

# Modification 6 of Ulan Continued Operations Project

State Significant Development Modification Assessment Report (MP08\_0184-Mod-6)

May 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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Modification 6 of Ulan Continued Operations Project (MP08\_0184-Mod-6)  
Assessment Report

Published: May 2025

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# Executive Summary

Ulan Coal Mines Pty Limited (UCMPL), a subsidiary of Glencore Coal Pty Limited, operates the Ulan Coal Complex (the complex), an underground and open cut coal mine located approximately 40 kilometres (km) north of Mudgee in the Mid-Western Regional local government area.

The complex operates under development consent 08\_0184 for the Ulan Continued Operations Project (the project) granted by then Minister for Planning in November 2010. The consent allows UCMPL to extract up to 20 million tonnes per annum (Mtpa) of run of mine (ROM) coal by underground and open cut methods, until 30 August 2033.

## Modification

UCMPL are seeking to modify the development consent to extend the underground mining area to extract additional coal resources. The modification also seeks to extend the project life by 2 years (ie from 2033 to 2035) and construct a range of surface infrastructure to support mining operations.

UCMPL amended the application in May 2024 to reduce the extent of the extended underground mining layout beneath Mona Creek and to make changes to the surface infrastructure layout.

## Statutory context

The modification application was lodged under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Minister for Planning and Public Spaces (the Minister) is the consent authority for the modification application. However, under the Minister's delegation dated 9 March 2022, the Executive Director, Energy, Resources and Industry, may determine the application because there were less than 50 submissions objecting to the proposal.

The modification has been determined to be a "controlled action" under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) because of potential impacts on listed threatened species and communities, and water resources. The Department has undertaken the impact assessment on behalf of the Commonwealth government in accordance with the bilateral agreement between the Commonwealth and NSW governments.

## Engagement

The Department publicly exhibited the modification from Friday 18 November 2022 to Thursday 15 December 2022 on its website. The amendment report was not exhibited.

The Department received a total of 52 submissions during the exhibition of the application, of which, 36 objected to the modification. The key concerns raised related to impacts on biodiversity, water resources, Aboriginal cultural heritage and greenhouse gas (GHG) emissions.

The Department received advice from eight government agencies and Mid-Western Regional Council (Council). Targeted advice was also sought from the Commonwealth Independent Expert Scientific Committee (IESC) and the Independent Expert Advisory Panel for Mining (Mining Panel), in relation to subsidence and water-related impacts.

## Assessment

The Department considers the key assessment issues relate to impacts on biodiversity, greenhouse gas emissions and subsidence-related impacts on water resources and Aboriginal cultural heritage. The Department has also considered other potential impacts.

### *Subsidence*

Surface area above the proposed longwall extension area predominantly consists of undeveloped bushland, with small patches of cleared or semi-cleared land (suitable for grazing).

The modification would result in conventional subsidence effects including up to 2.1 m of vertical subsidence, 85 mm/m of tilt and 35 mm/m of compressive strain. These effects would result in impact such as surface cracks, steps, ripples, perceptible cracking and some rockfalls of sandstone formations. Non-conventional subsidence impacts are also predicted to occur including valley closure of up to 900 mm and far-field horizontal movements within a 45 degree angle of draw.

The predicted subsidence effects and impacts are expected to be similar to those previously experienced at the complex and are not predicted to exceed existing subsidence performance measures.

The Mining Panel recommended that subsidence predictions are reviewed on a panel-by-panel basis, and that the monitoring program extend to at least a 45 degree angle of draw or greater. Related impacts on water resources, biodiversity and Aboriginal cultural heritage are considered separately below.

### *Water Resources*

The modification would impact both groundwater and surface water environments through depressurisation of the coal seam and subsidence impacts. The extended mining area would result in additional mine water inflows and groundwater drawdown in strata formations beneath and in the vicinity of the complex.

The greatest drawdown is predicted to occur in the lithic Triassic, with an additional 50 m in areas above the proposed extension area. No additional water users would experience drawdown greater

than 2 m, however some existing affected users would experience minor levels of additional drawdown.

Drawdown is also predicted to incrementally (that is due to the modification only) increase in the alluvium and colluvium at levels less than 2 m. Up to 5 m of cumulative drawdown (that is from the modification and all other approved mining operations) is predicted to occur post mining. As a result, up to 3.4 ML of additional baseflow losses are predicted to occur in the Talbragar River. Total loss in base flow (ie 54 ML) is estimated to represent approximately 1.4% of total baseflows in the Talbragar River.

The groundwater assessment concluded that perched aquifers, including significant water feature 'The Drip' and two local springs, are highly unlikely to be impacted by the modification. Additionally, streamflow in Mona Creek or the Talbragar River is not predicted to be discernibly affected. These predictions were generally supported by the Mining Panel.

Both the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and the Commonwealth Independent Expert Scientific Committee (IESC) raised concern regarding modelling of surface water and groundwater connections and potential impacts on Mona Creek. Following amendments to the mine plan, including the avoidance of mining beneath Mona Creek, the Mining Panel concluded that the current groundwater model was fit for purpose. However, impacts on alluvial, colluvial and Jurassic aquifers should be closely monitored, including in areas above Mona Creek and its confluence with the Talbragar River. UCMPL agreed to these recommendations.

The Department has recommended contemporary updates to the extraction plan condition in the consent and notes that existing conditions require the update of all management plans within 3 months of a modification to the development consent.

Overall, the Department considers the predicted impacts on water resources to be acceptable, subject to the recommendations of the Mining Panel, and the existing and recommended conditions of consent.

### *Biodiversity*

The modification would result in direct disturbance of up to 17.4 hectares (ha) of native vegetation from the construction of surface infrastructure. Subsidence impacts also have the potential to indirectly impact biodiversity values, primarily through changes to topography and drainage. The proposed disturbance area and subsidence zone were substantially reduced as part of the amended application and the Department considers that UCMPL has appropriately applied the principle of avoidance within the constraints of the location of the resource.

Three areas of surface infrastructure are proposed (Areas 1, 2 and 3), however, due to limitations in exploration and associated geological uncertainty, nine contingency options are proposed for the location of the Area 1 surface infrastructure. The Biodiversity Development Assessment Report

(BDAR) presented the largest impact on each vegetation type and species that could result from each of the nine contingency options, when combined with the impacts from Areas 2 and 3. This approach was referred to as the 'worst-case assessment'.

Four plant community types (PCT) are present across the proposed disturbance areas, one of which conforms with Box Gum Woodland Critical Endangered Ecological Community (CEEC). This community is listed as a potential serious and irreversible impact (SAIL) entity under the *Biodiversity Conservation Act 2016*. It is also a Commonwealth protected matter identified in the controlled action determination.

The maximum amount of Box Gum Woodland CEEC that could be disturbed by the proposal is 5.9 ha (under the Option 1 contingency option) which is estimated to represent approximately 0.0016% of the remaining area of occupancy in NSW and the Department considers that the proposed impact would be unlikely to contribute significantly to the extinction of this community.

UCMPL has calculated the offset liability for the proposed surface disturbance areas (Area 1, 2 and 3) as well as all nine contingency options for Area 1 (of which only one 'Area 1' option could be constructed).

The modification would result in a zone of subsidence of approximately 634 ha. Subsidence impacts on surface topography could include open surface cracks, compression and rockfalls. However, these impacts are not anticipated to cause any perceptible change in the condition or viability of native vegetation.

The proposed mining areas contain rocky features suitable habitat for threatened microbat species, including the Large-eared Pied Bat which is a Commonwealth protected matter identified in the controlled action determination. As a result of subsidence, up to 20% (25.6m) of cliff lines would be subject to rockfall and up to 50-70% would be subject to perceptible cracking.

The Amended BDAR identifies that impacts on breeding caves or roosting colonies could have adverse impacts on the species. The Department considers that any subsidence impacts on an occupied breeding cave or a significant single-sex colony would be an unacceptable impact on the species and would not meet existing performance measures in the consent of 'negligible impact'.

No breeding roosts were identified in targeted surveys, however the Department has recommended UCMPL undertake a comprehensive Bat Monitoring Program to identify whether any maternity or significant roosting sites are present in the predicted subsidence zone, to be presented in the Extraction Plan.

Additionally, as subsidence impacts are predicted to occur on habitat features for threatened microbats, the Department has recommended additional offset obligations for these impacts above offsets identified in the BDAR for impacts on PCTs.

UCMPL has committed to a range of mitigation measures including micro-siting of infrastructure and salvaging biodiversity features and preparing a microbat management plan.

Overall, the Department considers that the proposal's impacts on biodiversity could be appropriately avoided, managed and offset, subject to the recommended conditions.

### *Aboriginal Cultural Heritage*

Consultation with the Registered Aboriginal Parties (RAPs) identified both tangible and intangible values associated with the modification area and broader landscape.

No additional Aboriginal sites would be impacted from surface disturbance. However, there are 117 Aboriginal sites within or immediately adjacent to the predicted zone of subsidence. Two rock shelters of moderate - high archaeological significance are predicted to experience likely subsidence impacts and possible rockfall. UCMPL propose to undertake detailed recording, rock shelter test excavation and potential salvage collection at these sites, prior to secondary extraction.

The Mona Creek Rock Shelter Sites are located immediately south of the proposed extension area. No conventional subsidence impacts on these sites are predicted, however there is potential for far-field horizontal movements. Heritage NSW raised no concerns and agreed with UCMPL's proposed management measures. The Mining Panel recommended that these sites are incorporated into the subsidence monitoring program.

Overall, it was concluded that at a local level, the modification would result in a relatively small net overall increase in subsidence impacts to Aboriginal sites when compared to the original project.

The Department has recommended performance measures to ensure no greater subsidence impacts of Aboriginal heritage sites than predicted in the EA and nil subsidence impacts on the Mona Creek Rock Shelter sites. Overall, the Department considers the impacts on Aboriginal cultural heritage to be acceptable and manageable, subject to the existing and recommended conditions.

### *Greenhouse Gas Emissions*

The modification would result in increased greenhouse gas emissions associated with diesel use, fugitive emissions, and electricity consumption. An additional 97,984 tonnes of CO<sub>2</sub>-equivalent (t CO<sub>2</sub>-e) Scope 1 emissions and 36,954 t CO<sub>2</sub>-e of Scope 2 emissions are predicted, representing increases in total project emissions of 3.9% and 1.3%, respectively.

The *Climate Change (Net Zero Future) Act 2023* sets ambitious greenhouse gas emissions reduction targets for NSW, aiming for at least a 50% reduction by 2030, 70% by 2035, and net zero emissions by 2050. The modification's emissions are accounted for in these projections.

Emissions from the complex would represent a very small contribution to total greenhouse gas emissions in New South Wales in the target years. Emissions from the complex are low in

comparison to the resources industry and other emitters, primarily due to favourable geological conditions which minimise its fugitive emission output.

The modification would also increase Scope 3 emissions by 41.6 Mt CO<sub>2</sub>-e, representing a 6.7% increase from the approved project. These emissions are primarily associated with the combustion of coal in receiving countries. Most countries receiving coal from the complex are party to the Paris Agreement and all have commitments in place to reduce emissions by 2050. The contribution of the modification's emissions to global emissions is negligible, given the scale of global emissions.

Under the EPA's Climate Change Action Plan, UCMPL would be required to prepare a greenhouse gas mitigation plan and climate change adaptation plan in accordance with requirements to be provided by the EPA. The Department has recommended a condition for the preparation of a greenhouse gas mitigation plan, in consultation with the EPA, within six months.

Overall, the Department considers additional emissions associated with the modification can be managed under current policy initiatives without compromising NSW's emissions reduction targets or global initiatives to achieve net zero.

### *Economics*

The modification would generate royalty payments and taxes to NSW of approximately \$112 (M) and \$89 M, respectively. After accounting for direct environmental and social costs, the modification is expected to have net social benefits to NSW of around \$131 M, and to Australia of \$177 M.

### *Other Issues*

The Department has carefully considered the potential impacts of the modification on a range of other issues including noise, air quality, transport and visual. The Department considers that the existing conditions remain appropriate to manage any incremental impacts associated with the modification.

## **Conclusion**

The Department has carried out a detailed assessment of the modification in accordance with the relevant requirements of the EP&A Act. Overall, the Department's assessment has concluded that the impacts associated with the modification can be appropriately managed under existing and new conditions of consent.

The Department considers that the modification has been designed in a manner that achieves a reasonable balance between recovery of high-quality coal resource of State significance and minimising its potential environmental and social impacts.

The Department considers the modification's benefits outweigh its residual costs and that it is in the public interest should be approved, subject to the recommended conditions.

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# 1 Introduction

Ulan Coal Complex (the complex) is located on Wiradjuri Country, approximately 40 kilometres (km) north of Mudgee in the Mid-Western Regional local government area (see **Figure 1**). The complex is operated by Ulan Coal Mines Limited (UCMPL), a wholly-owned subsidiary of Glencore Coal Pty Ltd.

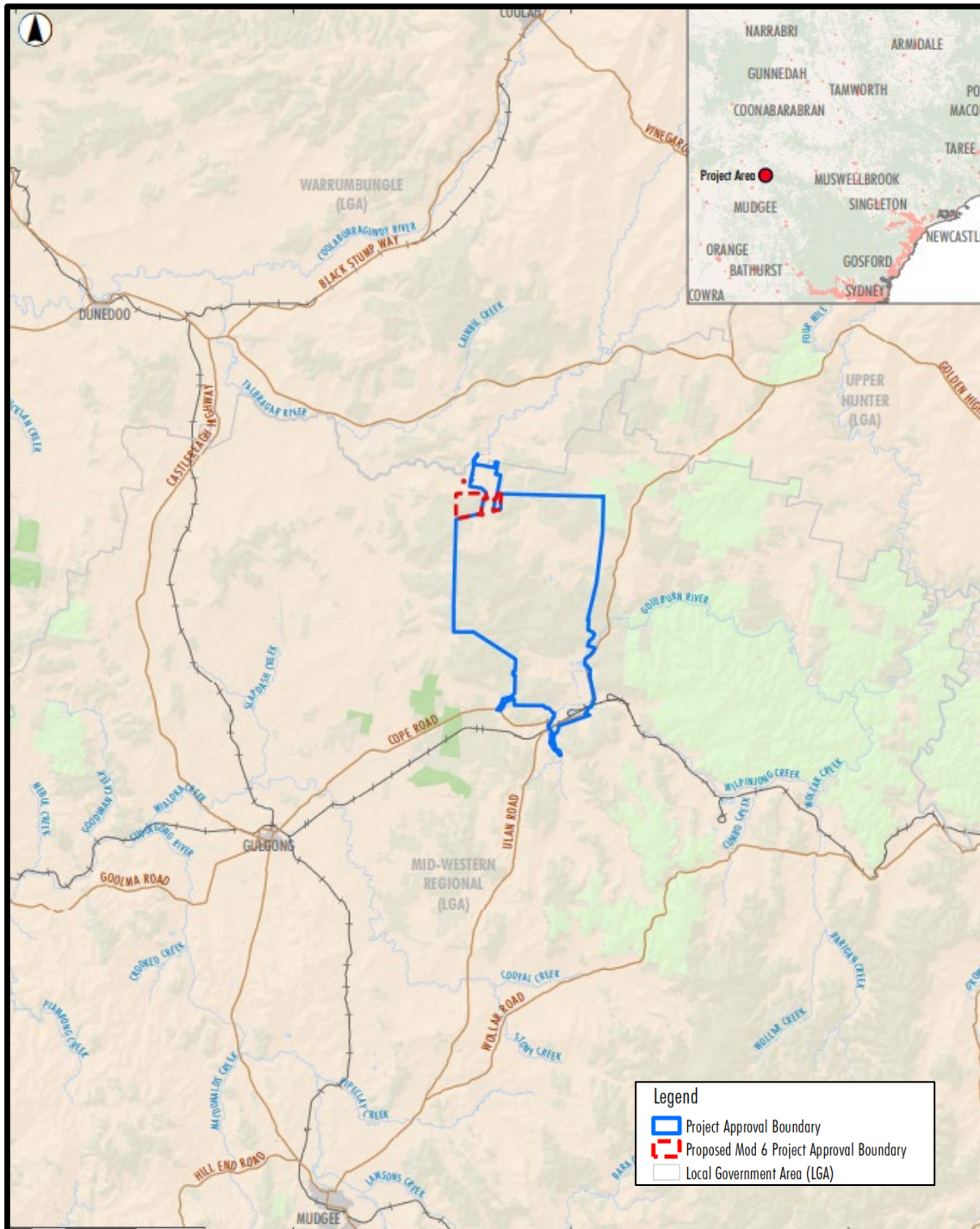


**Figure 1 | Regional context map**

The complex operates under development consent 08\_0184 for the Ulan Coal Continuation Project (the project) granted by then Minister for Planning on 15 November 2010. This consent was amended by the Land and Environment Court in 2012 following a merit appeal and has been subsequently modified on six occasions. The modified consent allows for:

- extraction of up to 20 million tonnes per annum (Mtpa) of run of mine (ROM) coal by underground and open cut methods, until 30 August 2033;
- longwall mining in two designated mining areas referred to as ‘Ulan Underground’ and ‘Ulan West’;
- surface facilities, including coal processing and handling; and
- transportation of coal offsite by train.

Currently only underground mining operations occur on site, while open cut mining operations are in care and maintenance.

## 2 Proposed modification

In November 2022, UCMPL lodged a modification application under section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The modification seeks to extend a number of longwall panels in the Ulan Underground and Ulan West mining areas to enable the extraction of an additional coal resources.

In response to government agency advice and community submissions received during exhibition of the modification report, UCMPL amended the application in May 2024. The amendment involved reducing the extent of the underground mining layout to avoid Mona Creek, as well as minor changes to surface infrastructure.

**Table 1** summarises the modification (as amended) in comparison to the original proposal and approved project. The approved and proposed layout is depicted in **Figure 2**.

The Modification Report and Amendment Report are available on the Department’s website (see Error! Reference source not found.).

