TARRAWONGA COAL MINE

WHITE-BOX YELLOW-BOX BLAKELY'S RED-GUM WOODLAND ENDANGERED ECOLOGICAL COMMUNITY

IMPLEMENTATION PLAN

PREPARED BY
WHITEHAVEN COAL LIMITED

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EXECUTIVE SUMMARY

Tarrawonga Coal Pty Ltd (TCPL) owns the Tarrawonga Coal Mine (TCM) which is located approximately 42 kilometres (km) north of Gunnedah and 15 km north-east of Boggabri in the Gunnedah Basin, New South Wales (NSW). The TCM commenced operations in 2006 and an extension to the mine was approved under State (NSW) and Commonwealth Project approvals in 2013.

As part of the NSW Project approval for the TCM, TCPL will implement:

1. a Rehabilitation Strategy on the post-mine landforms that will focus on using species characteristic of the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland, an endangered ecological community in NSW (herein referred to as the Box-Gum Woodland EEC); and
2. a Biodiversity Offset Strategy in the surrounding region that aims to enhance and restore Box-Gum Woodland EEC (woodland form) on disturbed (former agricultural) land with derived native grassland (which currently meets the criteria for the Box-Gum Woodland EEC [derived grassland form]).

It is recognised that aiming to re-establish or restore Box-Gum Woodland is likely to be difficult, particularly on post-mine landforms. However, the prospects for achieving a community that has characteristics of the Box-Gum Woodland EEC would be improved by understanding factors likely to enhance or impede restoration of the Box-Gum Woodland.

In 2014, Whitehaven Coal Limited (Whitehaven) (a joint venture partner of TCPL) undertook an investigation of factors likely to enhance or impede the effective restoration or re-establishment of the Box-Gum Woodland EEC. Following that investigation, this implementation plan was developed to maximise the prospects for rehabilitation and regeneration of the Box-Gum Woodland EEC on the offset areas and on the mine site.

The investigation has resulted in the identification of 48 individual actions relating to the Rehabilitation Strategy and 39 individual actions relating to the Biodiversity Offset Strategy. The approved implementation plan will be incorporated into the Rehabilitation Management Plan and a revised Biodiversity Management Plan.

1 INTRODUCTION

1.1 BACKGROUND

The Tarrawonga Coal Mine (TCM) is an open cut coal mining operation located approximately 42 kilometres (km) north of Gunnedah and 15 km north-east of Boggabri in the Gunnedah Basin, New South Wales (NSW) (Figures 1 and 2). The TCM is owned by Tarrawonga Coal Pty Ltd (TCPL), which is a joint venture between Whitehaven Coal Limited (Whitehaven) (70 percent [%] interest) and Boggabri Coal Pty Limited (a wholly owned subsidiary of Idemitsu Australia Resources Pty Ltd) (30% interest).

The TCM commenced operations in 2006 and an extension to the mine (i.e. the Tarrawonga Coal Project) was approved under State (NSW) and Commonwealth Project approvals in 2013. In January 2013, the Tarrawonga Coal Project was granted NSW Project approval under the NSW *Environmental Planning and Assessment Act* by the Planning Assessment Commission under delegation of the Minister for Planning and Infrastructure. The Tarrawonga Coal Project was granted approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 11 March 2013 (Commonwealth Approval Decision 2011/5923).

As part of the NSW Project approval for the TCM, TCPL will implement:

1. a Rehabilitation Strategy on the post-mine landforms that will focus on using species characteristic of the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland, an endangered ecological community listed under the NSW *Threatened Species Conservation Act, 1995* in NSW (herein referred to as the Box-Gum Woodland EEC); and
2. a Biodiversity Offset Strategy in the surrounding region that aims to enhance and restore Box-Gum Woodland EEC (woodland form) on disturbed (former agricultural) land with derived native grassland (which currently meets the criteria for the Box-Gum Woodland EEC [derived grassland form]).

