversity, with substantial reductions presented in the amended project. MCO also propose to minimise impacts through the establishment of a habitat enhancement area (~188 ha) and by rehabilitating large amounts of native woodland/forest/shrubland species (~535 ha). Residual impacts would require the retirement of 11,177 ecosystem credits and 24,683 species credits.

221. A range of issues were raised during the assessment of the project, including by members of the public, special interest groups and CPHR who maintained a number of residual issues after the consideration of additional information provided by MCO. The Department sought targeted advice from the Mining Panel to assist its consideration of these issues.

222. The project would have impacts on habitat for two SAII entities, being Box-Gum Woodland CEEC and the Regent Honeyeater. The Department has thoroughly considered the potential impacts on these SAII entities having regard to *Guidance to assist a decision-maker to determine a serious and irreversible impacts (DPIE 2019).* This consideration was informed by positions and supporting information provided by CPHR, MCO and the Mining Panel.

223. The Department does not consider that the residual impacts of the project would be SAII. However, recommendations have been made by the Mining Panel to ensure all reasonable

minimisation measures are implemented. The MCO has not accepted some of these recommendations.

224. The project would impact habitat for a range of threatened fauna species, including the Koala, Squirrel Glider, Pink-tailed Legless Lizard and Swift Parrot. The project also presents potential indirect impacts on threatened bat habitat within the Munghorn Gap nature reserve from blasting.

225. The Department considers that the proposed habitat enhancement area, rehabilitation efforts and blast mitigation measures are key in managing the biodiversity impacts of the project. These measures would result in the protection of riparian areas and connectivity along the creek lines during mining, greater connectivity across the valley floor in the long-term and comprehensive monitoring of bat habitat and blast impacts.

226. The project's impacts on biodiversity have been thoroughly considered and reviewed by a range of experts. The Department has proposed strict recommended conditions, should the IPC determine to approve the project.

6.2 Water

6.2.1 **Introduction**

227. The project's key impacts on water resources relate to groundwater drawdown and associated impacts on shallow groundwater systems and groundwater dependent ecosystems (GDEs). The project would also result in changes to baseflow in Moolarben Creek, groundwater recharge rates and water quality as a result of backfilling the proposed pits and catchment size during mining.

228. Most public submissions raised concerns with the project's potential impacts on surface and groundwater resources, including impacts on water features in the vicinity including on Moolarben Creek, Murdering Creek and the Goulburn River.

229. Potential impacts on water resources were assessed in various documents provided by MCO, including the EIS, Submissions Report, Amendment Report and additional information. Updated surface water and groundwater impact assessments were submitted with the Amendment Report, however, content and discussion within the previous versions are of relevance.

230. Agency and expert advice on the project's water-related impacts was sought from DCCEEW Water Group, the IESC and the Mining Panel. A summary of the key reports and advice relevant to water-related impacts is provided in Appendix A.

6.2.2 Groundwater

6.2.2.1 Existing Setting

231. Key groundwater systems overlying the project area include:

    - shallow alluvium associated with Moolarben Creek and Murdering Creek, including a paleochannel area;
    - perched groundwater in the Triassic sandstones; and
    - regional groundwater in the Permian strata and Ulan coal seam.

232. The shallow alluvium is part of the Upper Goulburn River Water Source within the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022*. This water source has limited licenced access with a total of three water access licences (WALs) held. The closest privately-owned WAL is located approximately 6 km west of the project area.

233. The Triassic sandstones and Permian strata are part of the Sydney Basin North Coast Groundwater Source within the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016*. A contemporary bore census identified 19 private bores in the vicinity of the project that access this water source.

234. Both water sources are categorised as 'less productive' aquifers in accordance with the *NSW Aquifer Interference Policy*.

235. A conceptual hydrogeological cross section is shown in **Figure 17** below. The Ulan seam predominantly underlies Permian overburden and/or unconsolidated sediments (ie the quartenary alluvium and paleochannel). Triassic sandstone strata predominantly sits atop of ridgelines and is considered to be disconnected from the regional groundwater table in this area within which the open cut pits are located.

236. Coal extraction is proposed in the Ulan Seam in the Permian strata at a relatively shallow depth below ground level (ie between 34 m and 120 m bgl).

237. The current groundwater monitoring network of the complex includes 64 monitoring bores distributed across these groundwater systems. Water table elevations range from approximately 460 m AHD[13] north of the project area to approximately 515 m AHD in the south. Flow moves predominantly north / north-west towards the existing complex.

[13] Australian Height Datum

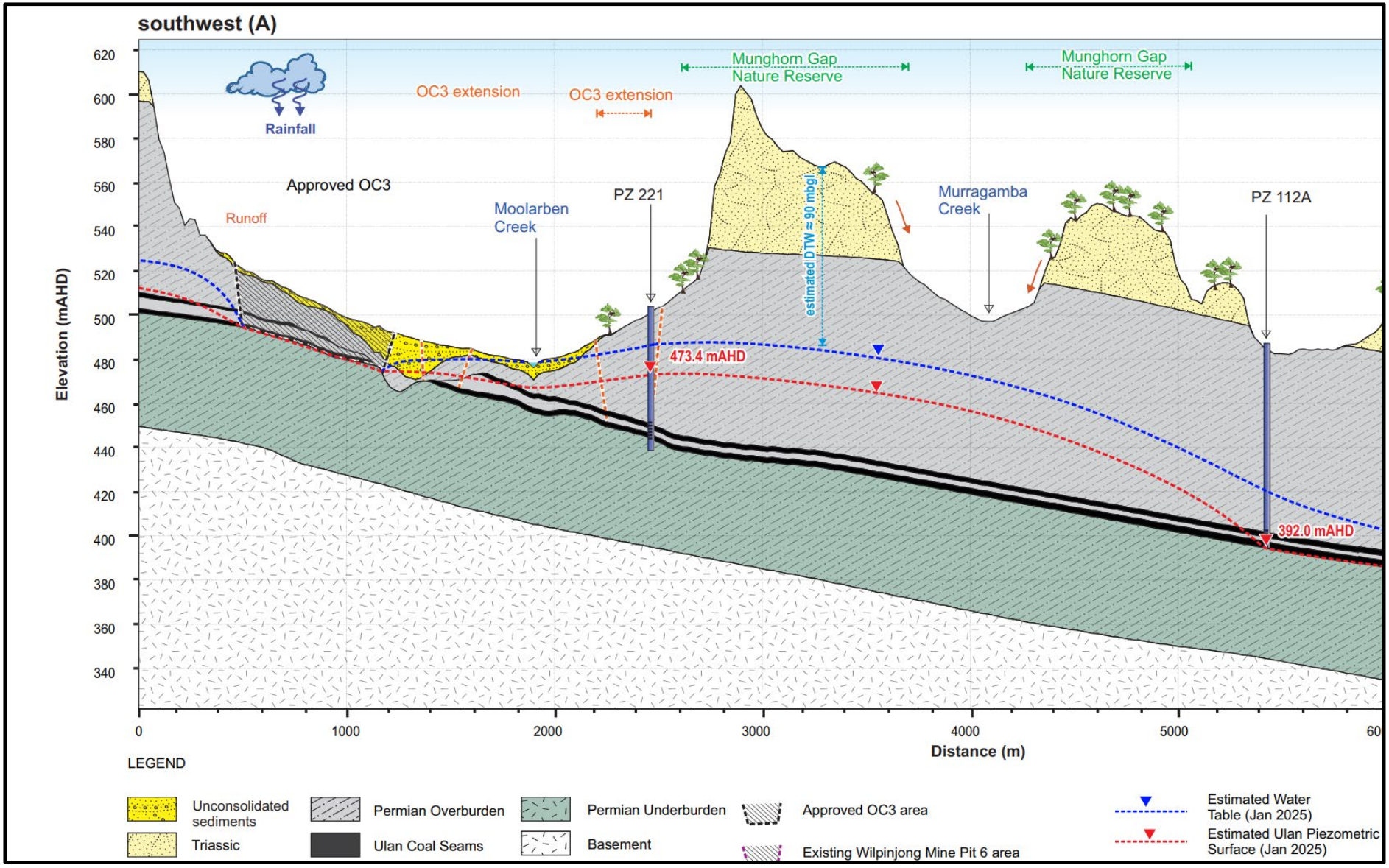

Figure 17 | Hydrogeological cross-section (south-west to north-east) (Source: MCO Additional Information July 2025)

238. The thickness and saturation of the alluvium / paleochannel is variable across the project area. Thickness is estimated to range between approximately 2 m and 30 m and levels of saturation are estimated to range between 4 m and 16 m. Areas of saturation are predominantly confined to creek lines. A large proportion of the alluvium and Triassic formations in other parts of the project area are reported to be unsaturated, either due to historic mining activities or natural causes.

239. There are a range of potential groundwater dependent ecosystems (GDEs) in the vicinity of the project, including terrestrial vegetation along Moolarben and Murdering Creek, and elevated seeps/springs within and adjacent to the Munghorn Gap Nature Reserve. No subterranean GDEs are mapped in the vicinity of the project and no stygofauna (fauna that lives in groundwater) were identified during targeted surveys (including during additional targeted surveys recommended by the IESC).

6.2.2.2 **Modelling**

240. Groundwater impact assessment for the project was informed by numerical groundwater modelling prepared in accordance with the *Guidelines for Groundwater Documentation for State Significant Development Projects* (DPE 2022) and peer reviewed by an expert engaged by MCO, Brian Barnett.

241. The Department sought targeted advice from both the IESC and the Mining Panel on the appropriateness of the groundwater model to represent potential impacts of the project.

242. Both the IESC and the Mining Panel considered the groundwater model to be appropriate for understanding impacts at a regional scale and cumulative mining impacts. However, both had concerns about its predictions at the local scale, particularly regarding drawdown in the shallow alluvium and baseflow losses. This is because it was considered that the scale of the model was limited and the extent of groundwater monitoring data was considered insufficient to confirm the level and variation of saturation of the alluvium.

243. The Mining Panel also noted that there was insufficient monitoring data to confirm the broad conceptualisation of perched groundwater springs in the elevated Triassic sandstones as disconnected from the deeper Permian groundwater system.

244. MCO provided additional information in response to these concerns, including sensitivity analysis of drawdown impacts under a range of different model parameters, analysis of groundwater dependent ecosystems within the project area and peer review of hydrogeological conceptualisation (refer to *Additional Information – Response to Mining Panel - Risks to Groundwater Dependent Ecosystems (July 2025*)). These matters are discussed further below.

6.2.2.3 **Drawdown**

245. Open cut mining associated with the project would intercept groundwater and result in drawdown in overlying strata in areas surrounding the open cut pits.

246. A maximum of 156 megalitres per year (ML/yr) of groundwater inflows are predicted to occur in project year 4 with inflows generally decreasing after this time. These levels of inflow represent approximately 3% of peak inflows approved at the complex (ie 4,170 ML/yr during mining of UG4 in 2025).

247. Potential impacts were assessed in accordance with the *NSW Aquifer Interference Policy 2012* (AIP), including the 'minimal impact considerations' for alluvial and porous rock water sources. Key conclusions of the groundwater assessment include:

- incremental drawdown impacts of the project are predicted to result in up to 6 m of drawdown in the alluvium and paleochannel along Moolarben Creek;
- the predicted 2 m drawdown contour[14] of the water table would mainly be confined to the project area;
- no additional groundwater drawdown is predicted for any privately-owned bore;
- the project's contribution to cumulative groundwater drawdown would be negligible;
- up to 5 m of residual drawdown is predicted to remain for the alluvium/paleochannel at the end of the water table recovery period; and
- groundwater levels in some areas are predicted to recovery to higher levels than existing (referred to as 'mounding').

248. These conclusions indicate that the key water related impacts of the project would be mainly confined to the project area. This is largely because of the extent of unsaturated areas in the vicinity of the project and the distance between the project area, privately-owned bores and other groundwater dependent assets.

249. **Figure 18** depicts the 2 m incremental water table drawdown contour using sensitivity analysis of various groundwater parameters and climatic scenarios.

250. MCO advised that climate projections were guided by the Climate Change in Australia Technical Report (Commonwealth Scientific and Industrial Research Organisation [CSIRO] and the Australian Bureau of Meteorology, 2015).

[14] A 2 metre drawdown contour is reflective of 'minimal impact' considerations under the AIP.

251. With the exception of Scenario 2, the predicted incremental extent of 2 m drawdown of the water table remains within the project boundary.

252. In Scenario 2 the contour extends slightly beyond the project boundary to the west and south. Modelled parameters in this scenario include decreased hydraulic conductivity of the paleochannel sediments which would lessen the amount of groundwater recharge. Impacts on surface features associated with this potential drawdown are predicted to be negligible due to the elevated topography and disconnection between the water table and surface features.

Baseflow

253. Drawdown in the water table is predicted to result in baseflow losses to Moolarben Creek of up to 2.3 ML/year at the end of mining and 2.9ML/year at the end of the recovery period. These losses are estimated to represent between approximately 0.8% and 1% of total median baseflow. In a dry year, these losses would represent between approximately 1.2% and 1.6% of total baseflow.

254. Sensitivity analysis indicates that losses could increase up to 8 ML/year if the hydraulic conductivity of the paleochannel sediments were increased by one order of magnitude (ie. increasing water through flow). The groundwater assessment concludes that the potential baseflow losses under all modelled scenarios would not pose a risk to the function of Moolarben Creek and are negligible.

255. Baseflow predictions were queried by the IESC and Mining Panel due to the low confidence in modelling of local scale impacts. The inclusion of sensitivity analysis provides an indication of how different variables may affect the baseflow quantities. However, on-ground impact of these baseflow reductions would predominantly be on local groundwater dependent ecosystems, as discussed above.

256. Consistent with advice from the Mining Panel, the Department has, should the IPC determine to approve the Project, recommended a condition requiring a revised numerical model within 18 months of the installation of the new monitoring sites to improve predictions and conceptual understanding of the project area.

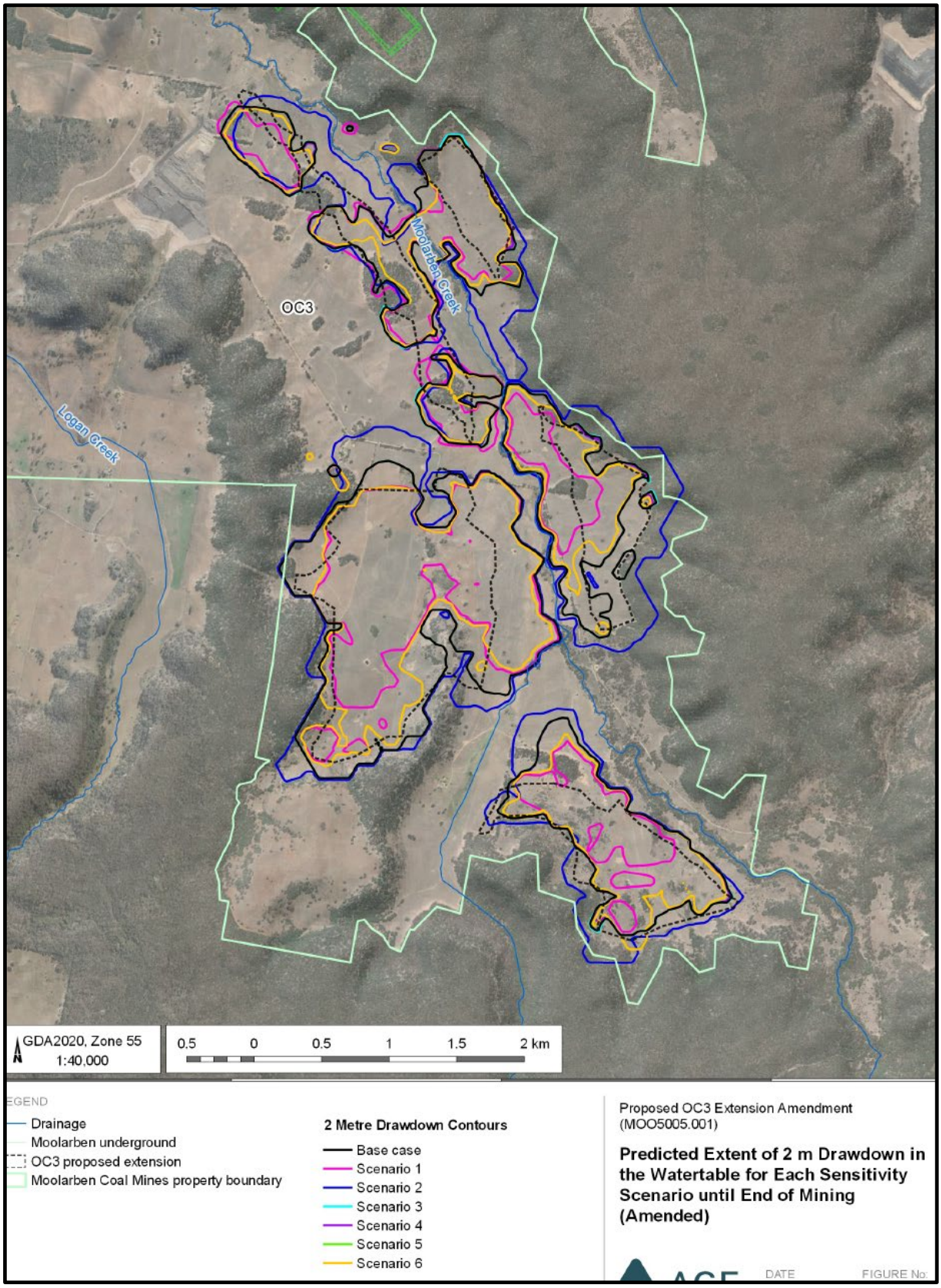

Figure 18 | Predicted extent of incremental 2 m drawdown – sensitivity analysis

Recovery

257. MCO would backfill the proposed open cut pits as well as the existing OC3 pit with overburden material. As the hydraulic conductivity of this material would be higher than the existing strata and the existing OC3 pit would no longer act as an evaporative sink, greater amounts of groundwater recharge would occur. In areas where the water table recovers above pre-mining levels, this is referred to as 'mounding'.

258. Groundwater is predicted to recover over approximately 576 years, with water levels in the shallow alluvium predicted to recover to a new equilibrium within approximately 25 years. Residual drawdown of up to 5 m would remain across most of the shallow alluvium. In the Ulan seam, mounding of up to 5 m is predicted to occur above the project area, and up to 2 m in areas to the north-west. However, the propagation of mounding into the shallow alluvium would only occur in several small areas across the project area as the potentiometric gradient would be away from the spoil areas and flow towards the north-east (see **Figure 19**).

259. Areas of mounding in the shallow alluvium are not predicted to present a risk of waterlogging to GDEs as the remaining depth between the surface and mounded water levels is predicted to be greater than 4 m.

Water Quality

260. The project's key risks to water quality relate to groundwater flowing through completed pits that have been backfilled with waste rock and coal rejects. The groundwater assessment concludes that these risks are unlikely to adversely impact downstream water quality because:

- waste rock material would be non-acid forming;
- sampling of representative overburden indicates low levels of dissolved trace metals/metalloids;
- potentially acid forming reject material would be handled in accordance with existing procedures to avoid oxidation.