**Table 1 | Summary of the modification**

| Project element                               | Approved project                                                             | Original MOD 6 Proposal                                                                                                                                     | Amended MOD 6 Proposal                                                                                                       |
|-----------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Mine life</b>                              | Until 30 August 2033                                                         | Until 30 August 2035 (an additional 2 years)                                                                                                                | No change - Until 30 August 2035 (an additional 2 years)                                                                     |
| <b>Total ROM coal extraction</b>              | 311 million tonnes (Mt)                                                      | Additional 27.5 Mt                                                                                                                                          | Additional 18.8 Mt                                                                                                           |
| <b>Mining areas</b><br>(see <b>Figure 2</b> ) | Ulan Underground<br>Ulan West<br>Open Cut                                    | Extension of longwall panels, including:<br>- LWW9 to LW11 (Ulan Underground ;<br>- Widening of LW11 by (Ulan Underground; and<br>- LW9 to LW12 (Ulan West) | Reduced longwall length to avoid mining beneath Mona Creek.<br>Removal of Longwall LW9 extension (Ulan West).                |
| <b>Disturbance area</b>                       | See <b>Figure 2</b>                                                          | - 27.4 ha direct disturbance                                                                                                                                | - 17.4 ha direct disturbance (reduced by 10 ha)                                                                              |
| <b>Surface Infrastructure</b>                 |                                                                              | - three ventilation shafts<br>- five dewatering bores<br>- infrastructure corridors<br>- service borehole<br>- alternate access track                       | - one ventilation shaft (reduced by two)<br>- two dewatering bores (reduced by three)<br>- removal of alternate access track |
| <b>Annual Extraction</b>                      | 20 Mtpa (including 4.1 Mtpa ROM from open cut)                               | No change                                                                                                                                                   | No change                                                                                                                    |
| <b>Coal transportation</b>                    | Coal transported from the site by rail (maximum of 10 laden trains each day) | No change                                                                                                                                                   | No change                                                                                                                    |
| <b>Operating Hours</b>                        | 24 hours per day, 7 days per week                                            | No change                                                                                                                                                   | No change                                                                                                                    |
| <b>Employment</b>                             | Approximately 930 full-time employees (FTE)                                  | No change                                                                                                                                                   | No change                                                                                                                    |

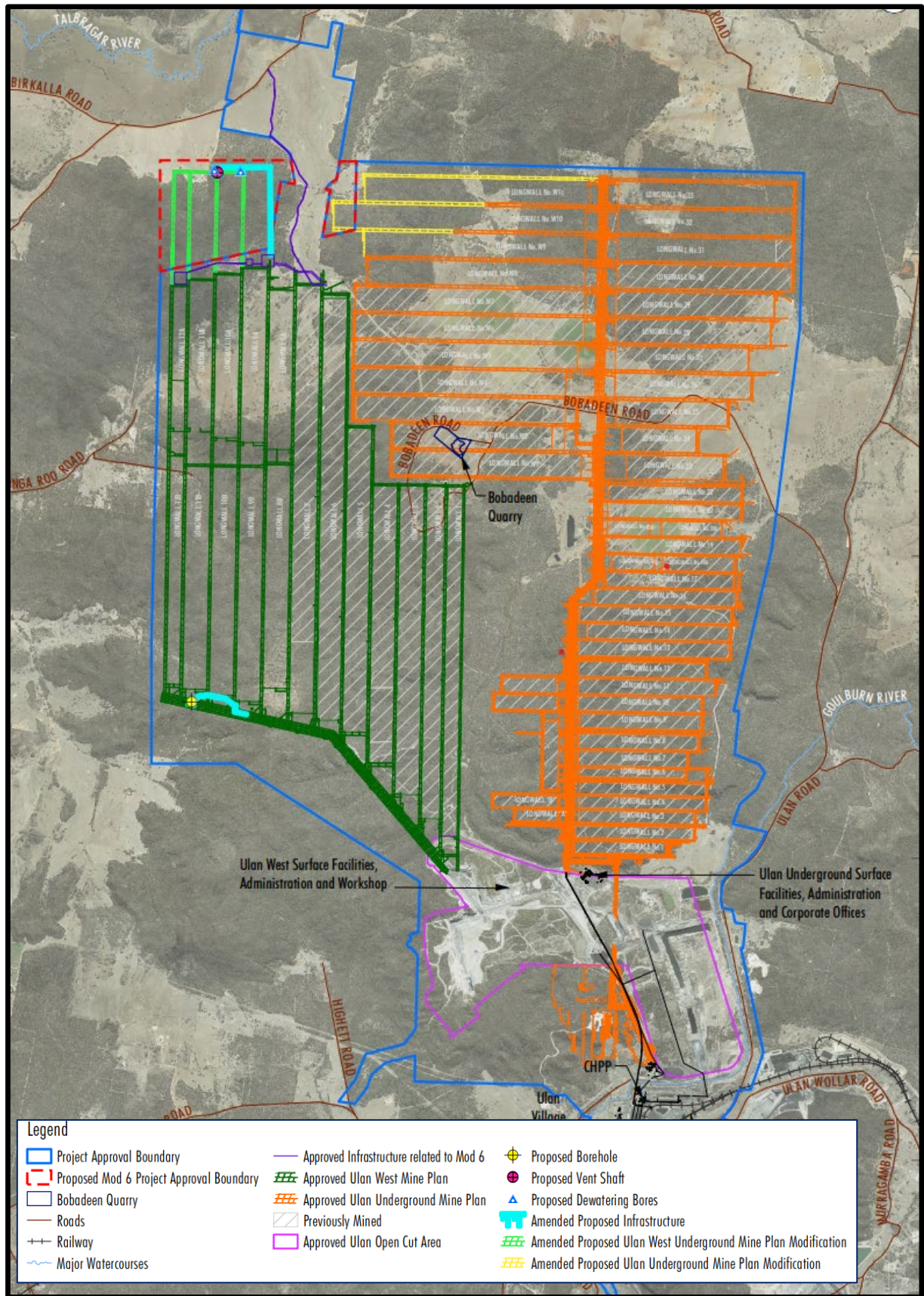


**Figure 2 | Approved vs Proposed Site Layout**

## 3 Statutory context

### 3.1 Scope of Modification

**Table 2 |** Scope of Modification

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Scope of modification</b> | <p>The project was approved under Part 3A of the EP&amp;A Act. Under clause 6 of Schedule 2 of the <i>Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017</i>, the project was transitioned to State Significant Development (SSD) by order, which took effect by publication in the NSW Government Gazette on 28 June 2019.</p> <p>The consent authority may modify a consent if it is satisfied that the project, as modified, would remain substantially the same development as approved, including any section 75W modifications that were granted under Part 3A of the EP&amp;A Act.</p> <p>The Department has reviewed the scope of the modification and considers that it meets this requirement as:</p> <ul style="list-style-type: none"><li>• the proposed changes to mining layout are relatively small in comparison to the approved mining layout, representing 6 % of ROM coal approved to be extracted from the site;</li><li>• impacts of the modified project would be similar to the impacts of the approved project would; and</li><li>• there would be no change to the mining method, annual extraction limits or hours of operation.</li></ul> <p>Accordingly, the Department considers that the modification is within the scope of section 4.55(2) of the EP&amp;A Act.</p> |
| <b>Consent authority</b>     | <p>The Minister is the consent authority under section 4.5(a) of the EP&amp;A Act and has the capacity to modify the consent of the project. However, under the Minister's delegation dated 9 March 2022, the Executive Director – Energy, Resources and Industry may determine the application. This is because there were less than 50 public objections and no disclosed reportable political donations by the applicant.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### 3.2 Matters for consideration

In determining the modification, the consent authority must take into consideration the matters referred to in section 4.15(1) and 4.55(3) of the EP&A Act. The Department has considered these

matters in various parts of this report. **Table 3** indicates where they have been considered in this report.

**Table 3 | Matters for consideration**

| Matter for consideration                                                                                  | Department's assessment                                                                                          |
|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Environmental planning instruments, proposed instruments, development control plans & planning agreements | Appendix B – Statutory Considerations                                                                            |
| EP&A Regulation                                                                                           | Appendix B – Statutory Considerations                                                                            |
| Likely impacts                                                                                            | Section 5 - Assessment                                                                                           |
| Suitability of the site                                                                                   | Section 1 – Introduction and Section 5 - Assessment                                                              |
| Public submissions                                                                                        | Section 4 - Engagement and Section 5 - Assessment                                                                |
| Public interest                                                                                           | Section 4 - Engagement, Section 5 – Assessment, Section 6 – Evaluation and Appendix B – Statutory Considerations |
| Reasons for granting consent of original application                                                      | Appendix B – Statutory Considerations                                                                            |

### 3.3 Objects of the EP&A Act

In determining whether or not to modify the consent, the consent authority should consider whether the modified project is consistent with the relevant objects of the EP&A Act (section 1.3) including the principles of ecologically sustainable development. Consideration of those factors is described in **Appendix B**.

The Department considers that the development is consistent with the objectives of the EP&A Act and the principles of ecologically sustainable development (ESD).

### 3.4 Biodiversity development assessment report

Section 7.17(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all SSD modifications to be accompanied by a Biodiversity Development Assessment Report (BDAR) unless the authority or person determining the application is satisfied that the modification will not increase the impact on biodiversity values (as identified in the BC Act and in the *Biodiversity Conservation Regulation 2017*)

A BDAR was submitted to the Department with the original and amended modification application. The BDAR and the overall impact of the modification on biodiversity values is assessed in **Section 5.3**.

### 3.5 Commonwealth matters

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’.

On 12 September 2022, a delegate of the Commonwealth Minister for the Environment (Commonwealth Minister) determined that the modification 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)

Consequently, the modification requires the approval of the Commonwealth Minister for the Environment in addition to any State approvals before the modification may proceed.

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 (bilateral agreement). Accordingly, the NSW Government has undertaken the assessment of MNES on behalf of the Australian Government.

The assessment of the modification’s impacts on MNES under the EPBC Act are considered in **Section 5.3** and **Appendix C** of this report.

# 4 Engagement

## 4.1 Department’s engagement

The Department publicly exhibited the modification report from Friday 18 November 2022 to Thursday 15 December 2022 on the NSW planning portal. The exhibition was advertised in *The Australian* and the Department notified previous submitters and landowners in the vicinity of the site about the public exhibition.

The Department notified and invited comment on the modification report from relevant government agencies and Mid-Western Regional Council.

A summary of the submissions and advice received is provided in **Sections 4.2, 0 and 0** below. A link to all submissions and advice is provided in **Appendix A**.

UCMPL provided a submissions report in August 2023, and an amendment report in May 2024.

The Department did not exhibit the amendment report, as that amendment involved a reduction in the scope of the modification and in the associated environmental impacts.

Substantial time has passed since the application was lodged in November 2022 due UCMPL amending the application to address issues raised, including the preparation of additional studies.

## 4.2 Public submissions

The Department received a total of 52 submissions during the exhibition of the application, of which, 36 objected to the modification. Table 4 identifies the number and type of submissions received. A link to all submissions is provided in **Appendix A**.

**Table 4 | Summary of submissions**

| Submitter               | Support | Object |
|-------------------------|---------|--------|
| Special Interest Groups | 1       | 13     |
| General Public          | 15      | 23     |
| TOTAL                   | 16      | 36     |

The Department received 13 objections from special interest groups, including:

- Mudgee District Environment Group
- Lock the Gate Alliance
- Water For Rivers
- Inland Rivers Network
- Wollar Progress Association
- Central West Environment Council
- Environmentally Concerned Citizens of Orange
- BirdLife Southern NSW
- Bathurst Community Climate Action Network
- Lithgow Environment Group
- Healthy Rivers Dubbo

Issues raised in objecting submissions are summarised in **Table 5** below. The Department has carefully considered these matters its assessment in **Section 5**.

**Table 5 | Issues raised in objecting submissions**

| Issue raised                 | Summary                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biodiversity                 | Many submissions raised concern that the modification would impact critically endangered species and other forms of biodiversity, including the Regent Honeyeater, Koala, Swift Parrot, and the critically endangered box gum woodlands.                                                                                                          |
| Water resources              | Submitters raised concern about underground mining-related impacts on bores, groundwater dependent ecosystems, and surface water. Submissions also raised concern about potential impacts on locally significant features - The Drip and the Goulburn River.                                                                                      |
| GHG emissions                | <p>Many submissions raised concern that approving more coal mining would not be consistent with international and Australian targets to reduce GHG emissions to manage climate change.</p> <p>LtG raised concern with the amount of Scope 2 emissions from the existing complex and the implementation of reasonable and feasible mitigation.</p> |
| Aboriginal cultural heritage | Many submissions raised concern with potential impacts on indigenous heritage items within the proposed zone of subsidence as well as cumulative loss of cultural heritage across the region.                                                                                                                                                     |
| Other issues                 | Other issues raised in submissions include impacts on agriculture (largely related to water impacts and the final landform), associated impacts resulting from subsidence, social impacts, and amenity impacts.                                                                                                                                   |

Most supportive submissions identified that the modification would provide continued employment and economic benefits to the region. The economic factors of the modification are discussed in **Section 5.6**.

### 4.3 Agency Advice

The Department received advice from eight government agencies and Council in response to the exhibition of the modification report. Supplementary advice was received from relevant agencies in

relation to the submissions report and the amendment report. A summary of the advice is provided in **Table 6** and a link to the full copy of the advice is provided in **Appendix AA**.

**Table 6 | Summary of agency advice**

| Agency                                                                                       | Advice summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Department of Planning, Housing, and Infrastructure</b>                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Crown Lands                                                                                  | <ul style="list-style-type: none"> <li>• Reiterated requirements of the <i>Mining Act 1992</i> in relation to Crown Land and Crown Roads within a Mining Lease or Exploration Licence.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>NSW Department of Climate Change, Energy, the Environment and Water</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Conservation Programs, Heritage and Regulation (CPHR)                                        | <ul style="list-style-type: none"> <li>• Provided advice on the worst-case assessment approach to ensure consistency with the Biodiversity Assessment Method.</li> <li>• Provided advice on the presence / absence of candidate species.</li> <li>• Recommended that an independent expert should be engaged to provide advice on the impacts of subsidence on hydrology and groundwater.</li> <li>• Requested further detail on the avoidance measures used to refine the biodiversity impacts of the amended modification.</li> <li>• Recommended that the conditions of consent specify that only one Area 1 option can be disturbed.</li> <li>• Noted that the preferred option is the option with the lowest impact to biodiversity values.</li> <li>• Noted that any changes to the development footprint outside of the options identified in the Amended BDAR would require a modification to the development consent.</li> </ul> |
| <b>Environment Protection Authority (EPA), including Net Zero Emissions Modelling (NZEM)</b> | <ul style="list-style-type: none"> <li>• Advised that the greenhouse gas (GHG) emission estimates align with contemporary practices but requested additional information on total project emissions (inclusive of the modification).</li> <li>• Recommended a condition requiring the preparation of a Greenhouse Gas Mitigation Plan and Climate Change Adaptation Plan, consistent with EPA's requirements.</li> <li>• Recommended that relevant management plans are updated to reflect the modification.</li> <li>• Reiterated existing commitments in the consent regarding the Talbragar River discharge structure.</li> </ul>                                                                                                                                                                                                                                                                                                      |

| Agency                                                                      | Advice summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Heritage NSW (ACH)                                                          | <ul style="list-style-type: none"> <li>Agreed with the management recommendations provided in the Aboriginal Heritage Cultural Heritage Assessment (ACHA) and raised no concerns.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Water Group                                                                 | <ul style="list-style-type: none"> <li>Requested that:               <ul style="list-style-type: none"> <li>the groundwater model is updated to include recent data using all available datasets and a parametric sensitivity analysis; and</li> <li>UCMPL undertake a revised assessment against the minimal impact considerations of the NSW Aquifer Interference Policy.</li> </ul> </li> <li>Advised that UCMPL must ensure sufficient water entitlement is held for the maximum predicted take from each water source, prior to take occurring.</li> <li>Recommended that the site water management plan is updated to ensure appropriate trigger action response.</li> </ul> |
| <b>Department of Regional NSW</b>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Mining, Exploration and Geoscience (MEG), including the Resources Regulator | <ul style="list-style-type: none"> <li>Advised that the modification would be an efficient use of resources and would provide an appropriate economic return to the NSW Government.</li> <li>Advised that the modification would not alter the existing subsidence risk profile and that subsidence risks could be managed using established practices.</li> </ul>                                                                                                                                                                                                                                                                                                                 |
| <b>Transport for NSW (TfNSW)</b>                                            | <ul style="list-style-type: none"> <li>Considered that the modification would have no significant adverse impact on the nearby classified (State) road network.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Department of Primary Industries</b>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Agriculture                                                                 | <ul style="list-style-type: none"> <li>Considered that the proposed mitigation and monitoring measures listed in the modification report to address the agricultural impacts are adequate.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Mid-Western Regional Council</b>                                         | <ul style="list-style-type: none"> <li>Recommended that rehabilitation of cleared areas should use alternative local species if local endemic species cannot be sourced.</li> <li>Requested that Council is informed of the Biodiversity Offset Strategy outcome and encouraged sourcing stewardship sites within the local area.</li> </ul>                                                                                                                                                                                                                                                                                                                                       |

## 4.4 Independent Expert Advice

### Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development

The Department and the Commonwealth jointly referred the original modification report to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) for advice on the potential impacts on water resources.

The IESC considered that the key potential impacts from the modification would include changes to Mona Creek and its catchment, including baseflow loss, catchment topography changes, and flow regime. Additionally, concerns were raised with potential impacts on groundwater dependent ecosystems near the Talbragar River and long-term water logging of vegetation due to mounding predictions.

The IESC advice, along with a response from UCMPL (see **Appendix A6**) are discussed in **Section 5.2**.

### Independent Expert Advisory Panel for Mining

The Department requested targeted advice from the Independent Expert Advisory Panel for Mining (the Mining Panel). Advice was sought in relation to potential subsidence and water-related impacts following concerns raised by DCCEE (Water Group) and the IESC.

Specifically, the Department requested the Mining Panel provide advice in relation to groundwater impacts and modelling, including the scale and likelihood of potential subsidence, water-related impacts and environmental consequences on the Colluvial, Alluvial and Jurassic water sources.

The Mining Panel provided its advice report in October 2024 (see **Appendix A6**).

The Department has carefully considered the Mining Panel's advice in its assessment of the modification (see **Section 5**).

## 5 Assessment

The Department has assessed the modification application (as amended) and supporting information 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.

The key assessment issues relate to impacts on biodiversity, greenhouse gas emissions and subsidence-related impacts on water resources and Aboriginal cultural heritage. Other assessment issues are also considered in **Section 5.6**.

## 5.1 Subsidence

### 5.1.1 Introduction

The modification seeks to extend longwalls in two underground mining areas, including:

- Ulan Underground – Longwalls W9, W10 and W11; and
- Ulan West – Longwalls LW10A, LW11A and LW12A.

Depths of cover across the extended mining area range between 130 m and 250 m, with the shallower depths residing in the north-west corner, above longwalls LW11A and LW12A.

The majority of surface area above the extended mining area consists of undeveloped bushland, with small patches of cleared or semi-cleared land (suitable for grazing). Most of the land is owned or leased by UCMPL and the remaining areas are either Crown Land or private property. Surface features above the proposed mining area are depicted in **Figure 3**.

The existing consent includes subsidence performance measures for natural and built features. These measures are shown in **Table 7** below.

**Table 7 | Existing subsidence performance measures**

| Environmental aspect                                                      | Performance measure                                                                             |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Ulan, Mona &amp; Cockabutta Creeks</b>                                 | No greater environmental consequences than predicted in the EA                                  |
| <b>Threatened species, populations, habitat or ecological communities</b> | Negligible impact                                                                               |
| <b>Cliffs in the Brokenback Conservation Area (BBCA)</b>                  | Nil environmental consequences                                                                  |
| <b>Other cliffs</b>                                                       | Minor environmental consequences                                                                |
| <b>Aboriginal sites</b>                                                   | Nil impact in the BBCA, Grinding Groove Conservation Areas; or on Mona Creek Rock Shelter sites |
| <b>Other Heritage Sites</b>                                               | No greater impact than predicted in the EA                                                      |
| <b>All built features</b>                                                 | Safe, serviceable and repairable unless the owner agrees otherwise in writing                   |
| <b>Public Safety</b>                                                      | No additional risk due to mining                                                                |

The amendment report included a subsidence assessment prepared by Strata Control Technology Operations Limited (SCT) which assessed predicted subsidence impacts against the performance measures in the consent, and previous subsidence predictions and observations across the complex. Subsidence predictions were modelled using data collected from over 40 longwall panels previously mined at the complex and the Mining Panel considered the prediction methodology to be appropriate.

### 5.1.2 Predicted Impacts

**Table 8** provides a summary of the predicted subsidence levels across the proposed extended mining area. A maximum of 2.1 m of vertical subsidence is predicted to occur above longwall LW11A and LW12A where overburden depths are most shallow (ie 130 m).

**Table 8 | Summary of conventional subsidence predictions for the modification**

| Subsidence parameters     | Overburden depth |       |
|---------------------------|------------------|-------|
|                           | 130 m            | 250 m |
| Vertical subsidence (m)   | 2.1              | 1.7   |
| Tilt (mm/m)               | 85               | 40    |
| Compression strain (mm/m) | 35               | 20    |
| Tensile strain (mm/m)     | 25               | 15    |

Non-conventional subsidence impacts are also predicted to occur including valley closure of up to 900 mm and far-field horizontal movements within a 45-degree angle of draw.

The subsidence assessment concluded that impacts associated with the predicted levels of subsidence would include surface cracks, steps, ripples, perceptible cracking and rockfalls on up to 20% the length of sandstone formations within the mining footprint. However, these impacts would:

- be similar (if not less) to those originally predicted and subsequently observed at the complex; and
- comply with existing subsidence performance measures.

The Mining Panel agreed that the predicted subsidence effects and impacts are expected to be similar to those previously experienced at the complex. However, the Mining Panel recommended that:

- the subsidence monitoring program should be designed to incorporate special attention to the highly significant rock shelter sites on Mona Creek (sites #180-187) during the mining of panels LW W9 and LW W10;
- subsidence predictions are reviewed on a panel-by-panel basis, and recalibrated as required; and
- the subsidence monitoring program extend well beyond the conventional angle of draw to capture potential effects and impacts out to at least a 45 degree angle of draw or greater.