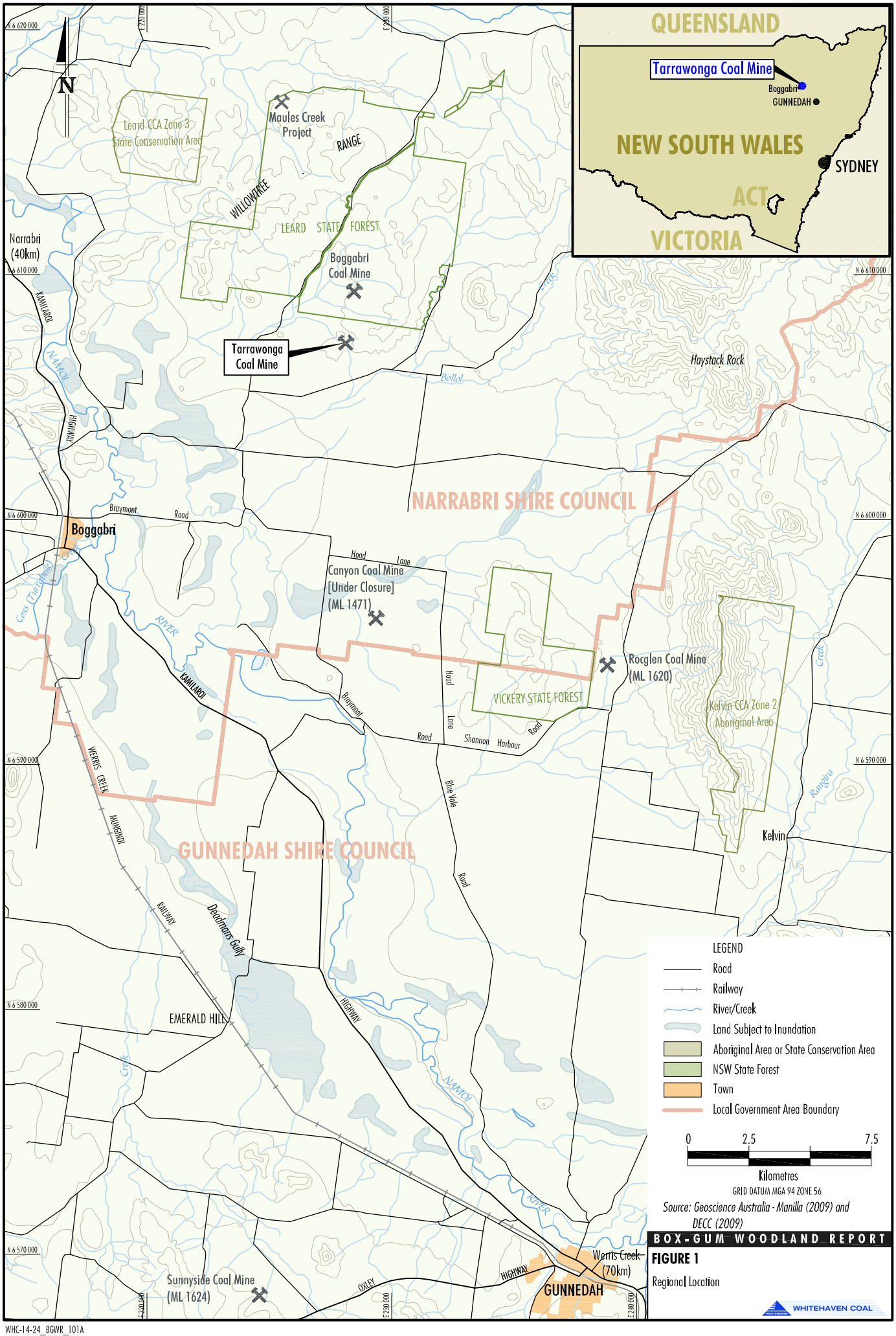
Rehabilitation Strategy

Condition 40 of TCM Project Approval (PA 11_0047) requires 752 hectares (ha) of vegetation to be re-established on the post-mine landforms. An objective is to revegetate the post-mine landforms with a mixture of native woodland and forest (approximately 752 ha). The focus will be on using species characteristic of Box-Gum Woodland EEC in 13 ha (as required by the Commonwealth Approval Decision 2011/5923).

Biodiversity Offset Strategy

The biodiversity offset areas under Condition 40 of TCM Project Approval (PA 11_0047) are required to cover a minimum of 1,660 ha of land (Figure 3). The Box-Gum Woodland EEC is present in the offset areas in woodland form (approximately 37 ha) and derived grassland form (approximately 197 ha) (Figure 3). The Biodiversity Offset Strategy aims to re-establish Box-Gum Woodland in these two landscapes:

1. through enhancement of existing woodland remnants of the Box-Gum Woodland in varying conditions; and
2. in cleared (mostly grazing) land with predominantly native grassland groundcover (derived grasslands).