261. The IESC recommended the establishment of additional alluvial monitoring bores and surface water monitoring sites along Moolarben Creek, including upstream of the confluence with Lagoon Creek and downstream of the Murdering Creek confluence. The IESC also recommended that water quality monitoring be conducted every 6 months during operations.

262. MCO agreed to these recommendations noting that the groundwater assessment presented a range of proposed monitoring sites in the alluvium/paleochannel, Triassic and mine spoil.

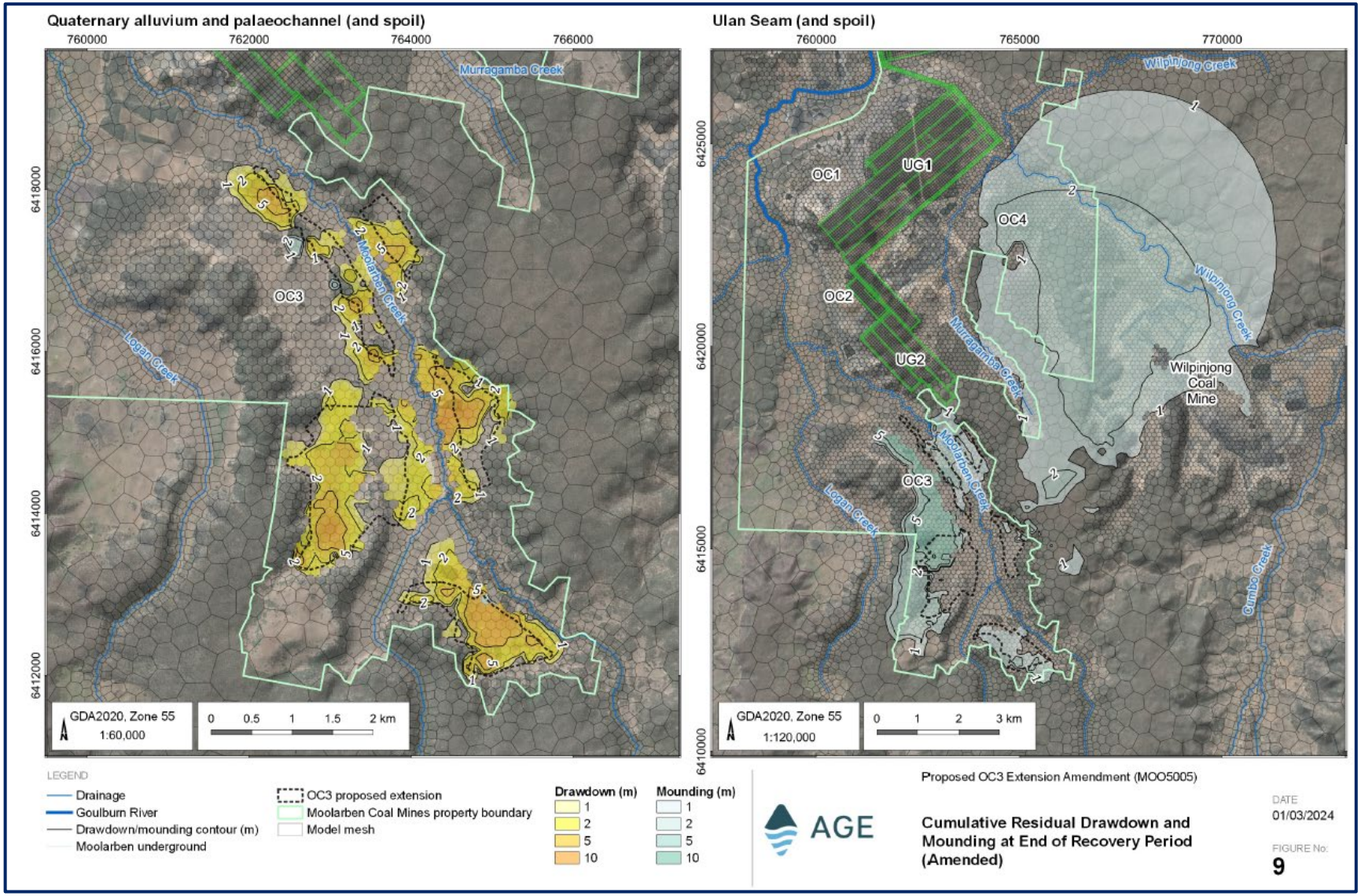

Figure 19 | Residual drawdown and mounding

6.2.2.4 Groundwater Dependent Ecosystems

Riparian vegetation

263. The project area contains large areas of PCT 281 *Rough-barked Apple - Red Gum - Yellow Box Woodland*, a species that is identified as a groundwater dependent ecosystem due to its ability to partially rely on groundwater sources. Drawdown in the shallow alluvium therefore has the potential to impact on this community.

264. Approximately six ha of PCT 281 is located within the predicted 2 m drawdown contour, predominantly in areas along Moolarben Creek (see **Figure 20**).

265. The groundwater assessment included an analysis of six locations along Moolarben Creek where predicted drawdown was compared to surface topography. Based on the estimated depth of the water table, the analysis concluded that:

- riparian vegetation is unlikely to be reliant on groundwater, with the exception of large trees with deep root systems during dry periods; and
- drawdown associated with the project would be similar to natural variation of the water table that has been observed at other monitoring bores across the complex.

266. As discussed above, the Mining Panel and the IESC advised they had low confidence in the groundwater models' predictions of local scale impacts, noting that impacts could be greater than predicted and some areas of the shallow alluvium could be dewatered or become ephemeral. This outcome could reduce the volume of groundwater available for riparian vegetation.

267. MCO subsequently engaged Dr Colin Driscoll to further explore the nature of GDEs within the project area. Dr Driscoll also inspected a number of areas within the complex where vegetation equivalent to PCT 281 had been subject to potential drawdown impact. Dr Driscoll concluded that:

- no impacts were observed to vegetation equivalent to PCT 281 near previous and current open cut mining operations;
- areas of PCT 281 within the project area are facultative[15], rather than obligative[16];

[15] A facultative GDE is an ecosystem that relies on groundwater partially or intermittently, rather than continuously

[16] An obligate groundwater dependent ecosystem (GDE) is an ecosystem that requires access to groundwater at all times to maintain its function

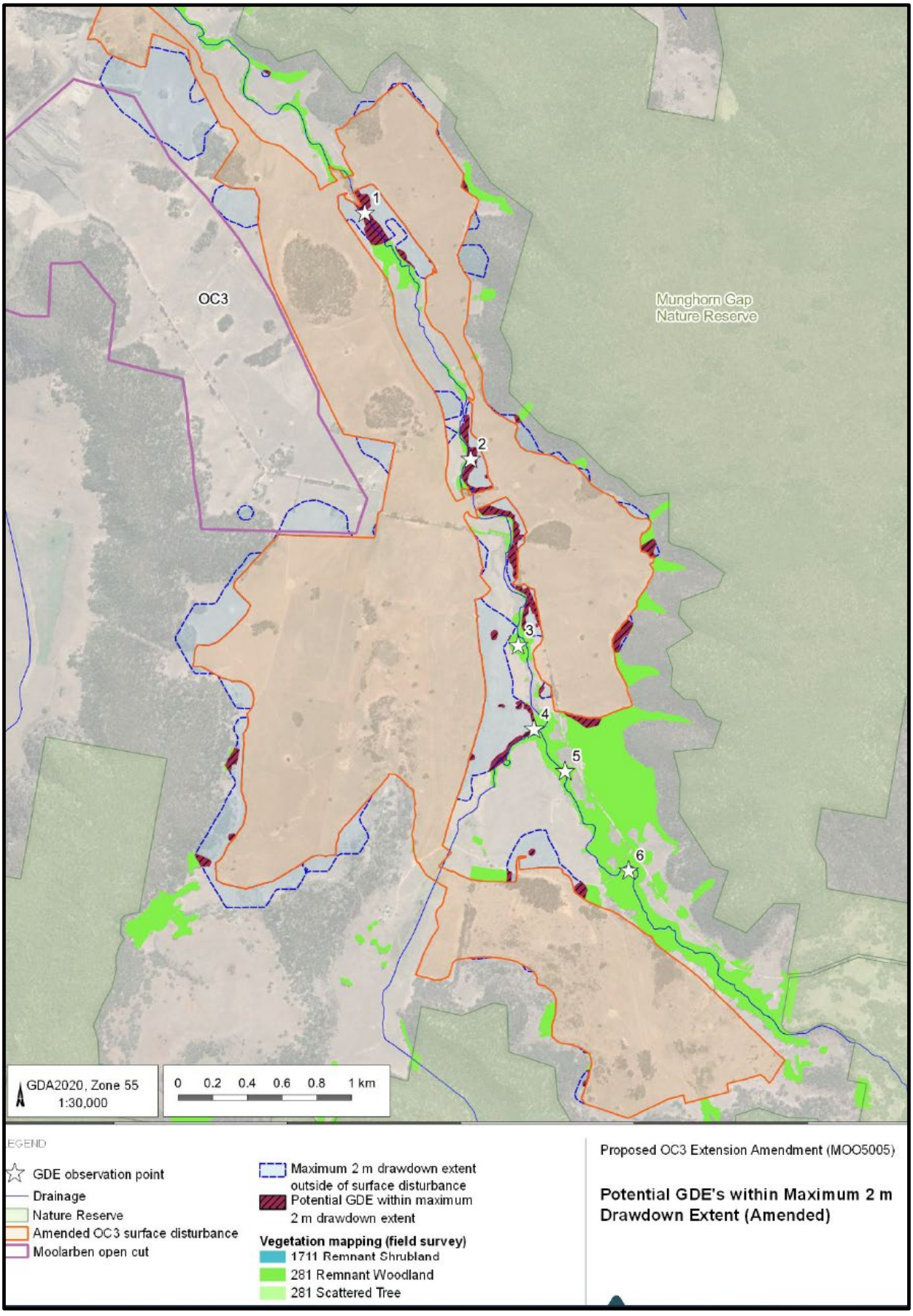

Figure 20 | Potential GDE's within maximum 2m drawdown extent

- some areas of PCT 281 would be more susceptible to drawdown impacts than others based on the location in relation to open cut mining (ie where mining occurs on both sides);
- soil moisture levels on the valley floor are high due to surface water runoff from the elevated ridges;
- the water requirements of the trees adjacent to the creeks are likely to be primarily or exclusively accessing baseflow water along with soil moisture from direct precipitation, which would continue given the 200 m setback of mining from the creek lines; and
- it is unlikely that the condition of these trees will decline as a consequence of any groundwater loss due to the adjoining mining.

268. Whilst the Mining Panel generally agreed with some of Dr Driscoll's findings, they noted that there may be no baseflow if drawdown is greater than predicted and shallow groundwater drains. On this basis, the Mining Panel concluded a moderate risk to shallow groundwater beneath the alluvial flats remains that could potentially affect facultative GDEs (pg 10 – Report No: IEAPM 202508-2).

269. The Mining Panel advised that this risk could be effectively managed through the development of an extended alluvial monitoring network and trigger action response plan, including early detection of declining water levels. Additionally, the Mining Panel recommended that at least 12 months of baseline data is collected from the extended monitoring network prior to the commencement of mining and that the groundwater model be updated and recalibrated with this data. This update will facilitate improved predictions and conceptualisation of the hydrogeologic environment. MCO agreed to these recommendations.

Elevated Springs and Seeps

270. A number of springs have been identified in the elevated catchments of Moolarben and Murdering Creeks, within and adjacent to the Munghorn Gap Nature Reserve. These springs present as discharges from the sandstone or soaks at the edges of basalt caps and are potential terrestrial GDEs.

271. The groundwater assessment concluded that there would be no impacts on GDEs associated with these springs due to their separation from the deeper Permian strata and regional groundwater table.

272. The Mining Panel generally agreed that these systems would be unlikely to be impacted by open cut mining at lower elevations, however advised that it could not accept this hydrogeologic conceptualisation without actual monitoring data.

273. In response to this advice, MCO engaged Mr Peter Dundon to further analyse the hydrogeologic conceptualisation of the project area. This analysis concluded that connection between to the Triassic and Permian strata could not occur for a number of reasons (refer to pg 52 and 53 of MCO Additional Information July 2025). Upon review of this information, the Mining Panel concluded that there is a low to negligible risk that spring discharges and associated groundwater dependent vegetation would be impacted.

274. MCO has committed to expanding its monitoring network to include three additional monitoring piezometers in the Triassic strata. The Mining Panel recommended that three of these sites also extend into the deeper Permian strata to monitor regional depressurisation and the surface groundwater connection. The Department has recommended conditions to this effect, should the IPC determine to approve the project.

6.2.2.5 Water Licensing

275. Drawdown associated with the project would require water allocation under relevant water sharing plans, including the *Sydney Basin-North Coast Groundwater Source* and *Upper Goulburn River Water Source*.

276. MCO has advised that it holds existing entitlement in these water sources for amounts specific to the project, however, further allocation may be required to account for maximum predicted take across the complex. MCO advised that trading opportunities existing with a number of Yancoal-owned assets which could meet allocation requirements. Additionally, MCO propose to continue to review and refine groundwater modelling predictions and allocation forecasting.

277. MCO would be required to obtain all necessary licences for the development in accordance with the *Water management Act 2000*. The Department has, should the IPC determine to approve the project, recommended a condition requiring MCO to operate the project commensurate with available water supply.

6.2.3 Surface water

6.2.3.1 Existing Setting

278. The project area is located within the upper Goulburn River catchment. Moolarben Creek and Murdering Creek lie in between the proposed pits and flow in a northerly direction to meet Sportsman Hollow Creek in Ulan which form part of the headwaters of the Goulburn River. Moolarben Dam is located 1.5 km upstream of the Sportsman Hollow Creek confluence.

279. Moolarben Creek experiences periods of low flow for approximately 88% of the time. Stream flow in the Goulburn River is heavily influenced by release from Moolarben dam and licenced discharges from the complex and the Ulan Coal Mine.

280. The project is proposed to be set back 200 m from the high bank of Moolarben Creek and Murdering Creek which are fourth order streams as per the Strahler order system. Third order streams are proposed to be diverted around the project area, however, a number of lesser order ephemeral drainage lines would be disturbed, including Spring Creek and minor tributaries of Moolarben Creek. MCO propose to backfill all mining pits upon their completion to form a free-draining landform.

281. The management of water associated with project would integrate with the existing complex water management system. This system includes the capture of mine water and runoff from disturbed areas and re-use in various applications, including coal washing and dust suppression. Supplementary water is treated at an onsite water treatment plant and discharged into the receiving environment in accordance with MCO's environment protection licence.

6.2.3.2 Catchment Loss

282. The project would result in catchment loss during mining due to the capture of water within the project area. Table 12 summarises the predicted extent of catchment loss under a project only and cumulative scenario. The cumulative scenario includes approved operations at the complex, and the Ulan and Wilpinjong mines.

Table 12 | Predicted Catchment Loss

Catchment	Predicted catchment loss – Project only (km^2)	% Loss – Project only	Predicted catchment loss - Cumulative (km^2)	% Loss - Cumulative
Moolarben Creek (downstream of complex)	12.5	11%	22.5	20%
Goulburn River (downstream of complex)	12.5	4.1%	29.5	10%
Murdering Creek	0.45	6.4%	n/a	n/a

283. Catchment losses in the project area would occur for a period of ten years, during mining. Backfill and rehabilitation of the project area and the existing OC3 pit would restore the

affected catchment areas and reduce catchment excision of Moolarben Creek associated with the approved OC3 pit void (ie 24 ha).

284. Based on the predicted catchment losses, the greatest impact on stream flow is predicted to occur in Moolarben Creek immediately downstream of the project, where the frequency of medium flow events (ie where flows are between 1 to 100 ML/day) would reduce by up to 0.18%. Additionally, periods of low flow would increase by 0.12%.

285. The surface water assessment concludes that that resultant impacts on flow events as a result of the project would be negligible, and environmental values would not be impacted. The Mining Panel agreed that the predicted reductions would not have a discernible impact on flow within Moolarben Creek and downstream of the project.

286. The Department has recommended performance measures requiring negligible environmental consequences beyond those predicted in the EIS for aquatic and riparian ecosystems and that MCO prepare and implement a water management plan that incorporates trigger levels and monitoring of stream flow in surrounding watercourses.

6.2.3.3 **Creek Crossings**

287. Moolarben Creek and its tributaries within the project area are mapped as 'Key Fish Habitat' under NSW DPI *Key Fish Habitat mapping for the Mid-Western Regional Council*. However, the presence of Moolarben Dam is noted to restrict fish passage. Targeted surveys identified a range of aquatic macroinvertebrates, three fish species and one turtle species. No threatened fish species were recorded.

288. The project would include three haul road creek crossings across Moolarben and Murdering Creeks. The crossings would range between 90 m and 306 m wide and would directly impact riparian vegetation and aquatic habitat. An aquatic ecology assessment included in the EIS concluded that the project would be unlikely to have a significant impact on aquatic ecology, submitted to a range of mitigation measures.

289. Department of Primary Industries (DPI) – Fisheries raised no residual concerns with the project's potential impacts and advised that adequate riparian buffer zones would be maintained adjacent to the watercourses. DPI Fisheries recommended that environmental management plans are prepared to minimise the extent of in stream disturbance, re-establish habitat features and monitor stream health. The Department has recommended conditions to this effect should the IPC determine to approve the project, including performance measures for enhancement of the riparian zone within the Habitat Enhancement Area.

6.2.3.4 **Water Management**

290. To accommodate the water requirements of the project, MCO propose to construct additional dams and sediment basins to hold mine water and runoff. The project would integrate with the existing water management system at the complex allowing the transfer and storage of water between them.

Brine Management

291. Between 2025 and 2028, brine generated from the existing water treatment plant would be transferred temporarily to an existing mine water dam in the approved OC3 mining area (dam 302). This activity would be undertaken in accordance with the Stage 1 consent. However, the surface water assessment identifies that there is a 3% to 6% likelihood that excess brine would need to be transferred to the project area (ie proposed dam 316) in scenarios where Dam 302 reaches capacity.

292. EPA recommended that new brine storages are appropriately lined and managed as per existing conditions of the Stage 1 consent. MCO agreed to this recommendation and noted brine would be managed in accordance with the approved brine management plan for the complex which was prepared in consultation with hydrogeological experts and the EPA.

293. The Department has recommended performance measures for appropriate lining of brine storage within the project area and for management details to be documents in a water management plan, should the IPC determine to approve the project.

Water Balance

294. Site water balance modelling was conducted for the total OC3 area which included existing approved water management structures and proposed components of the project. Modelling was undertaken using 121 scenarios including variable climatic assumptions. The annual average of these scenarios indicates that there would be:

- surplus water of between 31 and 220 ML/year in project years 1 to 3 and 6 to 10; and
- a deficit of 291 ML/year in project years 4 and 5.

295. Due to the low value of these inventory predictions, the surface water assessment concludes that the water management system would generally be in balance. Integration of the project with the existing complex would enable excess or deficit water inventory to be transferred between the areas to maintain balance.