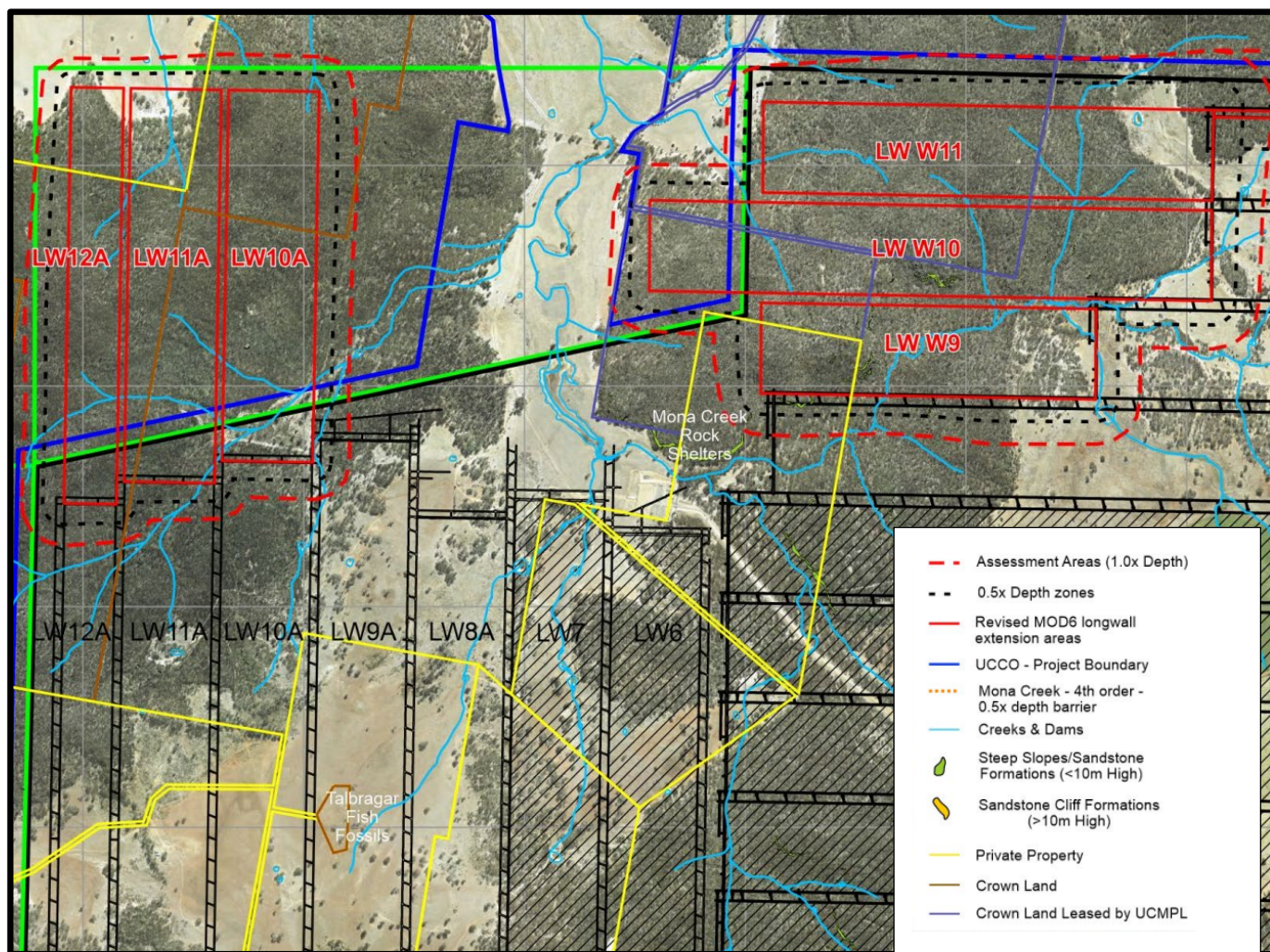


**Figure 3 | Surface Features above the proposed mining area**

UCMPL agreed to these requests, all of which will be further detailed in an extraction plan.

The Department has carefully evaluated the modification's predicted subsidence impacts and advice from the Mining Panel. The subsidence impacts of the modification would be similar in nature to those previously experienced at the complex which have been appropriately managed under the existing conditions of consent.

Prior to the commencement of secondary extraction, the existing consent requires the preparation of an extraction plan to set out the appropriate requirements to manage, monitor and mitigate subsidence impacts. This plan allows opportunity for further evaluation of the technical monitoring and management approaches to be implemented to ensure performance measures are achieved.

The Department has recommended contemporary updates to the extraction plan condition to better define these requirements and incorporate recommendations from the Mining Panel.

Further consideration of subsidence impacts on water resources, biodiversity and Aboriginal cultural heritage is provided in **Section 5.2, 5.3 and 5.4**, respectively.

## 5.2 Water resources

### 5.2.1 Introduction

The modification would impact both groundwater and surface water environments through depressurisation of the coal seam and subsidence impacts.

There are existing groundwater impacts associated with approved mining at the complex and other mines in the locality. Therefore, the surface and groundwater assessments included in the amendment report consider both incremental and cumulative impacts.

Potential impacts on water resources were a key issue raised in public submissions, particularly regarding impacts on private bores, groundwater dependent ecosystems, and local surface water features, including Mona Creek, the Drip and the Goulburn River.

The modification report was reviewed by DCCEE Water as well as the IESC, due to its declaration as a controlled action (see **Section 3.5**). Both of these parties raised concern regarding deficiencies in the modelling of impacts on perched water systems, the colluvium and alluvium water sources. Other key issues raised included:

- differences in observed and modelled water levels, particularly in the Jurassic sediments;
- the representation of surface water and groundwater interactions; and
- model uncertainty analysis.

UCMPL subsequently amended the modification application to avoid mining underneath Mona Creek in response to concerns raised. The amended application included an updated groundwater and surface water assessment, which was independently peer reviewed in accordance with the *NSW minimum groundwater modelling requirements for SSD/SSI projects* (DPE 2022).

The Department then sought targeted advice from the Mining Panel on the amended modification, particularly in relation to groundwater modelling and subsidence induced impacts on the colluvial, alluvial and Jurassic water sources. Consideration of impacts on water resources and all advice received is provided below.

### 5.2.2 Groundwater

Key groundwater systems overlying the modification area include the:

- Quaternary alluvium of the Talbragar River;
- Triassic Wollar Sandstone; and
- Jurassic Pilliga Sandstone.

Coal extraction occurs within the Ulan Seam of the Permian Illawarra Coal Measure which ranges between 130 m and 250 m below the surface. A conceptual hydrogeological cross section is shown in Figure 4 below.

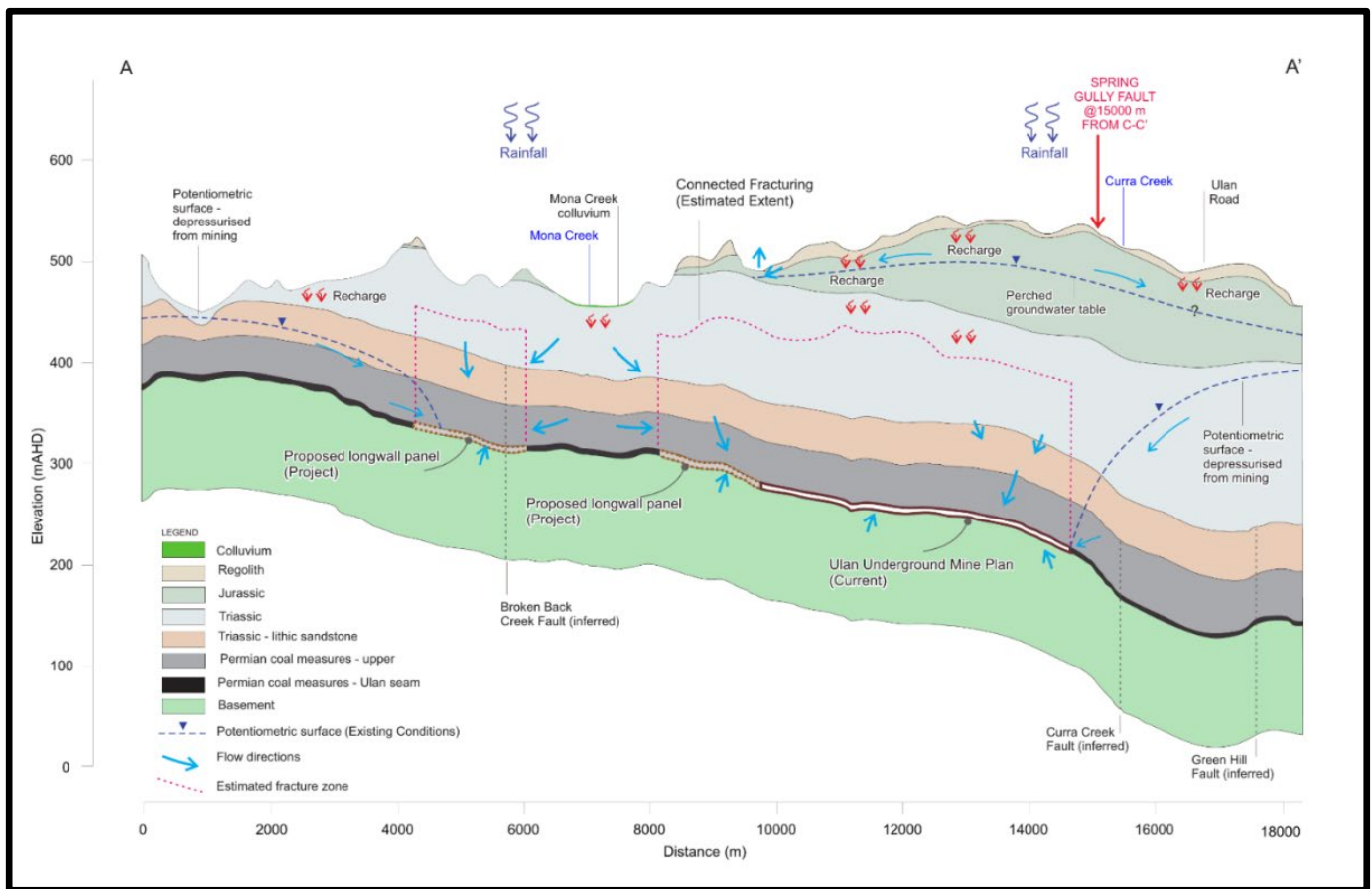


**Figure 4 | Hydrogeological Cross Section - Proposed Mine Plan**

## Drawdown

The modification would result in an increase in mine water inflows from the approved peak of 18.5 ML/day in 2025 to 21.3 ML/day in 2030.

As a result of the increased inflows, additional drawdown would occur, predominantly in strata overlying the modification area. 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 amended groundwater assessment include that:

- there would be no discernible change in the 2 m drawdown contour (AIP – minimal impact consideration) in the alluvium-colluvium, Jurassic or quartzose Triassic sediments compared to the approved project;
- the lithic Triassic would experience the greatest increase in drawdown compared to the approved project (ie an additional 50 m above the proposed mining area); and

- there would be minimal changes to the Ulan seam, which is already predicted to be completely depressurised.

#### Perched aquifers

Many public submissions raised concerns about potential impacts on ‘the Drip’ – a significant local water feature located approximately 10 km from the modification area. The Drip is most likely derived from a perched aquifer in the Triassic sandstone and the IESC and the Mining Panel agreed that it would be highly unlikely to be impacted by the modification.

The IESC requested additional information in relation to two springs located 6 km north of the complex (‘Unnamed Spring’ and ‘Kellys Spring’). Modelling predicted some drawdown in these springs. UCMPL provided additional information in relation to the springs, including water quality monitoring data and commentary on investigations into the nature and source of the springs. The Mining Panel agreed that sufficient evidence had been provided to conclude that both springs are derived from a perched aquifer and are highly unlikely to be impacted by mining-induced drawdown.

#### Alluvium – colluvium sediments and Mona Creek

The alluvium and colluvium sediments in the vicinity of the modification area are located along creek lines and consist of thin deposits that do not sustain any private water users or groundwater dependent ecosystems. Mona Creek is an ephemeral, fourth-order stream that lies between the two proposed extended mining areas. Flows in the creek occur only during storm events or after prolonged rainfall.

Modelling indicated incremental drawdown in the alluvium-colluvium of less than 2 m. However, at a cumulative scale, drawdown of up to 5 m is predicted to occur (post mining) in the colluvium beneath Mona Creek. Drawdown is also predicted to extend up to the Talbragar River alluvium, although at levels less than 2 m. These levels of drawdown would form a new equilibrium post mining.

Both DCCEW and the IESC raised concern regarding modelling of surface water and groundwater connections and potential impacts on Mona Creek. The Mining Panel acknowledged that surface and groundwater interactions adopted in the groundwater model are highly simplified.

Upon consideration of all issues raised, advice from the Mining Panel stated:

*“The decision to pull mining back from Mona Creek and the adjacent alluvium/colluvium reduces the need for a more detailed groundwater model for this locality. The impacts predicted by the model for this location are now much reduced from the forecast when the mine was expected to extend beneath the creek. Nevertheless, the model does predict drawdowns in all formations below Mona Creek and in the alluvium/colluvium for the amended mine plan and appropriate monitoring is still required to confirm the scale of predicted impacts” (pg 21).*

The Mining Panel concluded that current groundwater model was fit for purpose for the amended mine plan, however, drawdown beneath Mona Creek should be closely monitored. The Department has recommended conditions to this effect including a subsidence impact performance measure of 'no greater environmental consequence than predicted in the environmental assessment' and subsidence and water monitoring to be implemented through the Extraction Plan.

#### Jurassic sediments

The amended groundwater assessment predicted minimal change in the 2 m drawdown contour in the Jurassic sediments in comparison to the approved project. This is because the aquifer is generally perched and has limited extent and saturation in the vicinity of the modification area.

Although monitoring data observed in this formation has generally aligned with predictions, a few outlying observations have been recorded where drawdown has exceeded predictions. DCCEEW raised concern that model conceptualisation of this strata is not clear and requested further investigation to provide greater confidence in the modelled impacts.

The Mining Panel advised that underprediction of water levels in the Jurassic formation was a result of limitations of the groundwater model. Whilst it was acknowledged that the current groundwater model is fit for purpose to assess the impacts of the modification, the Mining Panel advised that long-term modelling predictions in the Jurassic formation should be treated cautiously and recommended ongoing monitoring and model validation / calibration.

DCCEEW requested an update and recalibration of the groundwater model to include localised modelling of the Jurassic and inclusion of all available monitoring data. In accordance with conditions imposed under the extraction plan for Longwalls LW31 and LW32, UCMPL is currently preparing an updated groundwater model and recalibration. As part of this process, UCMPL is required to provide revised predictions of water take in the various aquifer formations, drawdown and baseflow losses.

Modelling issues associated with the Jurassic is an existing matter for the complex and impacts are not predicted to significantly increase as a result of the modification. The Department will carefully consider future model updates and revised predictions for the Jurassic sediments under post approval processes.

#### Triassic sediments and Ulan Seam

The modification would result in additional drawdown in the Triassic sediments, including an additional 10 m in the quartzose layer and 50 m in the lithic layer. The area of incremental drawdown is predominantly confined to the extended mining area. Cumulative residual post mining drawdown in this formation would remain forming a new equilibrium, including up to 20 m in some areas. Conversely, mounding of up to 20 m will occur above the Ulan Underground mining domain and the open cut, as a result of changing recharge rates.

The Ulan seam is predicted to be completely depressurised, consistent with the approved project.

The Triassic sediments and Permian formations host most private bores in the vicinity. No additional private bores will experience drawdown greater than 2 m as a result of the modification. However, existing bores subject to drawdown will experience minor incremental increases (<0.3 m) and decreases due to mounding.

Under the existing consent, UCMPL is required to implement make good provisions to compensate for drawdown impacts on affected bores and implement trigger response systems to identify and respond to unforeseen impacts.

The Mining Panel considered existing monitoring and make good provisions to be a suitable approach, however, as the Talbragar River alluvium connects directly with the Triassic sediments, the Mining Panel recommended additional monitoring in the vicinity of Mona Creek. The Mining Panel also recommended that the site's water management plan is updated to align triggers with modelling predictions, increase monitoring frequency in private bores and ensure consistency with commitments made. The Department has recommended conditions to this effect.

## Baseflow

The modification would result in minor increases in baseflow losses (ie between 0.4 and 3.4 ML) from the Talbragar River during and post mining. A maximum loss of 54.35 ML/year is predicted to occur approximately 100 years after mining, recovering to residual loss of 10.3 ML/year in the long-term. This peak loss represents approximately 1.4% of total baseflows in the Talbragar River.

The Department has recommended a performance measures for the Talbragar River of 'No greater environmental consequences than predicted in the EA'.

No baseflow changes are predicted to occur in the Upper Goulburn River as a result of the modification. Updated modelling assumptions indicate a residual increase in baseflow of up to 70.9 ML/year post mining. This would be the result of mounding due to changing recharge rates associated with the open cut pit and spoil piles at the Moolarben Complex. These are components of the approved project and the changes are a result of updates to the groundwater model rather than due to the modification itself.

## Other issues raised and considered by the Mining Panel

**Table 9** summaries other issues raised and considered during the assessment process.

**Table 9 | Summary of Other Issues Raised**

| Issue Raised                                                                                                                                                                  | Consideration                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Underprediction at PZ10A</b><br><br>Observation exceeding prediction by 15m                                                                                                | PZ10A is located in the Triassic formation. The underprediction is associated with a time lag in the model drawdown response. There are limitations of the groundwater model at a local scale, however the overarching behaviours are captured. The Mining Panel considered this to be reasonable. |
| <b>Provision of peer review model</b><br><br>Lack of demonstration that the modelling meets requirements of NSW and Australian Guidelines and inclusion of peer review report | A peer review report was provided in the additional information.                                                                                                                                                                                                                                   |
| <b>Model sensitivity analysis</b><br><br>Not fully explored worst-case impacts, including storage and recharge parameters.                                                    | Further analysis was provided in the amendment report, including both storage and recharge variations. The Mining Panel considered the analysis to be reasonable and did not raise any further concerns regarding the sensitivity analysis.                                                        |

## Water Licencing

The increase in mine water inflows would not change the approved peak inflows for the complex in the *North Coast Fractured and Porous Rock - Sydney Basin Groundwater Source* (ie approximately 5,193 ML/year, 2014/15). However, peak inflows in the *NSW Murray Darling Basin Porous Rock Groundwater Sources 2020 – Sydney Basin MDB (Other) Management Zone* would increase by 296 ML/year (ie from 5,667 ML to 5,963 ML).

UCMPL has advised that it holds sufficient licence units to account for the predicted take in the Permian water sources.

Additional licence units would be required for predicted water take from the Jurassic sediments and Talbragar River, including:

- 7.89 ML/year (during mining) and 33.43 ML/year (post mining) in the *NSW Murray Darling Basin Porous Rock Groundwater Sources 2016 – Oxley Basin Coast Groundwater Source*; and
- 4.35 ML/year (post mining) in the *Macquarie Bogan Unregulated Rivers Water Sources 2012 – Upper Talbragar River Water Source*.

The modification would not increase predicted take from the Upper Goulburn River water source.

DCCEE Water advised that water entitlement must be held prior to the predicted take occurring. UCMPL advised that approval has been granted to transfer 10 ML of units from UCMPL's holdings within another source within the *NSW Murray Darling Basin Porous Rock Groundwater Sources 2016*. UCMPL currently hold 50 ML/year of entitlement in the Upper Talbragar River Water Source which is considered adequate to account for predicted losses during mining. UCMPL has committed to obtain additional licensing in this water source post mining, if necessary, however further data collection and modelling updates may conclude that no additional entitlement is required. Additional licence entitlement may be obtained through purchasing unallocated unit shares or trading with other licence holders.

### 5.2.3 Surface Water

The modification area lies within the Mona Creek catchment, which is part of the Talbragar River system. Mona Creek lies between the Ulan Underground and Ulan West mining areas, and its tributaries extend above the proposed mining area. Mona creek and its associated tributaries are ephemeral in nature and no private landholders have been identified to use creek waters.

Captured water from the complex is stored in various water storages and processed using water treatment facilities. Surplus water is used in various applications including CHPP processing, dust suppression, the Bobadeen Irrigation Scheme or discharge to Ulan Creek / Goulburn River. UCMPL also have approval to discharge into the Talbragar River, however this discharge structure has not been constructed to date.

The modification has the potential to impact surface water resources due to subsidence and changes to water flow regimes.

The surface water assessment concluded that there would be:

- increased stored water volumes as a result of additional groundwater inflows, which can be accommodated within existing storages;
- no change to the potential for overflows from key water storages;
- negligible changes in stream flow in the Talbragar River, including frequency of flows and average annual dry days;
- no changes to streamflow sequences in Mona Creek;
- minor changes to flood depths (increases and decreases) in line with subsidence predictions;
- potential for increased erosion in the Mona Creek channel due to changes in flood velocity and tractive stresses; and
- no discernible changes to surface water quality.

Additionally, it was predicted that the modification would result in increased areas affected by remnant ponding by approximately 6 ha (ie from 33 ha to 39 ha). However, UCMPL advised that most sites do not pond due to the free draining soil type and steep topography.

UCMPL has committed to implement a range of management measures, including surface water monitoring upstream and downstream of subsidence affected areas, channel stability monitoring and remediating surface cracks and channel grades if required.

EPA reiterated UCMPL's existing commitment to undertake a research study of the receiving waterway prior the use of the Talbragar River Discharge Structure. This commitment is contained in the development consent.

The Department considers that the impacts on surface water resources would be similar to those approved and could continue to be monitored and managed under existing conditions.

#### **5.2.4 Conclusion**

The Department has carefully considered the modification's potential impacts on water resources, having regard to public submissions and advice from DCCEE Water, the Mining Panel and the IESC.

The modification is not predicted to discernibly affect streamflow in Mona Creek or the Talbragar River. No additional water users would experience drawdown greater than 2 m, however some existing affected users would experience minor levels of additional drawdown.

Additional water inflows from the modification would result in increased drawdown in strata formations above and in the vicinity of the mining area, with the greatest amount predicted in the lithic Triassic. A lesser extent of drawdown is predicted in the alluvium / colluvium and Jurassic, including some additional baseflow loss in the Talbragar River. The Mining Panel considered that the groundwater model was fit for purpose but recommended that the alluvium, colluvium and Jurassic formations be carefully monitored due to the lower resolution of the groundwater model at the local scale.

Overall, the Department considers the predicted impacts on water resources to be acceptable, subject to the recommended conditions of consent. Recommended conditions include performance measures and monitoring requirements for Mona Creek and the Talbragar River and contemporary updates to the water management plan within the broader extraction plan. Updated plan requirements include the provision of detailed baseline data, impact assessment criteria and a trigger action response plan to ensure potentially adverse impacts on water resources are detected and managed.

