



MOOLARBEN COAL PROJECT 2023 COMPLIANCE REPORT

EPBC 2007/3297

EPBC 2013/6926

EPBC 2008/4444

EPBC 2017/7974


Project Name	Moolarben Coal Complex
Approval Holder	Moolarben Coal Mines Pty Ltd Moolarben Coal Operations Pty Ltd
EPBC Reference	2007/3297 2013/6926 2008/4444 2017/7974
Approved Actions	<p>The establishment of a coal mine and associated infrastructure 40 kilometres east of Mudgee to generate approximately 10Mtpa of product coal and as described in the referral received under the Act on 16 February 2007(EPBC 2007/3297);</p> <p>To modify and extend the Moolarben Coal Project (Stage 1), approximately 40km north east of Mudgee, NSW (EPBC 2013/6926).</p> <p>To develop a new open cut coal mine and two underground coal mines, 40 km north-east of Mudgee, NSW and as described in the referral received under the EPBC Act on 9 September 2008 and the request for variation received under the EPBC Act on 27 February 2012.</p> <p>To Modify the extend the Moolarben Coal Project (Stage1 and Stage 2), 40 km north of Mudgee, NSW (see EPBC Act referral 2017/7974).</p>
Reporting Period	1 January 2023 to 31 December 2023
Version	V1
Declaration of Accuracy	
<p>In making this declaration, I am aware that sections 490 and 491 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.</p>	
Signature of authorised reporting officer	
Name of authorised reporting officer	Trent Cini
Title of authorised reporting officer	Environment and Community Manager
Date	28/03/2024
Organisation Name	Moolarben Coal Operations Pty Ltd
Organisation ACN	077 939 569

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1.0 INTRODUCTION

The Moolarben Coal Complex (MCC) is located in the Western Coalfield of New South Wales (NSW) approximately 40 kilometres (km) north of Mudgee to the south east of Ulan. The Moolarben Coal Complex is located within the Mid-Western Regional Local Government Area (LGA). Figure 1 depicts the regional location of the Biodiversity Offsets Areas and the Moolarben Coal Complex and Table 1 summarises the Moolarben Coal Complex offsets by approval.

Moolarben Coal Operations Pty Ltd (MCO) is the operator of the Moolarben Coal Complex on behalf of the Moolarben Joint Venture (Moolarben Coal Mines Pty Ltd [MCM], Yancoal Moolarben Pty Ltd (YM) and a consortium of Korean power companies). MCO, MCM and YM are wholly owned subsidiaries of Yancoal Australia Limited (Yancoal).

All mining operations are conducted in accordance with NSW Project Approval (05_0117) (Moolarben Coal Project Stage 1) as modified, and NSW Project Approval (08_0135) (Moolarben Coal Project Stage 2) as modified. Current mining operations undertaken across MCC have approval until 31 December 2038.

The current mining operations are undertaken in accordance with Approval Decisions (EPBC 2007/3297), (EPBC 2013/6926), (EPBC 2008/4444) and (EPBC 2017/7974) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report details activities and compliance with EPBC 2007/3297, EPBC 2013/6926, EPBC 2008/4444 and EPBC 2017/7974 for the period 1 January 2023 to 31 December 2023.

Table 1: EPBC Approval Biodiversity Offset Areas (BOAs)

EPBC Approval	Offset		
2007/3297	• Area 1 (Sydney Basin)	• Area 2 (Moolarben)	• Area 3 (Property 6)
2013/6926	• Elward • Bobadeen West	• Bobadeen East • Clifford	• Area 3 (Property 5) • Clarke
2008/4444	• Old Bobadeen • Ulan • Libertus	• On-site • Avisford 2 • Avisford 1	• Dun Dun West • Dun Dun East
2017/7974	• Area 1 (Sydney Basin)	• Rehabilitation (Credits)	• Gilgal (Credits)
Non EPBC offsets	• Moolarmoo	• Property 24/25	

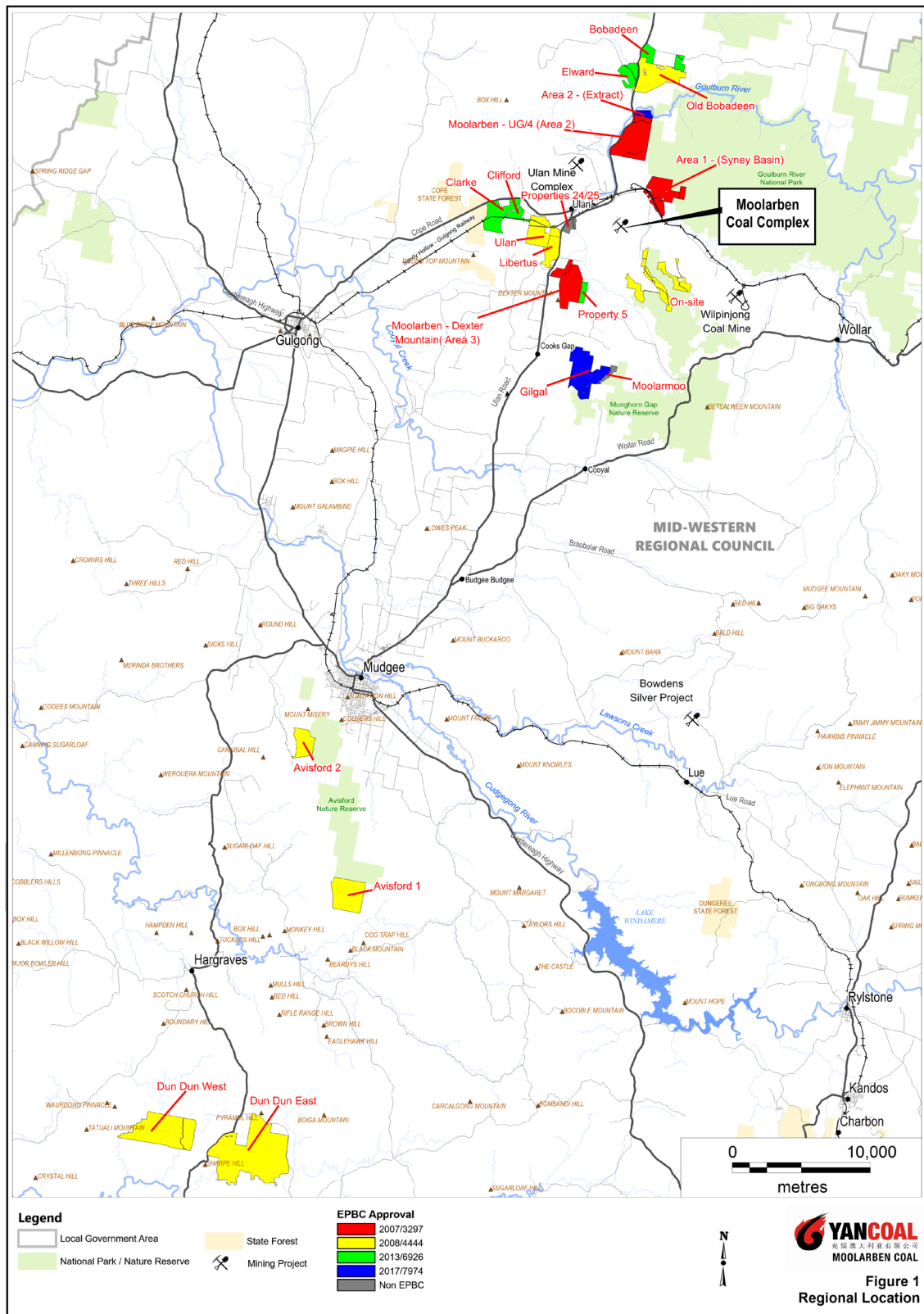
2.0 DESCRIPTION OF ACTIVITIES

During the reporting period the following activities have been undertaken:

- Land preparation and disturbance in accordance with the VCPLMP, including pre-clearance surveys, salvage of habitat features and fauna management within action areas.
- Collection of locally sourced native seed.
- BOA management including fencing, access maintenance, weed and vertebrate pest management.
- Continued assisted regeneration across relevant BOAs including planting of approximately 32,000 tube stock to supplement natural regeneration within the Dun Dun, Ulan 18, Moolarmoo and Red Hills Biodiversity Offset clusters.
- Progression of securing Gilgal BOA under a Biodiversity Stewardship Agreement.

- Payment into the Biodiversity Conservation Fund to retire biodiversity credits for Gang-gang Cockatoo, Glossy Black Cockatoo and *Tylophora linearis* to meet partial Moolarben Stage 1 (PA 05_0117) Modification 15 requirements.
- Monitoring in accordance with the Biodiversity Offset Management Plan (BOMP), 2008/4444 Biodiversity and Offset Management Plan, Landscape Management Plan (LMP) and Rehabilitation Management Plan (RMP).