296. MCO propose to construct a contingency mine water dam within the project disturbance footprint (ie dam 316) to hold excess water if required during wet climatic conditions. This

would more likely to be required during the earlier years of the project, when dam 302 would be isolated for temporary brine storage. Additionally, in-pit storage (ie up to approximately 60 ML) may be required during years 5 to 7 when three of the proposed open cut pits would be active concurrently.

297. Between 2027 and 2034, modelling indicates that the complex (including the project) would require up to 1,400 ML of external water supplies would be required during a 99th percentile dry year. MCO currently sources supplementary water from the Ulan Coal Mine under a water sharing agreement. This activity does not form part of the project but would continue as required to meet water demands for the complex.

298. The Department has, should the IPC determine to approve the project recommended a condition requiring MCO to adjust the scale of the project to match its available water supply. The Mining Panel had no comments on the site water balance.

Water storages

299. The surface water assessment concludes that no mine water / brine dams associated with the project would overflow to the receiving environment, under any climatic scenario. However, some overflows of sediment dams to Moolarben Creek may occur during wet (10th percentile) and very wet (1 percentile) climatic conditions.

300. Due to the existing levels of salinity recorded at downstream locations these overflows are not predicted to impact water quality of Moolarben Creek. Specifically, the estimated maximum salinity of the sediment dams is predicted to sit below the 20th percentile values in two downstream monitoring locations (SW07 and SW09).

301. The EPA and the IESC acknowledged that overflows could occur where conditions exceed design specifications and recommended surface water quality monitoring in Moolarben Creek, Goulburn River and onsite dams. The Department has recommended conditions to this effect as well as performance measures for sediment basins to be designed, installed and maintained in accordance with *Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom, 2004) and 2E Mines and Quarries (DECC, 2008)* and the requirements under the POEO Act.

302. In addition to two existing surface water quality monitoring sites (SW08 and SW09), MCO has proposed to install an additional three monitoring sites on Moolarben Creek and Murdering Creek. The Mining Panel considered these additional sites appropriate for assessing potential water quality impacts from the project. The Mining Panel also recommended that trigger actions response plans are developed for these sites after 18 months of baseline data is collected.

6.2.3.5 Flooding

303. The project would result in some increases in localised flood depths and velocity in the vicinity of the three proposed haul road creek crossings. Culverts associated with the crossings would constrain flow immediately upstream, which would increase flood levels by behind the crossings by between 1.3 m and 3.5 m in a 1% AEP event. Additionally, flood levels downstream of Moolarben Creek would reduce by approximately 1.2 m as a result of the culverts and reduced catchment inflows to Moolarben Creek.

304. The proposed creek crossings were designed to maintain freeboard under all AEP scenarios modelled (ie 10%, 5% and 1% AEP), factoring in variability for climate change scenarios. Temporary flood bunds are also proposed along haul roads adjacent to Moolarben Creek.

305. Overall, the project is not predicted to result in additional impacts downstream of the project or at any private receivers.

6.2.4 Management and Mitigation

306. Key groundwater management measures relate to the expansion of the groundwater monitoring network and trigger level response processes. MCO has proposed to install a range of new monitoring sites is the various strata layers, including additional sites recommended by the Mining Panel and IESC. MCO also propose to prepare a Groundwater Management Plan, including trigger action response plans for water levels, quality and groundwater dependent ecosystems.

307. The Mining Panel considered that 12 months of baseline data should be collected from new monitoring bores, prior to the commencement of mining in the stage 1 area, and that the groundwater model and predictions are subsequently revised using this additional data.

308. The process of updating and revising groundwater predictions is considered a supplementary exercise to 'validate' and improve confidence in the predictions of the groundwater assessment. The Department has, should the IPC determine to approve the project, recommended stringent water performance measures based on the impacts predicted in the various assessment documentation submitted for the project. Despite any revised predictions, MCO would be expected to comply with the recommended performance measures.

309. Key surface water management measures also include monitoring surface water through an expanded monitoring network, a surface water management plan, segregating clean water runoff, maximising re-use, on site water storage and water balancing with the existing complex.

310. The Mining Panel recommended that both the surface water and groundwater management plans are updated within 18 months of installing the new monitoring networks, including specific trigger action response plans that reflect baseline data collection. The Department has recommended conditions to this effect, should the IPC determine to approve the project.

6.2.5 Conclusion

311. The project would present a range of potential impacts on groundwater and surface water resources. Most impacts would occur within or proximal to the project area and no impacts on private water-users are predicted.

312. Local scale predictions of the groundwater model were queried by the IESC and the Mining Panel, where up to 5 m of residual drawdown is predicted to remain in the shallow alluvium. No impacts on private-water users are predicted, however, management measures are required to mitigate risks to deep-rooted vegetation tapping into baseflow in Moolarben Creek.

313. No significant impacts are predicted to result from the establishment of creek crossings, changes to flood regimes and catchment loss. Additionally, on site water is predicted to be managed under a water management system to be integrated with the existing complex.

314. The Mining Panel provided a number of recommendations including expanding the proposed groundwater and surface water monitoring network, collecting additional baseline data and updating the groundwater model with 18 months. Additionally, the Mining Panel and IESC recommended the development of trigger levels within a surface water and groundwater management plan.

315. The Department has carefully considered the project's potential impacts on water resources, including concerns raised in public submissions and advice from government agencies and experts. The Department considers that the water-related impacts of the project could be appropriately managed through conditions of consent, should the IPC determine to approve the project, which incorporate recommendations from the Mining Panel. Key recommended conditions include:

- strict water performance measures, including no material harm on alluvial aquifers and groundwater dependent ecosystems beyond predictions in the EIS;
- the collection of at least 12 months of baseline data from the extended monitoring network prior to the commencement of mining,
- updated groundwater modelling and predictions within 18 months of the establishment of the expanded monitoring network; and

- an extensive water management plan, including trigger action response plans for groundwater dependent ecosystem and alluvial aquifers.

6.3 Greenhouse gas

6.3.1 **Introduction**

316. The project would generate greenhouse gas emissions from the extraction and burning of coal. Most submissions raised concern that the project would be inconsistent with the Commonwealth Government's commitments under the Paris Agreement 2015 as well as statewide goals to reduce greenhouse gas emissions.

317. The EIS included a Greenhouse Gas Assessment which was peer reviewed by Mr David Blyth of GHD. The assessment was subsequently updated in the Amendment Report, titled *Air Quality and Greenhouse Gas - Addendum Report* (November 2023). The assessment framework was based on the methodologies and emission factors contained in the *National Greenhouse Accounts Factors 2022* (NGAF). Content and discussion within both assessment documents are of relevance, which are herein referred to as the 'greenhouse gas assessment' (GHGA).

318. During the assessment process, the Department requested that MCO provide further consideration of how the project addresses commitments under the Paris Agreement 2015, with particular consideration of Scope 3 emissions, as well as additional information to demonstrate how the project would affect emission reduction targets given legislative force by the Climate Change Act.

319. In February 2025, the EPA released the *NSW Guide for Large Emitters* which sets out assessment requirements for projects that are likely to emit 25,000 tonnes or more of scope 1 and 2 emissions of carbon dioxide equivalent (CO_2-e) in any financial year.

320. Transitional arrangements stipulate that the guide does not specifically apply to projects that had progressed beyond the EIS stage as of 20 May 2024. This was the date that the consultation draft guide was published. The project's EIS (November 2022) and subsequent Amendment Report (March 2024) were submitted prior to this date and therefore the *NSW Guide for Large Emitters* does not strictly apply to the project. Nonetheless, the EPA and the Department consider the guide sets out relevant considerations that can be used to inform the project's assessment.

321. The Department notes in this regard the Ministerial Statement issued 20 May 2024 titled "Updates regarding Net Zero Plan Stage 1: 2020-2030 and previous Implementation Updates", which provides that the EPA's guidelines for high-emitting projects "must be taken into consideration by proponents as part of the planning assessment process".

322. The Department has also carefully considered a range of other relevant legislation, policy and reporting including (but not limited to) the Climate Change Act, NSW EPA Climate Change Policy, the Net Zero Commission's *2024 Annual Report* (November 2024), advice letter (September 2025) and *Coal Mining Emissions Spotlight Report* (Spotlight Report, December 2025), the DCCEEW's *NSW greenhouse gas emissions projections 2024 – Methods paper* (April 2025) and the *Strategic Statement on Coal Exploration and Mining in NSW* (2020).

323. The Department sought advice on the GHGA from the EPA, including from the Net Zero Emissions Modelling team within the Climate and Atmospheric Science (CAS) group. Following several recommendations that were subsequently addressed by MCO, EPA confirmed that the calculation of emissions was performed correctly.

324. The Department also requested the Mining Panel undertake a comprehensive review of the GHGA, including the proposed avoidance and mitigation measures to minimise scope 1 and scope 2 emissions. The Mining Panel also performed check calculations of estimated diesel and fugitive emissions and advised that the estimated contributions were adequately quantified.

325. On this basis, the Department considers the information contained in the GHGA is consistent with the relevant guidelines and is acceptable to assess the greenhouse gas impacts of the project. A summary of the key reports and advice relevant to greenhouse gas emissions impacts is provided in Appendix A.

6.3.2 Sources and Emissions

326. The project would generate additional greenhouse gas emissions, including:

- 490 kt CO_2-e of scope 1 emissions through diesel combustion, fugitive emissions, land clearance, and use of oil, grease and explosives;
- 50 kt CO_2-e of scope 2 emissions from the use of electricity; and
- 64,060 kt CO_2-e scope 3 emissions generated by third parties who transport and consume the coal product.

327. Due to the low gas content and shallow depth of the target coal seam, fugitive emissions would represent a small proportion (~6%) of scope 1 emissions. Diesel combustion from machinery would be the main contributor (~72%) of scope 1 emissions, with the balance (~23%) attributed to between oil, grease, explosives and land clearance.

328. Scope 1 emissions intensity is calculated to be ~0.0158 t CO2-e /t ROM coal. This level of emissions intensity is comparatively low to other mining operations in NSW, as well as the Safeguard Mechanism default baseline emissions intensity (0.0653 t CO2-e/t ROM).

329. Scope 3 emissions would account for the majority of emissions associated with the project (~99%) predominantly through the consumption of coal overseas for power generation. Emissions associated with burning coal to produce electricity are also accounted for by the country conducting that activity (i.e. one entity's Scope 3 emissions are another entity's Scope 1 emissions).

6.3.3 Mitigation, Minimisation and Management

330. The *NSW Guide for Large Emitters* requires applicants to apply to a mitigation hierarchy to make genuine efforts to avoid and reduce emissions. The project footprint is largely constrained by the location of the coal resource and has been subject to two distinct attempts to avoid impacts on biodiversity values.

331. In comparison to the EIS, the amended project footprint would reduce the extent of total greenhouse gas emissions by ~25%. This included reductions of 19% in scope 1 emissions, 72% of scope 2 emissions and 25% of scope 3 emissions. The Department understands that the significant reduction of scope 2 emissions is predominantly attributed to updated emissions calculation methodology in accordance with AG DCCEEW guidelines and the expected rapid decarbonisation of the NSW electricity grid.

332. MCO propose to manage greenhouse gas emissions through its existing Greenhouse Gas Minimisation Plan (GHGMP). This plan is a requirement of the Stage 1 and Stage 2 consents and requires the investigation of short to medium term measures to minimise emissions from underground mining and inform continuous improvement of minimisation measures. Due to the low-gas concentration of the target seam, the plan identifies that beneficial capture and reuse controls are not feasible, although it would continue to be reviewed every three years. Both EPA and the Mining Panel agreed that capturing gas through pre-drainage would not be beneficial or practicable, and mitigation options for fugitive emissions are highly constrained.

333. The GHGA identifies mitigation controls relating to diesel consumption, including:

- optimising mine plans, haulage distances and re-handling;
- maximising equipment productivity and mining yields, including investigating the potential to replace standard diesel fuel with biodiesel;
- regular maintenance of equipment and plant; and
- investigate feasibility of sourcing on-site electricity from renewable energy sources.

334. Peer review of the GHGA by Mr Blyth concluded that the option for electrification of mine fleet is not feasible due to the short project timeframe and current availability of battery electric mobile equipment. The Mining Panel agreed with this conclusion noting that it is likely to be

some years before hybrid battery/diesel power sources become technologically and commercially ready for implementation.

335. EPA advised that the management measures proposed in the GHGA did not reflect an adequate plan for comprehensive greenhouse gas minimisation. The Mining Panel shared this view and recommended that the existing Greenhouse Gas Minimisation Plan is updated to include open cut and underground mining for the complex life, project emissions intensity against the Safeguard baseline, monitoring and reporting of emissions categories and continual review of reduction options.

336. EPA advised that MCO would be required to prepare and implement a Climate Change Mitigation and Adaption Plan, in accordance with its Climate Change Policy regulatory framework. This would include measurable emission goals, a detailed energy efficiency plan, and monitoring and reporting requirements.

337. Additionally, the project would integrate with the complex as a Commonwealth Safeguard facility and would be subject to a declining emissions intensity baseline or carbon offset requirements, in accordance with the *National Greenhouse and Energy Reporting Act 2007*. Advice from the Mining Panel stated that "*The mine's greenhouse gas emissions intensity is among the lower in the coal mining industry. It is well below the industry average and will generate Safeguard Mechanism Credits for most of the project life"* (Mining Panel Advice – April 2025 pg 43).

338. The Department accepts that reasonable avoidance, mitigation and management measures have been evaluated and that the recommended Climate Change Mitigation and Adaptation Plan, as guided by the EPA, would be appropriate for the ongoing management and minimisation of greenhouse gas emissions for the project and broader complex.

6.3.4 Climate Change Impacts

International and National

339. The project would generate a total of 64.6 Mt CO_2-e, inclusive of Scope 3 emissions, reflecting an annual average of ~6.5 Mt CO_2-e. This would represent ~0.012% of total global anthropogenic greenhouse gas emissions in 2023.

340. As discussed in **Section 3.3** of this report, in June 2022 the Commonwealth Government reaffirmed its commitments under the *Paris Agreement 2015* to reduce greenhouse gas emissions by 62-70% from the 2005 level by 2035 and reach a target of net zero emissions by 2050. The strategy and actions to achieve this commitment are set out in *Australia's Long Term Emissions Reductions Strategy 2022*, which includes the NGERS.

341. Under the NGERS, the complex is a participant of the Safeguard Mechanism being a facility that emits over 100,000 tonnes of carbon dioxide equivalent (t CO_2-e) per year (refer to **Section 3.3**). MCO would be required to incorporate the project into to the existing facility to operate as one complex under the Safeguard Mechanism.

342. The Safeguard Mechanism requires MCO to reduce the emissions intensity of its operations relative to an approved intensity level, which is annually declining and applies irrespective of ROM coal tonnages. The facility-specific intensity baseline for the existing complex is 0.008373 t CO_2-e /t ROM. This baseline is over 7 times lower than the Safeguard default emissions intensity of 0.0653 t CO_2-e/t ROM. This is due to the low gas content and shallow depth of the target coal seam.

343. The Department acknowledges that the Safeguard Mechanism does not preclude the need to properly understand the potential greenhouse gas impacts of proposed new or significantly modified proposals within NSW (that is, the new sources of emissions that will be released in NSW and how they are expected to change over time) and to ensure all applicants are adequately avoiding, minimising and managing their emissions over all stages of development (where development approval is granted).

Scope 3 emissions

344. The consideration of downstream (Scope 3) emissions is a requirement of *State Environmental Planning Policy (Resources and Energy) 2021*. MCO advised that 100% of its product coal would be exported to international customers, except if directed otherwise by the NSW Government as per coal reservation policies. Based on export history, MCO anticipates product coal will predominantly be directed to Asian markets in the short to medium term. Key receiving countries include China (65%), South Korea (10%), Taiwan (10%), Thailand (5%) and Japan (5%).

345. With the exception of Taiwan, these countries are all party to the Paris Agreement and have commitments in place to reduce emissions by 2050. Taiwan is not party to the Paris Agreement as it is not recognised as a sovereign state by the United Nations. However, the country has published its own supporting documents setting standards for emissions reductions in support of the Paris Agreement.

346. **Table 13** provides a summary of the anticipated proportion of coal export as well as a summary of key initiatives to meet international emissions reductions commitments. The degree to which these countries are on track to meet these targets is variable and evolving.

Table 13 | Summary of key importing country emissions reductions targets / strategies

Country	Targets	Strategies
China	• Reduce economy-wide net greenhouse gas emissions by 7 to 10 % from peak levels by 2035. • Increase non-fossil fuels energy consumption to over 20% by 2035. • Net Zero by 2060	• Renewable energy development • Mainstream new energy vehicles • Decarbonise existing coal-fired power plants
South Korea	• Between 53 to 61% reduction in greenhouse gas emissions below 2018 levels by 2035. • Net zero emissions by 2050	• Phase out of 40 coal fired-power stations by 2040 • Promote carbon capture for remaining coal use • Transition towards renewables and nuclear as primary sources
Taiwan	• Peak emissions before 2030 • Reduce greenhouse gas emissions by 47% from 2019 levels by 2035 and net-zero by 2050	• Increase natural gas usage • Improving efficiency of coal-fired power stations • Expanding renewable energy • Carbon capture and storage
Thailand	• A 30% reduction in greenhouse gas emissions compared to the BAU projection by 2030 • A 40% reduction in greenhouse gas emissions compared to the BAU projection by 2030 • Carbon neutrality by 2050 and net zero emissions by 2065	• Retirement of inefficient coal-fired units • Exploration of alternative technologies to co-fire gas and coal plants
Japan	• A 46%, 60% and 73% reduction in greenhouse gas emissions below 2013 emissions by 2030, 2035 and 2040 respectively. Net zero by 2050	• Retirement of inefficient coal-fired units • Use of decarbonised fuels for co-firing power stations

347. In July 2025, the EPA published a consultation draft Greenhouse Gas Mitigation Guide for NSW Coal Mines. This guide acknowledges that there is difficultly for coal mining companies to reduce scope 3 emissions from the downstream use of coal as the end result is always combustion. However, the guide identifies a range of opportunities where applicants could reduce scope 3 emissions, including:

- selling coal to buyers who have lower emissions intensities and strong emission reduction policies;
- reducing upstream emission through purchasing policies that opt for more sustainable suppliers and transport providers;
- optimising transport routes for coal exports; and
- supporting research and development for low emissions technologies.

348. The guide acknowledges that it is beyond EPA's remit to include specific requirements or limitations on coal mines around the end use of coal. The Department recognises this factor noting that the imposition of conditions of consent regarding minimising scope 3 emissions would be beyond a degree of control that an applicant could successfully achieve. Nonetheless, the Department strongly encourages the applicant to consider and implement these opportunities where possible.

349. In considering this matter, the Department acknowledges that all but one (ie Taiwan) of the key importing countries identified above submitted updated National Determined Contributions plans at the latest Conference of Parties thirtieth meeting (COP30) for the UNFCCC.

State

350. The Climate Change Act has established emissions reduction targets for NSW, including reductions of at least 50% from the 2005 level by 2030, 70% by 2035 and reaching a target of net zero emissions from NSW by 2050. In 2023, the EPA released the *NSW Climate Change Policy* and *Climate Change Action Plan 2023-26* which adopts, supports and builds on these climate change targets and provides a framework to support industry to decarbonise and build greater preparedness and resilience to climate change risks.