## 5.3 Biodiversity

The extended mining area is predominantly located beneath remnant woodland and forest with strong connectivity to nearby conservation areas, including the Goulburn River National Park. The modification would result in direct disturbance of native vegetation associated with the construction of surface infrastructure and indirect disturbance predominantly associated with subsidence.

### 5.3.1 Direct Impacts - Surface Infrastructure

UCMPL has proposed three surface infrastructure areas to accommodate the extended longwall panels. Up to 17.4 ha of direct disturbance would occur, including:

- Area 1 – east to west infrastructure corridor, two vents and one borehole (approximately 6 ha)
- Area 2 – north to south infrastructure corridor connecting Area 1 to other existing surface infrastructure (5.7 ha); and
- Area 3 – borehole and infrastructure corridor at the southern end of the Ulan West panels (5.7 ha).

UCMPL has advised that the final location of surface infrastructure in Area 1 is subject to further exploration and detailed mine planning. This uncertainty is commonly encountered in underground mining due to variable geological conditions and access constraints.

UCMPL are therefore seeking a flexible approach in locating the Area 1 surface infrastructure. A preferred option has been identified and assessed at the most northern extent of the extended panels. An additional nine options were also presented and assessed in the BDAR as contingent locations (see **Figure 5** below). This approach required extensive consultation with CPHR to ensure consistency with the Biodiversity Assessment Method (BAM).

Individual BAM cases were prepared for each contingency option. Additionally, the BDAR presented the largest impact on each vegetation type and species that could result from each of the nine contingency options, when combined with the impacts from Areas 2 and 3. This approach was referred to as the ‘worst-case assessment’.

### Impacts on Vegetation

There are four key plant community types (PCT) across the three proposed disturbance areas (including within the Area 1 preferred and contingency options). The majority of these PCTs are a mix of woodland and forest communities in good condition and include:

- PCT476 - *Narrow-leaved Wattle low open forest / very tall shrubland on ridges in northern NSW South-Western Slopes Bioregion and southern Brigalow Belt South Bioregion;*

- PCT478 - Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion;
- PCT479 - Narrow-leaved Ironbark- Black Cypress Pine – stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion; and
- PCT481 - Rough-barked Apple – Blakely's Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region.

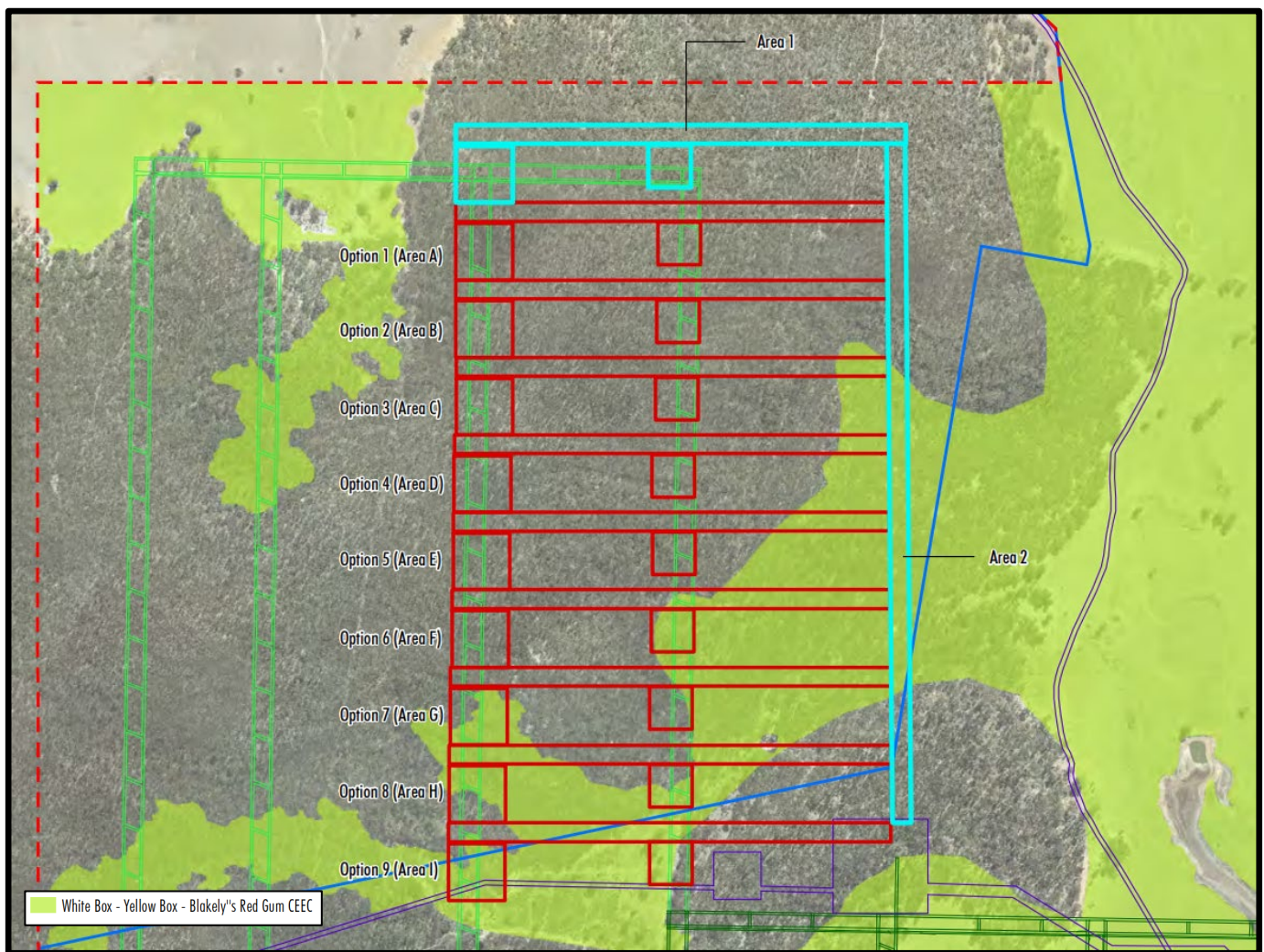


**Figure 5 | Area 1 preferred and contingency options**

**Table 10** presents the total proposed impact on each PCT (Areas 1, 2 and 3), under the Area 1 preferred option and the worst-case contingency options. It also identifies the maximum possible clearing that could occur for each PCT.

**Table 10 | Proposed impact on PCTs**

| Area                                                       | PCT476             | PCT478 | PCT479             | PCT481*            | Total                   |
|------------------------------------------------------------|--------------------|--------|--------------------|--------------------|-------------------------|
| <b>Area 1 Preferred</b>                                    | 4.8                | 1.2    | -                  | -                  | 6.0                     |
| <b>Stage 1A</b>                                            | 2.2                | 3.7    | -                  | -                  | 5.9                     |
| <b>Stage 1B</b>                                            | -                  | 5.8    | -                  | -                  | 5.8                     |
| <b>Stage 1C</b>                                            | -                  | 5.1    | 0.3                | 0.4                | 5.8                     |
| <b>Stage 1D</b>                                            | -                  | 5.5    | -                  | 0.4                | 5.9                     |
| <b>Stage 1E</b>                                            | -                  | 5.0    | -                  | 0.9                | 5.9                     |
| <b>Stage 1F</b>                                            | -                  | 3.5    | -                  | 2.5                | 6.0                     |
| <b>Stage 1G</b>                                            | -                  | 3.0    | -                  | 2.9                | 5.9                     |
| <b>Stage 1H</b>                                            | -                  | 3.2    | -                  | 2.7                | 5.9                     |
| <b>Stage 1I</b>                                            | -                  | 2.8    | -                  | 3.2                | 6.0                     |
| <b>Area 2</b>                                              | 3.0                | -      | -                  | 2.7                | 5.7                     |
| <b>Area 3</b>                                              | -                  | -      | 5.7                | -                  | 5.7                     |
| <b>Max Possible Clearing for PCT (ie Areas 1, 2 and 3)</b> | 4.8 + 3.0 =<br>7.8 | 5.8    | 0.3 + 5.7 =<br>6.0 | 3.2 + 2.7 =<br>5.9 | -                       |
| <b>Total Native Veg Clearing</b>                           |                    |        |                    |                    | <b>17.4<sup>a</sup></b> |

\*Box Gum Woodland CEEC

<sup>a</sup> Area 1 Preferred OR one of the Stage A-I Contingency Options + Area 2 + Area 3

#### Box Gum Woodland CEEC

PCT 481 conforms with *White Box – Yellow Box – Blakely's Red Gum Woodland and Derived Native Grassland Critical Endangered Ecological Community* (Box Gum Woodland CEEC). The extent of the CEEC varies between the Area 1 preferred and contingency options, with a greater amount presenting in Options F, G, H and I. Area 2 also includes 2.7 ha of Box Gum Woodland CEEC (see **Figure 5**). The maximum amount of Box Gum Woodland CEEC that could be disturbed by the modification is 5.9 ha (under the Option I contingency option).

Box Gum Woodland is considered a potential serious and irreversible impact (SAIL) entity under the *Biodiversity Conservation Act 2016*. 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 based on 4 principles set out in clause 6.7 of the *Biodiversity Conservation Regulation 2017*. In the case of Box Gum Woodland, the relevant principles include Principle 1 (reduction in geographic extent) and Principle 3 (limited geographic distribution).

The geographic distribution of Box Gum Woodland CEEC has reduced significantly in Australia in comparison to its original distribution. The majority of the remaining distribution (75%) remains within NSW and is estimated to span approximately 702,800 km<sup>2</sup> and occupy approximately 250,729 ha (Threatened Species Scientific Committee, TSSC). The Department understands that many ecologists consider that the numbers derived from TSSC are out of date and likely to substantially underestimate the actual extent of Box Gum Woodland, as listed in NSW.

The proposed worst-case impact on Box Gum Woodland (5.9 ha) is estimated to represent approximately 0.0024% of the remaining areas of occupancy in NSW, and approximately 0.16% of the extent of this community within the Ulan complex project boundary.

As discussed in Section 5.3.3, the extent of impact on Box Gum Woodland was substantially refined under the amended modification and UCMPL has committed to minimising impacts on the remaining areas as much as possible using micro-siting techniques. The Department considers these measures to be appropriate to minimise the impact on Box Gum Woodland as much as practicable. The Department considers that the residual impact of approximately 0.0024% on the remaining extent of Box Gum Woodland would be unlikely to contribute significantly to the extinction of the species. DCCEEW noted that the Area 1 preferred development footprint would result in the lowest impact on the CEEC, and recommended that sufficient justification should be provided if an alternative option is chosen.

The Department notes that the Area 1 preferred layout is the most desirable layout for UCMPL, being one that would facilitate the greatest amount of coal extraction. Nonetheless, all other nine Area 1 contingency layouts have been presented and assessed in the amended BDAR and the Department considers that the option with the greatest impact on Box Gum Woodland (ie 5.9 ha) is acceptable. Should UCMPL require a surface infrastructure layout that lies outside these options, a further modification to the consent would be required.

## Flora Species

CPHR requested that two flora species are assumed present within certain PCTs across the preferred and contingency development footprints. This is because targeted survey effort could not be conducted under the conditions prescribed by the NSW Threatened Biodiversity Profile Data Collection (ie within 6 months to 2 years of fire or mechanical disturbance). These species include *Monotaxis macrophylla* and *Commersonia procumbens*.

Additionally, *Tylophora linearis* was also assumed present within PCT479 (Contingency Option 3) as this area could not be surveyed in accordance with survey guidelines.

No other threatened flora species were recorded.

### Fauna Species

In the preferred development footprint, eight ecosystem credit species were recorded. These species include the South-eastern glossy black-cockatoo, Grey-crowned babbler, Speckled warbler, Varied sitella, Diamond firetail, Brown treecreeper, Painted honeyeater and Dusky woodswallow. These species are also predicted to occur in the contingency areas, where the same PCTs are present.

The Barking Owl and the Koala are predicted to occur in some PCTs within the disturbance footprints (preferred and contingency areas). No recordings were encountered in targeted surveys within the preferred development footprint and as such, no species credits have been calculated. However, not all areas of the contingency options were able to be surveyed and as such, the presence of these species has been assumed to occur within the relevant PCTs.

### Offsets

In accordance with the BAM, UCMPL has calculated the offset liability for the proposed surface disturbance areas (Areas 1, 2 and 3) as well as all the nine contingency options for Area 1. This liability is presented in **Appendix D**.

The Department has recommended conditions that clarify that only one 'Area 1' scenario may be constructed, and has included upper limits of clearing for each PCT based on the worst case assessment in the BDAR.

### 5.3.2 Indirect Impacts - Subsidence

Subsidence impacts have the potential to indirectly impact biodiversity values, primarily through changes to topography and drainage.

The modification would result in a zone of subsidence of approximately 634 ha. In addition to the PCTs within the disturbance footprint identified in **Table 10** above, two additional woodland PCTs are present within the broader zone of subsidence. This includes 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* and PCT 618 *White Box-Grey Box – Red Gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley*. Approximately 205 ha of vegetation within the subsidence zone conforms to Box Gum Woodland CEEC.

Subsidence impacts on surface topography could include open surface cracks, compression override and rockfalls. However, the Amended BDAR concludes that these impacts are not anticipated to cause any perceptible change in the condition or viability of native vegetation. This conclusion is supported by ecological monitoring in previously mined areas, including floristic plot data, and observations of vegetation condition, tree health and flora populations.

UCMPL advised that the existing Biodiversity Management Plan contains a voluntary subsidence performance measure of 'negligible' impacts on Box Gum Woodland CEEC, which would also be applied to CEEC within the extended subsidence zone.

### Clarification of Performance Measures

The development consent contains a subsidence performance measure of 'negligible impact' for biodiversity (threatened species, populations, habitat or ecological communities). However, it also contains a performance measure of 'minor environmental consequences' for cliffs.

Cliffs and rocky features are habitat for many threatened species, particularly microbats. Therefore, the negligible performance measure associated with threatened species habitat poses some uncertainty as to what impacts on rocky features are acceptable.

The Department undertook a review of the predicted impacts under the approved project. Subsidence impacts on rocky features were predicted to occur and management measures were proposed to mitigate impacts on roosting and breeding caves. However, these impacts were concluded to be unlikely to have greater than negligible impacts on threatened species. On this basis, the Department has recommended the removal of "habitat" from the biodiversity performance measures.

### Microbat Species

The existing and extended mining areas contain rocky features that have been identified as suitable habitat for threatened microbats. This includes approximately 128 m of sandstone cliff lines within the extended mining area.

The Amended BDAR predicts that up to 20% (25.6m) of cliff lines would be subject to rockfall and up to 50-70% would be subject to perceptible cracking. Targeted surveys identified the presence of the Large-eared Pied Bat and Large Bent-winged Bat within the proposed zone of subsidence. Additionally, the Eastern Cave bat has previously been recorded within the broader site.

These species make use of rocky-features and cliff line escarpment for roosting and breeding. The Amended BDAR identifies that subsidence-related rockfalls impacting breeding caves or roosting colonies could have adverse impacts on the species. This is because breeding caves are rare in the landscape and their specific configuration (ie dome shape, temperature and humidity) and high

occupancy makes them an important feature for the species. Breeding or roosting colonies can include between 100 to 150,000 individuals and populations can form discretely around maternity sites<sup>1</sup>.

Roosting sites are more abundant within the vicinity of the complex, however, the Amended BDAR noted that subsidence impacts on a significant single-sex colony could have adverse impacts on populations in the local area.

No occupied breeding caves or significant single-sex roosting sites were identified in targeted surveys, however some rocky features within the subsidence zone were identified to be suitable for these purposes.

The development consent includes a subsidence performances measure of 'negligible impact' on threatened species, which includes threatened microbats. The Department considers that any subsidence impact on an occupied breeding cave or significant single-sex roosting site would be an unacceptable impact on the species and could not be considered negligible. This is because the unique configuration and utilisation of the sites are rare and impacts could displace or disrupt local populations.

The Department has recommended UCMPL undertake a Bat Monitoring Program to identify whether any breeding or significant roosting sites are present in the predicted subsidence zone. This program would involve targeted bat surveys within the mining area and monitoring of rocky features. The results of this program would be presented in the extraction plan for the extended mining area and utilised to determine whether performance measures of 'negligible impact' could be met, prior to the commencement of longwall extraction.

The identification of a breeding cave or significant roosting colony within the predicted subsidence zone would likely require UCMPL to revise its mine plan, or implement other strategies to ensure no greater than negligible impact on the species would occur.

Lastly, the BC Act identifies that impacts to karst, caves, crevices, cliffs, rocks and other geological features of significance that provide habitat for threatened species constitute 'prescribed' impacts, in which a consent authority may take into account in the determination of biodiversity credits required to be retired. As subsidence impacts are predicted to occur on habitat features for threatened microbats, the Department considers it reasonable to impose offset obligations for these impacts.

A defined species polygon area for these potential impacts cannot be readily determined as there is uncertainty as to exactly where within the rocky habitat features the predicted rockfall impacts

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<sup>1</sup> [Large Bent-winged Bat - profile | NSW Environment, Energy and Science](#)

would occur. That is, the area would not be able to be defined within a BDAR incorporating a BAM-C case as would usually be the case for determining credit liability. Alternatively, UCMPL calculated the species credits based on predicted rockfall impacts on bat habitat within the extended mining area. This approach was endorsed by the Mining Panel in its assessment of Moolarben Coal Stage 2 – Modification 4. The calculated credit liability is presented in **Table 11** below.

**Table 11 | Credit liability for impacts for prescribed impacts on bat habitat**

| Species              | Species Credits |
|----------------------|-----------------|
| Large-eared Pied Bat | 15              |
| Large Bent-wing Bat  | 15              |

### 5.3.3 Avoidance and Minimisation of Impacts

The proposed disturbance area and subsidence zone has been reduced substantially as part of the amended modification. Specifically, areas proposed for direct disturbance were reduced from 27 ha to 17 ha due to re-evaluation of surface infrastructure requirements and utilisation of existing disturbance areas. This resulted in the removal of three de-watering bores, two ventilation shafts and an access track with a combined area of approximately 10 ha. These measures resulted in avoidance of up to 6.8 ha of Box Gum Woodland under the preferred development layout and up to 18.2 ha under the worst-case contingency scenario.

Additionally, areas subject to potential subsidence impacts were reduced by 218 ha (from 942 ha to 634 ha) due to the reduced extent of mining underneath Mona Creek.

UCMPL has also proposed to undertake a range of measures to minimise impacts on biodiversity values. Some of these measures include:

- salvaging biodiversity features;
- undertaking pre-clearing surveys and micro-siting of infrastructure where possible;
- management of weeds, pests and waste;
- erosion and sediment controls; and
- preparation of management plans for microbats habitat and water resources.

The Department considers that UCMPL has appropriately applied the principle of avoidance within the constraints of the location of the resource, and that the proposed mitigation measures are appropriate to further minimise impacts on biodiversity values.

### 5.3.4 Matters of National Environmental Significance

The Amended BDAR considered the potential impact of the modification on EPBC Act listed species and ecological communities. UCMPL identified and considered all threatened species and communities included in the Commonwealth Referral Decision (EPBC 2002/09292).

This included one ecological community and 11 threatened species recorded or with potential to occur within the study area.

The impact assessment identified that the modification is likely to result in significant impacts on Box Gum Woodland CEEC and the Large-eared Pied Bat.

The Department considered Commonwealth matters in consultation with CPHR and Commonwealth DCCEEW, as well as relevant 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). Additionally, a copy of the Department's assessment and recommended conditions were provided to Commonwealth DCCEEW for review and no concerns were raised. The assessment of Commonwealth matters is provided in **Appendix CC**.

The Department considers the impacts of the controlled action (EPBC 2022/09292) would be acceptable, subject to the avoidance, mitigation and offsetting measures described in the amendment report, amended BDAR, and the recommended conditions of consent.

### 5.3.5 Conclusion

The Department has carefully considered the modification's potential impacts on biodiversity values, as well as advice from CPHR.

The modification would directly disturb up to 17.4 ha of native vegetation across three surface infrastructure areas. The Department has recommended conditions allowing UCMPL to select one of the ten options for the location of the Area 1 surface infrastructure (ie preferred layout or contingency options A to I), including maximum clearing thresholds for each PCT.

Subsidence impacts on biodiversity would continue to be managed under existing and proposed performance measures, including negligible impacts on threatened species, populations and endangered ecological communities. Additionally, measures to monitor and manage impacts on biodiversity values would be detailed in a contemporary extraction plan.

A comprehensive bat monitoring program is required to detect any occupied maternity or significant single-sex roosting sites within the extended mining area. The results of this program must be presented in the extraction plan for the proposed mining area, and UCMPL will need to demonstrate that negligible impacts on threatened bat species can be achieved.

The Department considers that subsidence impacts on an occupied breeding cave or significant roosting site could not be considered negligible. Detection of such features above the mining area may require UCMPL to amend the mine plan or implement other avoidance strategies. The Department will carefully review the extraction plan in consultation with the Mining Panel and CPHR prior to the commencement of mining.