FIGURE 1: Regional Location of Biodiversity Offset Areas



3.0 COMPLIANCE TABLES (2007/3297) (2008/4444) (2013/6926)

Condition Number	Condition	Compliance ¹	Evidence/Comments
EPBC 2007/3297			
1	<p>In order to protect the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland listed ecological community, the person taking the action shall make suitable arrangements within 12 months of this approval to:</p> <p>(a) Transfer at least 130 hectares of the White Box-Yellow Box-Blakely's Red Gum Woodland and Derived Native Grassland listed ecological community to the NSW Minister for Climate Change Environment and Water offset, on a "like for like" basis, the 65 hectares that would be cleared by the project at an offset ratio of 2:1; and</p> <p>(b) Provide the NSW Department of Environment and Climate Change (DECC) with funds (which at the discretion of DECC may include an in-kind contribution) to cover any reasonable costs associated with the transfer and ongoing management of this land.</p>	Compliant	Completed prior to period.
1A	The approval holder must undertake the action within the area enclosed by the red line designated as 'DA Boundary' in the map at Appendix 1. The approval holder must not undertake the action within the areas designated as 'Areas not part of the Action' in the map at Appendix 1.	Compliant	Noted. Action undertaken within the DA Boundary and not undertaken within the areas designated as 'Areas not part of the Action'.
2	<p>In order to protect the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland listed ecological community, the person taking the action shall in accordance with the Rehabilitation and Offset Management Plan (See Condition 3 below):</p> <p>(a) Revegetate at least 38 hectares of disturbed land on the "Red Hills" property with Yellow Box-White Box-Blakely's Red Gum vegetation;</p> <p>(b) Revegetate at least 143 hectares of cleared land on the "Red Hills" property with suitable native vegetation to improve wildlife corridor linkages;</p> <p>(c) Conserve and enhance at least 1211 hectares of existing native vegetation onsite within the areas marked with green crosshatching designated as 'Biodiversity Offset Area' shown in the map at Appendix 2; and</p> <p>(d) make arrangements, as approved in writing by the Minister, to protect these offset areas from development for the long term.</p>	Compliant	<p>Revegetation works were commenced in a prior period.</p> <p>MCO continues to conserve and enhance Area 1, Area 2 and Area 3.</p> <p>Area 1, Area 2 and Area 2 were secured in a prior reporting period by the registering on title a 'Positive Covenant' and a 'Restriction on the Use of Land by a Prescribed Authority' under Section 88E(3) of the NSW <i>Conveyancing Act 1919</i>.</p>

Condition Number	Condition	Compliance ¹	Evidence/Comments
3	<p>In order to protect the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland listed ecological community, the person taking action shall prepare and implement a detailed Rehabilitation and Offsets Management Plan for the project to the satisfaction of the Minister for the Environment and Water Resources. The proponent shall progressively rehabilitate the site to the satisfaction of Minister for the Environment and Water Resources and the NSW Department of Primary Industries, in general accordance with the proposed Rehabilitation and Offset Management Plan. The rehabilitation and Offset Management Plan must include:</p> <p>(a) The rehabilitation objectives for the site, vegetation offsets and landscaping;</p> <p>(b) A description of the short, medium and long-term measures that would be implemented to:</p> <ul style="list-style-type: none"> • Rehabilitate the site • Implement the vegetation offsets; and • Landscape the environmental bunds; <p>(c) Performance and completion criteria for the rehabilitation of the site, implementation of the vegetation offsets, and landscaping of the environmental bunds;</p> <p>(d) A detailed description of the measures that would be implemented over the next 3 years including the progressive rehabilitation of mining areas and progressive implementation of the vegetation offset areas referred to in Condition 2.</p> <p>(e) A program to monitor the effectiveness of these measures, and progress against the performance and completion criteria (see (c) above);</p> <p>(f) A description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and</p> <p>(g) Details of who would be responsible for monitoring, reviewing, and implementing the plan.</p> <p>Coal mining operations must not commence until the plan has been approved. The approved plan must be implemented.</p>	Compliant	<p>The Landscape Management Plan was approved by the Department of Agriculture, Water and the Environment (DAWE¹) in 2011.</p> <p>The NSW Project Approval Rehabilitation Management Plan was updated in accordance with the Resources Regulator amendments to mining lease conditions relating to rehabilitation through amendments to the Regulation under the Mining Act 1992. The latest revision of the Rehabilitation Management Plan was undertaken in August 2022.</p> <p>This report, Appendix A and B.</p>
4	<p>The person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, by 31 March for the preceding calendar year. Annual reports must be published until the Minister is satisfied that the person taking the action has complied with all conditions of the approval. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published.</p>	Compliant	This report.
5	<p>Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister'.</p>	Compliant	Noted.

¹ References to DAWE includes the previous relevant commonwealth agencies responsible for administering the EPBC Act.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister		
6	If the Minister believes that it is necessary or desirable for the better protection of the listed threatened species and ecological communities to do so, the Minister may request that the person taking the action make specified revisions to the plans, reports or management strategies approved pursuant to paragraphs 1, 2 and 3, and submit the revised plan, report or strategy for the Minister's approval. The person taking the action must comply with any such request. The revised approve plan, report or strategy must be implemented.	Compliant	Noted.
7	If at any time after 5 years from the date of this approval, the Minister notifies the person taking the action in writing that the Minister is not satisfied that there has been substantial commencement of coal mining operations, the action must not thereafter be commenced without the written agreement of the Minister.	Compliant	Action commenced 2009 .
EPBC 2008/4444			
1	The approval holder must not clear more than 1, 534 hectares of native vegetation within the defined footprint at Schedule 1.	Compliant	At the end of the period 920 Ha of the approved 1,534 Ha of native vegetation within the defined footprint had been disturbed.
2	To mitigate the impacts of the proposal on the Large-eared Pied Bat, Southern Long-eared Bat, Regent Honeyeater, Swift Parrot and the Spotted-tail Quoll, the approval holder must prepare and submit, prior to the proposed date of commencement of the action, a mine site Vegetation Clearance Protocol and Landscape Management plan (VCPLMP) for the Minister's written approval. The VCPLMP must: a. Delineate areas to be cleared, describe pre-clearance survey methods, specify actions to minimise fauna impacts and detail vegetation clearance procedures. b. Require collection and stockpiling of habitat features important to threatened fauna species for reinstatement in rehabilitation areas. c. Require use of native, locally sourced seed for propagation for rehabilitation activates. d. Specify a two stage clearing protocol where non-habitat trees are cleared 24 hours prior to any habitat trees are cleared, to encourage fauna to move out of an area. The approval holder must not commence until the VCPLMP is approved by the Minister. The approved VCPLMP must be implemented.	Compliant	VCPLMP was approved by the minister on 29 May 2015 . Action commenced 2 August 2015 . The VCPLMP continues to be implemented.
3	To compensate for the loss of 123.3 hectares of the White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 902 hectares of habitat for EPBC listed threatened species , the approval holder must submit, by 1 September 2021, a Biodiversity Offset Management Plan (BOMP) for the Minister's written approval. The BOMP must: a. include offset attributes, shapefiles, textual descriptions and maps that clearly define the location	Compliant	The Biodiversity Offset Management Plan was approved by the DAWE on 14 December 2021 .