351. The Climate Change Act also includes guiding principles. The Department notes these principles apply to 'action to address climate change' and have been written primarily to guide the strategic direction of the NSW Government to develop the relevant strategies, policies and programs as identified in Principle 10(a). The Department has considered each principle to the extent relevant in Appendix B.

352. The NSW Government's relevant climate change strategies and policies that have been developed in consideration of the guiding principles form a key component of the Department's assessment.

353. The latest emissions projections from DCCEEW indicate that NSW emissions reduction will fall short of targets under the current policy scenario, reaching 46% by 2030 and 62% by 2035. Emissions associated with the project were included in these projections.

354. Emissions projections were supported by DCCEEW's *NSW greenhouse gas emissions projections 2024 – Methods paper* (Methods Paper, April 2025), which identified an increase in coal mining emissions to 2030 followed by a downward steady trend reflecting reduced mining activity, mine closures and feasible abatement measures.

355. An additional scenario was modelled to project coal mining emissions factoring in Commonwealth obligations under the Safeguard Mechanism. Under this scenario, it was

acknowledged that the sector's emissions reduction trend would be generally consistent with its historical declining trend, assuming obligations under the Safeguard Mechanism are met in all years going forward. The scenario was modelled based on coal mining applications in the planning system which included the emissions from approved projects.

356. **Table 14** identifies the project's estimated contribution to the NSW emissions reductions targets. It also identifies the estimated contribution that would occur for the total complex (including the project) during the target years.

Table 14 | Estimated Scope 1 project and complex contribution to NSW emissions reductions targets

Year	2030	2035
Total Projected NSW Emissions (Mt CO_2-e)	81.31	49.14
Project Emissions (Mt CO_2-e)	0.03	<0.01
Project only (%)	0.04	<0.01
Complex* Emissions (Mt CO_2-e)	0.20	0.06
Complex* (%)	0.23	0.12

*Estimated approved complex emissions plus the project

357. MCO estimate that the project scope 1 emissions would account for 0.04% of NSW emissions in 2030. Mining in the project area is schedule for completion in 2034 and therefore lesser amounts of emissions are predicted to contribute in 2035 during decommissioning. However, emissions from the broader complex during this year would still contribute approximately 0.12%.

358. The former NSW Government's *Strategic Statement on Coal Exploration and Mining in NSW* (Strategic Statement) recognises the value of continued coal production to the State including the potential for coal production to deliver significant economic benefits to regional communities, to contribute to export earnings, and to fund public services and infrastructure through mining royalties.

359. The Strategic Statement also sets out that, despite the global transition away from fossil fuels, coal production for export markets will continue to have an important role to play in the short to medium term as coal remains a critical global energy source around the world. The Department acknowledges that the NSW Government is currently reviewing the Strategic Statement which may be subject to revision.

360. The demand for coal and its associated benefits versus the need to reduce greenhouse gas emissions is a complex issue requiring careful consideration. The ability of existing mining operators to minimise Scope 1 and Scope 2 emissions to the greatest extent practicable is important.

361. The Department acknowledges that under the current development assessment regime in NSW, coal mines and other large emitting projects will result in incremental and cumulative contributions to greenhouse gas emissions. A key question for decision makers is whether that contribution can be appropriately managed under the NSW policy framework so that the State objective for net zero emissions is not compromised.

362. The project (and broader complex) benefits from low gas geological conditions and shallow depth of cover, which generate significantly less scope 1 emissions than other coal mines in NSW. This is reflected in **Figure 21** which compares the project and complex scope 1 emissions intensity to other mines in NSW.

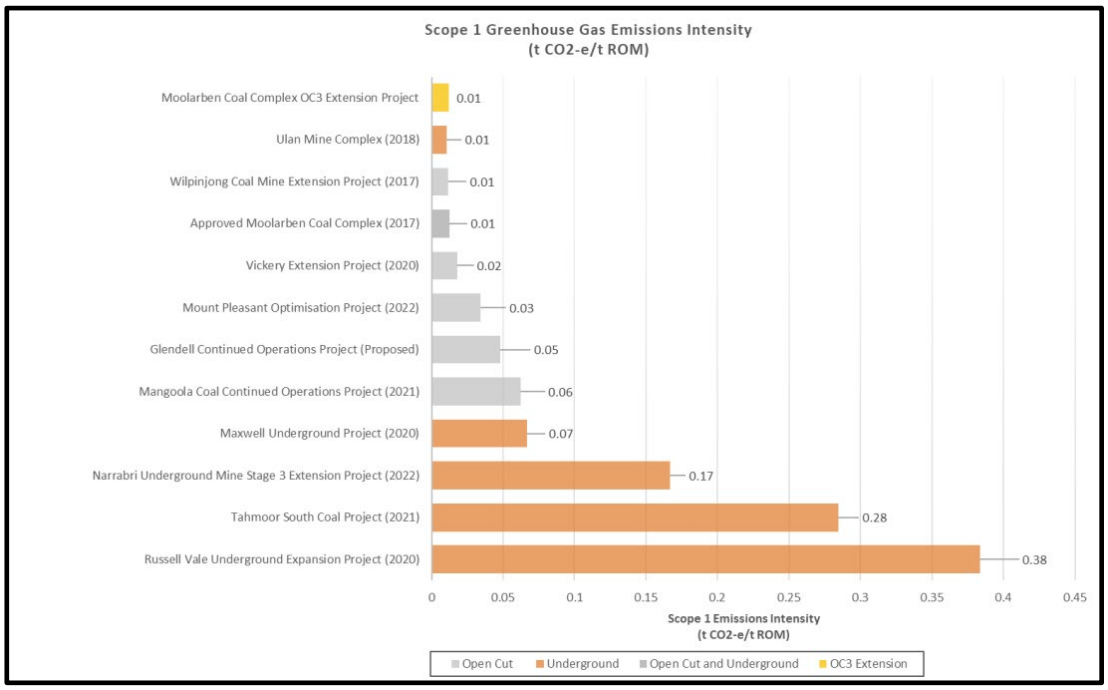

Figure 21 | Emissions intensity comparison

363. The regulation of greenhouse gas emissions in NSW is in a transitional state towards the EPA leading regulation under the *Protection of the Environment Operations Act 1997*. Under this framework, MCO will be required to prepare a Climate Change Mitigation and Adaption Plan (CCMAP), where emissions reduction initiatives and monitoring will be managed through an environment protection licence (see **section 6.3.3**).

364. The Department has consulted closely with the EPA during the assessment of the project who did not raise any specific concerns with the project's overall emissions generation in the context of the NSW Climate Change Policy framework.

365. EPA recommended a condition, should the IPC determine to approve the project, requiring MCO to prepare a separate Greenhouse Gas Mitigation Plan, within six months of any project approval, if approved. This would allow greenhouse gas mitigation measures to be planned and developed consistently with EPA's forthcoming requirements for a CCMAP, during this

transitional period. The Department agrees with this recommendation as well as an operating condition requiring MCO to take all reasonable and feasible steps to avoid and minimise scope 1 and 2 greenhouse gas emissions of the development.

Local impacts of climate change

366. The GHGA included a regional-scale analysis of climate change projections using the Interactive Climate Change Projections Map (AdaptNSW), which was informed by the NSW and Australian Regional Climate Model 1.5 (NARCliM1.5 2021). Projections indicated that the Central West Orana Region is likely to experience an increase in average temperatures, more hot days, fewer cold nights, increased fire risk and more frequent extreme weather events.

367. The local impacts of climate change were raised in submissions during the exhibition of the project. In particular concerns were raised about the effects of the changing climate such as the bushfires of 2019-2020 in the Wollemi National Park, as well as floods and extreme weather events.

368. MCO subsequently provided additional information about climate change projections for a more defined project locality informed by updated high-resolution projections from NARCliM 2.0 (2024). MCO defined the project locality as 16 grid cells which encompass the project area being approximately 64 km^2. The Department considers that the comparative approach of the MCO's defined locality area against the broader Central West Orana Region provides a good indication of climate change projections at various locality scales.

369. These projections do not include modelling of specific development, however, are based on low and high emitting policy scenarios adopted from the Intergovernmental Panel on Climate Change *Sixth Assessment Report* (2021). Both scenarios include coal production (in varying extents) to at least 2050. These scenarios include:

- Low-emissions (SSP1-2.6) - net-zero global emissions from 2050 and global warming below 2.0 degrees Celsius (°C) above 1850-1900 levels; and
- High-emissions (SSP3-7.0)- no additional climate policies are adopted and global emissions in 2100 are roughly double current levels.

370. **Table 15** presents a comparison of the project climate changes for the period of 2020-2039 relative to the baseline climate of the locality and region (1990-2009 baseline).

Table 15 | Comparison of local and regional climate change projections for 2020-2039

Variable	Low-emissions scenario		High-emissions scenario	
	Region	Locality	Region	Locality
Avg annual temperature	+0.8 °C	+0.8 °C	+0.8 °C	+0.8 °C
Avg annual rainfall	-7.3%	-6.5%	-3.3%	-3.9%
Hot days (above 35°C) per year	+9.5 days	+5.3 days	+10.7 days	+5.7 days
Cold days (below 2°C) per year	-8.2 days	-11 days	-8.3 days	-11.7 days
Severe fire weather days per year	+1.3 days	+0.8 days	+1.1 days	+0.8 days

371. These figures indicate that the locality would experience climate changes at varying extents under both scenarios, with the higher emissions scenario indicating more hot days and less reduction to annual rainfall. Average annual temperature increase is expected to be the same across both scenarios.

372. The environmental impacts of climate change will result in flow on social and economic impacts. Community engagement informing the Social Impact Assessment (SIA) raised concerns about extreme weather events and identified that distress associated with the climate change concerns leads to variety of social impacts for the community. On a local scale, climate change poses risks to people, places and way of life which may present disproportionately to more vulnerable groups[17].

373. Climate change also presents a range of risks and impacts that are expected to negatively impact the economy. These include property loss and damage, infrastructure and service costs and risks to financial stability. The impacts of climate can also impact health and wellbeing affecting livelihoods and productivity[18].

374. Estimated costs of scope 1 and 2 greenhouse gas emissions from the Project to NSW are quantified in the project's economic assessment to be between $7 million and $52 million. These figures reflect the range of low to high carbon price scenarios. Of this range, a smaller amount would be contributable to the locality.

[17] NCRA Climate risks | Australian Climate Service Website

[18] Impacts of climate change | AdaptNSW

375. Overall, the Department acknowledges that emissions from the project would contribute to climate change where there is a net increase to global emissions. The Department recognises that the project's total Scope 1, 2 and 3 emissions of 64.6 Mt CO_2-e would represent ~0.012% of global emissions and would therefore contribute to climate change and climate impacts in the locality. The Department further recognises those specific features of the locality that render it vulnerable to the effects of climate change in the manner described above.

376. The Department has carefully considered these impacts along with the views of the local community as part of its evaluation of the merits of the Project summarised in **Section 7** in line with the requirements of section 4.15 of the EP&A Act. Further opportunity for community input on the project will be facilitated by the IPC during their consideration of the project.

6.3.5 Conclusion

377. The Department has carefully considered the project's greenhouse gas emissions and associated climate change impacts. The Department's consideration has been guided by NSW and Commonwealth policies and guidelines, including (but not limited to) emissions reduction targets and guiding principles of the Climate Change Act and the *NSW Large Emitters Guide*.

378. In its recent Spotlight Report, the Net Zero Commission advised that NSW consent authorities need to meaningfully consider how the scope 1 and 2 emissions of coal mining projects would affect progress towards NSW legislated emissions reduction targets, and coal mining projects' scope 3 emissions and their climate change impacts. Additionally, it was recommended that significant weight is given to these matters in making determinations. The Department has carefully considered these matters in its assessment of the project's emissions and overall evaluation of the project.

379. The project area contains low gas geological conditions resulting in a low estimation of the intensity of scope 1 fugitive emissions and the majority of scope 1 emission are related to diesel combustion.. Majority of emissions associated with the project would be scope 3 emissions associated with the transport and burning of product coal.

380. The Department has carefully considered downstream (scope 3) emissions, including receiving countries and their international emissions reductions commitments. Most key receiving countries are party to the Paris Agreement and have recent Nationally Determined Contributions plans to reduce greenhouse gas emissions. There is difficultly for coal mining companies to reduce scope 3 emissions from the downstream use of coal as the end result is always combustion. However, there are opportunities for MCO to reduce scope 3 emissions primarily through its purchasing and supplier agreements.

381. The Department has also considered the environmental, social and economic effects of climate change impacts on the locality having regard to the views of the community. It is acknowledged that additional greenhouse gas emissions generated by the project would contribute to climate change and therefore to climate impacts in the locality.

382. Should the IPC determine to approve the project, the additional scope 1 and 2 greenhouse gas emissions generated by the project would need to be managed under current NSW greenhouse gas policy initiatives including the development of a CCMAP under EPA's Climate Change Policy Framework, that will further investigate opportunities to minimise emissions from onsite diesel combustion.

383. The Department has carefully evaluated the merits of the project in section 7, having regard to environmental, social and economic considerations as required under section 4.15 of the EP&A Act.

6.4 Aboriginal heritage

6.4.1 **Introduction**

384. The project area is located on traditional country of the Wiradjuri People within the administrative boundaries the Mudgee Local Aboriginal Land Council (LALC). The region holds strong Aboriginal cultural significance due to its rich ecological and geological resources traditionally used by the Wiradjuri people.

385. The Ulan Wilpinjong and Moolarben Coal precinct has undergone extensive archaeological and cultural heritage assessments over the past two decades. The regional archaeological record and historical context is therefore well established and the archaeological context of the project area is well informed.

386. The EIS included an Aboriginal Cultural Heritage Assessment (ACHA) which was subsequently updated under the amended application. The ACHA was prepared in accordance with relevant policy requirements including consultation with Registered Aboriginal Parties (RAPs) undertaken in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010a).

387. Under the amended project, MCO reduced the disturbance footprint which resulted in further avoidance of impacts on Aboriginal cultural heritage sites and incorporation of additional mitigation measures. The ACHA was also updated to reflect additional fieldwork and address issues raised by Heritage NSW. Residual issues raised by Heritage NSW are discussed further below.

388. Key concerns raised by Aboriginal stakeholders related to cumulative and ongoing impacts on Aboriginal cultural heritage due to mining, including impacts on the cultural and spiritual connection to the land and proximity of the disturbance area to sites of significance. It was also emphasised that despite the assigned scientific significance ratings for the identified sites, all Aboriginal objects are considered deeply important and are of high cultural significance.

389. One Aboriginal stakeholder expressed concern with the extent of survey effort of the project area and recommended that 100% survey effort MCO reported that RAPs involved in the archaeological surveys for both the original and revised ACHA advised that the project area has been thoroughly surveyed. Discussion on assessment methodology is provided below.

6.4.2 Assessment Methodology

390. The ACHA incorporated survey coverage and methodology consistent with the requirements of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (NSW DECCW, 2010b) (Code of Practice). This involves representative sampling guided by a predictive model that informs where in the landscape Aboriginal heritage occupation remains is likely to occur.

391. As a result of previous mining assessments, approximately 198 ha of the site had been already subject to archaeological survey and an additional 241 ha was surveyed for the original project in 2022. In response to advice from Heritage NSW, MCO completed a further 115 ha of archaeological survey to inform the amended application. Survey transects were informed by a predictive modelling tool to target survey effort towards likely areas of occupation. Total survey effort reflected coverage of approximately 42 percent of the project area.

392. Heritage NSW advised that survey coverage had fulfilled the requirements of the Code of Practice but requested additional information on MCO proposed methods for pre-clearance survey. This matter is discussed further below.

393. In its advice on the EIS, Heritage NSW recommended test excavation of areas of potential archaeological deposit to better understand potential impacts on Aboriginal cultural heritage values. In response, MCO undertook a test excavation program consisting of 100 test pits targeting three previously identified sites with sub-surface potential and a further five landforms to validate the predictive model.

394. Based on the findings of these investigations, the updated ACHA concluded that the project area is indicative of low-intensity and transient occupation, including hunting and gathering activities.

6.4.3 Direct Impacts

395. A total of 138 Aboriginal heritage sites were identified in the study area (see **Figure 22**), with 55 located wholly or partially within the surface disturbance footprint. A further 12 sites could be indirectly impacted from blasting.

396. **Table 16** provides a summary of all sites subject to potential impacts and their assessed scientific significance. A significance rating system forms part of the NSW Aboriginal cultural heritage assessment framework and the Department acknowledges that all sites are of high cultural importance to the Aboriginal community.

397. With the exception of one rock shelter with artefacts and grinding groove (S1MC422) and one grinding groove and artefact site (S1MC437), all sites that would be directly impacted are artefact scatters, isolated finds and potential archaeological deposits (PADs). A further 71 sites are located within the broader project area and with the proposed management measures would not be directly or indirectly impacted.

398. Due to a higher density of artefacts discovered at site S1MC422, Heritage NSW requested MCO consider avoiding this site or undertaking further excavation and assessment to understand sub-surface archaeological potential. MCO provided further information regarding its excavation methodology noting that it had been conducted in accordance with the Code of Practice and the approved methodology of the complex heritage management plan. Additionally, MCO advised that the requirement for additional test pits was considered by the attending archaeologist and RAPs who concluded that further excavation was not required.

399. MCO also advised that further avoidance would not be feasible based on the characterisation advice and management recommendations provided in the ACHA (Niche 2024) and potential implications for the broader project.