Overall, the Department considers that the modification's impacts on biodiversity could be appropriately avoided, managed and offset, subject to the recommended conditions.

## 5.4 Aboriginal cultural heritage

Previous archaeological surveys and excavations have been undertaken at the complex over many years, with over 1,650 sites previously recorded at the complex.

An Aboriginal Cultural Heritage Assessment (ACHA) was undertaken by South East Archaeology Pty Ltd for the modification, with Registered Aboriginal Parties (RAPs) participating in field surveys and providing input on the ACHA.

Consultation with the RAPs identified both tangible and intangible values associated with the modification area and broader landscape. Some of the comments provided included recommendations relating to the documentation, salvage and storage of artefacts, disagreement with the approach to apply significance ratings to Aboriginal sites as all sites are considered to be of high significance, disagreement with terminology associated with 'partial' loss of value and recommendations for more thorough assessment survey of particular sites. These matters were acknowledged and addressed by UCMPL in the ACHA and in supplementary information.

### 5.4.1 Predicted Impacts

As a result of amendments to the mine plan, there would be no impacts on Aboriginal sites from surface disturbance. However, there are 117 Aboriginal sites within or immediately adjacent to the predicted zone of subsidence. This includes 48 rock shelters, three grinding groove sites, one stone arrangement, one ochre quarry, 28 isolated finds and 36 artefact scatters. It was subsequently concluded that the stone arrangement was not of Aboriginal origin and therefore is not considered any further in this report.

**Table 12** summarises the predicted subsidence impacts on sites considered to be of moderate and high scientific significance. It is acknowledged that some Aboriginal stakeholders consider all sites to be of high cultural significance. The assessment of cultural heritage in NSW is conducted in accordance with the *NSW Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (2011). This guide encompasses the four values of the Burra Charter: social, historical, scientific (archaeological) and aesthetic values (Australian ICOMOS 1999).

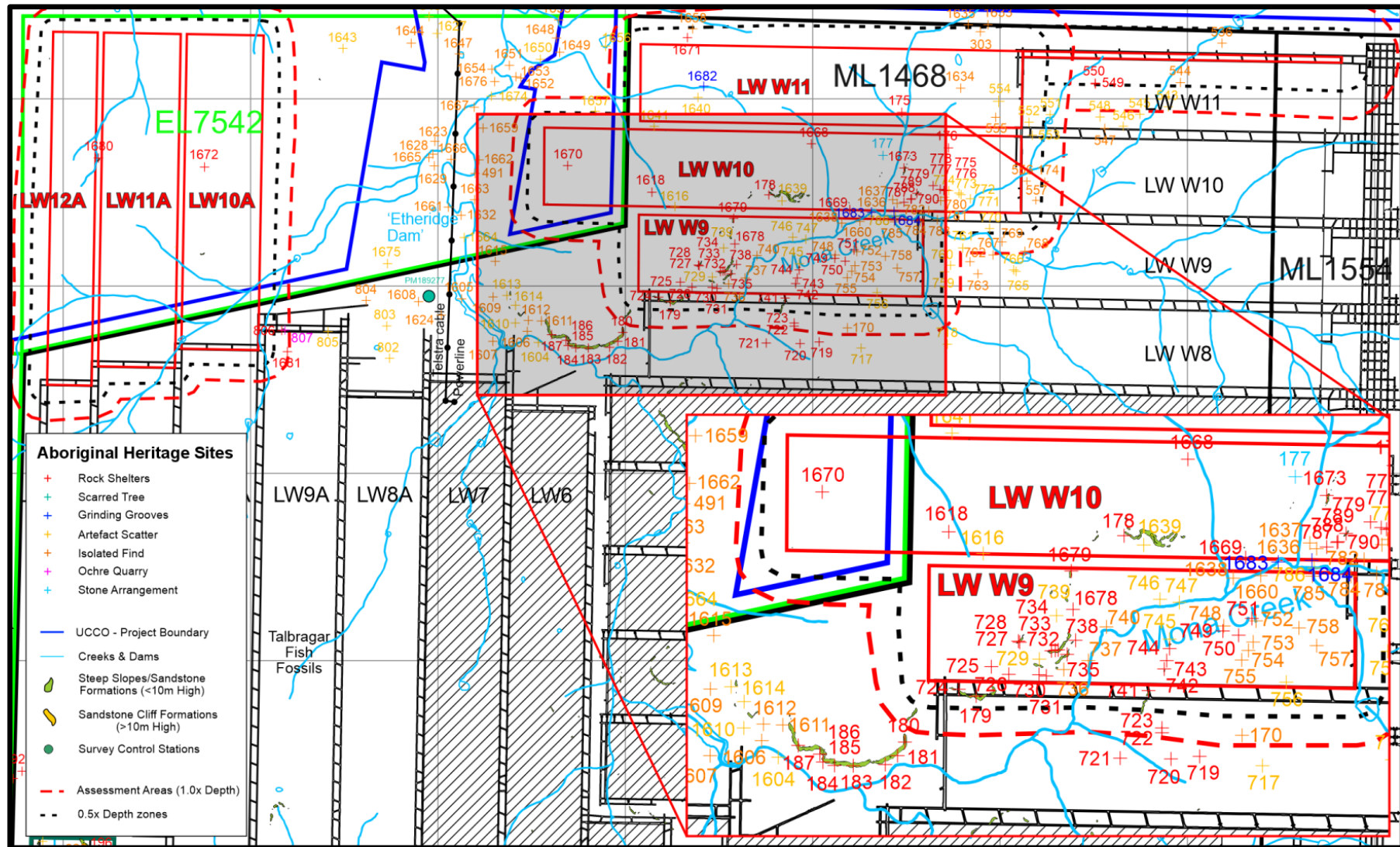
**Table 12 | Predicted subsidence impacts on Aboriginal sites**

| Site ID | Site type                   | Scientific (archaeological) Significance | Probability of Perceptible Impact / Rockfall (%) |
|---------|-----------------------------|------------------------------------------|--------------------------------------------------|
| 735     | Rock shelter with artefacts | Moderate-high                            | 70 / 20                                          |
| 1673    | Rock shelter with artefacts | Moderate-high                            | 50 / 10                                          |
| 730     | Rock shelter with artefacts | Moderate                                 | 70 / 20                                          |
| 175     | Rock shelter with artefacts | Low – moderate                           | 50 / 10                                          |
| 734     | Rock shelter with artefacts | Low – moderate                           | 50 / 10                                          |
| 741     | Rock shelter with artefacts | Low - moderate                           | 20 / 5                                           |
| 751     | Rock shelter with artefacts | Low - moderate                           | 70 / 20                                          |
| 775     | Rock shelter with PAD       | Low – moderate                           | 50 / 10                                          |
| 790     | Rock shelter with artefacts | Low - moderate                           | 50 / 10                                          |
| 1669    | Rock shelter with artefacts | Low – moderate                           | 50 / 10                                          |
| 1682    | Grinding grooves            | High                                     | 50 / n/a                                         |
| 1683    | Grinding grooves            | High                                     | 20 / n/a                                         |
| 1684    | Grinding grooves            | High                                     | 20 / n/a                                         |
| 807     | Ochre quarry                | High                                     | Low – negligible <sup>2</sup>                    |

<sup>1</sup>Descriptive terms for probability rating

<sup>2</sup>SCT predicted that subsidence impacts on the ochre quarry are predicted to be negligible. However, the ACHA adopted a conservative approach and assumed a 50% probability of subsidence impact.

Two rock shelter sites (ID# 735 and 1673) of moderate – high significance are predicted to experience likely subsidence impacts and possible rockfall. Both sites include large rock overhang, habitable floor area and a range of artefact evidence. The location of these sites is depicted in **Figure 6** below.



UCMPL has committed to undertake detailed recording, rock shelter test excavation and potential salvage collection at these sites. Additionally, the sites would be subject to subsidence monitoring to evaluate predictions against impacts.

Other rock shelters subject to subsidence impacts include one of moderate significance (#730) and seven of low to moderate significance. Perceptible cracking is likely (ie 50-90% probability) to occur at all but one of these sites. Rockfall is predicted to be unlikely (ie 1-10% probability) at all but two sites where it is considered possible (ie 11-49% probability). UCMPL propose to monitor subsidence impacts at these sites.

Three grinding grooves sites are located within the modification area, however the ACHA did not define their significance rating.

One site (#1682) is located above the centre of the proposed longwall W11 and would be subject to a perceptible cracking risk of 50%. The other two sites (#1683 and #1684) are located above the chain pillar between LW9 and LW10 and would be subject to a perceptible cracking risk of 20%.

Commentary from RAPs advised that grinding groove sites are of high significance and requested detailed assessment to establish their nature of origin. Additionally, it was strongly recommended that visual and photographic monitoring is undertaken at these sites.

UCMPL undertook a further assessment of the significance of these sites in consultation with RAPs in February 2025. The assessment concluded that these sites are considered to be of high cultural significance due to their demonstration of traditional processes. No objections were raised by the RAPs in the field and UCMPL agreed to undertake drone recordings and laser scanning of the sites, and monitor subsidence impacts.

The Department acknowledges that although some damage may occur to these sites, they would likely still be recognisable as grinding grooves. These type of sites are well represented throughout the region, including within Goulburn River National Park and the grinding groove conservation areas within the broader complex.

Probability of subsidence impacts to the ochre quarry (#807 – high significance) is predicted to be negligible, and therefore no specific management measures are proposed.

The modification is not predicted to impact the Mona Creek Rock Shelter sites located south-west of Ulan Underground Longwall LW9. However, these sites are located within the angle of draw associated with potential far-field horizontal movements. The Mining Panel generally agreed that adverse impacts associated with far-field movements would be unlikely, however it was recommended that these sites are incorporated into the subsidence monitoring program.

Overall, it was concluded that at a local level, the modification would result in a relatively small net overall increase in subsidence impacts to Aboriginal sites when compared to the original project. At a cumulative scale, it was concluded that the impacts of the project in combination with other

mining projects in the region would remain relatively low subject to the implementation of appropriate management and mitigation measures.

#### **5.4.2 Management and mitigation**

In addition to the management measures identified above, UCMPL advised that it would continue to manage cultural heritage in accordance with its existing Heritage Management Plan. This includes procedures for salvaging, recording, test excavation, the detection of the newly identified Aboriginal sites, and ongoing consultation with the Aboriginal community. UCMPL proposed to include sites #735 and #1637 in its test excavation program (as requested by RAPs), which involves detailed investigation into the nature and understanding of the sites, artefact retrieval and update of site records.

The Department has carefully considered the predicted impacts on Aboriginal heritage sites and UCMPL's proposed management measures. The modification would increase the likelihood of subsidence impacts on Aboriginal sites, predominantly rock shelters. Heritage NSW agree with the management recommendations provided in the Aboriginal cultural heritage assessment.

The Department has recommended performance measures specific to Aboriginal cultural heritage including no greater subsidence impacts or environmental consequences than those predicted in the modification report.

Prior to the commencement of longwall mining, the existing consent requires UCMPL to submit an extraction plan that details subsidence management and monitoring processes to be implemented. The Department has recommended contemporary updates to the extraction plan condition, including clear consultation requirements and specification of management measures to be implemented to ensure performance measures are achieved.

Subject to the recommended conditions, the Department considers that impacts on Aboriginal cultural heritage are acceptable and could be appropriately managed.

### **5.5 Greenhouse gas**

#### **Scope 1 and 2 Emissions**

The modification (as amended) would result in increased greenhouse gas emissions, including an additional:

- 97,984 tonnes of CO<sub>2</sub>-equivalent (t CO<sub>2</sub>-e) Scope 1 emissions; and
- 36,954 t CO<sub>2</sub>-e of Scope 2 emissions.

These emissions are mainly associated with the use of diesel, fugitive emissions and electricity use. In comparison to the total emissions approved under the project, the additional Scope 1 and 2 emissions would represent increases of 3.9% and 1.3%, respectively.

In comparison to the originally proposed modification, Scope 1 emissions reduced by approximately 15% and Scope 2 emissions reduced by approximately 88%. The significant reduction in Scope 2 emissions is mostly due to updates to estimation methodology in accordance Commonwealth DCCEEW guidelines and the expected rapid decarbonisation of the NSW electricity grid.

Most submissions raised concern that the modification would be inconsistent with the Paris Agreement, and Commonwealth and statewide goals to reduce greenhouse gas emissions.

The *Climate Change (Net Zero Future) Act 2023* (Net Zero Future Act), which commenced on 11 December 2023, aims to give effect to the international commitments established in the 2015 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.

The Net Zero Future Act sets NSW GHG emissions reduction targets of at least 50% by 2030, 70% by 2035 and a target of net zero emissions by 2050. This formalises the targets previously set out in *The Net Zero Stage 1: 2020-2030 Implementation Update*, which also describes the policies and programs that will help achieve the Government's targets. The Net Zero Commission was established under the Net Zero Future Act to monitor and advise on the state's progress towards these targets.

In April 2024, the NSW Department of Climate Change, Energy, the Environment and Water released projections of NSW's progress against the emissions reduction targets. Emissions associated with the originally proposed modification were accounted for in these projections. Commentary from the Net Zero Commission 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.

Advice from EPA advised that emissions estimates align with contemporary practices and the emissions factors used appear adequate for the calculation of emissions associated with the modification. EPA requested that UCMPL provide calculations of the total project emissions (ie project as modified) in order to understand the impact of the complex on NSW and Australian emissions. UCMPL provided additional information and the Department has considered both the incremental and cumulative impacts of the modification in its assessment.

**Tables 13 and 14** summarise the Scope 1 and 2 emissions for the modification and the project as modified, against the Net Zero targets and the resources sector, in the target years 2030 and 2035.

**Table 13** | Scope 1 and 2 emissions for the modification only

| Year | Mod emissions<br>(t CO <sub>2</sub> -e) | NSW Target<br>(Mt CO <sub>2</sub> -e) | Mod % of NSW<br>Target | Mod % of Resource<br>Sector |
|------|-----------------------------------------|---------------------------------------|------------------------|-----------------------------|
| 2030 | 25,797                                  | 81.31                                 | 0.03%                  | 0.19%                       |
| 2035 | 54,198 <sup>1</sup>                     | 49.14                                 | 0.11%                  | 0.80%                       |

**Table 14** | Scope 1 and 2 emissions for the modified project (as amended)

| Year | Project with mod<br>Emission (t CO <sub>2</sub> -e) | NSW Target<br>(Mt CO <sub>2</sub> -e) | Project with mod % of<br>NSW Target | Project with mod %<br>of Resource Sector |
|------|-----------------------------------------------------|---------------------------------------|-------------------------------------|------------------------------------------|
| 2030 | 54,198                                              | 81.31 Mt CO <sub>2</sub> -e           | 0.07%                               | 0.39%                                    |
| 2035 | 54,198 <sup>1</sup>                                 | 49.14 Mt CO <sub>2</sub> -e           | 0.11%                               | 0.80%                                    |

<sup>1</sup> No estimation of emissions was provided for 2035 as UCMPL advised the project would be in decommissioning phase. However, the Department considers that as UCMPL are seeking to extend mining operations until 2035, that emissions should be modelled in this year as it is possible that mining operations could occur. For the purpose of this analysis, the Department has applied the 2030 emissions rate. This rate is also applied to the modification only scenario as the existing consent only permits mining until 2033, thus any emissions after this time would be additional.

Emissions from the modified project would reflect less than 0.1% of the NSW target in 2030 and 2035.

In this context, the complex would be a very small contributor to total GHG emissions in NSW. It would also be a small contributor in comparison to other emitters in the resource industry. The key reason for this is that fugitive emissions from the complex are very low due to the prevailing geological conditions.

**Figure 7** depicts a comparison of Scope 1 emissions intensity between coal mines in NSW in 2019 (sourced from the Moolarben Coal OC3 Project EIS). Scope 1 emissions intensity from the complex is comparatively low and sits below the average underground coal mine emissions intensity in NSW. For this reason, the mine is not a regulated facility under the Commonwealth Safeguard Mechanism.

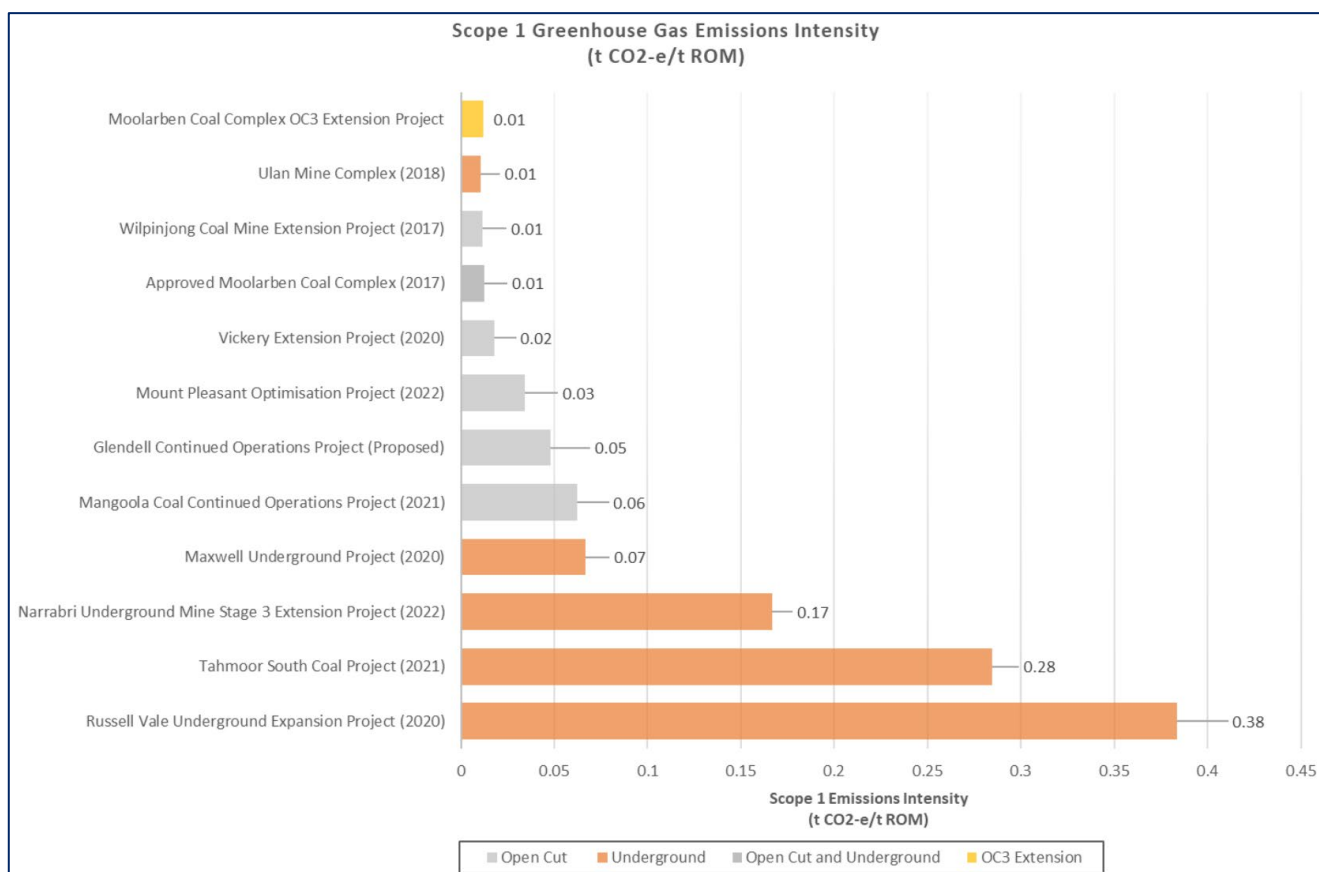


**Figure 7 | Comparison of Emissions Intensity – NSW Coal Mines (source: Moolarben Coal OC3 Extension Project (Appendix J – EIS, November 2022))**

Since 2010, the average combined Scope 1 and 2 emissions intensity from the complex was approximately 0.019 t CO<sub>2</sub> per ROM tonne. No increase in production is proposed, however, the proposed extension of mine life would prolong production for an additional two years.

### Scope 3 Emissions

Scope 3 emissions are not directly generated by a project but are a consequence of the activities of a project. For coal mines, Scope 3 emissions are predominantly associated with the combustion of the coal and transporting product coal to receiving markets. These emissions would be accounted for as Scope 1 emissions in other countries and jurisdictions.

The modification would generate an additional 41.6 Mt CO<sub>2</sub>-e of Scope 3 emissions. This increase represents approximately 6.7% of Scope 3 emissions of the approved project.

The consideration of downstream (Scope 3) emissions is a requirement of *State Environmental Planning Policy (Resources and Energy) 2021*.

Exports of coal from the complex are advised to be predominantly to Asian markets. UCMPL advised that future exports markets are difficult to accurately forecast, however, based on export history between 2022 and 2024, approximately 85% of exported coal went to China, Japan, South Korea

and Taiwan. 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.