Condition Number	Condition	Compliance ¹	Evidence/Comments
	<p>and boundaries of the offset areas specified at Figures 1-7 of Schedule 2;</p> <p>b. include a survey, and describe the condition of, the offset areas specified at Figures 1-7 of Schedule 2, immediately prior to them being managed as offset areas;</p> <p>c. for the offset areas shown at Figures 1-3 and 6-7 of Schedule 2:</p> <ul style="list-style-type: none"> (i) specify strategies and management actions that will improve the quality of WBGW and habitat for EPBC listed threatened species; (ii) include timeframes for management actions; (iii) specify performance and completion criteria for achieving (i) above, for evaluating effectiveness of the management of the offset areas, and criteria for triggering remedial action; (iv) include a program to detect trigger criteria and monitor and report on the effectiveness of management actions, and progress against the performance and completion criteria; (v) describe potential risks to achieving the plans objectives, measures that will be implemented to mitigate against these risks and remedial actions that will be implemented if defined trigger criteria are detected; and (vi) detail of who will be responsible for monitoring, reviewing, and implementing the BOMP. <p>d. for offset areas shown at Figure 4 and 5 of Schedule 2, explain how management of the offset areas will ensure the quality of WBGW and habitat for EPBC listed threatened species in the offset areas will be improved and protected for the period of approval.</p> <p>If, after 1 December 2021, the Minister informs the approval holder that the submitted BOMP (required by 1 September 2021) is not suitable for approval, the Minister may, after 1 February 2022, approve a version of the BOMP revised by the Department.</p> <p>The approved BOMP must be published on the approval holder's internet web site, within 1 month of being approved by the Minister and remain so published for the period of approval. The approval holder must implement the BOMP approved by the Minister in writing.</p>		
4	<p>To compensate for the loss of 123.3 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 902 hectares of habitat for EPBC listed threatened species, within 24 months of the date of this approval, the approval holder must secure the lands identified as the Offset Areas at Schedule 2 (Figures 1-7) of this notice as a biodiversity offset by a legal instrument under relevant nature conservation legislation on the title of the land. This instrument must:</p> <p>a. Provide for the protection of the land in perpetuity;</p>	Compliant	Eight (8) Offsets (Old Bobaddeen, On-site, Avisford 1, Avisford 2, Libertus, Ulan 18, Dun Dun East, and Dun Dun West) were secured in accordance with Condition 4 of EPBC 2008/4444 in a previous reporting period.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	b. Prevent any future development activities, including mining and mineral extraction; c. Ensure the active management of the land; and d. Be provided to the Department within 3 months of it being issued, as evidence of compliance with this condition.		
5	The approval holder must undertake management and monitoring of water resources in accordance with this project approval for Application Number 08-0135 issued by the NSW Planning Assessment Commission under the Environmental Planning and Assessment Act 1979 (NSW) on 30 January 2015.	Compliant	Moolarben Complex Water Management Plan. MCO 2023 Annual Review
6	Upon request, the approval holder shall supply the groundwater monitoring data for the Moolarben Coal Project to the Department, NSW Government agencies, Operators of the Ulan and/or Wilpinjong mines or other adjacent mine operators. A protocol for the supply of the data will be included in the project's Water Management Plan.	Compliant	Section 5.5 of the Moolarben Complex Water Management Plan.
7	The approval holder must make available for the Minister on request, all plans or programs and any review of plans or programs produced pursuant to Condition 5.	Compliant	Noted. No requests received during the 2023 reporting period.
8	Within 30 days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement.	Compliant	Completed in a previous period. Action commenced 2 August 2015 . Notification in writing sent on 13 August 2015 .
9	The approval holder must maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement the BOMP and VCPLMP, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Compliant	Noted.
10	The approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the BOMP and VCPLMP as specified in the conditions, by 31 March for the preceding calendar year. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published.	Compliant	This report.
11	Non-compliance with any of the conditions of this approval must be reported to the Department within 2 business days of becoming aware of the non-compliance.	Compliant	Noted.
12	Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit	Not Applicable	Noted.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.		
13	If the approval holder wishes to carry out any activity otherwise than in accordance with the Plans as specified in the conditions, the approval holder must submit to the Department for the Minister's written approval a revised version of that Plan. The approval holder must not commence the varied activity until the Minister has approved the varied Plan in writing. The Minister will not approve a varied plan unless the revised Plan would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised Plan, that Plan must be implemented in place of the Plan originally approved.	Not Applicable	Noted.
14	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and ecological communities to do so, the Minister may request that the approval holder make specified revisions to the Plan specified in the conditions and submit the revised Plan for the Minister's written approval. The approval holder must comply with any such request. The revised approved Plan must be implemented. Unless the Minister has approved the revised Plan then the approval holder must continue to implement the plan originally approved.	Not Applicable	Noted.
15	If, at any time after 5 years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister.	Compliant	Action commenced 2 August 2015 .
EPBC 2013/6926			
1	The approval holder must not clear more than 171.4 hectares of native vegetation within the defined footprint at Schedule 1, Figures 1 and 2.	Compliant	At the end of the period 134 Ha of the approved 171.4 Ha of native vegetation within the defined footprint had been disturbed.
2	To assist in mitigating the impacts of the proposal on the Large-eared Pied Bat, Southern Long-eared Bat, Regent Honeyeater, Swift Parrot, Potted-tail Quoll and the Koala, the approval holder must prepare and submit a mine site Vegetation Clearance Protocol and Landscape Management Plan (VCPLMP) for the Minister's written approval. The VCPLMP must; <ol style="list-style-type: none"> Delineate areas to be cleared, describe pre-clearance survey methods, specify actions to minimise fauna impacts and details vegetation clearance procedures. Require collection and stockpiling of habitat features important to threatened fauna species for reinstatement in rehabilitation areas. Require use of native, locally sourced seed for propagation for rehabilitation activities. Specify a two stage clearing protocol where non-habitat trees are cleared 24 hours prior to any 	Compliant	VCPLMP was approved by the minister on 17 December 2014 . The VCPLMP continues to be implemented.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	<p>habitat trees in their proximity being cleared, to encourage fauna to move out of an area.</p> <p>e. Include a revegetation strategy to improve connectivity between isolated vegetation patches (including between Munghorn Gap Nature Reserve, Goulburn River National Park and Dexter Mountain).</p>		
3	<p>The approval holder must not commence until the VCPLMP is approved by the Minister. The approved VCPLMP must be implemented.</p>	Compliant	<p>VCPLMP was approved by the minister on 17 December 2014.</p> <p>Action commenced on 23 December 2014.</p> <p>The VCPLMP continues to be implemented.</p>
4	<p>To compensate for the loss of 16.5 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 171.4 hectares of habitat for EPBC listed threatened species, the approval holder must prepare and submit a Biodiversity Offset Management Plan (BOMP) for the proposed EPBC offset sites, for the Minister's written approval. The BOMP must;</p> <p>a. Identify those lands described as the Offset Areas at Schedule 2 (Figures 1-5) of this notice that are necessary to achieve the outcomes required by the Environmental Offsets Policy 2012 (or subsequent published revisions). This must include offset attributes, shapefiles, textual descriptions and maps clearly define the location and boundaries of the offset area(s).</p> <p>b. Provide a survey and description of the current condition (prior to any management activities) of the offset areas identified in Condition 4a.</p> <p>c. Details management actions and regeneration and revegetation strategies to be undertaken on the offset areas to improve the ecological quality of these areas, including:</p> <p>(i) A description and timeframe of measures that would be implemented to improve the condition of the ecological communities on the site;</p> <p>(ii) Performance and completion criteria for evaluating the management of the offset area, and criteria triggering remedial action;</p> <p>(iii) A program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;</p> <p>(iv) A description of potential risks to the successful implementation of the plan, a description of the measures that will be implemented to mitigate against these risks and a description of the contingency measures that will be implemented if defined triggers arise; and</p> <p>(v) Details of who would be responsible for monitoring, reviewing, and implementing the plan.</p>	Compliant	<p>A Biodiversity Offset Management Plan (BOMP) was approved by the Minister on 17 December 2014.</p> <p>The requirements of this conditions are addressed in the below section of the BOMP:</p> <p>a) Section 2 and Appendix 1</p> <p>b) Section 3</p> <p>c) Sections 4, 5, 6 & 7.</p>
5	<p>The approval holder must not commence the action until the BOMP is approved by the Minister. The approved BOMP must be published on an internet web site approved by the Department, within 1 month of being approved and for a period of 5 years thereafter. The approved BOMP must be implemented.</p>	Compliant	<p>A BOMP was approved by the Minister on 17 December 2014.</p> <p>Action commenced on 23 December 2014.</p>

Condition Number	Condition	Compliance ¹	Evidence/Comments
			The BOMP is located on MCO's website. (www.moolarbencoal.com.au) The BOMP continues to be implemented. This report, refer to Appendix A and B
6	To compensate for the loss of 16.5 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 171.4 hectares of habitat for EPBC listed threatened species, the approval holder must secure the lands identified as the Offset Areas at Schedule 2 (Figures 1-5) of this notice as a biodiversity offset by a legal instrument under relevant nature conservation legislation on the title of the land. This instrument must: a. Provide for the protection of the land in perpetuity; b. Prevent any future development activities, including mining and mineral extraction; and c. ensure the active management of the land. The approval holder must not commence the action until the Department has approved the proposed instrument in writing.	Compliant	Six (6) Offsets (Bobadeen East, Bobadeen West, Elward, Clifford, Clarke and Property 5) were secured in accordance with Condition 6 of EPBC 2013/6926 in a previous reporting period. The Department approved the protection mechanism for offsets under EPBC 2013/6926 on 17 December 2014 .
7	The approval holder must provide evidence to the Department of their compliance with Condition 6, along with offset attributes, shapefiles and textual descriptions and maps to clearly define the location and boundaries of the offset sites, prior to the commencement of the action.	Compliant	Completed in a previous period. Evidence including shapefiles provided on 1 December 2014 .
8	Within 30 days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement.	Compliant	Completed in a previous period. Notification in writing sent on 20 January 2015 .
9	The approval holder must maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures take to implement the BOMP and VCPLMP, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with Section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may be publicised through the general media.	Compliant	Noted.
10	The approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the BOMP and VCPLMP as specified in the conditions, by 31 March for the preceding calendar year. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published.	Compliant	This report.
11	Non-compliance with any of the conditions of this approval must be reported to the Department within 2 business days of becoming aware of the non-compliance.	Compliant	Noted.
12	Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The	Not Applicable	Noted.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must be address the criteria to the satisfaction of the Minister.		
13	If the approval holder wishes to carry out any activity otherwise than in accordance with the Plan as specified in the conditions, the approval holder must submit to the Department for the Minister's written approval a revised version of the Plan. The approval holder must not commence the varied activity until the Minister has approved the varied Plan in writing. The Minister will not approve a varied Plan unless the revised Plan would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised Plan, that Plan must be implemented in place of the Plan originally approved.	Not Applicable	Noted.
14	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and ecological communities to do so, the Minister may request that the approval holder make specified revisions to the Plan specified in the conditions and submit the revised Plan for the Minister's written approval. The approval holder must comply with any such request. The revised approved Plan must be implemented. Unless the Minister has approved the revised Plan then the approval holder must continue to implement the Plan originally approved.	Not Applicable	Noted.
15	If, at any time after 5 years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister.	Compliant	Action commenced 23 December 2014 .
EPBC 2017/7974			
1	The approval holder must undertake the Moolarben Coal Project within the development footprint.	Compliant	Noted
2	The approval holder must comply with Condition 34A of Schedule 3 of the NSW Consolidated Project Approvals to implement the supplementary offset strategy, by retiring the required number of credits specified in Table 12A.	Compliant	Gilgal is owned and managed by Moolarben. Activities are underway to retire the required number of credits specified in Table 12A of the NSW Consolidated Project Approvals through a Biodiversity Stewardship Agreement. Rehabilitation is being undertaken to secure residual credits specified in Table 12A.
3	The approval holder must comply with Conditions 35A of the NSW Consolidated Project Approvals to secure the credits and/or area at the Gilgal Offset Area (as identified at Attachment B) under a Biodiversity Stewardship Agreement, unless otherwise agreed in writing by the Minister. The approval holder may seek agreement from the Minister to use an alternative mechanism to secure the credits and/or area, subject to the additional rules at Condition 20. The approval holder must submit a copy of the Biodiversity Stewardship Agreement to the Minister within ten business days of an agreement being made.	Compliant	MCO submitted an application in accordance with Condition 35A of the NSW Consolidated Project Approvals to secure the credits and area at the Gilgal Offset Area under a Biodiversity Stewardship Agreement. The application is yet to be approved. MCO will submit a copy of the Biodiversity Stewardship