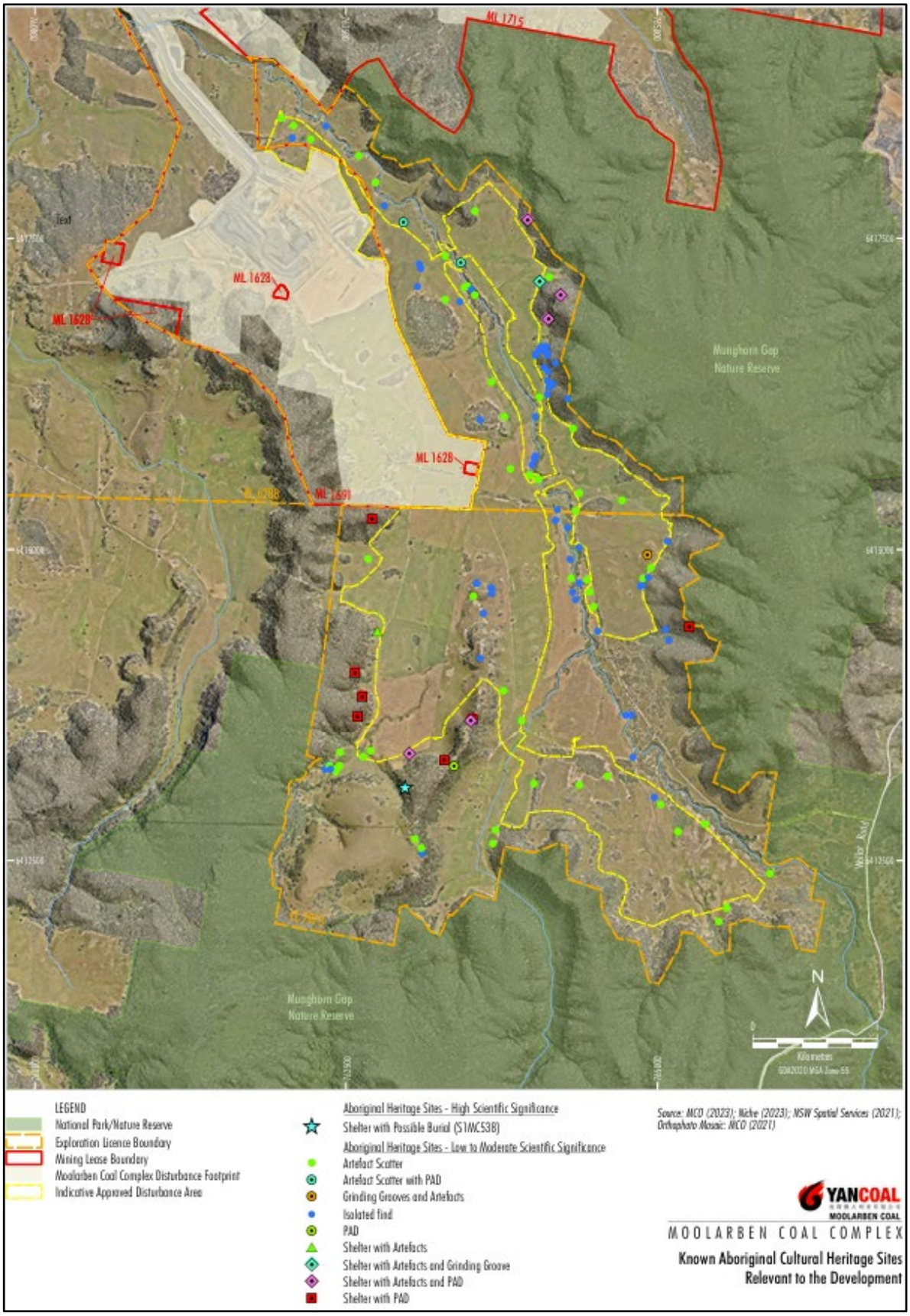

Figure 22 | Aboriginal cultural heritage sites within the project area

Table 16 | Aboriginal heritage sites directly or potentially indirectly impacted

Site Type	Scientific Significance	Proposed Impact*	Number of Sites
Artefacts			
Artefact Scatters	Low	Direct / Partial	26
	Low-moderate	Direct / Partial	4
	Moderate	Direct / Partial	3
Artefact Scatters with PAD	Low	Direct	1
Isolated Finds	Low	Direct	19
Shelters			
Shelter with Artefacts	Low	Indirect	1
Shelter with Artefacts and PAD	Low	Indirect	4
	Moderate	Indirect	1
Shelter with Artefacts and Grinding Groove (S1MC422)	Moderate	Direct	1
Shelter with PAD	Low	Indirect	2
	Low-moderate	Indirect	4
Other Site Types			
Grinding Grooves and Artefacts (S1MC437)	Moderate	Direct	1
Total		Direct	55
		Indirect	12

Management and Mitigation

400. MCO propose to undertake recording and surface collection of the 55 known sites within the disturbance area. Collection would be undertaken in accordance with protocols defined in an Aboriginal cultural heritage management plan and the Code of Practice. MCO advise that these activities would be consistent with the approved complex heritage management plan and would incorporate best practice baseline recording, including high-resolution photography and 3D scans.

401. Other key management measures proposed include:

- pre-clearance surveys of representative locations not subject to previous survey;
- management of sites outside of the disturbance area to ensure in-situ conservation; and
- protocols for the discovery of unrecorded objects and the discovery of human remains.

402. Heritage NSW requested further information on the location of pre-clearance surveys and details of the management and mitigation measures that would be implemented if finds of greater density or significance are encountered during these surveys.

403. MCO advised that the outcomes of surveys and test excavation work were consistent with the predictive model and the likelihood of identifying sites of greater density or significance is expected to be low. Nonetheless, MCO advised that in accordance with the Moolarben Heritage Management Plan, pre-clearance surveys would be conducted prior to surface disturbance in select areas by a qualified archaeologist in consultation with RAPs. MCO advised that additional areas for survey will focus on surface disturbance areas that have not been previously surveyed and have archaeological potential as identified by the predictive model.

404. MCO also advised that it would manage any unrecorded sites in accordance with protocols of the existing complex management plan, which include cessation of all works until assessment is undertaken by a qualified archaeologist in consultation with RAPs.

6.4.4 Indirect Impacts

405. Sites subject to potential indirect impacts are rock shelters located on the periphery of the proposed disturbance area. Twelve sites were identified in the ACHA to have potential for indirect impacts based on their proximity to the proposed disturbance area.

406. MCO advised that blasting would be appropriately designed and managed to ensure that impacts on all sites outside the disturbance area would be avoided. Key management measures include:

- setting pre-determined blast vibration limits including 250 mm/s for sites proximal to the project boundary and 50 mm/s for sensitive geological features; and
- blast vibration monitoring.

407. Heritage NSW requested:

- reconsideration of the significance of site S1MC403 (a rock shelter with artefacts and PAD) due to the presence of a less common artefact (grindstone); and
- options for increased setbacks if vibration exceeds expected levels, particularly with regard to site S1MC538 (shelter with possible burial).

408. MCO advised that no further assessment or setbacks are required as both sites are located outside of the proposed disturbance area and impacts would be minimised as much as possible through appropriate blast design and management.

6.4.5 Conclusion

409. The Department has carefully considered the potential impacts of Aboriginal cultural heritage, having regard to issues raised by Heritage NSW, RAPs and public submissions. The

Department sought advice from its internal archaeologist on the adequacy of the ACHA and responses to matters raised by Heritage NSW.

410. The Department considers that the assessment of Aboriginal cultural heritage is consistent with the Code of Practice, the Burra Charter and relevant guidelines. The Department is confident that the predictive model and extent of survey effort has adequately characterised the project area and reduced the risk of encountering unidentified sites of high significance.

411. The project would increase the number Aboriginal heritage sites impacted within the locality and broader region, however, the Department considers that this incremental impact could be appropriately managed and would not significantly increase cumulative loss. The locality and broader region contain many representative sites that are conserved in perpetuity in addition to larger conservation areas such as the Goulburn River National Park.

412. The Department has, should the IPC determine to approve the project, recommended conditions that would address issues raised by Heritage NSW during the assessment, including:

- operating conditions for:
  - the discovery or human remains or new objects; and
  - MCO to ensure that the project does not cause any direct or indirect impact on heritage items located outside of the approved disturbance area; and
- the preparation of an Aboriginal cultural heritage management plan, in consultation with RAPs and Heritage NSW, that details pre-clearance survey effort, protocols for the discovery of human remains or new sites, surface collection and salvage procedures, and how sites outside the disturbance area would be protected.

6.5 Other issues

413. The Department's consideration of other issues is summarised in **Table 17** below.

Table 17 | Assessment of other issues

Issue	Findings and conclusions	Recommended conditions

Noise	• The amendment report included an updated Noise and Blast Impact Assessment which modelled three scenarios representative of the worst-case noise impacts associated with the project and existing complex. This assessment was prepared in accordance with the *Noise Policy for Industry 2017* (NPfI).
	• These scenarios included maximum combined mining rate for the amended project and operations in the OC4 pit as well as mining at the closest proximity to residents of Cooyal.
	• Construction noise from the project would be indistinguishable from existing operational noise from the complex. No changes are proposed to mine life, train movements or peak workforce movements, and as such, no additional road or rail noise would occur.
	• Modelling predicted that the combined worst-case operating scenarios (combined project and existing complex) would not result in an exceedance of the approved noise limits of the complex. These limits include:
	  ○ 37 dB(A) $L_{Aeq(15mins)}$ and 36 dB(A) $L_{Aaeq\ (15mins)}$ at two receivers at all times (ie day, evening and night periods); and
	  ○ 35 dB(A) $L_{Aeq(15mins)}$ at all other receivers at all times.
	• Modelling also predicted that cumulative noise levels from the project and other mining operations in the locality (ie existing complex, Ulan mine and Wilpinjong mine) would not exceed relevant amenity levels prescribed under the NPfI for private and other receivers.
	• Noise from the existing complex is managed under a noise management plan, which requires attended and real time noise monitoring, best practice minimisation measures and co-ordination of noise management with the Ulan and Wilpinjong Mines. MCO propose to incorporate noise management for the project into this existing system.
	• EPA noted that the existing noise limits for the complex are more stringent than those prescribed under the NPfI and recommended that these levels be retained for the project.
		• The Department has, should the IPC determine to approve the project, recommended noise limits consistent with the limits for the approved complex as well strict noise operating conditions and a comprehensive noise management plan that can be integrated with the plan for the existing complex.

Blasting and vibration	• The EIS included a blast assessment which predicted ground vibration and air blast overpressure at sensitive receivers and other features surrounding the project area, including public infrastructure, livestock and Aboriginal rock shelter sites. Predictions were assessed against standards for human comfort and structural building damage. • Predictions indicated that a number of receivers and features would experience vibration and airblast exceedances under a typical coal and overburden blast design Maximum Instantaneous Charge (MIC) of 400 kg and 4,500 kg, respectively. This includes three private	• The Department has, should the IPC determine to approve the project, recommended strict conditions for blast management including: ○ Blast criteria for residential receivers, mapped rocky habitat and all public infrastructure;

Issue	Findings and conclusions	Recommended conditions
	receivers, the Moolarben Picnic Area and Castle Rock Walking tracks, threatened bat habitat and a number of Aboriginal rock shelters. • The blast assessment subsequently identified a range of safe working distances that would be required to achieve relevant damage criteria and noted the need for management and mitigation measures, including reduced MIC when blasting in closer proximity to a range of features. • MCO has committed to limiting blast vibration to a maximum of 50 mm/s peak particle velocity (ppv) at rocky habitat features adjacent to the project area. This limit was concluded to be appropriate by the Mining Panel and is further discussed in Section 6.1.6.3. The imposition of this criterion would protect other features in the Munghorn Gap Nature Reserve, including Aboriginal rock shelter sites which are generally allocated a higher vibration damage criteria (ie 250 mm/s ppv). • The Department considers that potential blast impacts of the project can be appropriately mitigated through careful management and monitoring. Blast management is a requirement for the existing complex and could be integrated with the project to protect sensitive features and receivers in the vicinity.	○ Operating conditions and performance measures; and ○ A comprehensive blast management plan that can be integrated with the plan for the existing complex, including a strategy to monitor and mitigate impacts on features and receivers in the vicinity.
Air quality	• The amendment report included an addendum air quality assessment which modelled the representative worst-case air quality impacts associated with the project and existing operations. • Private receivers likely to be affected by the project are mostly located in Cooks Gap (east) and Cooyal (south). Receivers in Cooks Gap experience air quality impacts from the existing operations, particularly from the OC3 pit which is located closer than the project area. Some submissions were received by residents of Cooks Gap raising concerns regarding amenity and health impacts associated with the existing complex and proposed project. • Air dispersion modelling predicted that no private receivers would experience air quality impacts above the criteria prescribed under EPA's *Approved methods for the modelling and assessment of air pollutants* (2022). This includes criteria for PM_{10}, $PM_{2.5}$ and total suspended particles (TSP). Nonetheless, some receivers would experience dust impacts from the project and careful management is required. • MCO identified a number of dust controls that are applied at the complex that are proposed to be extended to the project area. Some of these controls include modifying/pausing mining activity during adverse weather conditions, minimising exposed areas and watering for dust suppression.	• The Department has, should the IPC determine to approve the project, recommended conditions for air quality management including: ○ Impact assessment criteria for PM2.5, PM10 and TSP; ○ Strict operating conditions including a requirement to minimise impacts during adverse weather conditions; and ○ A comprehensive air quality management plan that can be integrated with the plan for the existing complex.

Issue	Findings and conclusions	Recommended conditions

	• During the course of the assessment, EPA requested a range of additional information regarding air quality dispersion modelling and approaches taken to predict the likely impacts of the project. MCO responded to these requests in the submissions report and in additional information. Most matters were addressed and resolved, however, EPA recommended conditions to address some residual issues. These include:
	  ○ dust control efficiency, water management, materials handling and maximum exposed areas; and
	  ○ a program to evaluate reactive dust management measures.
	• The Department has incorporated these measures into the recommended conditions of consent.	

Visual amenity	• The EIS included a landscape and visual assessment which concluded that the visual impacts of the project would be negligible at sensitive receivers. • Views of the project area are largely constrained by intervening topography and ridgelines, and the project would not be visible from public recreation areas in the Munghorn Gap Nature Reserve including the Moolarben Picnic Area and Castle Rock walking tracks. • The project is located within the Dark Sky Region for the Siding Springs Observatory. MCO advise that the intensity, nature and degree of night lighting associated with the project would be similar to existing operations and would be mitigated as much as possible as per existing control measures.	• The Department has, should the IPC determine to approve the project, recommended a range of contemporary visual amenity and lighting conditions.

Social	• The social impacts of the project are primarily associated with the operation of the complex as a whole. Whilst there would be no extension to the complex life, operations would be of greater intensity than if the project were not to proceed.
	• Stakeholders engaged for the project's social impact assessment included local landholders, members of the existing complex community consultative committee, local business and service providers and representatives of organisations including Council, emergency services and the Mudgee District Environment Group.
	• Stakeholders identified a range of negative social effects associated with the project. Key issues raised include (but are not limited to) impacts on:
	  ○ way of life – associated with continual and increased noise and dust generation;
	  ○ accessibility – noise and safety impacts associated with the use of Moolarben Road, bore water access and additional pressure on medical and essential services;
	  ○ health & wellbeing – including dust inhalation, vibration impacts, light and noise pollution;
		• The Department has, should the IPC determine to approve the project, recommended conditions for amenity impacts, including:
		  ○ performance criteria, operating conditions and management plans and for blasting, noise and air quality
		  ○ the operation of a community consultative committee for the complex, including the project;
		  ○ a greenhouse gas mitigation plan to be prepared in accordance with EPA's climate change policy framework; and

Issue	Findings and conclusions	Recommended conditions
	○ livelihood – including concern over climate change impacts, decreasing property prices, reduced tourism and negative biodiversity effects and perceptions on the Munghorn Gap Nature Reserve; • Positive social impacts identified included: - employment and financial security for residents in the community and broader region; - flow on effects to local industries and suppliers; - no significant pressure on short-term accommodation; and - local community benefits and investment. • A social impact assessment included in the EIS categorised and rated impacts identified during the engagement process. Negative social impacts were rated as medium and low following the application of mitigation measures • MCO proposes to implement a range number of mitigation measures regarding amenity impacts to minimise way of life and health impacts for surrounding receivers. Many of these measures are reflected in commitments relating to noise, air quality, lighting and blasting. Stakeholder and community engagement is also proposed to continue through the existing community consultative community and other forums, particularly to report on environmental monitoring outcomes and to respond to ongoing concerns. • MCO propose to continue to implement its Community Support Program which involves contributions via grants and sponsorships and provide local employment and training opportunities. • MCO has an existing voluntary planning agreement with Mid-Western Regional Council for the approved complex. However, on 31 March 2023, a forward contribution of $350,000 was made to Council on the basis that if the project was not approved, it would go towards contributions under the existing Stage 2 approval (which are ongoing). This contribution was not made under the formal planning agreement, and as such no planning agreement condition is required. Council advised this approach was acceptable. • The Department considers that the social impacts of the project would not differ substantially to those of the existing complex. These impacts would be experienced differently for different people and groups. The Department considers that MCO's proposed management actions, and the recommended conditions, would provide appropriate responses to the social impacts raised, including tangible monitoring and mitigation measures of amenity impacts and ongoing community consultation, that would be applied for the duration of the project.	○ visual and light operating conditions.

Issue	Findings and conclusions	Recommended conditions

Economic	• The amendment report included an updated economic assessment including a cost-benefit analysis and local effects analysis (LEA), prepared in accordance with updated in the *Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals (Economic Guidelines, NSW Government, 2015)*.
	• The cost-benefit analysis estimated that the project would generate approximately $190 million Net Present Value (NPV) to the NSW economy. This estimate included:
	  ○ $166 Million (M) in royalties;
	  ○ $21 M in company tax;
	  ○ $3 M in net producer surplus (ie shareholders that are residents of NSW)
	  ○ the economic costs of scope 1 and 2 greenhouse gas emissions on the basis of NSW share of global population ($0.1 M); and
	  ○ the economic costs of lost agricultural income and employment ($0.1 M).
	• The LEA indicated that the Project would provide direct and indirect contributions to the regional economy, including:
	  ○ $539 M NPV (65%) of operating expenditure towards suppliers in NSW;
	  ○ 79 M NPV (105) of operating expenditure towards suppliers in the Lithgow-Mudgee region; and
	  ○ $23 M NPV in rate payments to Council.
	• The project would not change the peak workforce requirements for the complex and as such no additional employment benefits were quantified. However, the project will maintain employment of the existing workforce for the remaining project life.
	• Key costs to the local economy were estimated to be:
	  ○ a reduction in agricultural production of $466,743 per annum; and
	  ○ Loss of agricultural income and employment of $28,000 per annum or 0.6 full-time equivalent jobs.
	• The economic assessment included sensitivity analysis to account for the uncertainty in the in the value estimates of costs and benefits. Parameters of this analysis were derived in accordance with the Economic Guidelines. Key variables include discount rates, coal prices, mining revenue and company tax.
	• Additionally, the cost of carbon was estimated under various price forecasts and estimated using alternative approaches to apportion costs.
		• No specific conditions.

Issue	Findings and conclusions	Recommended conditions
	• Highest carbon prices were derived from European emissions allowance (EUA) futures, as published by the European Energy Exchange (2022), as well as the global proportion of scope 1 and 2 emission costs (as opposed to the NSW portion only). • Lowest benefit variables included a 10% discount rate to estimate coal royalties, 25% lower mining revenue and 50% higher company tax. • Under the highest cost and lowest benefit variables, the economic assessment identified that the project would still result in a net benefit to the state of NSW. • NSW Resources advised that the project would result in efficient and optimised resource outcomes if approved which would provide an appropriate return to the state. • The Department considers that the Project would result in positive economic benefits to the local and regional areas and to the State of NSW and is therefore considered desirable and justified from an economic perspective.	

Rehabilitation and Agriculture	• Agricultural land in the project area predominantly consists of low capability land (ie Class 6 - Land Soil Capability), with patches of Class 5 (moderate-low) and to a lesser extent Class 4 (moderate capability) and Class 5 (high capability).
	• The project would reduce the extent of agricultural land in the final landform, with approximately 140 ha expected to be re-instated post mining.
	• The amount of agricultural land proposed to be reinstated was reduced under the amended application due to the proposed increase to native woodland within the landform.
	• An agricultural impact assessment submitted with the EIS estimated that the project would impact approximately 1,182 sheep and 119 cattle that could potentially be produced within the project area. These numbers represent 0.09% and 0.05% of average number of sheep and cattle sold annually at the Mudgee and Dubbo sale years.
	• MCO propose to backfill all open cut pits associated with the project, including the approved final void of the existing OC3 pit. The project area would be rehabilitated to include 535 ha of native woodland and 140 ha of agricultural pastures.
	• The Department of Primary Industries – Agriculture advised that the project would not have a significant impact on any agricultural land use or agricultural production.
	• Resources Regulator advised that MCO would be required to comply with rehabilitation requirements of the *Mining Act 1992*.
		• The Department has, should the IPC determine to approve the project, recommended conditions including:
		  ○ contemporary rehabilitation objectives for the project area, including establishing and restoring self-sustaining native woodland ecosystems, as well as agricultural grassland area that achieve land and soil capabilities that are equal to or better than pre-mining conditions; and
		  ○ the preparation of a rehabilitation strategy to describe and build on the overall rehabilitation outcomes for the site.