**Table 15** provides a summary of key initiatives of these countries to meet their commitments.

**Table 15 | Summary of key importing country emissions reductions initiatives**

| Country            | Paris Agreement | Target                                                                                                                                                                                                               | Emissions Reduction Strategies                                                                                                                                                                                                                                          |
|--------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>China</b>       | Y               | <ul style="list-style-type: none"> <li>• Peak CO<sub>2</sub> emissions before 2030</li> <li>• Reduce emissions intensity per unit of GDP by over 65% from 2005 baseline</li> <li>• Carbon neutral by 2060</li> </ul> | <ul style="list-style-type: none"> <li>• Binding targets for energy consumption per GDP</li> <li>• Increasing non-fossil fuel power</li> <li>• Energy efficiency initiatives in steel industry</li> </ul>                                                               |
| <b>Japan</b>       | Y               | <ul style="list-style-type: none"> <li>• Reduce GHG emissions by 46% of 2013 levels by 2030 and net-zero by 2050</li> </ul>                                                                                          | <ul style="list-style-type: none"> <li>• Increase share of renewable energy and nuclear power</li> <li>• Reduce reliance on fossil fuels including coal-fired power.</li> <li>• Enhance hydrogen and ammonia power, carbon capture and storage technologies.</li> </ul> |
| <b>South Korea</b> | Y               | <ul style="list-style-type: none"> <li>• Reduce GHG emissions by 40% of 2018 levels by 2030</li> <li>• Carbon neutral by 2050</li> </ul>                                                                             | <ul style="list-style-type: none"> <li>• Low Carbon Green Growth Strategy</li> <li>• Emissions trading scheme</li> <li>• Transition toward low carbon industries</li> </ul>                                                                                             |
| <b>Taiwan</b>      | N               | <ul style="list-style-type: none"> <li>• Reduce GHG emissions by 23-25% by 2030 and net-zero by 2050</li> </ul>                                                                                                      | <ul style="list-style-type: none"> <li>• Investment in renewable energy</li> <li>• Increase use of natural gas</li> <li>• Reduce coal fired power plants</li> <li>• Advancing carbon capture and storage technologies</li> </ul>                                        |

• \*Source | National Fiscal Management Plan (2022-2026) - Environmental Sector.

• [Australia | Climate Action Tracker](#)

The degree to which these countries are on track to meet these targets is variable and somewhat uncertain, however, in a global context (ie approximately 38 billion t CO<sub>2</sub>-e per annum in 2024<sup>2</sup>), the contribution of Scope 3 emissions associated with the modification would be negligible, including in target years of 2030 and 2035 (global emissions estimated to be between 43 and 57 billion t CO<sub>2</sub>-e per annum<sup>3</sup> under various policy implementation scenarios).

## Monitoring and Mitigation

Broader initiatives by Glencore include a phase-down of thermal coal production to achieve net-zero industrial CO<sub>2</sub> emissions by 2050. This initiative includes targets to reduce Scope 1, 2 and 3 emissions against a 2019 baseline by 15% in 2026, 25% in 2030 and 50% by 2035. Glencore advise that the modification has been considered and accounted for in the context of these commitments.

At the complex, UCMPL advised that it will continue to mitigate GHG emissions through energy efficiency and productivity initiatives, including limiting drive headings, minimising the size of the ventilation system, equipment optimisation, and shortening travel distances where possible. The Department acknowledges concerns raised by LtG regarding implementation of all reasonable and feasible measures to mitigate both Scope 1 and 2 emissions at the complex.

The regulation of GHG emissions in NSW is in a transitional state towards the EPA leading regulation under the *Protection of the Environment Operations Act 1997*. Currently, many development consents contain requirements for greenhouse gas mitigation and management.

As a holder of an environment protection licence, UCMPL will be required to prepare a Climate Change Mitigation and Adaptation Plan in accordance with requirements that are currently being developed by the EPA. EPA advised that the efficiency of the proposed mitigation actions would be evaluated following a review of the total complex emissions and the development of a mitigation plan. EPA recommended a condition be imposed in the development consent for UCMPL to prepare a GHG mitigation plan, consistent with EPA's requirements.

The development consent currently includes a condition requiring UCMPL to prepare and implement an air quality and GHG management plan, in consultation with the EPA, including detail of all reasonable and feasible GHG mitigation measures.

Given that the regulation of GHG emissions is in a transitional state and EPA's requirements for a GHG mitigation plan are still under development, the Department has recommended a new condition for UCMPL to prepare a separate GHG Mitigation Plan, in consultation with the EPA, within six

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<sup>2</sup> CSIRO 2024 - [Global carbon dioxide emissions from fossil fuels continue to increase - CSIRO](#)

<sup>3</sup> Statista 2025- Projected global greenhouse gas emissions and estimated gap to least-cost pathways consistent with limiting global warming to specific levels from 2030 to 2050, by scenario

months. This would allow GHG mitigation measures to be planned and developed consistently with EPA's forthcoming requirements, during this transitional period.

The new condition would also allow GHG components of the existing air quality and GHG management plan to be addressed under the GHG Mitigation Plan and EPA's regulatory framework, removing unnecessary duplication of regulation through the development consent.

## Conclusion

The Department has carefully considered the increase in GHG emissions in the context of NSW and Commonwealth initiatives, including the emissions reduction targets and principles set out in the Net Zero Future Act.

The Net Zero Future Act identifies that there is a critical need to address climate change and establishes guiding principles for action to address climate change. This includes that action to address climate change should be taken as early as possible to minimise the cost and adverse impacts of climate change on communities, human health, animals and the survival of all species.

Predicted GHG emissions from the originally proposed modification was included in the forecast modelling against NSW's net zero emissions targets, and the existing development consent requires UCML to minimise GHG emissions and implement an Air Quality and Greenhouse Gas Management Plan.

The management and minimisation of GHG emissions would be further strengthened through the regulatory changes implemented by the EPA, including the preparation of a Climate Change Mitigation and Adaptation Plan. Following establishment of this plan, greenhouse gas emissions will be predominantly regulated by the EPA, under its regulatory framework.

The principles in the Net Zero Future Act also state that action to address climate change should take into account a range of matters, including the amenity, economic and employment impacts on local communities and the need to ensure essential infrastructure is provided. The Department has considered these matters throughout its assessment and in **Appendix B**.

The Department 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.

Overall, the modification reflects a very small incremental increase in greenhouse gas emissions in NSW. The Department considers that these increases would be able to be effectively managed under current NSW GHG policy initiatives to ensure that NSW targets would not be compromised, including the overall purpose and guiding principles of the Net Zero Future Act.

## 5.6 Other issues

The Department's consideration of other issues is summarised in 16 below.

**Table 16** | Assessment of other issues

| Issue           | Findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Recommended conditions   |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Social</b>   | <ul style="list-style-type: none"> <li>The social impact assessment (SIA) for the modification was prepared following the requirements of the <i>Social Impact Assessment Guideline for State Significant Projects</i>.</li> <li>The SIA identified the key community concerns as water availability, health and amenity impacts, GHG emissions, property damage from subsidence, loss of cultural significance and trust with the community.</li> <li>The SIA considered both stakeholder perceptions and mitigated impacts and risks, assessing most social risks as low. However, two residual social risks are considered medium risk, including the loss of social amenity due to construction noise and operational noise and vibration for residents near the proposed surface infrastructure.</li> <li>The Department considers that the noise impacts of the modification could be managed under existing and recommended conditions of consent. Further consideration of noise impacts is provided below.</li> <li>The SIA identified three positive social impacts: rehabilitation, continued employment and investment in the local community.</li> <li>The Department considers that the modification would not lead to any significant change in social impacts, but it would extend any existing positive or negative impacts for another two years.</li> <li>The Department also notes UCMPL has an existing voluntary planning agreement in place with Council for contributions to community infrastructure and road maintenance.</li> </ul> | No conditions necessary. |
| <b>Economic</b> | <ul style="list-style-type: none"> <li>The cost-benefit analysis (CBA) prepared by Ernst and Young in line with <i>Guidelines for the economic assessment of mining and coal seam gas proposals</i> (NSW Government, 2015) indicates the</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | No conditions necessary. |

| Issue | Findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Recommended conditions |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|       | <p>modification would generate approximately \$158.8 million (M)<sup>4</sup> in royalty payments to NSW.</p> <ul style="list-style-type: none"> <li>• MEG's advice estimated total royalties would be lower than predicted in the amendment report at \$112 M if royalties were calculated based on the Office of the Chief Economist and consensus price forecasts over the 8-year period.</li> <li>• The modification is also predicted to generate approximately \$278.7 M in additional company tax for Australia, of which around \$89.2 M would accrue to NSW.</li> <li>• The Department expects the amended mine plan would reduce the direct economic benefits of the modification. However, the rates used in the modification report economic assessment and the amendment report economic assessment differ and are not comparable.</li> <li>• The indirect benefits of the modification are estimated at approximately \$96 M, comprising \$15.7 M in net economic benefits to NSW workers and \$80.3 M in net economic benefits to NSW goods and service suppliers.</li> <li>• The local effects analysis predicts the modification would have an estimated net benefit of up to \$33.6 M in the Lithgow-Mudgee region, including \$15.4M associated with benefits to local workers and \$18.2M associated with benefits to local suppliers.</li> <li>• The amended economic assessment estimates that the modification would generate indirect costs of approximately \$32.7 M to NSW, incorporating costs associated with Scope 1 and 2 GHG emissions and impacts to water resources and biodiversity.</li> <li>• The economic assessment estimated the social cost<sup>5</sup> of the predicted Scope 1 and Scope 2 GHG emissions to NSW would be</li> </ul> |                        |

<sup>4</sup> Unless otherwise stated, all values quoted in this report are the net present values based on a 7% discount rate, the central discount rate used by the *Guidelines for the economic assessment of mining and coal seam gas proposals* (NSW Government, 2015).

<sup>5</sup> Ernst and Young calculated the social cost of greenhouse gas emissions using figures published by the Interagency Working Group on Social Cost of Greenhouse Gases ( US EPA, 2023, Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advance)

| Issue              | Findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Recommended conditions                                                                                                                       |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <p>\$30,000. However, if the Department includes the total global social cost of Scope 1 and Scope 2 emissions as a cost to NSW, the total cost would be \$27.73M.</p> <ul style="list-style-type: none"> <li>After accounting for the global social costs of Scope 1 and 2 GHG emissions, the modification would still have a net economic benefit to NSW of \$317.9M.</li> <li>In summary, the Department considers that the modification would continue to provide considerable economic benefits for the local community and NSW.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                              |
| <b>Noise</b>       | <ul style="list-style-type: none"> <li>The noise impact assessment for the modification prepared per the EPA's <i>Noise Policy for Industry</i> (EPA, 2017) predicts that operational noise emissions (both project and cumulative) would be below both the existing noise criteria for the complex and the project noise trigger levels at modelled receptors.</li> <li>Construction noise generated during standard construction hours would also be below the recommended noise levels in the <i>Interim Construction Noise Guideline</i> (DECC, 2009).</li> <li>The noise impact assessment does predict that exceedances could occur under noise enhancing meteorological conditions outside standard construction hours at receiver R34.</li> <li>UCMPL proposes to mitigate the risk of construction noise impacts by avoiding work outside of standard hours, where possible and implementing internal construction noise management procedures outlined in the noise impact assessment.</li> <li>The Department considers that noise impacts from the modification are acceptable and can be managed under the existing and recommended conditions of consent.</li> </ul> | <p>The Department has recommended updates to the noise operating conditions to include best practice management of 'construction noise'.</p> |
| <b>Air Quality</b> | <ul style="list-style-type: none"> <li>Dust emissions from the modified project would be below the NSW EPA criteria for particulate matter (PM)<sub>2.5</sub>, PM<sub>10</sub>, total suspended particulates (TSP), deposited dust or NO<sub>2</sub> at all surrounding privately owned receivers.</li> <li>The modelling of dust emissions excluded open cut mining operations, which are currently on care and maintenance.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>The Department has removed criteria for deposited dust to be consistent with requirements of the EPL.</p>                                 |

| Issue            | Findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Recommended conditions   |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
|                  | <ul style="list-style-type: none"> <li>The qualitative assessment of construction activities concluded that dust emissions from construction would not be discernible from operational activities.</li> <li>UCMPL has an approved air quality management plan for the project and has committed to updating it to include the modification.</li> <li>The EPA raised no concerns but advised that a variation to the EPL would be required if the modification was approved.</li> <li>The Department has recommended updates to the air quality conditions to remove the criteria for deposited dust, which is no longer required for monitoring under the EPL.</li> </ul>                                                                                                                                                                                                                                                                                                                                                          |                          |
| <b>Visual</b>    | <ul style="list-style-type: none"> <li>The modification report visual analysis identified three residences (R34, R254 and R61) would have views of dewatering bores and ventilation shafts from between 1.4 km and 4 km based on topography alone. The amended modification removed some of this infrastructure, reducing the predicted visual impact and increasing the distance of residences from the proposed infrastructure to between 1.6 km and 2.9 km.</li> <li>The Department notes that residential views are highly likely to be obstructed by vegetation.</li> <li>UCMPL proposes to continue implementing existing visual mitigation measures including constructing infrastructure from non-reflective materials in natural tones and progressive decommissioning and rehabilitation of infrastructure no longer required.</li> <li>The Department regards the potential visual impact of the modification to be negligible and has concluded that UCMPL's existing mitigation measures are satisfactory.</li> </ul> | No conditions necessary. |
| <b>Transport</b> | <ul style="list-style-type: none"> <li>The preliminary environmental assessment identified workforce numbers, operating hours, product volumes and transport methods and routes would be consistent with existing operations and would not result in increased traffic impacts. Based on this conclusion, no further assessment of traffic impacts was undertaken for the modification.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | No conditions necessary. |

| Issue | Findings and conclusions                                                                                                                                                                                                                                                                                     | Recommended conditions |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|       | <ul style="list-style-type: none"> <li>The Department notes that the modification would prolong existing traffic impacts for two years, however the Department considers that the potential transport impacts of the modification are minor and can be managed under existing consent conditions.</li> </ul> |                        |

## 6 Evaluation

The Department has carried out a detailed assessment of the modification in accordance with the relevant requirements of the EP&A Act. The assessment has carefully considered issues raised in public submissions, government agency advice and advice from the IESC and the Mining Panel.

Overall, the Department's assessment has concluded that the impacts associated with the modification can be appropriately managed under existing and new conditions of consent.

The Department acknowledges the key issues of the modification relate to subsidence, water, biodiversity, Aboriginal cultural heritage and greenhouse gas emissions.

The amended modification was able to address many aspects of these issues and reduced the overall extent of environmental impacts of the application. In particular, the setback of longwall panels from Mona Creek lessened the risk of subsidence impacts on the Talbragar River system and the extent of drawdown in underlying strata. It also lessened the extent of greenhouse gas emissions and potential subsidence impacts on Aboriginal cultural heritage. The amended modification also reduced the extent of surface infrastructure and associated direct disturbance of biodiversity values.

Despite these reductions, the modification would still result in residual impacts, including landform impacts as a result of subsidence, subsidence impacts on Aboriginal cultural heritage sites, groundwater drawdown, additional greenhouse gas emissions and impacts on biodiversity values.

Upon careful consideration of advice from the Mining Panel, government agencies and the IESC, the Department considers that these impacts can be managed through the development of an extraction plan and recommended conditions of consent. This includes a subsidence monitoring program incorporating the Mona Creek Rock Shelter sites, a bat monitoring program, contemporary updates to site water management plans, additional monitoring sites in the shallower strata formation and detailed trigger action response plans.

The disturbance of 17.4 ha of native vegetation would require the retirement of biodiversity offsets and UCMPL has committed to minimise impacts on biodiversity values through micro-siting and existing management practices. Upon careful consideration of impacts on potential SAI entities and commonwealth protected matters, the Department considers that the clearing of up to 5.9 ha of Box Gum Woodland CEEC would not contribute significantly to the extinction of the species and that the proposed impacts are acceptable, subject to the recommended conditions.

The modification reflects a very small incremental increase in greenhouse gas emissions in NSW. The Department considers that these increases would be able to be effectively managed under current NSW GHG policy initiatives to ensure that NSW targets would not be significantly compromised.

The modification would support the continued benefits that coal production delivers for the State, including an additional \$112 M in royalties to the state of New South Wales, economic benefits to regional communities, ongoing employment and workforce benefits.

The Department considers that the modification has been designed in a manner that achieves a reasonable balance between recovery of high-quality coal resource of State significance and minimising its potential environmental and social impacts.

In considering the modification's impacts against the socio-economic benefits associated with the efficient extraction of an identified coal resource, the Department considers the modification's benefits outweigh its residual costs and that it is in the public interest should be approved, subject to the recommended conditions as outlined in the consolidated consent (**Appendix E**) and notice of modification (**Appendix F**).

## 7 Recommendation

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

- **considers** the findings and recommendations of this report;
- **accepts and adopts** the findings and recommendations in this report as the reasons for making the decision to approve the modification;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **modifies the consent** for the Ulan Continued Operations Project (08\_0184) as amended, subject to the conditions in the attached instrument of modification; and
- **signs** the attached instrument of modification (**OF**).

Recommended by:



22/5/2025

Gen Lucas  
Team Leader  
Resource Assessments

Recommended by:



22/5/2025

Steve O'Donoghue  
Director  
Resource Assessments

## 8 Determination

The recommendation is **adopted/ not adopted** by:



22/5/2025

Chris Ritchie

A/Executive Director

Energy, Resource and Industry Assessments

# Appendices

## Appendix A – List of referenced documents

**A1 – Modification Report:** Refer to the ‘Modification Application’ under the ‘Assessment’ tab on the Department’s website at: [Modification 6 - underground mining extension | Planning Portal - Department of Planning and Environment](#)

**A2 – Submissions:** Refer to the ‘Submissions’ tab on the Department’s website at: [Modification 6 - underground mining extension | Planning Portal - Department of Planning and Environment](#)

**A3 – Submissions Report:** Refer to the ‘Response to Submissions’ folder on the Department’s website at: [Modification 6 - underground mining extension | Planning Portal - Department of Planning and Environment](#)

**A4 – Amendment Report:** Refer to the ‘Amendments’ folder on the Department’s website at: [Modification 6 - underground mining extension | Planning Portal - Department of Planning and Environment](#)

**A5 - Agency Advice:** Summarised in table A5.1. Refer to the ‘Agency Advice’ folder under the ‘Assessment’ tab on the Department’s website at: [Modification 6 - underground mining extension | Planning Portal - Department of Planning and Environment](#)

Table A5.1 | Agency Advice

| Agency                                                                                       | Advice summary                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Department of Planning, Housing, and Infrastructure</b>                                   |                                                                                                                                                                                                                                  |
| <b>Crown Lands</b>                                                                           | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> <li>• Advice on RTS</li> </ul>                                                                                                                       |
| <b>NSW Department of Climate Change, Energy, the Environment and Water</b>                   |                                                                                                                                                                                                                                  |
| <b>Conservation Programs, Heritage and Regulation (CPHR)</b>                                 | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> <li>• Advice on RTS</li> <li>• Advice on Amendment Report</li> <li>• Advice on Bilateral Assessment</li> <li>• Advice on Draft Conditions</li> </ul> |
| <b>Environment Protection Authority (EPA), including Net Zero Emissions Modelling (NZEM)</b> | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> <li>• Advice on Amendment Report</li> <li>• Advice on Additional Information</li> </ul>                                                              |
| <b>Heritage NSW (ACH)</b>                                                                    | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> <li>• </li> </ul>                                                                                                                                    |

| Agency                                                                             | Advice summary                                                                                                                                         |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Water Group</b>                                                                 | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> <li>• Advice on RTS</li> <li>• Advice on Amendment Report</li> </ul>       |
| <b>Department of Regional NSW</b>                                                  |                                                                                                                                                        |
| <b>Mining, Exploration and Geoscience (MEG), including the Resources Regulator</b> | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> <li>• Advice on Amendment Report</li> </ul>                                |
| <b>Transport for NSW (TfNSW)</b>                                                   | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> </ul>                                                                      |
| <b>Department of Primary Industries</b>                                            |                                                                                                                                                        |
| <b>Agriculture</b>                                                                 | <ul style="list-style-type: none"> <li>• Advice on Modification Report</li> </ul>                                                                      |
| <b>Mid-Western Regional Council</b>                                                |                                                                                                                                                        |
|                                                                                    | <ul style="list-style-type: none"> <li>• Comments on Modification Report</li> <li>• Comments on RTS</li> <li>• Comments on Amendment Report</li> </ul> |

**A6 – Additional Information:** Summarised in Table A6.1. Refer to ‘Additional Information’ folder under the ‘Assessment’ tab on the Department’s website at: [Modification 6 - underground mining extension | Planning Portal - Department of Planning and Environment](#)

Table A6.1 – Additional Information

| Agency                                                                                            | Advice summary                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UCMPL</b>                                                                                      |                                                                                                                                                                                                                                                             |
|                                                                                                   | <ul style="list-style-type: none"> <li>• Response to IESC – August 2024</li> <li>• Response to Agency Advice – September 2024</li> <li>• Response to IEAPM – December 2024</li> <li>• Response to Additional Information Request – December 2024</li> </ul> |
| <b>Independent Expert Advisory Panel for Mining</b>                                               |                                                                                                                                                                                                                                                             |
|                                                                                                   | <ul style="list-style-type: none"> <li>• IEAMP Report – Ulan Coal Modification 6 – October 2024</li> </ul>                                                                                                                                                  |
| <b>Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development</b> |                                                                                                                                                                                                                                                             |
|                                                                                                   | <ul style="list-style-type: none"> <li>• <a href="#">Advice to decision maker on coal mining project - Ulan Coal Mine Extension Modification 6 Project</a></li> </ul>                                                                                       |

## Appendix B - Statutory considerations

### Objects of the EP&A Act

A summary of the Department's consideration of the relevant objects of the EP&A Act are provided in **Error! Reference source not found.** below.