Condition Number	Condition	Compliance ¹	Evidence/Comments
			Agreement to the Minister within ten business days of an agreement being made.
4	The approval holder must provide for the long-term security of the Area 2 (extract) offset area as identified at Attachment B, by 30 June 2020. The approval holder must submit details of the security mechanism to the Minister within ten business days of the mechanism being made.	Non-Compliant	<p>Area 2 (Extract) offset was secured on 25 August 2020, post the required due date.</p> <p>MCO advised the DAWE on 24 June 2020 that the offsets security mechanism were in the final stages of execution and requested an Extension of time to 31 August 2020 to align with the offset security timing as approved by the NSW Department of Planning, Industry and Environment (DPIE) for the same offset area.</p> <p>On 2 July 2020 MCO advised the DAWE of a technical non-compliance as the offset security mechanism for Area 2 (Extract) had been executed by MCO but not the NSW DPIE on 30 June 2020.</p> <p>On 25 August 2020, a 'Positive Covenant' and a 'Restriction on the Use of Land by a Prescribed Authority' under Section 88E(3) of the NSW <i>Conveyancing Act 1919</i> was executed by MCO and the NSW DPIE to secure the Area 2 (Extract).</p> <p>On 18 September 2020, MCO provided the DAWE with a copy of the Positive and Restrictive Covenants executed by MCO and the NSW DPIE to secure the Area 2 (Extract) offset.</p> <p>Ten (10) of sixteen (16) BOAs have had the executed covenants registered on title, with the remaining six (6) to be registered.</p>
5	The approval holder must enhance existing native vegetation in the Area 2 (extract) offset area, in accordance with the biodiversity offset strategy required by Condition 34 of the NSW Consolidated Project Approvals, and in accordance with the Biodiversity Management Plan required by Condition 36 of Schedule 3 of the NSW Consolidated Project Approvals.	Compliant	During the reporting period MCO continued works to maintain and enhance the existing native vegetation in the Area 2 (Extract) BOA.
6	The approval holder must comply with Condition 35B of Schedule 3 of the NSW Consolidated Project Approvals to develop suitable rehabilitation performance and completion criteria for the rehabilitation of OC2 and/or OC3, to generate the required number of residual credits specified in Table 12A of Schedule 3.	Compliant	Suitable rehabilitation performance and completion criteria for OC2 and/or OC3 have been developed by MCO with approval of the criteria granted by the NSW DPIE on 7 July 2020 in accordance with Condition 35B of Schedule 3.
7	Unless the approval holder retires the residual credits in accordance with Condition 8, the approval holder must undertake progressive rehabilitation of OC2 and OC3, so as to meet the rehabilitation	Compliant	Noted.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	performance and completion criteria developed in accordance with Condition 6, and in accordance with an approved Rehabilitation Management Plan. The approval holder must also comply with Condition 35C of Schedule 3 of the NSW Consolidated Project Approvals to retire the residual credits if the performance and completion criteria are not achieved in the specified timeframe in Condition 35C, subject to the additional rules at Condition 20.		
8	The approval holder may retire the residual credits earlier than the specified timeframe in Condition 35C in accordance with Condition 35D of Schedule 3 of the NSW Consolidated Project Approvals, subject to the additional rules at Condition 20. If the approval holder chooses to retire credits early, the approval holder must notify the Department within 30 business days of retiring the credits.	Not Applicable	Noted.
9	The approval holder must comply with Condition 36 of Schedule 3, and Conditions 3 and 5 of Schedule 5, of the NSW Consolidated Project Approvals to prepare and implement a Biodiversity Management Plan for the Moolarben Coal Project.	Compliant	A revised Biodiversity Management Plan was approved by the NSW DPIE on 2 September 2020 .
10	The Biodiversity Management Plan implemented in accordance with Condition 9 must be approved by the Department as adequately providing for the management of protected matters on the site and in the offset areas.	Compliant	Noted. The DAWE advised MCO on 14 August 2020 that there is no requirement for the Biodiversity Management Plan to be approved under the EPBC Act.
11	The approval holder must comply with Condition 33 of Schedule 3, and Conditions 3 and 5 of Schedule 5, of the NSW Consolidated Project Approvals to prepare and implement a revised Water Management Plan for the Moolarben Coal Project.	Complaint	A revised Moolarben Complex Water Management Plan incorporating EPBC 2017/7974 was approved by DPE on 21 October 2020 . The WMP continues to be implemented.
12	The approval holder must comply with the timing and content requirements of Condition 32A of Schedule 3 of the NSW Consolidated Project Approvals for the completion of an Independent Water Quality Study (IQWS).	Compliant	The Independent Water Quality Study, in accordance with Condition 32A was required by 1 December 2021 . An Extension of Time was granted by NSW Department of Planning and Environment (DPE) until 30 April 2023 . The IQWS was submitted in accordance with Condition 32A with DPE acknowledging that all requirements of Condition 32A had been met on 27 July 2023 .
13	The approval holder must ensure that the performance measures recommended in the IQWS are incorporated in a revised version of the Water Management Plan within 12 months of the IWQS being completed, and must implement the revised Water Management Plan.	Not Applicable	The IWQS was approved by the NSW DPE on 27 July 2023 . A revised version of the Moolarben Complex Surface Water Management Plan (SWMP) including the recommendations from the IWQS was submitted to the DPE on 28 August 2023 .
14	The approval holder must comply with condition 33A of the NSW Consolidated Project Approvals to	Compliant	A revised Moolarben Complex Brine Management Plan

Condition Number	Condition	Compliance ¹	Evidence/Comments
	prepare and implement a Brine Management Plan.		incorporating EPBC 2017/7974 was approved by DPIE on 21 October 2020 . The Brine MP continues to be implemented.
15	The approval holder must notify the Department in writing of the date of commencement of works in OC3, within ten business days after the date of commencement of works in OC3.	Compliant	Notification was provided to the Department on 18 February 2020 informing on the commencement of works in OC3.
16	The approval holder must notify the Department in writing of the date of commencement of operation of the water treatment facility, within ten business days after the date of commencement of operation of the water treatment facility.	Compliant	The commencement of operation of the water treatment facility occurred on 18 May 2020 . Written notification of commencement of the water treatment facility was provide to the Department on 27 May 2020 .
17	The approval holder must maintain accurate and complete compliance records.	Compliant	Noted.
18	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.	Compliant	Noted. No requests received during the 2022 reporting period.
19	The approval holder must: <ul style="list-style-type: none"> a. Submit the Biodiversity Management Plan electronically to the Department for approval by the Minister. b. Publish each plan on its website within 20 business days of the date the plan is approved by the Minister and/or Secretary. c. Exclude or redact sensitive ecological data from plans published on its website or provided to a member of the public. 	Compliant	Noted. The DAWE advised MCO on 14 August 2020 that there is no requirement for the Biodiversity Management Plan to be approved under the EPBC Act.
20	The approval holder must use one or a combination of the following methods to retire the credits required for protected matters: <ul style="list-style-type: none"> a. Retire like-for-like biodiversity credits within the meaning of the Biodiversity Conservation Act 2016 (NSW). b. Make payments into an offsets fund that has been developed by the NSW Government and that has been endorsed by the Minister. The financial contribution or payments into an offset fund must be determined by converting biodiversity credits to an equivalent dollar value through the NSW offsets payment calculator. The approval holder must submit evidence to the Minister of any payments, within ten business days of the payment being made. c. Fund a biodiversity conservation action within the meaning of the Biodiversity Conservation Act 2016 (NSW). The financial contribution to biodiversity conservation actions must be determined by converting biodiversity credits to an equivalent dollar value through the NSW 	Compliant	Noted. No credits associated with Condition 34A have been retired during the reporting period.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	offsets payment calculator. The approval holder must submit to the Minister evidence of any payments within ten business days of the payment being made.		
21	<p>The approval holder must prepare a compliance report each year. The timing for preparing the compliance report must be consistent with the requirements of Condition 4 of Schedule 5 of the NSW Consolidated Project Approvals, or otherwise in accordance with an annual date that has been agreed in writing by the Department. The approval holder must:</p> <ul style="list-style-type: none"> a. Publish each compliance report on its website within one month of being approved by the Secretary. b. Notify the Department by email that a compliance report has been published on its website within five business days of the date of publication. c. Exclude or redact sensitive ecological data from compliance reports published on its website. d. Where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within five business days of publication. 	Compliant	This report.
22	<p>The approval holder must notify the Department in writing of any non-compliance with the conditions or non-compliance with the commitments made in plans that relate to protected matters. The notification must be given no later than two business days after becoming aware of the non-compliance. The notification must specify:</p> <ul style="list-style-type: none"> a. The condition which is or may be in breach. b. A short description of the non-compliance. 	Compliant	Noted.
23	<p>The approval holder must provide to the Department the details of any non-compliance with the conditions or commitments made in plans that relate to protected matters no later than ten business days after becoming aware of the non-compliance, specifying:</p> <ul style="list-style-type: none"> a. Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future. b. The potential impacts of the non-compliance. c. The method and timing of any remedial action that will be undertaken by the approval holder. 	Compliant	Noted.
24	The approval holder must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister.	Not Applicable	Noted.
25	<p>For each independent audit, the approval holder must:</p> <ul style="list-style-type: none"> a. Provide the name and qualifications of the independent auditor and the draft audit criteria to the Department. b. Only commence the independent audit once the audit criteria have been approved in writing 	Not Applicable	Noted.