Issue	Findings and conclusions	Recommended conditions

Historic heritage	• There are no listed heritage items that would be disturbed directly or indirectly by the project. However, three non-listed items of local significance are located within the proposed disturbance area, including a:
	  ○ family burial site (assessed as high significance);
	  ○ homestead and potential burial site (assessed as moderate significance); and
	  ○ potential grave site (assessed as moderate-high significance).
	• Prior to disturbance, MCO proposed to undertake archival recording and exhumation procedures in accordance with requirements of the *Heritage Act 1977*.
	• MCO also propose to prepare a Heritage Management Plan that details mitigation and management procedures, consistent with the existing complex.
	• Council and Heritage NSW did not raise concerns with the proposed impacts or management measures.
		• The Department has, should the IPC determine to approve the project, recommended a condition requiring MCO to prepare and implement a Historic Heritage Management Plan, that could be integrated with the plan for the existing complex.

Traffic and transport	• The project would not increase peak workforce numbers at the existing complex and access to the project area would be via internal haul roads through the existing complex. There would be no change to the existing access to the complex, off Ulan-Wollar Road. • A transport assessment included in the EIS modelled two scenarios to predict traffic impacts associated with the project. This included peak traffic associated with the project, continued operations of the existing complex and cumulative traffic from the Ulan and Wilpinjong mines. • Modelling predicted that the existing road network could satisfactorily accommodate the forecasted traffic volumes. • Impacts to rail level crossings were assessed as negligible and no road safety concerns resulting from the project were identified. • TfNSW advised that that the project is unlikely to increase demand for road infrastructure, transport facilities, and services in the vicinity.	• No specific conditions. Traffic would continue to be managed under approvals for the complex.

7 Evaluation

414. The Department has carefully considered the likely environmental, social, and economic impacts of the Moolarben Coal OC3 Extension Project (the project). The Department's assessment draws on an extensive range of information provided by MCO, government agencies, independent experts, members of the public and special interest groups. The Department's assessment has considered the relevant matters and objects of the EP&A Act and has been guided by a range of strategic NSW government policies and plans.

415. Section 4.15 of the EP&A Act sets out the specific evaluation requirements for the project. In summary, evaluating the merits of the project involves weighing up the potential benefits against the potential impacts and considering its consistency with relevant statutory requirements, government policy and the public interest. These matters will need to be finally weighed up by the consent authority, the IPC.

Benefits

416. The project would facilitate the extraction of additional coal resources that would allow for continuation of mining at an existing complex. Being an established mine, the extension reflects an efficient and optimised approach to extract the resource where existing equipment, infrastructure, processing facilities and transport operations can be utilised, minimising the need for additional disturbance.

417. The complex is a significant employer for the local region. Although the project would not directly increase employment for the complex, it would assist to maintain the employment trajectory of the existing workforce for the remaining project life. This would have flow on social and economic benefits, particularly for local employees and suppliers.

418. The project would provide substantial economic benefits to the state of NSW, broader Mudgee region and locality. Sensitivity analysis indicates that economic benefits are likely to be realised even under a range of variables.

419. Social benefits of the project would include contributions to Council that would be directed towards community related initiatives, as well as the continuation of local traineeship and support programs.

420. The project does not seek to extend the complex life beyond the approved life of 2038. It would therefore not prolong some social and environmental impacts of the existing complex beyond this approved timeframe. Some receivers may experience a greater intensity of amenity impacts in comparison to the existing complex, however assessment has

demonstrated that existing limits could be met, including noise limits for almost all private receivers which are more stringent than those adopted by the *Noise Policy for Industry (2017)*.

421. The project would result in backfilling the existing OC3 pit which is currently approved to be retained as a final void. The action would accelerate the recovery of water levels across and facilitate a more beneficial final landform than what is currently approved. Rehabilitation efforts proposed under the project would also facilitate better native woodland connection across the Moolarben Valley floor in comparison to the status quo, noting that most of the project area has historically been used for livestock grazing and cropping.

422. Lastly, geological conditions at the complex comprise significantly less fugitive emissions in comparison to other coal mining operations in NSW. This is an important factor of consideration in the context of the transitional policy space for mining and greenhouse gas emissions.

Impacts

423. The project would result in a range of direct and indirect environmental, social and economic impacts and the Department received 73 objections to the project from members of the public and special interest groups.

424. Impacts on biodiversity are a key impact of the project, which would clear 480 ha of native vegetation, including 401 ha of Box Gum Woodland CEEC. A large portion of this area is DNG (ie 91%) which has previously been subject to low-intensity agricultural activities. The remaining 34 ha is remnant woodland and scattered trees in good condition.

425. Vegetation in the project area provides suitable habitat for a range of threatened species, including (but not limited to) the Koala, Squirrel Glider, Pink-tailed Legless Lizard and Swift Parrot. The project would also impact 'important habitat' for the Regent Honeyeater, which is identified as a candidate species subject to serious and irreversible impacts.

426. Indirect biodiversity impacts associated with blasting are a key potential impact of the project, primarily due to the close proximity of threatened microbat habitat located within rocky features of the Munghorn Gap Nature Reserve.

427. The project would directly impact on 55 Aboriginal heritage sites, mostly in the form of artefact scatters and isolated finds, and twelve Aboriginal heritage rock shelter sites would be subject to indirect impacts from blasting.

428. Open cut mining activities would result in a range of impacts on surface and groundwater resources. It has been identified that most of these impacts would be mainly confined to the project area, and no additional privately-owned bores would be impacted. However, drawdown

in the shallow alluvium could present a moderate risk to some deep-rooted groundwater dependent ecosystems drawing from Moolarben Creek baseflows.

429. The project would generate approximately 64.6 Mt CO_2-e of additional greenhouse gas emissions. These additional emissions would contribute to the broader impact of climate change, which would contribute to environmental, social and economic impacts on the locality. The project would also contribute to the overall emissions from all NSW sources.

430. Lastly, the project would result in a range of other impacts of including on local amenity, agriculture and historic heritage, and would contribute to existing social impacts associated with the complex.

Consideration

431. The Department has carefully assessed the likely impacts of the project These impacts have been considered having regard to relevant statutory requirements, policies, public submissions and expert advice received.

432. A key factor in this assessment relates to how potential impacts of the project could be appropriately managed and mitigated. If not managed appropriately, there is a risk that the impacts of the project would outweigh the benefits.

433. One measure that is proposed is the Habitat Enhancement Area, which the Department has, should the IPC determine to approve the project, recommended to be expanded based on advice from the Mining Panel and CPHR. The enhancement of vegetation in this area would maintain a substantial amount of Box-Gum Woodland CEEC in the project area that would minimise incremental decline of this community.

434. The Habitat Enhancement Areas would also:

- ensure protection of riparian areas and connectivity along creek lines during mining, and result in greater woodland vegetation and connectivity along the valley floor post-mining; and
- include regeneration of native woodland species consistent with habitat for threatened species impacted by the project, including (but not limited to) the Regent Honeyeater, Koala and Squirrel Glider.

435. The Department considers that these measures are critical in minimising impacts on Box-Gum Woodland and the Regent Honeyeater. The Department does not consider that the project would result in SAII on these entities.

436. Another key management measure relates to the appropriate management of blasting impacts on threatened microbat species and Aboriginal heritage rock shelter sites. The Department

has, should the IPC determine to approve the project, recommended strict blast criteria, performance measures for mapped rocky habitat, maternity roosts and other roosts of significance, as well as a comprehensive bat monitoring program and blast management plan. The Department is confident that these management measures would provide an appropriate level of protection of these important natural features.

437. The Department has, should the IPC determine to approve the project, recommended a range of conditions which are considered appropriate to manage other residual environmental impacts, including (but not limited to):

- the retirement of over 35,000 ecosystem and species credits in accordance with the Biodiversity Offsets Scheme;
- strict performance measures for water resources supported by additional monitoring and TARP requirements;
- revised groundwater modelling within 18 months to validate conceptualisation and groundwater predictions;
- an Aboriginal cultural heritage management plan and historic heritage management plan, to be prepared in consultation with Heritage NSW and RAPs;
- noise and air quality criteria that is consistent with the existing complex, supported by strict operating conditions and management plan requirements that can be integrated with the existing complex; and
- contemporary rehabilitation objectives, including backfilling of all open cut pits and the existing OC3 pit.

438. It is acknowledged that the project would contribute to climate change which is a global issue that would be experienced regionally and locally. The Department has considered the additional greenhouse gas emissions of the project in the context of NSW and Commonwealth Government policy frameworks including the NSW emissions reductions targets, Net Zero Act principles and the Commonwealth Safeguard mechanism. Should the IPC determine to approve the project, the Department has recommended a condition requiring MCO prepare a greenhouse gas mitigation plan in line with EPA's Climate Change policy requirements.

439. There are substantial benefits and negative impacts associated with the project as documented in this assessment report.

440. This assessment report is hereby presented to the Independent Planning Commission for determination and to form the opinion if the project is in the public interest.

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Energy, Resource and Industry Assessments

Appendices

Appendix A – List of referenced documents

A1 – Environmental Impact Statement: Available under the 'EIS' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/projects/moolarben-oc3-extension-project

A2 – Submissions: Available under the 'Submissions' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/projects/moolarben-oc3-extension-project

A3 – Submissions Report: Available under the 'Response to Submissions' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/projects/moolarben-oc3-extension-project

A4 – Amendment Report: Available under the 'Amendment' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/projects/moolarben-oc3-extension-project

A5 – Agency Advice: Available under the 'Agency Advice' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/projects/moolarben-oc3-extension-project

Table A1 | Agency advice

Agency	Advice
NSW Department of Climate Change, Energy, the Environment and Water	
Biodiversity, Conservation and Science Group (BCS), including NSW National Parks and Wildlife Service (NPWS)	• BCS and NPWS Interim Advice on EIS (December 2022) • BCS and NPWS Advice on EIS (March 2023) • BCS and NPWS Interim Advice on RTS and Amendment Report (April 2024) • BCS and NPWS Advice on RTS and Amendment Report (June 2024) • CPHR and NPWS Advice on Assessment – Residual Issues (February 2025) • CPHR Advice on Commonwealth matters (October 2025)
Heritage NSW (ACH)	• Advice on EIS (December 2022) • Advice on RTS & Amendment Report (April 2024) • Advice on Further Information (November 2024)
Water	• Advice on EIS (February 2023) • Advice on RTS & Amendment Report (April 2024)
Environment Protection Authority (EPA), including Climate and Atmospheric Science (CAS)	• Advice on EIS (December 2022) • Advice in relation to Greenhouse Gas Emissions (CAS) (December 2022) • Advice on Submissions Report and Amendment (May 2024) • Email advice re: greenhouse gas management plans (May 2024) • Advice on Assessment (January 2025)
Department of Planning, Housing and Infrastructure	

Agency	Advice
Crown Lands	• Advice on EIS (November 2022) • Advice on RTS & Amendment Report (April 2024)
Hazards	• Advice on EIS (December 2022)
NSW Resources (formerly Mining, Exploration & Geoscience)	• Advice on EIS (December 2022) • Advice on RTS & Amendment Report (April 2024)
Transport for NSW (TfNSW)	• Advice on EIS (November 2022)
Department of Primary Industries	
Agriculture	• Advice on EIS (December 2022)
Fisheries	• Advice on EIS (December 20200)
Fire and Rescue NSW (FRNSW)	• Advice on EIS (November 2022)
Australian Rail Track Corporation (ARTC)	• Advice on EIS (January 2023)
Mid-Western Regional Council	• Comments on EIS (December 2022) • Comments on RTS & Amendment Report (April 2024)

A6 – Additional Information: Available under the 'Additional Information' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/projects/moolarben-oc3-extension-project

Table A2 | Additional information

Relevant Document
MCO

• RFI 1 – Response to Agency Advice on Submissions / Amendment Report (November 2024)
  ○ Attachment 1 – Response to IEAPM (November 2024)
  ○ Attachment 2 - Response to BCS/NPWS (November 2024)
  ○ Attachment 3 – Response to Heritage NSW (November 2024)
  ○ Attachment 4 – Response to EPA (November 2024)
  ○ Attachment 5 – Response to Council (November 2024)
  ○ Attachment 6 – Response to DCCEEW Water (November 2024)
• RFI 1 - GIS data
• RFI 2 – Response to IEAPM (May 2024)
• RFI 3 – Greenhouse Gas Emissions (May 2025)
• RFI 4 – Response to Lock the Gate Koala Report (March 2025)
• Response to CPHR and NPWS residual issues (March 2025)
• RFI 5 - Response to IEAPM Report (June 2025)
• RFI 5 – Response to IEAPM re: GDEs (July 2025)
• RFI 6 - Response to Department Local climate change impacts (September 2025)
• Determination of the Extent in NSW of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (May 2024)
• Revised Determination of the Extent in NSW of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community Box-Gum Woodland Determination Report (December 2025)

Independent Expert Advisory Panel for Mining
• Department RFI 5 - Mining Panel Advice – OC3 Extension Project (April 2025) • Department RFI 5 - Mining Panel Advice – Technical Review – GDEs (August 2025)
Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development
• Advice to decision maker on coal mining project IESC 2023-140 (EPBC 2022/9132) (February 2023)

A7 – Document references for key assessment issues

Table A3 | Key documents relating to biodiversity impacts

Relevant Document
• EIS – Appendix C – BDAR (November 2022) • EIS – Appendix D – Aquatic Ecology Assessment (November 2022) • EIS – Appendix S – GDE Assessment (November 2022) • Amendment Report – Updated BDAR (March 2024) • Amendment Report – SAII Expert Reports (March 2024) • Additional Information - Determination of the Extent in NSW of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (May 2024) • Additional Information – RFI 1 - Attachment 1 – IEAPM RFI Response (November 2024) • Additional Information – Attachment 2 - Response to BCS/NPWS (November 2024) • Additional Information – Response to CPHR and NPWS residual issues (March 2025) • Additional Information – Response to Lock the Gate (March 2025) • Additional Information – Response to Mining Panel Advice (June 2025) • Additional Information – Response to Mining Panel Advice on GDEs (July 2025)

Table A4 | Key documents relating to water impacts

Relevant Document
• EIS – Appendix A Groundwater Assessment (November 2022) • EIS – Appendix D – Aquatic Ecology Assessment (November 2022) • EIS – Appendix P – Geochemistry Assessment (October 2022) • EIS – Appendix S – Groundwater Dependent Ecosystem Assessment (November 2022) • Amendment Report – Appendix F Groundwater Review (March 2024) • Additional Information – Response to Mining Panel recommendations (June 2025) • Additional Information – Response to Mining Panel - Risks to Groundwater Dependent Ecosystems (July 2025)
• EIS – Appendix B – Surface Water and Flood Impact Assessment (November 2022) • Amendment Report – Appendix G – Surface Water Review (March 2024)

Table A5 | Key documents relating to greenhouse gas emissions

Relevant Document
• EIS – Appendix J – Greenhouse Gas Assessment (October 2022) • Amendment Report – Appendix J Air Quality and Greenhouse Gas Addendum report (November 2023) • Additional Information – Response to Mining Panel recommendations (June 2025) • Additional Information – Response to Department RFI (May 2025) • Additional Information – Response to Department RFI (September 2025)

Appendix B – Statutory considerations

Objects of the EP&A Act

A summary of the Department's consideration of the relevant objects (found in section 1.3 of the EP&A Act) are provided in Table B1 below.

Table B1 | Objects of the EP&A Act

Object	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,	• The project would provide operational efficiencies to maximise the recovery of coal resources. • MCO's existing infrastructure and workforce would continue to be utilised at greater intensity for the remaining project life. • The project would provide considerable socio-economic benefits.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	• The Department's assessment has sought to integrate all significant environmental, social and economic considerations (see Table B2 below for further commentary).
(c) to promote the orderly and economic use and development of land,	• The project involves a permissible land use on the subject land. • The coal resource is located within existing coal exploration and lease area. • The project can be carried out using existing mine site and transport infrastructure, with coal to continue to be processed at the existing complex CHPP.
(d) to promote the delivery and maintenance of affordable housing,	• Not applicable.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	• The project has been designed to minimise potential environmental impacts where practicable, including further avoidance measures put forward in an amendment report, and a range of minimisation and mitigation measures to retain, enhance and rehabilitate threatened species habitat and critical endangered ecological community. • As per Section 6.1.6.2, the Mining Panel advised that the project would be unlikely to result in SAII. • The project is an extension to an existing mining complex and would utilise existing processing infrastructure to minimise the clearance required. • MCO would offset residual biodiversity impacts in accordance with the NSW and Commonwealth Government Policy.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	• The project has been designed to minimise impacts on heritage features and supporting documentation has been developed in consultation with a range of stakeholders, including Register Aboriginal Parties.

Object	Consideration
	• MCO propose to manage and mitigate impacts on heritage features through a heritage management plan.
(g) to promote good design and amenity of the built environment,	• The project would be located adjacent to an existing mining complex. Built features associated with mine infrastructure would be subject to design in accordance with relevant codes and Australian standards.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	• The project application included a hazard assessment completed in accordance with the requirements of the *State Environment Planning Policy (Resilience and Hazards) 2021* and reviewed in consultation with the Department's Hazards team. • Built features associated with mine infrastructure would be subject to design in accordance with relevant codes and Australian standards.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	• Council and other NSW government authorities were notified and consulted about the project and all advice was considered in the Department's assessment.
(j) to provide increased opportunity for community participation in environmental planning and assessment.	• The project was publicly exhibited submissions were invited from members of the community and special interest groups. All submissions have been considered by MCO in its submissions report and the Department during the assessment process.

A summary of the Department's consideration of Ecologically Sustainable Development Principles (ESD) is found in Table B2 below.

Table B2 | Consideration of Ecological Sustainable Development (ESD)

ESD Principle	Consideration
The precautionary principle	• The ESD precautionary principle requires that: "if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation". • The project's threats of serious or irreversible environmental damage have been assessed having regard to all materials provided by MCO and advice from key Government agencies and the Mining Panel. • Information gathered during the assessment process has provided sufficient scientific certainty regarding environmental impacts and residual risks to enable the determination of the development application. • Should the IPC determine to approve the project, strict performance measures and management and monitoring requirements would provide appropriate protection for environmental values and would minimise the potential for any serious and irreversible environmental damage
Inter-generational equity	• Should the IPC determine to approve the project, the recommended performance measures and other conditions of consent would provide an appropriate degree of protection for the health, diversity and productivity of the environment and not constrain the ability of future generations to use or enjoy the project area in a similar way to the present and recent past. Additionally, successful rehabilitation efforts would see connectivity improved across the valley floor in the long-term.