**Table B1** | Consideration of the modification against relevant objects of the EP&A Act

| Object                                                                                                                                                                                                          | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>(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,</i></b>      | <ul style="list-style-type: none"><li>• The modification would facilitate the continued operation of the complex and the recovery of additional coal resources.</li><li>• Existing infrastructure and surface facilities would continue to be used. Some additional infrastructure would also be required.</li><li>• The modification would provide considerable socio-economic benefits.</li></ul>                                                                                                                                                                                                                                                        |
| <b><i>(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental, and social considerations in decision-making about environmental planning and assessment,</i></b> | <ul style="list-style-type: none"><li>• The Department's assessment has sought to integrate all significant environmental, social, and economic considerations.</li><li>• The Department considers that the modification can be carried out in a manner that is consistent with the principles of ESD, which have been considered through the Modification Report, Amendment Report and the Department's assessment.</li></ul>                                                                                                                                                                                                                             |
| <b><i>(c) to promote the orderly and economic use and development of land,</i></b>                                                                                                                              | <ul style="list-style-type: none"><li>• The modification involves a permissible land use on land immediately adjacent to the approved project boundary. The modification would contribute to the economic benefits generated by the complex. The Department considers this represents an orderly and economic use of the land.</li></ul>                                                                                                                                                                                                                                                                                                                   |
| <b><i>(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities, and their habitats,</i></b>                              | <ul style="list-style-type: none"><li>• The modification has been designed to minimise potential environmental impacts where practicable, including consideration a reduced mine layout in the amended application and the use of existing infrastructure to minimise surface disturbance.</li><li>• The applicant would offset residual biodiversity impacts in accordance with the NSW Biodiversity Offset Scheme and Commonwealth requirements.</li><li>• The Department has recommended strict subsidence impact performance measures and updated conditions of consent to manage and minimise the potential impacts on biodiversity values.</li></ul> |

| Object                                                                                                                                                            | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i></b>                                  | <ul style="list-style-type: none"> <li>The Aboriginal cultural heritage assessment was prepared in consultation with Registered Aboriginal Parties and in accordance with the NSW Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (2011).</li> <li>The modification would result in a small increase in subsidence impacts to Aboriginal heritage sites.</li> <li>Mitigation and management of Aboriginal heritage sites would continue under the site's heritage management plan, and extraction plan, in consultation with Heritage NSW and RAPs.</li> <li>The Department has recommended performance measures specific to Aboriginal cultural heritage and considers that impacts can be appropriately managed under existing and recommended conditions.</li> </ul> |
| <b><i>(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,</i></b> | <ul style="list-style-type: none"> <li>The Department has assessed the modification in consultation with Mid-Western Regional Council and other relevant NSW government authorities and has given consideration to the issues raised by these agencies in its assessment.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b><i>(j) to provide increased opportunity for community participation in environmental planning and assessment.</i></b>                                          | <ul style="list-style-type: none"> <li>The Department publicly exhibited the modification application and considered all submissions in its assessment.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

### Matters for Consideration under 4.15 of the EP&A Act

The Department's consideration of the matters for consideration under section 4.15 of the EP&A Act is provided in Table B2 below.

**Table B2** – Matters for consideration under section 4.15 of the EP&A Act

| Item                                                             | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental Planning Instruments</b>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b><i>Mid-Western Regional Local Environmental Plan 2012</i></b> | <p>The complex is located within the Mid-Western Regional local government area. Land within the modification area is zoned RU1 – Primary Production and C3 – Environmental Management.</p> <p>Under the Mid-Western Regional LEP, underground mining is permissible with consent in the RU1 zone but prohibited in the C3 zone. However, in accordance with State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP), development for the purpose of mining may be carried out on any land with development consent.</p> |

| Item                                                                                               | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>State Environmental Planning Policy (Planning Systems) 2021</b>                                 | <p>In accordance with section 2.7(2) of this State Environmental Planning Policy (SEPP), the Independent Planning Commission of NSW is the consent authority for a modification application where an applicant has disclosed a reportable political donation. UCMPL did not disclose a reportable political donation and consequently the Minister for Planning and Public Spaces is the consent authority for the modification. Under the Minister's delegation dated 9 March 2022, the Executive Director Energy, Resource and Industry Assessments, may determine the application because there were less than 50 submissions objecting to the modification.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>State Environmental Planning Policy (Resilience and Hazards) 2021</b>                           | <p>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". The modification would not involve a change of use and consequently no preliminary investigation is required.</p> <p>The modification area does not have a significant risk of existing contamination given its historical and current land uses, and that the development is generally consistent with the aims, objectives and provisions of the SEPP.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP)</b> | <p>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. The Department has considered these matters in its assessment of the modification and has included a brief summary of these considerations below.</p> <p><u>Non-discretionary development standards for mining (section 2.16)</u></p> <p>Section 2.16 identifies non-discretionary development standards for the purposes of section 4.15(2) of the EP&amp;A Act in relation to the carrying out of development for the purposes of mining. Appendix 5 (Table A5.2) of the modification report sets out UCMPL's consideration of the applicable standards and whether or not the modified project meets them. The Department agrees with the conclusions provided in this assessment.</p> <p><u>Compatibility with other land uses (sections 2.17 and 2.19)</u></p> <p>The Department's assessment has considered the potential impacts of the modification on other land uses in the area, including land used for conservation purposes, forestry purposes, agricultural purposes, rural dwellings and other approved mines.</p> <p>The Department considers that the modification would not materially change the compatibility of the project with these land uses, beyond what was considered in the original assessment. That is, the modified project would not be incompatible with the Munghorn Gap Nature Reserve and would have limited residual impacts on the capacity of other land users in the locality to undertake their activities.</p> <p>Overall, the Department considers that the modified project could be managed to minimise any potential land use conflicts and meet the aims, objectives, and provisions of section 2.17.</p> <p><u>Voluntary Land Acquisition and Mitigation Policy (VLAMP) (section 2.18)</u></p> |

| Item                                                                            | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|                                                                                 | <p>The Department's assessment has considered the NSW Government's Voluntary Land Acquisition and Mitigation Policy (December 2014). The modification does not trigger the provisions of the VLAMP.</p> <p><u>Natural resource management and environmental management (section 2.20)</u></p> <p>See Section B1 below.</p> <p><u>Resource recovery (section 2.21)</u></p> <p>The Department has considered resource recovery in its assessment of the modification and concludes that the modified project can be carried out in an efficient manner that optimises resource recovery within environmental constraints. The Department has recommended conditions giving appropriate recognition and protection for the environmental values that may be affected.</p> <p><u>Transport (section 2.22)</u></p> <p>Section 2.22 aims to limit the transport of coal, other minerals and their ores, and extractive materials on public roads. This section is not applicable to the application as all product coal would continue to be transported to markets by rail.</p> <p><u>Rehabilitation (section 2.23)</u></p> <p>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.</p> <p>The Department considers the existing conditions are adequate to manage rehabilitation, waste and contamination.</p> |
| <b>State Environmental Planning Policy (Biodiversity and Conservation) 2021</b> | <p>The Department has comprehensively assessed the modification's potential impacts on biodiversity in section 5.3. The Department considers that the existing and recommended conditions are adequate to manage biodiversity impacts.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>The Public Interest</b>                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>C2 Ecological Sustainable Development</b>                                    | <p>The EP&amp;A Act adopts the definition of ESD found in the <i>Protection of the Environment Administration Act 1991</i>, as follows:</p> <p><i>“ecological sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Item | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|      | <p>a) <i>the precautionary principle;</i></p> <p>b) <i>inter-generational equity;</i></p> <p>c) <i>conservation of biological diversity and ecological integrity; and</i></p> <p>d) <i>improved valuation, pricing and incentive mechanisms.”</i></p> <p>The Department has considered ESD and its related principles and programs. The Department has also had regard to the manner in which ESD and its principles and programs are addressed in the modification report. A summary of the Department’s consideration is below.</p> <p><u>Precautionary Principle</u></p> <p>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”.</p> <p>The Department has assessed whether the modification threatens serious or irreversible environmental damage. The Department has carefully considered the material provided by UCMPL in its modification report, submissions report, amendment report and other documents and has consulted closely with key Government agencies and the Mining Panel to obtain advice on various aspects of the modification.</p> <p>The modification report and amendment report include specialist environmental impact assessments. These outline the environmental impacts of the modification, which would primarily be associated with additional greenhouse gas emissions and subsidence-related impacts on landforms, water resources, biodiversity and cultural heritage.</p> <p>The development consent already incorporates a number of requirements to ensure the impacts of the approved project are avoided or minimised. The Department has considered whether these requirements are adequate to manage any additional risks from the modification and/or whether additional conditions could be imposed to manage the risks.</p> <p>The Department’s assessment has been guided by:</p> <ul style="list-style-type: none"> <li>a) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and</li> <li>b) an assessment of the risk-weighted consequences of various options.</li> </ul> <p>It considers that there is sufficient scientific certainty regarding environmental impacts and residual risks to enable determination of the application. The Department considers that the existing and recommended performance measures and other conditions of consent would provide appropriate protection for biodiversity, cultural heritage, water resource and environmental values, and would minimise the potential for any serious or irreversible environmental damage.</p> <p><u>Intergenerational Equity</u></p> |

| Item | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|      | <p>The ESD principle of intergenerational equity requires that: <i>“the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations”</i>.</p> <p>The Department considers that the modification does not conflict with the principle of intergenerational equity. That is, the health, diversity and productivity of the environment would be maintained or enhanced.</p> <p>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.</p> <p>The incremental increase in direct GHG emissions from the modification would constitute a very small contribution towards climate change at both the national and global scale. Nevertheless, the Department acknowledges that 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 a goal of achieving net zero emission by 2050, and to deliver a 70% emissions reduction over 2005 levels by 2035. The Department considers that the modification would not prevent NSW from achieving those goals.</p> <p>Scope 3 GHG emissions accounting would be undertaken by the entities and nations where the product coal is combusted. The Department considers that the modification’s Scope 3 GHG emissions do not contravene the principle of intergenerational equity insofar as it is established and applied by NSW legislation and the applicable policy framework.</p> <p><u>Conservation of Biological Diversity and Ecological Integrity</u></p> <p>The ESD principle of conservation of biological diversity and ecological integrity requires that: <i>“conservation of biological diversity and ecological integrity should be a fundamental consideration”</i> in decision making processes, such as the development consent process and the environmental impact assessment process which supports it.</p> <p>The modification would result in the direct disturbance of approximately 17.4 ha of native vegetation, including up to 5.9 ha of Box Gum Woodland CEEC. Subsidence impacts also have the potential to indirectly impact biodiversity values, primarily through changes to topography and drainage.</p> <p>Direct and indirect impacts on biodiversity values have been carefully considered and the Department has recommended stringent conditions to ensure impacts on biodiversity would be appropriately avoided, monitored, managed and offset.</p> <p><u>Improved Valuation, Pricing and Incentive Mechanisms</u></p> <p>The ESD principle of improved valuation, pricing and incentive mechanisms requires that: <i>“environmental factors should be included in the valuation of assets and services”</i> in decision making processes, including by such means as the ‘polluter pays’ principle, full life cycle costing and cost-effective pursuit of environmental goals.</p> |

| Item                                                                                                                                                       | Consideration                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                            | The environmental costs of the modification have been addressed in detail in the amendment report. The direct environmental effects of the modification would largely be internalised through the adoption and funding of the mitigation measures proposed by UCMPL or otherwise required by conditions to mitigate, remediate or offset them. |
| <b>Planning Agreements</b>                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                            | CMPL has an existing voluntary planning agreement in place with Mid-Western Regional Council. This would continue to operate over the extended mine life.                                                                                                                                                                                      |
| <b>Likely impacts of development, including environmental impacts on the natural and built environment and social and economic impacts on the locality</b> |                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                            | The Department has undertaken a comprehensive assessment of the likely impacts of the modification on the natural and built environment and the social and economic impacts on the locality. These matters are addressed in section 5.                                                                                                         |
| <b>Suitability of the site</b>                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                            | The modification would not change anything that would alter the conclusions of the original assessment of the project.                                                                                                                                                                                                                         |

## Reasons for granting consent of the original application

In determining the original project application, the Minister concluded that the project's benefits sufficiently outweighed its residual costs. The Department has considered the modification against the reasons the Minister provided for determining the project and considers that none of these reasons would preclude the approval of the application.

## B1. Resources and Energy SEPP - Natural resource management and environmental management (section 2.20)

Section 2.20 (1) 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:

- a) that impacts on significant surface water and groundwater resources and threatened species and biodiversity are avoided or minimised to the greatest extent practicable; and
- b) that GHG emissions are minimised to the greatest extent practicable.

The Department has recommended a number of conditions aimed at ensuring that the modification is undertaken in an environmentally responsible manner, including but not limited to, conditions in

relation to subsidence, water resources and biodiversity. The Department has included a condition requiring UCMPL to prepare a GHG mitigation plan (or similar) in consultation with the EPA.

Section 2.20 (2) requires the consent authority to consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and the Department (on behalf of the consent authority) must do so having regard to any applicable State or national policies, programs or guidelines concerning GHGs.

In assessing the impact of GHG emissions of the proposed modification, the Department has considered the applicable policies, programs and guidelines. Specifically, the Department has carefully considered the proposed modification against the guiding principles in the Climate Change (Net Zero Future) Act 2023. The principles relate to how action to address climate change should be undertaken and what should be taken into account.

**Table B3** provides a summary of how the Department has considered these Guiding Principles.

**Table B3 – Summary of consideration of modification against Guiding Principles in the Climate Change (Net Zero Future Act) 2023**

| Guiding Principle                                                                                                                                                                                                                                                                                                                                                       | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) <i>For this Act, the guiding principles are the principles set out in this section.</i>                                                                                                                                                                                                                                                                              | Noted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2) <i>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.</i>                                                                                                                                                                                                  | Noted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 3) <i>Action to address climate change should be taken as early as possible to minimise the cost and adverse impacts of climate change.</i>                                                                                                                                                                                                                             | The modification would not significantly compromise the NSW emissions reduction trajectory to achieve interim target reductions for 2030, 2035 and net zero by 2050. This trajectory aligns with the timing of national commitments under the Paris Agreement 2015.                                                                                                                                                                                                                                         |
| 4) <i>Action to address climate change should be taken in a way that—</i><br>a) <i>is fiscally responsible, and</i><br>b) <i>promotes sustainable economic growth, and</i><br>c) <i>considers the economic risks of delaying action to address climate change, and</i><br>d) <i>considers the impact on rural, regional, and remote communities in New South Wales.</i> | (a) & (b)<br>The modification is an extension to an existing mining complex which would:<br>a) have minimal additional environmental impacts; and<br>b) provide significant economic benefit to NSW.<br>(c) & (d)<br>GHG emissions associated with the modification would not significantly compromise the NSW emissions reduction trajectory to achieve target reductions and net zero by 2050.<br>The modification would provide continued economic and employment benefits to NSW and the Mudgee region. |
| 5) <i>Action to address climate change should be consistent with the right to a clean, healthy and sustainable environment.</i>                                                                                                                                                                                                                                         | The Department has concluded that the impacts associated with the modification are acceptable subject to the recommended conditions.                                                                                                                                                                                                                                                                                                                                                                        |

| Guiding Principle                                                                                                                                                                                                 | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| 6) <i>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).</i> | The Department's assessment has concluded that the modification would not conflict with the principles of ESD as described in the <i>Protection of the Environment Administration Act 1991</i> (see Table 19 above).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 7) <i>Action to address climate change should involve appropriate consultation with affected persons, communities and stakeholders.</i>                                                                           | <p>The modification was publicly exhibited and the Department received 53 submissions from members of the public and special interest groups. The Department carefully considered all submissions, including those that raised concerns about climate change.</p> <p>The Department also consulted with government agencies including (but not limited to):</p> <ul style="list-style-type: none"> <li>a) NSW Mining Exploration and Geoscience – who identified that the modification would be an efficient use of resources and would provide an appropriate return to the NSW Government;</li> <li>b) the EPA - who did not raise concern with the incremental GHG emissions of the modification.</li> <li>c) Mid-Western Regional Council - who encourage the sourcing of local stewardship sites for biodiversity offset requirements.</li> </ul> |
| 8) <i>Action to address climate change should take into account the following—</i>                                                                                                                                | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| a) <i>the knowledge and perspectives of Aboriginal communities,</i>                                                                                                                                               | The modification 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) <i>the best available science,</i>                                                                                                                                                                             | <p>Estimation of GHG emissions associated with the modification were undertaken in accordance with contemporary practises and the National Greenhouse Accounts Factors (DCCEEW 2023).</p> <p>The GHG emissions of the modification 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.</p> <p>NSW emissions projections indicate that the modification would not compromise the NSW emissions reduction trajectory to achieve target reductions and net zero by 2050.</p>                                                                                                                                                                                                                                                         |
| c) <i>the knowledge of rural, regional and remote communities in New South Wales,</i>                                                                                                                             | The modification application 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 modification report that informed the Department's assessment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Guiding Principle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Consideration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>d) <i>the need to support local communities, including Aboriginal communities, who may be affected by the action, including by—</i></p> <p>(i) <i>considering the impact on local employment and industries, and</i></p> <p>(ii) <i>diversifying local economies, and</i></p> <p>(iii) <i>encouraging local procurement, and</i></p> <p>(iv) <i>optimising job creation and employment transition opportunities, and</i></p> <p>(v) <i>considering the impact on the amenity of local communities,</i></p> | <p>The complex provides substantial employment and flow on economic benefits to the Mudgee region. The modification would result in the continuation of these benefit for an additional two years.</p> <p>The modification was prepared in consultation with Aboriginal communities and in accordance with relevant guidelines.</p> <p>The modification would have negligible amenity impacts on local communities, being an extension of underground mining with short term construction requirements.</p> |
| e) <i>the need for education and skills diversification,</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Not applicable - the modification is for the extension of existing underground mining areas and therefore all requisite education and skills have been obtained.                                                                                                                                                                                                                                                                                                                                            |
| f) <i>the need to ensure essential utilities and infrastructure are provided, including energy, water, telecommunications and transport,</i>                                                                                                                                                                                                                                                                                                                                                                  | 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 highly reliant on coal-fired power for its electricity generation.                                                                                                                                                                                                   |
| g) <i>the impact of the action on consumer costs in New South Wales, including energy costs,</i>                                                                                                                                                                                                                                                                                                                                                                                                              | <p>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.</p> <p>Coal from the complex will be supplied to NSW power stations throughout the transition to the decarbonised electricity grid.</p>                                          |
| h) <i>the need to reduce the risk climate change poses to human health,</i>                                                                                                                                                                                                                                                                                                                                                                                                                                   | NSW emissions projects indicate that the modification would not significantly compromise the NSW emissions reduction trajectory to achieve 2030 and 2035 target reductions and net zero by 2050.                                                                                                                                                                                                                                                                                                            |
| i) <i>equity and social justice impacts on socially disadvantaged groups and economically vulnerable regions,</i>                                                                                                                                                                                                                                                                                                                                                                                             | On this basis, the modification would have a negligible contribution to increasing risk and impacts associated with human health, equity and social justice for disadvantaged/vulnerable groups and species survival.                                                                                                                                                                                                                                                                                       |
| j) <i>the need to reduce the risk climate change poses to the survival of all species.</i>                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 9) <i>Action to address climate change should take into account the impact on animals.</i>                                                                                                                                                                                                                                                                                                                                                                                                                    | The modification application included a biodiversity impact assessment undertaken in accordance with the Biodiversity Assessment Method, and included avoidance, minimisation and offsetting measures such that the Department considers that impacts would be acceptable.                                                                                                                                                                                                                                  |

| Guiding Principle                                                                                                                                                                                                                                                                                                                                           | Consideration |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <p><i>10) The Government of New South Wales is responsible for—</i></p> <ul style="list-style-type: none"> <li><i>a) urgently developing and implementing strategies, policies and programs to address climate change, and</i></li> <li><i>b) ensuring the Government of New South Wales pursues best practice in addressing climate change.</i></li> </ul> | <p>Noted.</p> |

## Appendix C – Assessment of Matters of National Environmental Significance

### Introduction

On 12 December 2022, the modification was determined to be a controlled action by the Commonwealth Department of Climate Change, Energy, Environment and Water (Commonwealth 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).