Condition Number	Condition	Compliance ¹	Evidence/Comments
	<p>by the Department.</p> <p>c. Submit an audit report to the Department within the timeframe specified in the approved audit criteria.</p>		
26	The approval holder must publish the audit report on its website within ten business days of receiving the Department's approval of the audit report and keep the audit report published on its website until the end date of this approval.	Not Applicable	Noted.
27	The approval holder may, at any time, apply to the Minister for a variation to the Biodiversity Management Plan approved by the Minister under condition 10, or as subsequently revised in accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the EPBC Act.	Not Applicable	Noted.
28	The approval holder may revise the Biodiversity Management Plan approved by the Minister under condition 10, or as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised Biodiversity Management Plan would not be likely to have a new or increased impact.	Not Applicable	Noted.
29	<p>If the approval holder revises the Biodiversity Management Plan without submitting it for approval, the approval holder must:</p> <p>a. notify the Department in writing that the approved action management plan has been revised and provide the Department with:</p> <ol style="list-style-type: none"> I. An electronic copy of the revised Biodiversity Management Plan. II. An explanation of the differences between the approved action management plan and the revised Biodiversity Management Plan. III. The reasons the approval holder considers that taking the action in accordance with the revised Biodiversity Management Plan would not be likely to have a new or increased impact. IV. Written notice of the date on which the approval holder will implement the revised Biodiversity Management Plan. 	Not Applicable	Noted
30	<p>If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised Biodiversity Management Plan would be likely to have a new or increased impact, then:</p> <ol style="list-style-type: none"> a. Condition 28 does not apply, or ceases to apply, in relation to the revised Biodiversity Management Plan. b. The approval holder must implement the Biodiversity Management Plan specified by the Minister in the notice. 	Not Applicable	Noted

Condition Number	Condition	Compliance ¹	Evidence/Comments
31	At the time of giving the notice under condition 30, the Minister may also notify that for a specified period of time, condition 28 does not apply for one or more specified action management plans.	Not Applicable	Noted
32	The approval holder must notify the Department in writing of any proposed change to the conditions of the NSW Consolidated Project Approvals referred to in the conditions of this approval, no later than two weeks after formally proposing a change or becoming aware of a change being proposed. The approval holder must also notify the Department in writing of any change to the conditions of the NSW Consolidated Project Approvals referred to in the conditions of this approval, within two weeks of a change being finalised.	Not Applicable	Noted There have been no proposed changes to the conditions of the NSW Consolidated Project Approvals referred to in the conditions of this approval during the reporting period.
33	Within 30 days after the completion of the action, the approval holder must notify the Department in writing and provide completion data.	Not Applicable	Noted

¹ Definitions:

Compliant

'Compliance' is achieved when all the requirements of a condition have been met, including the implementation of management plans or other measures required by those conditions.

Non-compliant

requirements of a condition or elements of a condition, including the implementation of management plans and other measures have not been met.

Not applicable

requirements of a condition or elements of a condition fall outside of the scope of the current reporting period. For example, a condition which applies to an activity that has not yet commenced.

APPENDIX A – Moolarben Coal Annual Summaries –Biodiversity Offset Area (BOA) Flora and Fauna Monitoring

Stage 1 and EPBC (2007/3297) offset areas monitoring²

The Box Woodland Management Zone (MZ/OMZ) 2 area within Area 1 BOA met all performance criteria outlined in the Land Management Plan (LMP).

The Red Gum Woodland MZ2 areas within Area 1 and Area 3 BOAs met most of the criteria that apply at the current stage of development and are on a trajectory to meet all criteria in the long-term or have been actively revegetated to ensure all criteria are met.

The Sedimentary Ironbark Forest MZ2 areas within Area 1 BOA met most of the criterion that apply at the current stage of development and are on a trajectory to meet all criteria in the long-term.

The Alluvial Apple Woodland MZ2 areas within Area 1 and Area 2 BOA met most of the criteria that apply at the current stage of development and have shown recent improvements in performance against the remaining criteria.

All MZ1 areas across all vegetation associations across all Stage 1 BOAs met the performance criteria outlined in the LMP (MCO 2013).

Stage 1 and EPBC (2007/3297) offset areas trends in overall biodiversity values

BioBanking Assessment Methodology (BBAM) site values scores (SVSs) (OEH 2014) provide an integrated metric of the general biodiversity values of a zone compared to the benchmark values of the associated vegetation type. They can be used to identify whether biodiversity values are being maintained or improved. For Stage 1 MZ1 areas, an assessment of SVSs demonstrated:

- There has been a continued improvement in biodiversity values within MZ1 areas of Area 1 in 2023, with average SVS increasing for the sixth year in a row, and SVS close to analogue values.
- There has been a slight decline in the average SVS within MZ1 areas of Area 2 and Area 3 in 2023.

For Stage 1 MZ2 areas, an assessment of SVSs demonstrated:

- SVSs within MZ2 areas in Area 1 and Area 3 are relatively high and have improved slightly over time relative to analogue values due to an improvement in several structural attribute scores including native overstorey cover and native groundcover.
- The MZ2 area within Area 2 have seen a decrease in SVS in 2023. There are, however, established overstorey trees (two to three metres in height) and shrub species present within this monitoring site that are not yet contributing to cover along the transect at this time. Natural and successful assisted regeneration of overstorey and midstorey species is also occurring across the broader MZ2 area of Area 2. These are positive indications that the SVS

² EPBC (2007/3297) offset area monitoring include the portion of Area 2 offset extracted and included in EPBC2017/7974.

and the vegetation condition across the MZ2 areas will improve in the long term.

Stage 1 Mod 9 and EPBC (2013/6929) offset areas monitoring³.

Completion criteria will have been achieved when the vegetation has either achieved the relevant Biometric Vegetation Type (BVT) benchmark condition (for at least one upper structural layer and one ground cover class) or it can be demonstrated that it is on a self-sustaining trend towards the relevant benchmark condition.

All MZ2 areas within Clarke BOA continued to achieve all completion criteria.

At Bobadeen BOA, the MZ2 sites within the Blakely's Red Gum – Yellow Box Grassy Open Forest vegetation community area achieved all completion criteria. Two monitoring sites did not achieve the groundcover criterion due to increased exotic cover and increased native grass cover dominating above benchmark value for the Biometric Vegetation Type respectively. All other MZ2 sites achieved native groundcover benchmark condition. Three sites are yet to achieve the native overstorey/midstorey completion criterion, however in the 2023 monitoring there was some evidence of progression towards achievement in the White Box – Yellow Box Grassy Woodland areas of the BOA.

At Moolarmoo BOA, one of two monitoring sites achieved the groundcover criterion, however this is a result of fluctuations in native forb and grass groundcover species, with no significant increase in exotic cover. All MZ2 areas have yet to reliably achieve native overstorey or mid-storey benchmark condition.

At Property 5 BOA and Property 24 & 25 BOA, all MZ2 areas within the Blakely's Red Gum – Yellow Box Grassy open Forest vegetation community achieved all completion criteria.

The Rough-barked Apple – Silvertop Stringybark – Red Stringybark Grassy Open Forest vegetation community within MZ2 areas achieved native groundcover benchmark condition. Native overstorey/mid-storey benchmark condition has not yet been achieved, however monitoring in 2023 showed some evidence of progression towards achieving the criteria.

Stage 1 Mod 9 and EPBC (2013/6929) offset areas trends in overall biodiversity values

BBAM SVSs were used to determine whether biodiversity values are being maintained or improved. For MOD9 MZ2 areas the monitoring demonstrated that:

- MZ2 areas within Bobadeen have seen a slight increase in biodiversity values, with the highest average SVS recorded in 2023. While the reasons for this varies between sites, it generally reflects increases in native species diversity and native groundcover observed at monitoring sites in autumn 2023.
- At all other MOD 9 BOAs containing MZ2 areas (Clarke, Properties 24 & 25, Property 5 and Moolarmoo), there has been a slight decrease in biodiversity values recorded in 2023 compared to 2022, but SVSs have generally been maintained across monitoring years.
- The condition of the vegetation at Clarke BOA is relatively high with SVSs approaching and now mirroring those of MZ1 areas. This is also reflected in performance against the BOMP

³ Whilst Moolarmoo and Property 24/25 are related to NSW project approvals, data has been included as all Modification 9 Offsets are managed consistently.

completion criteria in 2023. Native overstorey cover is increasing and overall conditions have improved slightly over time relative to analogues. However, areas still require some habitat augmentation.

- The SVS at Bobadeen, Moolarmoo, Property 5 and Property 24 & 25 BOAs have remained similar across monitoring years. Recent plantings are yet to contribute towards monitoring outcome improvements.

Stage 2 and EPBC (2008/4444) offset areas monitoring.

The vegetation monitoring across the OMZ2 sites at Stage 2 BOAs in autumn 2023 was conducted in accordance with the monitoring schedule and methodology in the Stage 2 BOMP and Cluster Management Plans (CMPs). Fauna monitoring was not conducted in 2023 in Stage 2 BOAs in accordance with the required three-yearly monitoring frequency, with the next round of monitoring due to be conducted in 2025. Dun Dun East and Dun Dun West BOAs were affected by an uncontrolled bushfire in March 2023, therefore in addition to the scheduled monitoring, all sites within these BOAs, including OMZ1 sites were monitored in autumn 2023 as part of a post-event inspection required under Table 15 of the Stage 2 BOMP. The key findings from the 2023 monitoring against the Performance Indicators and Completion Criteria are summarised below.