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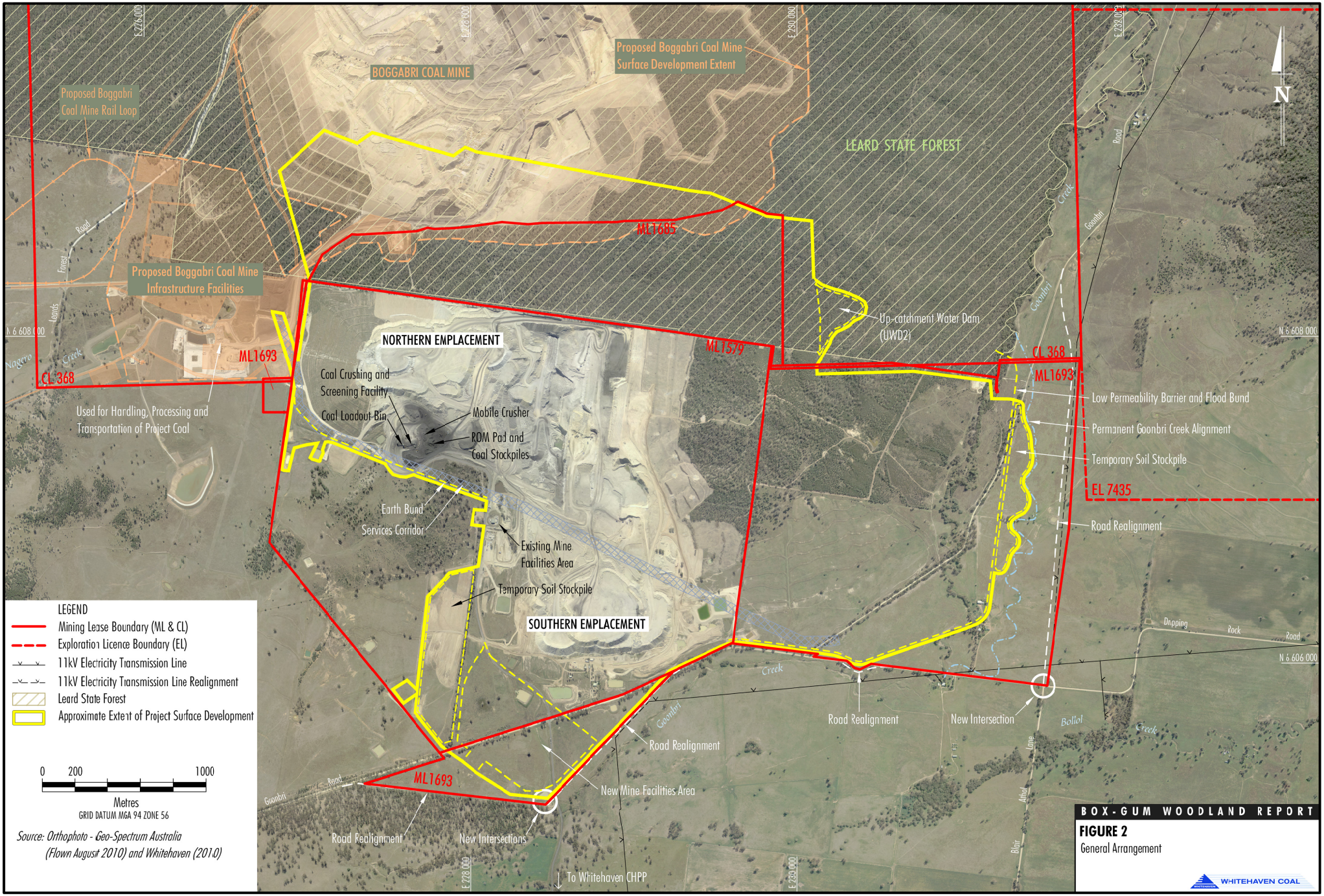