ESD Principle	Consideration
	• The mining of coal and its combustion is a major contributor to anthropogenic climate change, which has the potential to impact future generations. In recognition of that risk, NSW has set clear goals for reducing greenhouse gas emissions over the next decades and achieving net zero emissions by 2050. The additional greenhouse gas emissions generated by the project have been assessed under the current NSW and Commonwealth legislative frameworks. • Scope 3 emissions associated with the project and associated environmental, social and economic impacts on climate change have also been carefully assessed in accordance with the requirements of section 4.15 of the EP&A Act.
Conservation of biological diversity and ecological integrity	• Potential impacts on biodiversity were a fundamental consideration in the assessment of the project. MCO advised that it designed the project to reduce and minimise impacts on biodiversity as much as practicable, with reductions to the disturbance footprint presented in the amendment report, and habitat enhancement and revegetation commitments increased to protect the riparian zone of Moolarben and Murdering Creek and enhance connectivity across the valley floor post-mining. • Impacts on candidate entities for serious and irreversible impacts were carefully assessed, including Box Gum Woodland CEEC and the Regent Honeyeater, threatened microbats and the Broad-headed Snake. Impacts on other threatened species were also carefully considered. • Should the IPC determine to approve the project, the Department has recommended a range of conditions to mitigate, manage and offset impacts, including (but not limited to): o performance measures and monitoring for threatened microbat habitat and behaviour; o increased areas for habitat enhancement that encompass more existing areas of Box Gum Woodland CEEC; and o a biodiversity management plan, detailing habitat enhancement initiatives.
Improved valuation, pricing and incentive mechanisms	• The environmental costs of the project have been addressed in detail and quantified to the degree possible in the cost benefit analysis prepared as part of the amendment report. The direct environmental effects of the project would largely be internalised through the adoption and funding of the mitigation measures proposed by MCO or otherwise required by conditions to mitigate, remediate or offset them. • The primary externality would be the damage costs of greenhouse gas emissions. The costs of these externalities have been quantified in MCO's economic assessment, as guided by the *Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals (Economic Guidelines, NSW Government, 2015).*

Matters for consideration- environmental planning instruments

A summary of the Department's consideration of matters for consideration – environmental planning instruments - under Section 4.15 of the EP&A Act is found in Table B3 below.

Table B3 | Matters for consideration under 4.15 of the EP&A Act

Item	Consideration
Environmental Planning Instruments	
State Environmental Planning Policy	• Development for the purpose of coal mining is specified in section 5 of Schedule 1 to the Planning Systems SEPP as being State Significant Development. •

Item	Consideration
(Planning Systems) 2021	
State Environmental Planning Policy (Resources and Energy) 2021	• Part 2.3 of the Resources and Energy SEPP lists a number of matters that a consent authority must consider before determining an application for consent to undertake development for the purposes of mining. These matters are summarised below and throughout section 6 as applicable. <u>Non-discretionary development standards for mining (section 2.16)</u> • Section 2.16 identifies non-discretionary development standards for the purposes of section 4.15(2) of the EP&A Act in relation to the carrying out of development for the purposes of mining. The EIS (Attachment 7) and amendment report sets out MCO's consideration of the applicable standards and whether or not the project meets them. <u>Compatibility with other land uses (section 2.17)</u> • Potential impacts of the project have been assessed having regard to other land uses in the area, including land used for conservation purposes, other approved mines, agriculture and rural residential dwellings. • The project is an extension of mining to an existing complex and would therefore be consistent with existing land uses in the vicinity. Should the IPC determine to approve the project, it would not be incompatible with surrounding land uses subject to the recommended conditions for management and mitigation of project-related impacts. <u>Voluntary Land Acquisition and Mitigation Policy (section 2.18)</u> • The project would not exceed noise or air quality criteria at any privately-owned receivers that would trigger provisions of the NSW Government's *Voluntary Land Acquisition and Mitigation Policy (September 2018).* <u>Compatibility with mining, petroleum and extractive industries (section 2.19)</u> • The project is in close proximity to the Ulan and Wilpinjong coal mines and would not impact the current or future extraction or recovery of these operations. • Should the IPC determine to approve the project, the Department has recommended conditions requiring mine owners to co-ordinate operations appropriately to minimise impacts and maximise efficiencies and positive environmental outcomes. <u>Natural resource management and environmental management (section 2.20)</u> • Section 2.20 requires that, before granting consent for development for the purposes of mining, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure that impacts on significant surface water and groundwater resources, threatened species and biodiversity are avoided or minimised to the greatest extent practicable and that greenhouse gas emissions are minimised to the greatest extent practicable. • Should the IPC determine to approve the project, the Department has recommended a range of conditions relating to water resources, biodiversity and greenhouse gas emissions (see Appendix D). Assessment and evaluation is provided in section 6. <u>Resource recovery (section 2.21)</u> • The project can be carried out in an efficient manner that optimises coal resource recovery while giving appropriate recognition to and protection for the significant environmental and other values that may be affected. • NSW Resources advised that the economic benefits of the project would provide an appropriate return to the State of NSW.

Item	Consideration
	Transport (section 2.22) • Section 2.22 aims to limit the transport of coal, other extracted materials on public roads. All ROM coal extracted from the mine is proposed to be processed at the existing CHPP of the Stage 1 project approval and transported from the site via rail. Rehabilitation (section 2.23) • Section 2.23 outlines particular requirements relating to consideration of whether any consent granted should be subject to conditions aimed at ensuring rehabilitation of land disturbed by mining and, in particular, whether conditions should require preparation of a rehabilitation management plan, appropriate treatment of waste, remediation of soil contamination and the avoidance of public safety risks. • Should the IPC determine to approve the project, the Department has recommended conditions to manage rehabilitation, waste and soil contamination.
State Environmental Planning Policy (Resilience and Hazards) 2021	• Before granting consent for a development application that involves a "change of use", the consent authority must consider a "preliminary investigation" of whether the land involved includes "contaminated land". • A preliminary site investigation was submitted with the EIS in 2022 and MCO subsequently submitted a detailed site investigation (DSI) land contamination assessment in 2025. This assessment concluded that the project area would be suitable for the purpose of the project subject to recommended remediation and validation of 11 areas of environmental concern (AECs). The Department has recommended a condition requiring MCO to implement the recommended remediation and validation measures in accordance with the DSI. • MCO also submitted a preliminary hazard analysis (Appendix R) which considered the potential hazards and risks associated with the project, including the storage and transportation of hazardous goods • The DSI indicates that the project area does not pose significant contamination risks or hazards and that the development is generally consistent with the aims, objectives and provisions of the SEPP.
Mid-Western Regional Local Environmental Plan 2012	• The project area is wholly located within in the Mid-Western Regional local government area (LGA). Land within the project area is predominantly zoned RU1 – Primary Production with smaller proportions zoned C3 – Environmental Management. Open cut mining is permissible with consent in these zones. • Clause 5.10 outlines the provisions that relate to Aboriginal and European heritage in the LGA. No heritage items listed in the Mid-Western Regional LEP are located within the project boundary. The EIS and amendment reports included an assessment of impacts on heritage features including proposed mitigation and management measure where impacts are predicted. • Clause 6.1 of the Mid-Western Regional LEP outlines considerations for the consent authority relating to earthworks. The project would involve earthworks during construction and open cut mining activities. Associated impacts on water resources, amenity, heritage items have been carefully considered. Open cut mining areas would be progressively backfilled and rehabilitated, and areas of infrastructure would be decommissioned. Should the IPC determine to approve the project, the Department has recommended conditions to avoid, manage or mitigate impacts from earthworks.
State Environmental Planning Policy	• Potential impacts on Koalas are considered in section 6.1.3.6. Impacts on Koalas were assessed in accordance with the Biodiversity Assessment Method, having regard to this SEPP, where applicable.

Item	Consideration
(Biodiversity and Conservation) 2021	• MCO has proposed a range of mitigation and management measures for impacts on the Koala, including the establishment on a habitat enhancement area which would incorporate principles consistent with this SEPP to conserve and manage areas that provide suitable habitat.
State Environmental Planning Policy (Transport and Infrastructure) 2021	• Relevant public authorities about the project, including Mid-Western Regional Council, Transport for NSW.
EP&A Regulation	
Additional matters that the consent authority must consider	*Dark Sky Planning Guideline* • The consent authority must consider the *Dark Sky Planning Guideline* because the project area is less than 200 km from the Siding Spring Observatory. The consideration of lighting impacts associated with the project are discussed in **Section 6.5**.

Net Zero Principles

. The guiding principles of the Climate Change (Net Zero Future) Act 2023 relate to how action to address climate change should be undertaken and what should be taken into account.

Table B4 provides a summary of these Guiding Principles.

Guiding Principle	Consideration
1) For this Act, the guiding principles are the principles set out in this section.	• Noted.
2) There is a critical need to act to address climate change, which is a serious threat to the social, economic and environmental wellbeing of New South Wales.	• Noted.
3) Action to address climate change should be taken as early as possible to minimise the cost and adverse impacts of climate change.	• Should the IPC determine to approve the project, MCO would be required to meet the requirements of Commonwealth Safeguard Mechanism and the Greenhouse Gas Mitigation Plan, to be prepared in accordance with EPA's Climate Change Policy framework.
4) Action to address climate change should be taken in a way that— *a) is fiscally responsible, and* *b) promotes sustainable economic growth, and* *c) considers the economic risks of delaying action to address climate change, and* *d) considers the impact on rural, regional, and remote communities in New South Wales.*	• The project is an extension to an existing mining complex which would: ○ provide significant economic benefit to NSW; ○ have lesser environmental impacts than a new mining development; and ○ be subject to a range of commitments made by MCO and recommended conditions which would appropriately manage environmental, social and economic impacts. • Should the IPC determine to approve the project, MCO would be required to meet the requirements of Commonwealth Safeguard Mechanism and the Greenhouse Gas Mitigation Plan, to be prepared in accordance with EPA's Climate

Guiding Principle	Consideration
	Change Policy framework. Climate change impacts on the locality were considered in Section 6.3.4. • The project would provide economic and employment benefits to NSW and the Mudgee region.
5) Action to address climate change should be consistent with the right to a clean, healthy and sustainable environment.	• The Department has undertaken a comprehensive assessment of the impacts of the project as documented in **section 6**.
6) Action to address climate change should be consistent with the principles of ecologically sustainable development described in the Protection of the Environment Administration Act 1991, section 6(2).	• Consideration of the principles of ESD is provided in Table B2above.
7) Action to address climate change should involve appropriate consultation with affected persons, communities and stakeholders.	• The project was publicly exhibited and the Department received 75 submissions from members of the public and special interest groups. Advice was also received from government agencies and Council (see section 5). • All submissions were considered in the Department's assessment, including those that raised concerns about climate change. •
8) Action to address climate change should take into account the following—	-
a) *the knowledge and perspectives of Aboriginal communities,*	• The project application and amendment application included consultation with Registered Aboriginal Parties (RAPs) in accordance with the NSW government's Aboriginal heritage consultation guidelines. The views of the RAPs were considered in the Department's assessment of the application.
b) *the best available science,*	• Estimation of greenhouse emissions associated with the project was undertaken in accordance with contemporary practises and the National Greenhouse Accounts Factors (DCCEEW 2023). • Emissions estimates were reviewed by the Mining Panel and EPA, including CAS. • The greenhouse gas emissions of the project were considered in the context of the NSW emissions reduction trajectory. These projections were developed by the NSW Government's Net Zero Emissions Modelling Program. •
c) *the knowledge of rural, regional and remote communities in New South Wales,*	• The project included consultation with the community consultative committee (CCC) and the Department received submissions from members of the public and special interest groups during the exhibition of the project that informed the Department's assessment.
d) *the need to support local communities, including Aboriginal communities, who may be affected by the action, including by—*	• The complex provides substantial employment and flow on economic benefits to the Mudgee region. The project would support these benefits by maintaining intensity of the required workforce for the remaining project life.

Guiding Principle	Consideration
(i) *considering the impact on local employment and industries, and* (ii) *diversifying local economies, and* (iii) *encouraging local procurement, and* (iv) *optimising job creation and employment transition opportunities, and* (v) *considering the impact on the amenity of local communities,*	• The project was prepared in consultation with Aboriginal communities and in accordance with relevant guidelines. • Should the IPC determine to approve the project, the Department has recommended conditions to appropriately manage amenity impacts on the local community.
e) *the need for education and skills diversification,*	• Not applicable. The requisite education and skills have been obtained. However, MCO would continue to implement its Community Support Program which offers local employment and training opportunities.
f) *the need to ensure essential utilities and infrastructure are provided, including energy, water, telecommunications and transport,*	• In 2020, the NSW Government launched the Electricity Infrastructure Roadmap to coordinate the transition to a largely decarbonised electricity grid over two decades. Although trending downwards due to this transition, NSW is still reliant on coal-fired power for its electricity generation. • In 2023, the NSW Premier issued directions to coal mines in response to a coal market price emergency. Directions for coal mines included a cap on the price of thermal coal sold to power stations in NSW and a requirement to reserve a proportion of future coal production to supply NSW coal fired power stations.
g) *the impact of the action on consumer costs in New South Wales, including energy costs,*	
h) *the need to reduce the risk climate change poses to human health,*	• Should the IPC determine to approve the project, MCO would be required to meet the requirements of Commonwealth Safeguard Mechanism and the Greenhouse Gas Mitigation Plan, to be prepared in accordance with EPA's Climate Change Policy framework. On this basis, the project is unlikely to significantly increase risk and impacts associated with human health, equity and social justice for disadvantaged/vulnerable groups and species survival.
i) *equity and social justice impacts on socially disadvantaged groups and economically vulnerable regions,*	
j) *the need to reduce the risk climate change poses to the survival of all species.*	
9) *Action to address climate change should take into account the impact on animals.*	• The project application included a biodiversity impact assessment undertaken in accordance with the Biodiversity Assessment Method, and included avoidance, minimisation and offsetting measures. The Department's assessment of biodiversity impacts is presented in section 6..
10) *The Government of New South Wales is responsible for—* a) *urgently developing and implementing strategies, policies and programs to address climate change, and* b) *ensuring the Government of New South Wales pursues best practice in addressing climate change.*	• Noted. The EPA is developing these policies and plans under its *Climate Change Policy and Climate Change Action Plan* which have been considered in the assessment of this project, including the *Large Emitters Guide.*

Appendix C – Assessment of Matters of National Environmental Significance

Introduction

On 2 May 2022, the project was determined to be a controlled action by the Commonwealth Department of Climate Change, Energy, Environment and Water (AG DCCEEW). The controlling provisions are listed threatened species and communities (sections 18 and 18A) and a water resource – large coal mines (section 24D and 24E).

In accordance with the bilateral agreement between the Australian Government and NSW Government, the Department provides the following information to inform the Commonwealth Minister's decision about whether to approve the proposed action (the project) under the EPBC Act.

The Department's assessment has been prepared based on the assessments contained in the EIS, Amendment Report, submissions report and additional information provided during the assessment process. The Department's assessment has also carefully considered advice received from NSW Government agencies (including Commonwealth advice from CPHR), public submissions, and expert advice from the Independent Expert Scientific Committee on Unconventional Gas Development and Large Coal Mining Development (IESC) and Mining Panel.

This appendix includes consideration of impacts to water resource and listed threatened species and communities. It is supplementary to, and should be read in conjunction with, the assessments included in section 6.1 and 6.2 of this assessment report.

Impacts on a water resource – coal mine

The Department's assessment has considered the predicted impacts on surface water and groundwater resources, including potential impacts on groundwater dependent ecosystems and other water users.

The project was jointly referred by the Department and the AG DCCEEW to the IESC requesting advice on potential water-related impacts. The IESC's advice is included in Appendix A. A response to issues raised was provided various documentation submitted by MCO (refer to Table 14). Table C1 summarises the key issues raised by the IESC and how they have been addressed.

Table C1 | Key issues identified by the IESC

Issue Raised	Address
Further conceptualisation of the alluvium along Moolarben Creek and assessment of how drawdown may propagate through the alluvium are required. This includes description of the extent, thickness and degree of saturation of the alluvium and its geometry in relation to the proposed mine extension.	• Additional information provided by MCO in various documents including the Submissions Report, Amendment Report and additional information. • Additional information was considered by the Mining panel who recommend conditions for an expanded alluvial monitoring network, including the collection of 12 months of baseline data prior to the commencement of mining.
Given the limitations of the regional-scale groundwater model, an assessment of local-scale impacts on drawdown within the project area and any impact on baseflow.	• Additional information provided by MCO in various documents including the Submissions Report, Amendment Report and additional information. • Additional information was considered by the Mining Panel who recommended revised numerical groundwater modelling within 18 months of the expanded monitoring network to improve predictions and conceptualisation of the hydrogeologic environment.
The extent and degree of groundwater use by potential terrestrial groundwater dependent ecosystems (GDEs) along Moolarben Creek should be assessed in the field and monitored in areas of predicted drawdown.	• MCO engaged Dr Colin Driscoll to investigate the presence of GDEs in the project area and other areas of GDEs near approved mining areas. • GDEs along Moolarben Creek were identified to be facultative not obligative. • Additional information was considered by the Mining Panel who recommended conditions requiring strict monitoring and a trigger action response plan to manage risks to facultative GDEs (see Section 6.2.2).
Additional alluvial monitoring bores, surface water flow and water quality monitoring sites should be placed further upstream on Moolarben Creek, with baseline monitoring (including macroinvertebrate biomonitoring) data to be collected for at least two years before commencing mining operations.	• MCO engaged Dr Sharon Cummins and Dr Dan Roberts (Bio-Analysis) to undertake further stygofauna surveys. • No subterranean GDEs are mapped within the project area, and no stygofauna were identified from bore sampling during additional surveys. • In accordance with recommendations from the Mining Panel, MCO agreed to install and expanded alluvial monitoring network, including the collection of 12 months of baseline data prior to the commencement of mining.
Surface water quality monitoring of metals and other parameters should be undertaken at least every six months throughout operations at monitoring locations along Moolarben Creek and the Goulburn River (including event-based sampling).	• MCO accepted this recommendation and the Department has recommended conditions requiring a comprehensive surface water management plan.
Water quality monitoring of mine-water and sediment dams for additional relevant parameters (e.g., metals) is needed.	• MCO accepted this recommendation and the Department has recommended conditions requiring performance measures for sediment basins to be designed, installed and maintained in accordance with Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom, 2004) and 2E Mines and Quarries (DECC, 2008).

Issue Raised	Address
Trigger action response plans (TARPs) for water-dependent assets associated with Moolarben and Murdering creeks are required.	• MCO accepted this recommendation and the Department has recommended conditions requiring a comprehensive water management plan, including trigger action response plans for groundwater dependent ecosystem and alluvial aquifers.

Impacts on EPBC Listed Species and Communities

The proposed action was considered likely have a significant impact on five Commonwealth-listed species, including White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, *Cotoneaster pomaderris*, Regent Honeyeater, Koala and Large-eared Pied Bat. A further 16 threatened species were also identified for further evaluation.