- For Offset Outcome 1(a) (woodland/forest) areas at all relevant BOAs are:
 - Expected to meet the Performance Indicator within the six yearly assessment timeframe
 - Currently achieving all Completion Criteria or are expected to achieve all criteria by the target date (2065).
- For Offset Outcome 1(a) (DNG) areas within:
 - Dun Dun West, Libertus, Onsite Offset and Ulan 18 had sufficient natural and/or assisted regeneration
 - Dun Dun East did not achieve this criterion, with no overstorey species recorded at monitoring sites. Assisted revegetation that has occurred in this BOA has been impacted by the bushfire. Additional active revegetation has been planned for this BOA that will assist in achieving Completion Criteria by the target date (2065).
- For Offset Outcome 1(b) (woodland) areas at all relevant BOAs are:
 - Currently achieving or are expected to achieve all Completion Criteria by 2065.
- All Offset Outcome 1(b) (DNG) areas:
 - All relevant BOAs had sufficient natural and/or assisted regeneration recorded to meet the associated performance indicator in 2023
 - Dun Dun East BOA is currently achieving or is on a trajectory to achieve all Completion Criteria by 2065
 - Old Bobadeen BOA is currently achieving, or is on a trajectory to achieve, two out of four of the Completion Criteria by 2065.

3.1.1 ACTIONS FOR NEXT REPORTING PERIOD

During the next period activities to be undertaken include review of management plans and revision where necessary, continued monitoring, assisted regeneration planning and implementation, fencing, track and fire trail works, continued weed and feral animal control works, maintenance of property security and progression of Gilgal Biodiversity Stewardship Agreement.

APPENDIX B – Moolarben Coal Annual Summaries –Rehabilitation Flora and Fauna Monitoring

MCO undertakes a monitoring program of rehabilitation areas in accordance with the RMP. The monitoring program includes landscape function analysis, floristic monitoring, vegetation structure and growth, fauna monitoring and visual monitoring.

Ecosystem function analysis (EFA)

EFA was undertaken at 31 EFA sites within the MCO open cut rehabilitation areas and seven analogue sites, which are located within vegetation communities equivalent to the general rehabilitation target communities.

Landscape Function Analysis

LFA assessment allows for the calculation of a Landscape Organisation Index (LOI), reflecting the proportion of a transect occupied by patches. Patches are defined by soil surface elements, such as perennial ground cover, litter, logs or rocks that help retain soil and other resources at a site. A higher LOI implies a more stable transect that is less prone to erosion and resource loss.

At most of the Box Gum Woodland and Sedimentary Ironbark Forest sites and half of Domain D sites, the LOI was similar to that recorded at analogue sites. Box Gum Shrubby Woodland sites were less variable, with all sites recording an LOI between 83-100%. Sedimentary Ironbark Forest sites had higher variability of LOI with sites ranging from 77-100%. The lowest LOI was recorded at R20 due to a high bare soil contribution. LOI comparison to analogue sites is shown in **Figure 1**.

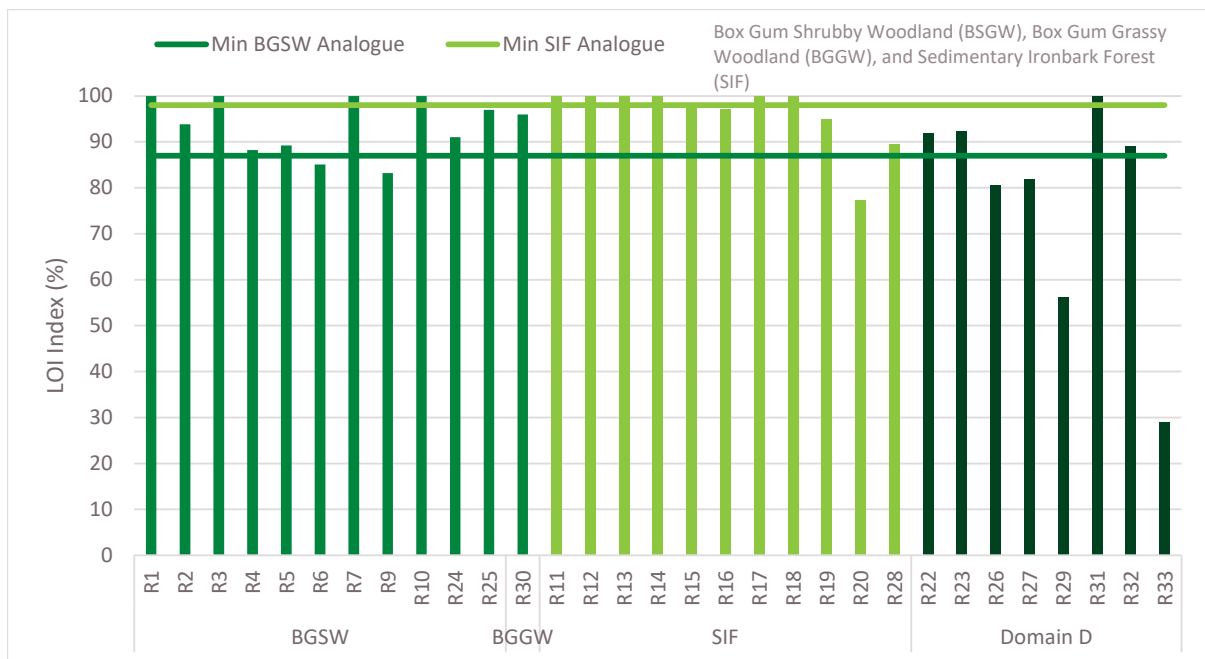


Figure 1: Landscape Organisation Index (LOI) recorded for rehabilitation sites in 2023 compared to analogue sites

Floristic Monitoring

During the 2023 monitoring of Box Gum Shrubby Woodland rehabilitation sites, native species richness ranged from 39 (R10) to 56 (R4) in autumn and 20 (R9) to 48 (R1) in spring. These results in autumn were comparable to analogue site results where native species richness ranged from 36 to 62. In contrast, six of the seven sites surveyed in spring were below the range of species richness across analogue sites (34 – 48 species).

Within the Sedimentary Ironbark Forest rehabilitation sites, native species richness ranged from 31 (R16) to 37 (R13) in autumn and 21 (R12) to 42 (R11) in spring. The results from analogue sites ranged from 40 to 45 species.

Within the Box Gum Grassy Woodland rehabilitation site (R30), native species richness was 34 in autumn and was nearly comparable to the Box Gum Shrubby Woodland analogue sites (36 – 62 species in autumn).

Figure 2 presents the percentage of species within rehabilitation areas that are typical of the target vegetation community. Plant Community Types (PCTs) that matched the general associations of Box Gum Shrubby Woodland, Sedimentary Ironbark Forest and Box Gum Grassy Woodlands were compiled during the development of the RMP completion criteria, and a typical species list was collated from these using the PCT profiles in BioNet Vegetation Classification.

Nine out of 11 Box Gum Shrubby Woodland sites have achieved this criterion. The two sites that are yet to achieve the criteria for percentage of species are trending towards the completion criteria as the proportion of the woody stratum species (canopy and mid-storey species) among the species typical of the target community, which is most important in characterisation of vegetation community types, was 50% at site R24 and 36% at site R25 and as such are considered representative.

All 11 Sedimentary Ironbark Forest sites have achieved this criterion. The proportion of the woody stratum species typical of the target community ranged from 25% to 59%. The Box Gum Grassy Woodland site (R30) has achieved this criterion with more than twice the target required.

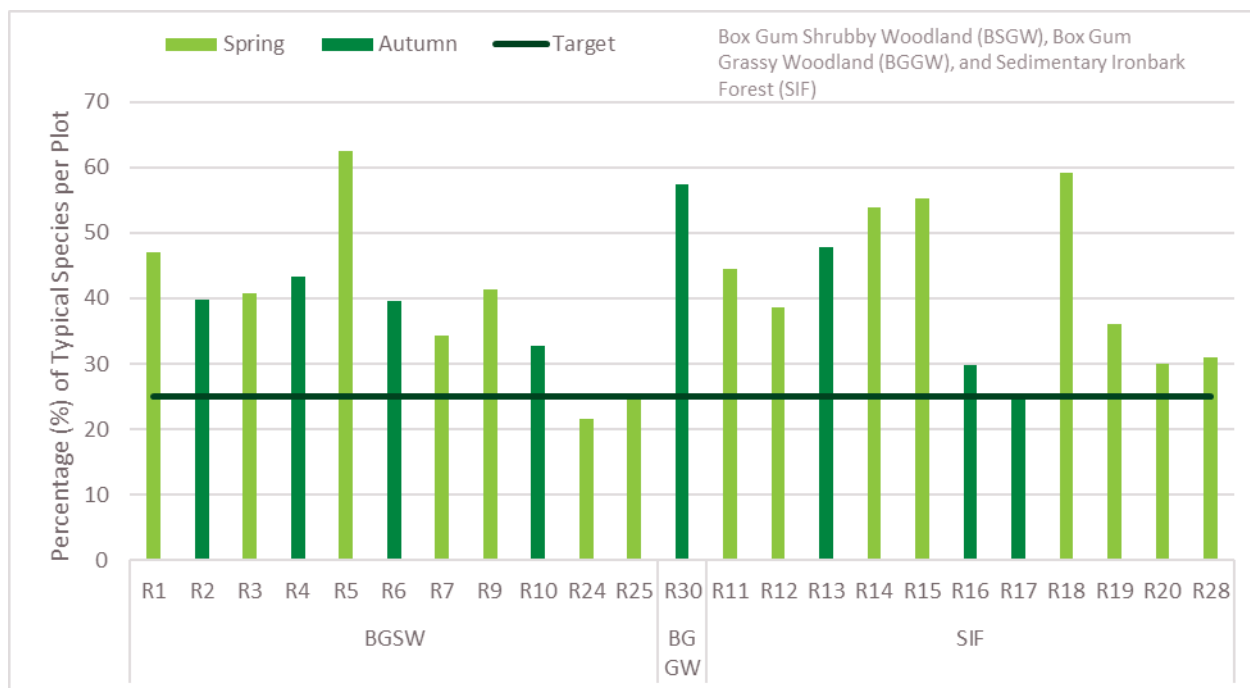


Figure 2: Percentage of species within rehabilitation areas that are typical of the target vegetation community

Habitat Complexity

Habitat complexity was undertaken at all EFA monitoring sites using the scoring system provided in Table 4. This scoring system is applied to both EFA and analogue sites. Habitat complexity scores across 2023 monitoring compared to the analogue results are provided in Figure 3.