Based on the information available at the time, the Commonwealth DCCEEW considered that the proposed action would likely have a significant impact on two species – White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland and the Large-eared Pied Bat. Commonwealth DCCEEW also considered that a further eight threatened species could be significantly impacted. These included the Regent Honeyeater, Swift Parrot, Superb Parrot, Spot-tailed Quoll, Corben's Long-eared Bat, Brush-tailed Rock Wallaby, Koala and Greater Glider.

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 modification) under the EPBC Act.

The Department's assessment has been prepared based on the assessment contained in the Amended BDAR, submissions report and additional information provided during the assessment process. The Department's assessment has also considered public submissions and advice provided by CPHR, other NSW government agencies, and the Commonwealth DCCEEW.

This appendix is supplementary to, and should be read in conjunction with, the assessment included in section 5.3 of this assessment report. It includes consideration of impacts to listed threatened species and communities, and mitigation and offsetting measures for MNES. Advice from CPHR on MNES is provided in **Appendix A4** and includes a detailed review of whether the assessment documentation includes all required information.

### 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 modification was jointly referred by the Department and the then Commonwealth Department of the Environment (the Commonwealth) to the IESC, requesting advice on potential surface water and groundwater impacts. The IESC's advice is included in **Appendix A6**. The Department has

considered the IESC's advice, UCMPL's response and advice from the IEAPM in its assessment of the modification.

The Department considers that the modification would not result in a significant impact to groundwater and surface water resources. Many issues raised by the IESC were addressed through amendments to the mine plan to avoid Mona Creek. The IEAMP and DCCEEW Water recommended a number of monitoring and management measures, which would be implemented through an extraction plan and updated site water management plans.

The Department has recommended contemporary updates to the Extraction Plan condition in the consent, including surface and groundwater impact assessment criteria and trigger levels for investigating potentially adverse impacts on water resources and/or water quality. UCLM are currently preparing an updated groundwater model and recalibration which will improve resolution of predictions at the local scale.

Subject to the existing and recommended conditions, the Department considered the impacts on water resources are acceptable.

### **Impacts on EPBC Listed Species and Communities**

The modification would directly impact 17.4 ha of native vegetation that may comprise habitat for MNES. Additionally, a further 634.4 ha of native vegetation would be subject to indirect impacts through subsidence.

In addition to the ten entities identified in the referral decision, UCMPL assessed an additional four species with potential to be impacted by the modification. All twelve entities were considered in the Amended BDAR.

#### **Box Gum Woodland CEEC**

The modification would directly impact Box Gum Woodland CEEC including up to:

- 2.7 ha under the Area 1 preferred layout scenario; or
- 5.6 ha under the Area 1 worst-case contingency option (Option 7).

Additionally, up to 205.3 ha of Box Gum Woodland CEEC would be subject to potential indirect impacts through subsidence.

The Amended BDAR concluded that the modification would be likely to have a locally significant impact on the community as a result of clearing. Previous ecological monitoring across the Ulan Complex indicates that subsidence would have negligible impacts on the community.

UCMPL has committed to minimise clearing impacts as much as possible using micro-siting techniques and remediation of infrastructure areas post-mining to CEEC. Residual impacts would be

offset in accordance with the BAM. These actions are consistent with the primary objectives in conservation advice for CEEC.

There is a National Recovery Plan for the CEEC which includes objectives to minimise the risk of extinction through no net loss in the extent and condition of the CEEC, increasing protection of sites with high recovery potential, increasing landscape functionality through management and restoration of degraded sites and increasing transitional areas around remnants and linkages between remnants.

The Amended BDAR has considered this advice and concluded that mitigation strategies and offsetting would greatly minimise interference to the recovery of the CEEC.

Relevant threat abatement plans for the CEEC include:

- *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads* (Australian Government Department of Sustainability, Environment, Water, Population and Communities, 2011);
- *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs* (Australian Government Department of the Environment and Energy, 2017); and
- *Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi** (Australian Government Department of the Environment and Energy, 2018).

Management of these threats would be facilitated through the existing Biodiversity Management Plan.

Subject to the recommended conditions, the Department considers that the project can be carried out in a manner that is consistent with the relevant conservation advice, recovery plans and threat abatement plans.

#### Large-Eared Pied Bat

The modification would directly impact 17.4 ha of suitable foraging habitat for the Large-Eared Pied Bat. A further 588.2 ha of foraging habitat would be subject to indirect subsidence impacts, including up to 90 metres of cliff lines that are subject to rockfall or cracking. This species was recorded frequently within the proposed subsidence zone however no breeding caves were identified.

The assessment concluded that the modification would have a significant impact on this species, particularly if breeding habitat is impacted by subsidence.

The Department has carefully considered the impacts on threatened microbat species in **Section 5.3**. The development consent includes performance measures for subsidence impacts, including 'negligible impact' on threatened species. Due to their unique configuration and utilisation, the Department considers that any subsidence impacts on an occupied breeding cave would be an

unacceptable impact on the species and could not be considered negligible. The Department has recommended a range of conditions, including a Bat Monitoring Program to ensure any breeding sites or significant roosting sites are identified prior to the commencement of secondary extraction. The identification of a breeding cave within the predicted subsidence zone would likely require UCMPL to revise its mine plan, or implement other strategies to ensure the performance measure could be achieved.

The Department also recommended that UCMPL retire species credits for prescribed impacts on bat habitat (ie rocky features) within the zone of subsidence.

Approved conservation advice for this species identifies that the main listing factor are its restricted geographic distribution based on the number of known maternity roosts. Maternity roosts appear to be of specific configuration (ie arched caved with domed roofs). The National Recovery Plan for this species sets objectives to protect priority roost and maternity sites for protection.

Subject to the recommended conditions, the Department considers that the action can be carried out in a manner that is consistent with the relevant conservation advice, recovery plans and threat abatement plans.

#### Other Potentially Impact Species

The Amended BDAR concluded that significant impacts on a range of other threatened species is unlikely. The Department and CPHR agree with the outcome of UCMPL's assessment and note that the potential impacts on most of these species would be offset via ecosystem credits. Additionally, CPHR considered that the assessment appropriately considered relevant National Recovery Plans and/or conservation advice (see **Appendix A4**).

A summary of impacts on each of these species is provided in **Table C1** below.

**Table C1** | Summary of impacts on EPBC Act listed species

| Species                                                         | Summary of Impact                                                                                                                                                                                                                                                                                                                                                                                            | Offsets                                                      |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <b>Regent Honeyeater</b><br><b>(<i>Anthochaera Phrygia</i>)</b> | <ul style="list-style-type: none"> <li>No record of species during targeted surveys of the modification area and at the complex for over 10 years.</li> <li>No direct impacts on potential foraging habitat.</li> <li>Potential indirect impacts on 24.6 ha of foraging habitat associated with PCTs 281 and 618</li> <li>Subsidence not predicted to have material impacts on vegetation health.</li> </ul> | No impacts on important mapped habitat. No offsets required. |

| Species                                                              | Summary of Impact                                                                                                                                                                                                                                                                                                                                                       | Offsets                                                                                              |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Swift Parrot</b><br><b>(<i>Lathamus discolor</i>)</b>             | <ul style="list-style-type: none"> <li>No record of species during targeted surveys of the modification area.</li> <li>No direct impacts on potential foraging habitat.</li> <li>Potential indirect impacts on 24.6 ha of foraging habitat associated with PCTs 281 and 618</li> <li>Subsidence not predicted to have material impacts on vegetation health.</li> </ul> | No impact on important mapped habitat. No offsets required.                                          |
| <b>Painted honeyeater</b><br><b>(<i>Grantiella picta</i>)</b>        | <ul style="list-style-type: none"> <li>Recorded in targeted surveys. Previously recorded at the complex.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Impacts unlikely to reduce the area of occupancy for an important population.</li> </ul>                                   | Potential impacts on habitat indirectly offset -ecosystem credit species (PCTs 476,478,479 and 481). |
| <b>Superb Parrot</b><br><b>(<i>Polytelis swainsonii</i>)</b>         | <ul style="list-style-type: none"> <li>No record of species during targeted surveys of the modification area or at the complex.</li> <li>Low potential to occur in Box Gum Woodland. Reduction in foraging habitat up to 5.9 ha.</li> <li>No important population of the species is present.</li> </ul>                                                                 | Potential impacts on habitat indirectly offset -ecosystem credit species (PCT 481).                  |
| <b>Spotted-tailed Quoll</b><br><b>(<i>Dasyurus maculatus</i>)</b>    | <ul style="list-style-type: none"> <li>No record of species during targeted surveys of the modification area or at the complex.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Abundance of foraging habitat in the vicinity. Significant impacts on species unlikely.</li> </ul>  | Potential impacts on habitat indirectly offset -ecosystem credit species (PCTs 476,478,479 and 481). |
| <b>Corben's long-eared Bat</b><br><b>(<i>Nycophilus corbeni</i>)</b> | <ul style="list-style-type: none"> <li>Recorded in targeted surveys.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Abundance of foraging habitat in the vicinity. Significant impacts on species unlikely.</li> </ul>                                                             | Potential impacts indirectly offset -ecosystem credit species (PCTs 476,478,479 and 481).            |

| Species                                                                        | Summary of Impact                                                                                                                                                                                                                                                                                                                                                                                                         | Offsets                                                                                                                                                                              |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Brush-tailed Rocky Wallaby</b><br><i>(Petrogale penicillata)</i>            | <ul style="list-style-type: none"> <li>Not recorded in targeted surveys. Previously recorded at the complex.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Potential impact on cliff line habitat – 128 m</li> <li>No suitable rocky habitat in direct impact area.</li> <li>Impact on important population unlikely.</li> </ul>    | No species credits generated. Potential impacts on foraging habitat indirectly offset - ecosystem credit species (PCTs 476,478,479 and 481).                                         |
| <b>Koala</b><br><i>(Phascolarctos cinereus)</i>                                | <ul style="list-style-type: none"> <li>Not recorded in targeted surveys. Assumed present in contingency areas due to lack of survey access.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Modification area unlikely to support resident population or provide important foraging habitat. Significant impacts unlikely.</li> </ul> | No species credits generated under preferred infrastructure scenario. Potential impacts on foraging habitat indirectly offset - ecosystem credit species (PCTs 476,478,479 and 481). |
| <b>Greater Glider</b><br><i>(Petauroides Volans)</i>                           | <ul style="list-style-type: none"> <li>No record of species during targeted surveys of the modification area or at the complex.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Modification area does not support an important population.</li> </ul>                                                                                | No species credits generated. Potential impacts on foraging habitat indirectly offset - ecosystem credit species (PCTs 476,478,479 and 481).                                         |
| <b>Pilotbird</b><br><i>(Pycnoptilus floccosus)</i>                             | <ul style="list-style-type: none"> <li>Recorded in targeted surveys and previously recorded in wider locality.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Impacts unlikely to reduce the area of occupancy for an important population.</li> </ul>                                                                               | Potential impacts on habitat indirectly offset - ecosystem credit species (PCTs 476,478,479 and 481).                                                                                |
| <b>South-eastern Glossy Black-cockatoo</b><br><i>(Calyptorhynchus lathami)</i> | <ul style="list-style-type: none"> <li>Recorded in targeted surveys and previously recorded in wider locality.</li> <li>Direct impacts on foraging habitat – 17.4 ha.</li> <li>Potential indirect impacts on foraging habitat – 588.2 ha.</li> <li>Impacts unlikely to reduce the area of occupancy for an important population.</li> </ul>                                                                               | Potential impacts on habitat indirectly offset - ecosystem credit species (PCTs 476,478,479 and 481).                                                                                |

| Species                                                    | Summary of Impact                                                                                                                                                                                                                                                                                                                     | Offsets                                                                |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b><i>Androcalva procumbens</i></b>                        | <ul style="list-style-type: none"> <li>Not recorded in targeted surveys. Previously recorded at the complex and wider locality.</li> <li>Direct impacts on potential habitat – 17.4 ha.</li> <li>Potential indirect impacts on habitat – 588.2 ha.</li> <li>Modification area unlikely to support an important population.</li> </ul> | Assumed presence due to survey constraints. Species credits generated. |
| <b><i>Homoranthus darwinoides</i></b>                      | <ul style="list-style-type: none"> <li>Not recorded in targeted surveys but previously at the complex.</li> <li>Direct impacts on potential habitat – 17.4 ha.</li> <li>Potential indirect impacts on habitat – 588.2 ha.</li> <li>Modification area does not support an important population.</li> </ul>                             | No species credits generated                                           |
| <b><i>Leucochrysum albicans</i> subsp. <i>tricolor</i></b> | <ul style="list-style-type: none"> <li>Not recorded in targeted surveys but previously at the complex.</li> <li>Direct impacts on potential habitat – 17.4 ha.</li> <li>Potential indirect impacts on habitat – 588.2 ha.</li> <li>Considered very unlikely to occur in disturbance areas based on survey history.</li> </ul>         | No species credits generated                                           |

### Offsetting impacts to EPBC listed species and communities

Appendix D summaries the credit requirements for the modification. The offsets proposed for TECs or species identified as likely to be significantly impact area as follows:

- Box Gum Woodland CEEC – Ecosystem credits for PCT 481; and
- Large-Eared Pied Bat – Species credits generated for impacts on rocky habitat potentially affected by subsidence.

### 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 and recovery plans (where available have been considered for species predicted to be significantly impacted.

### 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 G2 contains the additional mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act, which are additional to those already addressed.

**Table C2** | Additional considerations for the Commonwealth Minister under the EPBC Act

| EPBC Act Section                                | Considerations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Conclusion                                                                                                                                                              |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mandatory considerations</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| 136(1)(b)                                       | Social and economic matters are discussed in section 5.6 of the assessment report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The Department considers that the modification would result in a range of benefits for the local and regional economy and is of public benefit.                         |
| <b>Factors to be taken into account</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| 3A, 391(2)                                      | <ul style="list-style-type: none"> <li>The principles of ecologically sustainable development (ESD), including the precautionary 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.</li> <li>The conditions restrict environmental impacts, impose monitoring and adaptive management and reduce any lack of certainty related to the potential impacts of the proposed modification.</li> <li>The conditions require the proposed modification 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.</li> <li>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.</li> </ul> | The Department considers that the modification, if undertaken in accordance with the 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 modification has been taken into account.                                                  |
| <b>Factors to have regard to</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| 176(5)                                          | Bioregional plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | There is no approved bioregional plan related to the activity.                                                                                                          |
| <b>Considerations on deciding on conditions</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                         |
| 134(4)                                          | <ul style="list-style-type: none"> <li>All project related documentation is available on the Department's website at:</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The Department considers that the conditions for the modification (see                                                                                                  |

| EPBC Act Section | Considerations                                                                                                                                                                                                                                                                                                                                                                                                                  | Conclusion                                                                                                                                                                                                                                                            |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  | <a href="http://www.majorprojects.planning.nsw.gov.au">www.majorprojects.planning.nsw.gov.au</a> , including: <ul style="list-style-type: none"> <li>the Modification Report, submissions report, Amendment Report, Amended BDAR (including the assessment of significance of MNES), and additional information provided by UCMPL during the assessment process; and</li> <li>the recommended conditions of consent.</li> </ul> | Appendix E) are a cost-effective means of achieving their purpose. The conditions are based on the information provided by UCMPL and were prepared in consultation with the Department, Commonwealth DCCEEW, NSW DCCEEW, EPA, CPHR, NSW Resources and other agencies. |

#### Conclusions on Controlling Provisions - Threatened species and communities (sections 18 and 18A)

For the reasons set out in section 5.2 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 the Amendment Report, Response to Submissions Report, Amended BDAR, and the recommended conditions of consent in Appendix E.

#### **Other Protected matters**

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

## Appendix D - Biodiversity Credit Liability

Table D1 – Offset liability for Area 1 Preferred Scenario, Area 2 and 3

| Area                                                                                                                                                                                                                      | Area 1 |    |    | Area 2 | Area 3 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----|----|--------|--------|
| Stage                                                                                                                                                                                                                     | 1a     | 1b | 1c | 2      | 3      |
| <b>Ecosystem credits</b>                                                                                                                                                                                                  |        |    |    |        |        |
| <b>476 Narrow-leaved Wattle low open forest / very tall shrubland on ridges in northern NSW South-Western Slopes Bioregion and southern Brigalow Belt South Bioregion</b>                                                 | 56     | 30 | 17 | -      | -      |
| <b>478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion</b>                            | 32     | -  | -  | 81     | -      |
| <b>479 Narrow-leaved Ironbark- Black Cypress Pine – stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion</b> | -      | -  | -  | -      | 124    |
| <b>481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region</b>                | -      | -  | -  | 62     | -      |
| <b>Species credits</b>                                                                                                                                                                                                    |        |    |    |        |        |
| <b><i>Commersonia procumbens</i></b>                                                                                                                                                                                      | 118    | 40 | 23 | 191    | 165    |
| <b><i>Monotaxis macrophylla</i></b>                                                                                                                                                                                       | 118    | 40 | 23 | 191    | 165    |

Table D2 – Offset liability for ‘Area 1’ Contingency Options

| Alternative Option 1 (BAM C Stage A)                                                                                                                                                           | Credits |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>Ecosystem credits</b>                                                                                                                                                                       |         |
| <b>476 Narrow-leaved Wattle low open forest / very tall shrubland on ridges in northern NSW South-Western Slopes Bioregion and southern Brigalow Belt South Bioregion</b>                      | 47      |
| <b>478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion</b> | 100     |

| Alternative Option 1 (BAM C Stage A)                                                                                                                                                                               | Credits |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Species credits                                                                                                                                                                                                    |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                                      | 196     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                                       | 196     |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                                             | 133     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                                            | 196     |
| Alternative Option 2 (BAM C Stage B)                                                                                                                                                                               |         |
| Ecosystem credits                                                                                                                                                                                                  |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion                            | 156     |
| Species credits                                                                                                                                                                                                    |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                                      | 209     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                                       | 209     |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                                             | 209     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                                            | 209     |
| Alternative Option 3 (BAM C Stage C)                                                                                                                                                                               |         |
| Ecosystem credits                                                                                                                                                                                                  |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion                            | 138     |
| 479 Narrow-leaved Ironbark- Black Cypress Pine – stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion | 7       |
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region                | 9       |
| Species credits                                                                                                                                                                                                    |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                                      | 204     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                                       | 204     |
| <i>Tylophora linearis</i>                                                                                                                                                                                          | 9       |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                                             | 204     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                                            | 204     |
| Alternative Option 4 (BAM C Stage D)                                                                                                                                                                               |         |

| Alternative Option 1 (BAM C Stage A)                                                                                                                                                                | Credits |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Ecosystem credits                                                                                                                                                                                   |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion             | 148     |
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region | 9       |
| Species credits                                                                                                                                                                                     |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                       | 210     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                        | 210     |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                              | 210     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                             | 210     |
| Alternative Option 5 (BAM C Stage E)                                                                                                                                                                |         |
| Ecosystem credits                                                                                                                                                                                   |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion             | 135     |
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region | 21      |
| Species credits                                                                                                                                                                                     |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                       | 208     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                        | 208     |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                              | 208     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                             | 208     |
| Alternative Option 6 (BAM C Stage F)                                                                                                                                                                |         |
| Ecosystem credits                                                                                                                                                                                   |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion             | 94      |
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region | 58      |
| Species credits                                                                                                                                                                                     |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                       | 203     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                        | 203     |

| Alternative Option 1 (BAM C Stage A)                                                                                                                                                                         | Credits |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                                       | 203     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                                      | 203     |
| Alternative Option 7 (BAM C Stage G)                                                                                                                                                                         |         |
| Ecosystem credits                                                                                                                                                                                            |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion                      | 81      |
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region          | 67      |
| Species credits                                                                                                                                                                                              |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                                | 197     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                                 | 197     |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                                       | 197     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                                      | 197     |
| Alternative Option 8 (BAM C Stage H)                                                                                                                                                                         |         |
| Ecosystem credits                                                                                                                                                                                            |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion                      | 86      |
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region          | 59      |
| Species credits                                                                                                                                                                                              |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                                | 194     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                                 | 194     |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                                       | 194     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                                      | 194     |
| Alternative Option 9 (BAM C Stage I)                                                                                                                                                                         |         |
| Ecosystem credits                                                                                                                                                                                            |         |
| 478 Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion                      | 75      |
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Intact | 42      |

| Alternative Option 1 (BAM C Stage A)                                                                                                                                                                               | Credits |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 481 Rough-barked Apple – Blakely’s Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region – Regeneration | 53      |
| Species credits                                                                                                                                                                                                    |         |
| <i>Commersonia procumbens</i>                                                                                                                                                                                      | 226     |
| <i>Monotaxis macrophylla</i>                                                                                                                                                                                       | 226     |
| Barking owl ( <i>Ninox connivens</i> )                                                                                                                                                                             | 226     |
| Koala ( <i>Phascolarctos cinereus</i> )                                                                                                                                                                            | 226     |

## Appendix E – Recommended consolidated consent

## Appendix F – Recommended instrument of modification