The project would directly impact 480 ha of native vegetation that includes Commonwealth-listed ecological communities and habitat for listed species. Additionally, the project has the potential to indirectly impact MNES through blasting and other operational activities (ie noise, light and dust).

Table C2 summarises the impact on Commonwealth-listed species as well as relevant mitigation and offset measures. A range of other species were considered in the amended BDAR, including all species listed on the referral decision. Most species did not require further assessment due to their absence in targeted surveys and/or unsuitable habitat.

Table C2 | Consideration of potential impacts on EPBC listed species

Species	Summary of Impact	Mitigation and Offsets
Box-Gum Woodland CEEC	• Direct impact on 401 ha including 34 ha of woodland in good condition and 367 ha of DNG in low to moderate condition. • Discussed in section 6.1.6.2.	• Habitat Enhancement Area and rehabilitation to increase native vegetation (Refer to section 6.4.1.2). • Retirement of ecosystem credits (PCT1655).
Eucalypt Forest and Woodland CEEC	• Direct impact on 15.5 ha.	• Habitat Enhancement Area and rehabilitation to increase native vegetation (Refer to section 6.4.1.2). • Retirement of ecosystem credits (PCTs 266, 281 and 483).
Cotoneaster Pomaderris *(Pomaderris cotoneaster)*	• A cluster was recorded in targeted surveys adjacent to the development footprint. • Direct impacts on 0.07 ha of habitat that is located within a buffer area surrounding suitable habitat • Discussed in section 6.1.6.3.	• Fencing between known cluster and project footprint. • Monitoring population following clearing. • Retirement of two species credits.
Regent Honeyeater *(Anthochaera Phrygia)*	• Not recorded in targeted surveys but assumed present. • Direct impact on 81 ha of 'important habitat'. • Discussed in section 6.1.6.2.	• Noisy Miner management plan. • Rehabilitation to increase native vegetation. • Habitat Enhancement Area to include species consistent with PCT habitat for Regent Honeyeater.

Species	Summary of Impact	Mitigation and Offsets
		• Retirement of 3,140 species credits and ecosystem credits (PCT 266, 281, 1610, 1629, 1655, 1656, 1661, 1711).
Koala *(Phascolarctos conereus)*	• Recorded in targeted surveys. • Direct impacts on 113 ha of habitat. • Discussed in section 6.1.6.3	• Habitat Enhancement Area to minimise connectively impacts. • Rehabilitation to increase native vegetation including species consistent with PCT habitat for the Koala. • Pre-clearance surveys. • Retirement of 3,425 species credits and ecosystem credits (all woodland/forest PCTs).
Large-eared Pied Bat *(Chalinolbus dqyeri)*	• No direct impacts on rocky habitat • Direct impacts on 113 ha of foraging habitat • Potential indirect impacts on breeding and roosting habitat predominantly associated with blasting, as well as noise, light and dust. • Discussed in section 6.1.6.3.	• Blast management plan and vibration limits. • Performance measures on breeding habitat and roosting habitat when bats in torpor. • Bat Monitoring Program, including trigger action response plan. • Retirement of species credits for impacts on foraging habitat
Broad-headed Snake (Hoplocephalus bungaroides)	• Recorded in targeted surveys • No direct impacts on suitable habitat • Potential indirect impacts on habitat predominantly associated with blasting, as well as noise, light and dust. • Discussed in section 6.1.6.3.	• Blast management plan and vibration limits. • Noise and light management. • No credits requirements generated as no direct or prescribed impacts predicted.
Pink-tailed Legless Lizard	• Recorded in targeted surveys. • Direct impacts on 207 ha of suitable habitat, including areas of Category 1 land. • Discussed in section 6.1.6.3.	• Surface rock trial during rehabilitation to restore habitat. • Pre-clearance surveys. • Retirement of 4,146.8 species credits, including credits calculated as 'prescribed impacts' on Category 1 land.
Swift Parrot	• Not recorded in targeted surveys but considered likely to occur based on previous proximal recordings. • Direct impact on approximately 106 ha of foraging habitat. • Indirect impacts on adjoining foraging habitat due to noise and light. • Discussed in section 6.1.6.3.	• Habitat Enhancement Area to enhance and increase habitat availability. • Rehabilitation to increase native vegetation including species consistent with foraging habitat. • Noise and light management. • Retirement of ecosystem credits.
Gang-gang Cockatoo	• Record in targeted surveys on 5 occasions. • No breeding activity detected and no potential nest trees mapped. • Indirect impacts on adjoining foraging habitat due to noise and light. • Discussed in section 6.1.6.3.	• Habitat Enhancement Area and rehabilitation to increase native vegetation including species consistent with foraging habitat. • Noise and light management. • Retirement of ecosystem credits.

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 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.

Conservation advice, threat abatement plans, recovery plans and other EPBC plans have been considered for species predicted to be significantly impacted, including (but not limited to) those set out in Table C3.

Table C3 | Key Commonwealth advice and plans considered in the assessment of the project

Species	Relevant plan/s	Consideration

Box-Gum Woodland CEEC & Eucalypt Forest and Woodland CEEC	• Conservation Advice for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DCCEEW 2023)
	• National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DECCW 2010)
	• Approved Conservation Advice (including listing advice) for the Central Hunter Valley eucalypt forest and woodland ecological community (DoE 2015)
		• Refer to section 6.1.6.3.
		• Key threats associated with the project include land clearance and fragmentation, weed and feral pest invasion, fire regime, changed hydrology and climate change.
		• Management measures and recommended conditions consistent with recovery plan objectives including:
		  ○ additional areas to be included in the proposed Habitat Enhancement Area that would result in a similar of CEEC retained in the project area to that disturbed;
		  ○ rehabilitation efforts would result in increased native woodland vegetation across the valley floor, including species commensurate with Box-Gum Woodland CEEC; and
		• retirement ecosystem credits.

Cotoneaster Pomaderris	• Conservation Advice for Pomaderris cotoneaster (Cotoneaster Pomaderris) (DAWE 2021)
	• National Recovery Plan for Pomaderris cotoneaster (*Cotoneaster pomaderris*) (DCCEEW 2009)
		• Refer to Section 6.1.6.3.
		• Key threats associated with the project include climate change impacts (including increased bushfire and drought severity and frequency), land clearing, population fragmentation and invasive species.
		• Management measures and recommended conditions consistent with recovery plan objectives including:
		  ○ No loss of individuals expected, however 0.7 ha of disturbance would occur to buffer areas surrounding suitable habitat. Two offset credits generated for this area of disturbance.
		  ○ Fencing to be constructed between disturbance areas and known population.

Species	Relevant plan/s	Consideration
		• Monitoring and management measures to be documented in a Biodiversity Management Plan.

Regent Honeyeater ***(Anthochaera Phrygia)***	• Conservation Advice Anthochaera phrygia regent honeyeater (Department of the Environment 2015)
	• National Recovery Plan for the Regent Honeyeater (Anthochaera phrygia) (Department of the Environment 2016)
	• *Listing advice - Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant Noisy Miners*
		• Refer to Section 6.1.6.3.
		• Key threats include clearing, fragmentation and degradation of habitat.
		• Management measures and recommended conditions consistent with recovery plan objectives including:
		  ○ enhancing habitat and revegetation within Habitat Enhancement Area;
		  ○ increasing native woodland across the rehabilitated project area, including species commensurate with habitat for the Regent Honeyeater;
		  ○ Noisy Miner management; and
		• retirement of 3,410 species credits.

Koala ***(Phascolarctos conereus)***	• Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (DAWE 2022) • National Recovery Plan for the Koala Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DAWE 2022) • Threat abatement plan for predation by feral cats 2024 (DCCEEW 2024)	• Refer to Section 6.1.6.3. • Key threats associated with the project include: • Management measures and recommended conditions consistent with recovery plan objectives including: • Retirement of 3,425 species credits

Large-eared Pied Bat ***(Chalinolbus dwyeri)***	• Conservation Advice for Chalinolobus dwyeri (large-eared pied bat) (DCCEEW 2023)
	• National recovery plan for the large-eared pied bat Chalinolobus dwyeri (DERM 2011)
		• Refer to Section 6.1.6.3.
		• Key threats associated with the project include indirect habitat disturbance associated with mining and climate change.
		• Management measures and recommended conditions consistent with recovery plan objectives including:
		  ○ no direct impacts on rocky habitat features;
		  ○ a bat monitoring program, including the identification of priority roost and maternity sites;
		  ○ blast vibration criteria for mapped rocky habitat; and
		• strict performance measures for physical and behaviour impacts.

Broad-headed Snake	• Conservation Advice for Hoplocephalus	• Refer to Section 6.1.6.3.

Species	Relevant plan/s	Consideration

(Hoplocephalus bungaroides)	bungaroides (broad-headed snake) (DCCEEW 2023)	• Key threats associated with the project include indirect habitat disturbance.
		• Management measures and recommended conditions consistent conservation and recovery actions include:
		  ○ no direct impacts on rocky habitat features; and
		  ○ blast vibration criteria for mapped rocky habitat features;
		• management of other indirect impacts through a biodiversity management plan.

Pink-tailed Legless Lizard (Aprasia parapulchella)	• Conservation Advice Aprasia parapulchella Pink-tailed worm-lizard (TSSC 2015)	• Refer to Section 6.1.6.3.
		• Key threats associated with the project include Direct clearing of 207 ha of habitat, including surface rocks and native grasses.
		• Management measures and recommended conditions consistent conservation and recovery actions include:
		  ○ vegetation clearance protocols;
		  ○ development of a surface rock trial site to assess habitat restoration during rehabilitation; and
		• retirement of 4,147 species credits;

Swift Parrot *(Lathamus discolor)*	• Conservation Advice Lathamus discolor swift parrot (TSSC 2016) • National Recovery Plan for the Swift Parrot (Lathamus discolor) (DCCEEW 2024) • *Listing advice - Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant Noisy Miners*	• Refer to Section 6.1.6.3. • Key threats associated with the project include loss of 106 ha of foraging habitat. • Management measures and recommended conditions consistent with recovery plan objectives including: ○ enhancing habitat and revegetation within Habitat Enhancement Area; and • increasing native woodland across the rehabilitated project area, including species commensurate with habitat for the Swift Parrot.

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 assessment report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and

minimise adverse impacts on biological diversity. The recommended conditions requires 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 would 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 their best endeavours to protect such 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. While the Apia Convention was formally suspended on 13 September 2006, the recommendations are not inconsistent with the obligations under the Convention, which has the general aims of conservation of biodiversity.

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

Additional EPBC Act considerations

Table C4 contains the additional mandatory considerations to be taken into account and factors to have regard to under the EPBC Act, which are additional to those already addressed.

Table C4 | Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act Section	Considerations	Conclusion
Mandatory considerations		
136(1)(b)	• Social and economic matters have been considered and are discussed in section 6.5 of the assessment report.	• The Department considers that the project would result in a range of benefits for the local, regional and State economy and is of public benefit. The project would not result in an extension to mining life at the complex and social impacts would continue to be managed consistent with existing management strategies and procedures.
• **Factors to be taken into account**		
3A, 391(2)	• The principles of ecologically sustainable development (ESD), including the precautionary	• The Department considers that the project, if undertaken in accordance with the

EPBC Act Section	Considerations	Conclusion
	principle, have been taken into account. In particular, the short term and long term economic, environmental, social and equity considerations that are relevant to this decision have been considered and the advice provided within this report reflects the importance of conserving biological diversity, ecological and cultural integrity in relation to all of the controlling provisions for this project. • The conditions restrict environmental impacts, impose monitoring and adaptive management and reduce any lack of certainty related to the potential impacts of the proposed project. • The conditions require the project to be delivered and operated in a sustainable way to protect the environment for future generations and conserve the relevant matters of national environmental significance. • Mitigation measures that reflect improved valuation, pricing and incentive mechanisms are promoted by placing a financial cost on the applicant to mitigate the environmental impacts of the proposed modification.	recommended conditions of consent, would be consistent with the principles of ESD.
136(2)(e)	• Other information on the relevant impacts of the action	• The Department considers that all information relevant to the impacts of the project has been taken into account.
Factors to have regard to		
176(5)	• Bioregional plans	• There is no approved bioregional plan related to the activity.
Considerations on deciding on conditions		
134(4)	• All project related documentation is available on the Department's website at: www.majorprojects.planning.nsw.gov.au, including (but not limited to): • the EIS, public submissions, submissions report, amendment report, (including updated appendices) and additional information provided by MCO; • advice from government agencies and the Mining Panel; and • the recommended conditions of consent.	• The Department considers that the conditions for the project (see Appendix G) are a cost-effective means of achieving their purpose. The conditions are based on the information provided by MCO and were prepared in consultation with relevant agencies.

Conclusions on Controlling Provisions

For the reasons set out in section 6.1 and 6.2 and in this appendix, the Department considers the impacts of the action would be acceptable, subject to the avoidance, mitigation and offsetting measures described in documentation submitted for the project and the recommended conditions of consent in Appendix D.

Appendix D – Recommended instrument of consent

Available under the 'Determination' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/projects/moolarben-oc3-extension-project

Appendix E – Biodiversity impact and offset liability

Table E1 | Ecosystem Credits

Plant Community Type	Impact Area	Offset Credit Stages			Total Credits
		Stage 1	Stage 2	Stage 3	
PCT 266 - **White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion***	35.3	166	469	456	1,091
PCT 281 - **Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion***	365.78	3,585	2,596	2,336	8,517
PCT 483 - **Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley***	0.04	2	0	0	2
PCT 1610 - **White Box - Black Cypress Pine shrubby woodland of the Western Slopes**	28.2	49	304	173	526
PCT 1629 - **Narrow-leaved Stringybark - Grey Gum shrubby open forest on sandstone ranges of the Sydney Basin**	5.5	17	99	0	116
PCT 1655 - **Grey Box - Slaty Box shrub - grass woodland on sandstone slopes of the upper Hunter and Sydney Basin****	16.19	275	44	53	372
PCT 1656 - **Narrow-leaved Ironbark – Black Pine - Narrow-leaved Wattle shrub - grass open forest on sandstone slopes of the upper Hunter and Sydney Basin**	17.8	336	0	0	336
PCT 1661 - **Narrow-leaved Ironbark – Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin**	3.7	84	0	0	84
PCT 1711 - **Tantoon - Lepyrodia leptocaulis shrubland on sandstone drainage lines of the Sydney Basin**	7.5	0	28	105	133
Total	**480.01**	**4,514**	**3,540**	**3,123**	**11,177**

** Box-Gum Woodland CEEC*

*** Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion CEEC*

Table E2 | Species Credits

Plant Community Type	Impact Area	Offset Credit Stages			Total Credits
		Stage 1	Stage 2	Stage 3	
Cotoneaster Pomaderris (Pomaderris cotoneaster)	0.07	-	2	-	2
Regent Honeyeater (Anthochaera phrygia)	81	1,520	865	1,025	3,410
Pink-tailed Legless Lizard (Aprasia parapulchella)	207	1,581.2	1,827.2	738.4	4,147
Large-eared Pied Bat (Chalinolobus dwyeri)	113	1,935	1,189	2,013	5,137
Squirrel Glider (Petaurus norfolcensis)	113	1,290	793	1,342	3,425
Koala (Phascolarctos cinereus)	113	1,290	793	1,342	3,425
Eastern Cave Bat (Vespadelus troughtoni)	113	1,935	1,189	2,013	5,137
Total		9,551.2	6,658.2	8,473.4	24,683

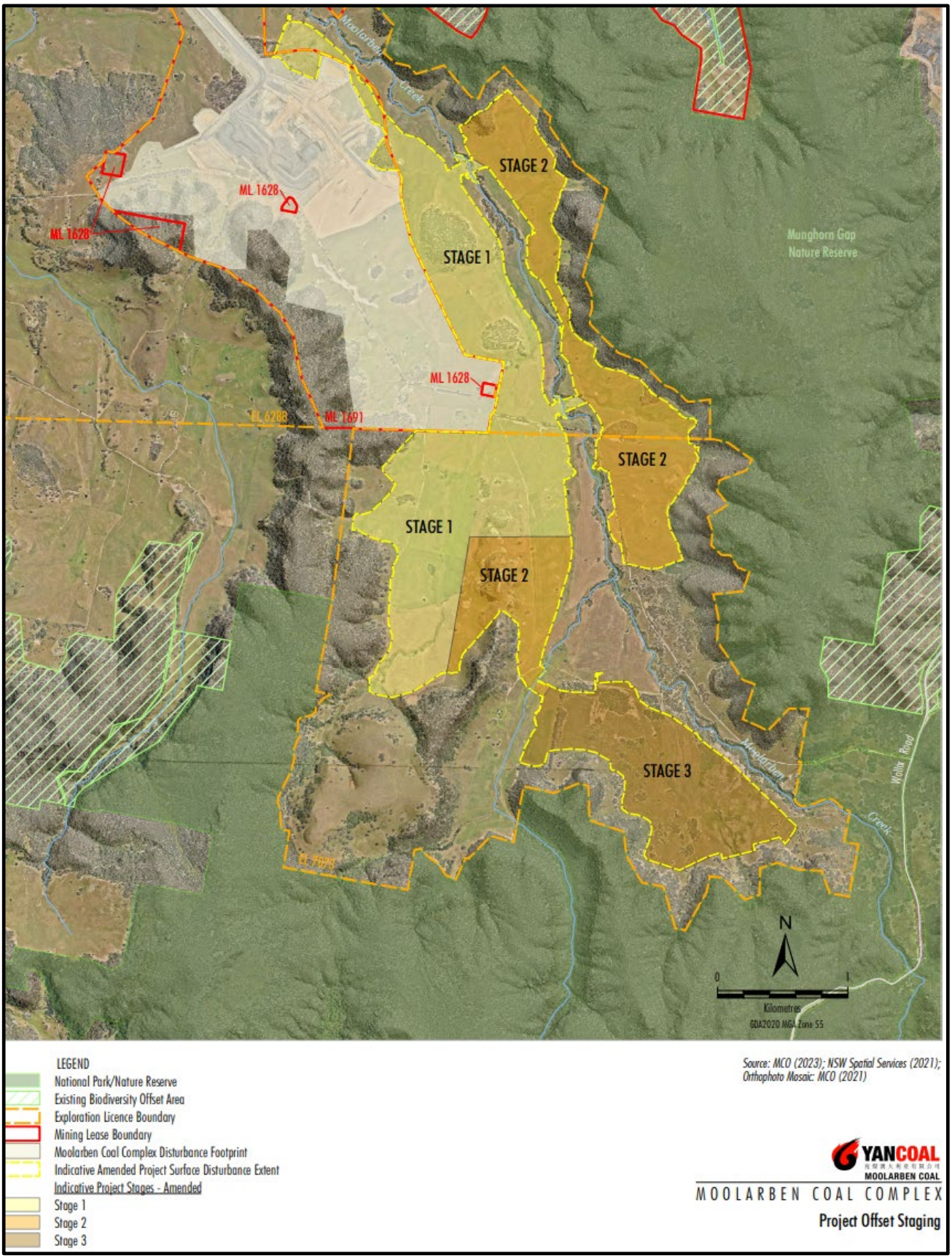

Figure E1 | Project Offset Stages