Table 2: Habitat complexity scoring system

Structure	Attributes and score			
	0	1	2	3
Tree canopy (%)	0	<30	30-70	>70
Shrub canopy (%)	0	<30	30-70	>70
Ground herbage	Sparse <0.5 m	Sparse >0.5 m	Dense <0.5 m	Dense >0.5 m
Logs, rocks, debris, etc (%)	0	<30	30-70	>70
Soil moisture	Dry	Moist	Permanent water adjacent	Water-logged

Most sites recorded a complexity score of four or greater which is equal to or greater than the minimum score recorded at analogue sites within both target vegetation communities, and most sites have recorded the same or increased habitat complexity scores compared to previous monitoring. The one site which recorded lower values in 2023 was R29 which is due to the lower canopy, mid-storey and groundcover recorded at the site.



Figure 3: Habitat complexity scores recorded for rehabilitation sites in 2022 compared to analogue sites

Fauna Monitoring

A total of 83 fauna species were recorded across all rehabilitation sites monitored in spring 2023. This included one amphibian species, 57 bird species, and 25 mammals including 15 microbat species and five introduced species. Five of the fauna species recorded are listed as vulnerable under the NSW *Biodiversity Conservation Act 2016* (BC Act), being the Speckled Warbler (*Chthonicola sagittata*), White-bellied Sea Eagle (*Haliaeetus leucogaster*), Large-eared Pied Bat (*Chalinolobus dwyeri*), Eastern Bent-winged Bat (*Miniopterus orianae oceanensis*) and the Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*). A wide range of bird guilds were recorded during 2023 monitoring across both target vegetation communities; including insectivores, nectivores and herbivores which forage at different stratum levels within vegetation, which indicates that multiple types of habitats are available within these rehabilitation areas. Bird species richness has increased since 2022.

One amphibian was recorded within Domain A OC4, a Common Eastern Froglet (*Crinia signifera*). Dam inspections were performed at three dams within OC1, however no other species were found due to a lack of water in spring 2023.

Ten mammal species were either recorded on remote cameras or opportunistically observed, including five native species, being the Common Brushtail Possum (*Trichosurus vulpecula*), Eastern Grey Kangaroo (*Macropus giganteus*), Red-necked Wallaby (*Macropus rufogriseus*), Short-beaked Echidna (*Tachyglossus aculeatus*), Swamp Wallaby (*Wallabia bicolor*) and five introduced species (Hare (*Lepus europaeus occidentalis*), Feral Cat (*Felis catus*), Pig (*Sus scrofa*), Rabbit (*Oryctolagus cuniculus*), and Red Fox (*Vulpes vulpes*).

Visual Monitoring

Visual transect monitoring results from 2023 were largely consistent with previous years, with the majority of transects recording an overall rating of ‘Good’ for vegetation structure composition, soil compaction, microhabitat features and disturbance factors. ‘Poor’ scores were recorded for three transects (one in

each of OC1, OC2 and OC4) for active erosion. Overall the cover of exotic species has reduced compared to 2022 monitoring.

Assessment of Rehabilitation Performance Indicators

Analysis of the Box Gum Shrubby Woodland, Sedimentary Ironbark Forest, Box Gum Grassy Woodland rehabilitation, and OC2/OC3 Ecosystem and species credit sites against the proposed completion criteria is presented in **Table 5, Table 6, Table 7** and **Table 8**.

Table 3: Assessment of Domain A – Box Gum Shrubby Woodland areas against proposed completion criteria based on 2023 monitoring.

Proposed Completion Criteria	2023 Monitoring Outcome
Reconstructed landforms are stable with no evidence of slumping.	There were no signs of slumping landforms observed. Outcome: Proposed completion criteria achieved in 2023.
Gullies and rills occurring in monitoring transects are assessed to be limited and stabilising.	There were no signs of gullies or rills occurring along the monitoring transects in OC1, but some minor gully and rill erosion in OC4 rehabilitation. Outcome: Proposed completion criteria was partially achieved in 2023.
'High Threat Exotic' (HTE*) weed presence and cover is monitored regularly. Priority and HTE weeds identified through monitoring have been controlled.	There were HTE present at all monitoring sites. The level of HTE is not significant and is managed through ongoing maintenance. Outcome: Proposed completion criteria achieved in 2023.
Vertebrate pest species presence and impacts are recorded and controlled.	Feral pests were recorded during monitoring, and some signs of damage in OC1 and OC4, but the level of damage was not considered to be unacceptable. Outcome: Proposed completion criteria achieved in 2023.
Rehabilitation area at some point since seeding or final surface preparation has experienced a fire or declared drought or at least one year with annual rainfall in the first decile range and all other vegetation completion criteria have been met.	All rehabilitation campaigns have experienced an intense drought. Outcome: Proposed completion criteria partially achieved in 2023.
Priority weeds are controlled and HTE cover is maintained at < 15%.	At all sites, the HTE cover was below 15%. Outcome: Proposed completion criteria achieved in 2023.
Multiple fauna habitats are available within all rehabilitation areas.	During 2023 monitoring a ranged of fauna habitat was recorded. Outcome: Proposed completion criteria achieved in 2023.
Monitoring confirms multiple native fauna species are recorded utilising rehabilitation areas.	2023 monitoring confirmed that there were multiple species utilising the rehabilitation areas. Outcome: Proposed completion criteria achieved in 2023.
Stands ² of <i>Allocasuarina</i> spp have been maintained within Box Gum Shrubby Woodland / Sedimentary Ironbark Forest rehabilitation areas on OC1.	There were stands of <i>Allocasuarina</i> spp present during 2023 monitoring in OC1. Outcome: Proposed completion criteria achieved in 2023.
Revegetation areas contain flora species assemblages characteristic of or trending towards that of: Box Gum Shrubby Woodland communities ¹ / Secondary Ironbark Forest communities ³ / Box Gum Grassy Woodland ¹ .	All sites in OC1 achieved the greater than 25% of typical species composition, two sites that did not meet the criteria in OC4 are trending towards completion criteria. Outcome: Proposed completion criteria partially achieved in 2023.
Median foliage cover of the ecologically dominant layers (trees/shrubs/ground cover) and developing litter cover are within the 10th-90th percentile variation range of the Box Gum Shrubby Woodland Community / Secondary Ironbark Forest community / Box Gum Grassy Woodland Community Analogue sites.	The tree and shrub cover completion criteria were achieved in OC1 but not in OC4 rehabilitation. Shrub cover, ground cover and litter cover did reach the criteria in either OC1 or OC4. Outcome: Proposed completion criteria partially achieved in 2023.
Rehabilitation monitoring verifies that second generation seedlings of species characteristic of Box Gum Shrubby Woodland Communities / Secondary Ironbark Forest communities / Box Gum Grassy Woodland communities are present or likely to be, based on comparable older rehabilitation sites.	In OC1 there was signs of regeneration of characteristic species observed at all sites, there were signs of first generation seedlings but no signs of second generation in OC4. Outcome: Proposed completion criteria achieved in 2023 in OC1 and not achieved in OC4.

Table 4: Assessment of Domain A – Sedimentary Ironbark Forest areas against proposed completion criteria based on 2023 monitoring.

Proposed Completion Criteria	2023 Monitoring Outcome
Reconstructed landforms are stable with no evidence of slumping.	There were no signs of slumping landforms observed. Outcome: Proposed completion criteria achieved in 2023.
Gullies and rills occurring in monitoring transects are assessed to be limited and stabilising.	There were signs of gullies erosion in OC4 rehabilitation. Outcome: Proposed completion criteria partially achieved in 2023.
'High Threat Exotic' (HTE*) weed presence and cover is monitored regularly. Priority and HTE weeds identified through monitoring have been controlled.	There were HTE present at all monitoring sites. The level of HTE is not significant and is managed through ongoing maintenance. Outcome: Proposed completion criteria achieved in 2023.
Vertebrate pest species presence and impacts are recorded and controlled.	Feral pests were recorded during monitoring, and some signs of damage in OC1 and OC4, but the level of damage was not considered to be unacceptable. Outcome: Proposed completion criteria achieved in 2023.
Rehabilitation area at some point since seeding or final surface preparation has experienced a fire or declared drought or at least one year with annual rainfall in the first decile range and all other vegetation completion criteria have been met.	All rehabilitation campaigns have experienced an intense drought. Outcome: Proposed completion criteria partially achieved in 2022.
Priority weeds are controlled and HTE cover is maintained at < 15%.	At all sites, the HTE cover was below 15%. Outcome: Proposed completion criteria achieved in 2023.
Multiple fauna habitats are available within all rehabilitation areas.	During 2023 monitoring a range of fauna habitat was recorded. Outcome: Proposed completion criteria achieved in 2023.
Monitoring confirms multiple native fauna species are recorded utilising rehabilitation areas.	2023 monitoring confirmed that there were multiple species utilising the rehabilitation areas. Outcome: Proposed completion criteria achieved in 2023.
Stands ² of <i>Allocasuarina</i> spp have been maintained within Box Gum Shrubby Woodland / Sedimentary Ironbark Forest rehabilitation areas on OC1.	There were stands of <i>Allocasuarina</i> spp present during 2023 monitoring in OC1. Outcome: Proposed completion criteria achieved in 2023.
Revegetation areas contain flora species assemblages characteristic of or trending towards that of: Box Gum Shrubby Woodland communities ¹ / Secondary Ironbark Forest communities ³ / Box Gum Grassy Woodland ¹ .	All sites in OC1 and OC4 achieved the greater than 25% of typical species composition. Outcome: Proposed completion criteria achieved in 2023.
Median foliage cover of the ecologically dominant layers (trees/shrubs/ground cover) and developing litter cover are within the 10th-90th percentile variation range of the Box Gum Shrubby Woodland Community / Secondary Ironbark Forest community / Box Gum Grassy Woodland Community Analogue sites.	The tree and litter cover completion criteria were achieved in OC1 in autumn. The median cover was not met in OC4 rehabilitation. Outcome: Proposed completion criteria partially achieved in 2023.
Rehabilitation monitoring verifies that second generation seedlings of species characteristic of Box Gum Shrubby Woodland Communities / Secondary Ironbark Forest communities / Box Gum Grassy Woodland communities are present or likely to be, based on comparable older rehabilitation sites.	In OC1 there was signs of regeneration of characteristic species were observed at all sites, there were sites with signs of first generation in OC4. Outcome: Proposed completion criteria achieved in 2023 in OC1 and partially achieved in OC4.

Table 5: Assessment of Domain A – Box Gum Grassy Woodland areas against proposed completion criteria based on 2023 monitoring.

Proposed Completion Criteria	2023 Monitoring Outcome
Reconstructed landforms are stable with no evidence of slumping.	There were no signs of slumping landforms observed. Outcome: Proposed completion criteria achieved in 2023.
Gullies and rills occurring in monitoring transects are assessed to be limited and stabilising.	There were no signs of gullies erosion in OC4 rehabilitation. Outcome: Proposed completion criteria achieved in 2023.
'High Threat Exotic' (HTE*) weed presence and cover is monitored regularly. Priority and HTE weeds identified through monitoring have been controlled.	There were HTE present at all monitoring sites. The level of HTE is not significant and is managed through ongoing maintenance. Outcome: Proposed completion criteria achieved in 2023.
Vertebrate pest species presence and impacts are recorded and controlled.	Feral pests were recorded during monitoring, and some signs of damage in OC4, but the level of damage was not considered to be unacceptable. Outcome: Proposed completion criteria achieved in 2023.
Rehabilitation area at some point since seeding or final surface preparation has experienced a fire or declared drought or at least one year with annual rainfall in the first decile range and all other vegetation completion criteria have been met.	One campaign in OC4 (represented by site R30) may have experienced intense drought conditions, but the exact time of seeding during 2020 is unknown. All other areas have experienced an intense drought. Outcome: Proposed completion criteria partially achieved in 2023.
Priority weeds are controlled and HTE cover is maintained at < 15%.	At all sites, the HTE cover was below 15%. Outcome: Proposed completion criteria achieved in 2023.
Multiple fauna habitats are available within all rehabilitation areas.	During 2023 monitoring a ranged of fauna habitat was recorded. Outcome: Proposed completion criteria achieved in 2023.
Monitoring confirms multiple native fauna species are recorded utilising rehabilitation areas.	2023 monitoring confirmed that there were multiple species utilising the rehabilitation areas. Outcome: Proposed completion criteria achieved in 2023.
Revegetation areas contain flora species assemblages characteristic of or trending towards that of: Box Gum Shrubby Woodland communities ¹ / Secondary Ironbark Forest communities ³ / Box Gum Grassy Woodland ¹ .	Rehabilitation in OC4 achieved the greater than 25% of typical species composition. Outcome: Proposed completion criteria achieved in 2023.
Median foliage cover of the ecologically dominant layers (trees/shrubs/ground cover) and developing litter cover are within the 10th-90th percentile variation range of the Box Gum Shrubby Woodland Community / Secondary Ironbark Forest community / Box Gum Grassy Woodland Community Analogue sites.	Ground cover and litter cover achieved the completion criteria, whereas tree and shrub cover were below the completion criteria in OC4 rehabilitation. Outcome: Proposed completion criteria partially achieved in 2023.
Rehabilitation monitoring verifies that second generation seedlings of species characteristic of Box Gum Shrubby Woodland Communities / Secondary Ironbark Forest communities / Box Gum Grassy Woodland communities are present or likely to be, based on comparable older rehabilitation sites.	Due to the age of the rehabilitation, there have only been signs of first generation seedlings of species that are characteristic of Box Gum Grassy Woodland. Outcome: Proposed completion criteria not achieved in 2023.

Table 6: Assessment of Domain D – Rehabilitation Biodiversity Offset areas against proposed completion criteria based on 2023 monitoring.

Proposed Completion Criteria	2023 Monitoring Outcome
Reconstructed landforms are stable with no evidence of slumping.	There was slumping of the landform observed in the south-eastern section of OC2 during monitoring. Outcome: Proposed completion criteria not achieved in 2023.
Gullies and rills occurring in monitoring transects are assessed to be limited and stabilising.	There were signs of gullies erosion in in the OC2 rehabilitation. Outcome: Proposed completion criteria not achieved in 2023.
'High Threat Exotic' (HTE*) weed presence and cover is monitored regularly. Priority and HTE weeds identified through monitoring have been controlled.	There were HTE present at all monitoring sites. The level of HTE is not significant and is managed through ongoing maintenance. Outcome: Proposed completion criteria achieved in 2023.
Vertebrate pest species presence and impacts are recorded and controlled.	Feral pests were recorded during monitoring, and some signs of damage in OC2, but the level of damage was not considered to be unacceptable. Outcome: Proposed completion criteria achieved in 2023.
Native Plant Species Richness is ≥ 20.5 at year 10 post mining.	Average native plant species richness was greater than 20.5. Outcome: Proposed completion criteria not yet assessable in 2023.
$\geq 15\%$ of the total number of trees are the regionally relevant species** within koala FBA species credit areas.	There were no trees suitable for koala use of greater than 10cm DBH in the monitoring plots, however this is expected at this stage of the rehabilitation area. Outcome: Proposed completion criteria not achieved in 2023.
Native Over Storey Cover between 3.75 and 80% at year 10 post mining operations.	Average native overstorey cover is 1.2%. Outcome: Proposed completion criteria not yet assessable in 2023.
Native Mid-Storey Cover between 1.25 and 40% at year 10 post mining operations.	Average mid-storey cover was 2.8% across OC2 and OC3. Outcome: Proposed completion criteria not yet assessable in 2023.
Native Ground Cover, Grass between 3 and 100% at year 10 post mining operations.	Native grass ground cover is 10% across OC2. Outcome: Proposed completion criteria not yet assessable in 2023.
Native Ground Cover, Shrubs between 0.5 and 20% at year 10 post mining operations.	There were no sites in OC2 rehabilitation that achieved native shrub ground cover. Outcome: Proposed completion criteria not yet assessable in 2023.
Native Ground Cover, Other between 2 and 80% at year 10 post mining operations.	The average native ground cover, other was 5.9% across OC2 rehabilitation. Outcome: Proposed completion criteria not yet assessable in 2023.
Total Length Fallen Logs (m) is 1.25 at year 10 post mining operations.	The average length of fallen logs was greater than 1.25m. Outcome: Proposed completion criteria not yet assessable in 2023.
Exotic Plant Cover is $<45\%$ at year 10 post mining operations.	The average exotic plant cover achieved the criteria of less than 45% exotic plant cover. Outcome: Proposed completion criteria not yet assessable in 2023.
Overall Site Value Score (OEH, 2015) (average of plots in vegetation zone) is ≥ 13.8 at 10 years post mining operations.	The overall Site Value Score for OC2 in 2022 was 23.9 and achieved the completion criteria. Outcome: Proposed completion criteria not yet assessable in 2023.

* HTEs as per the BAM 2020

** Under the *State Environmental Planning Policy (SEPP) (Koala Habitat Protection) 2021*.

¹ A range of characteristic means that at least 25% of the species present in rehabilitated areas are recognised as being typical of the vegetation communities that match the Box Gum Shrubby Woodland Association (inclusive of any additional species listed in Table 16 of the RMP)

² Patches of three or more individual stems

³ A range of characteristic means that at least 25% of the species present in rehabilitated areas are recognised as being typical of the vegetation communities that match the Sedimentary Ironbark Forest Association (inclusive of any additional species listed in Table 17 of the RMP)