BOX-GUM WOODLAND REPORT

FIGURE 2

General Arrangement

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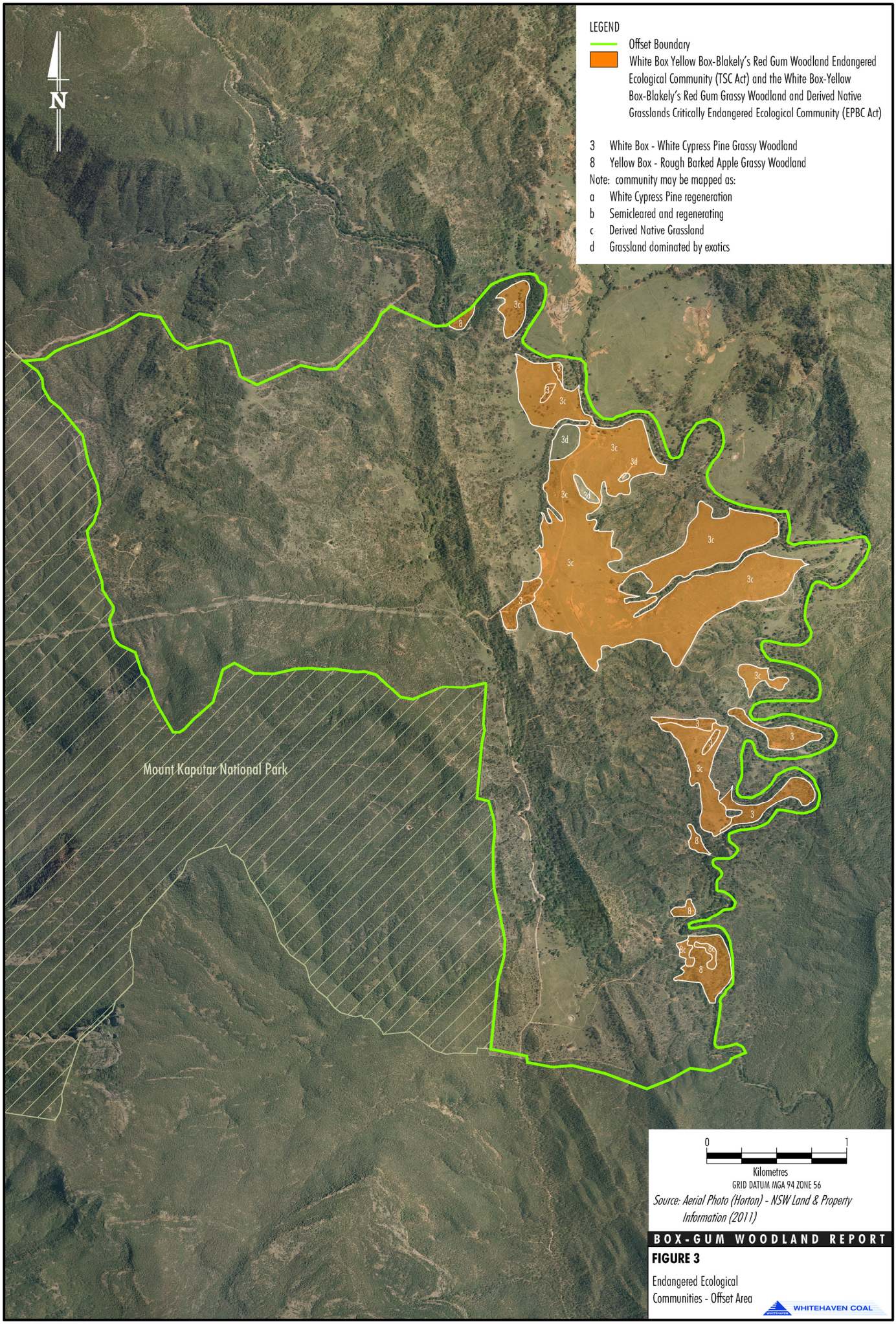

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It is recognised that aiming to re-establish or restore Box-Gum Woodland is likely to be difficult. However, the prospects for achieving a community that has characteristics of the Box-Gum Woodland EEC would be improved by understanding factors likely to enhance or impede restoration of the Box-Gum Woodland.

Long-term Maintenance

The long-term maintenance of Box-Gum Woodland/provision of habitat would be facilitated through:

1. long-term security of the offset areas and woodland on the rehabilitation areas by the mechanisms specified in the Project Approval (i.e. management will be required to be undertaken in accordance with a conservation agreement and/or protected area [e.g. National Park or Nature Reserve] management arrangement).
2. lodgement of conservation and biodiversity bond for the offset areas with the DP&E (noting that the bond will only be released once the offset strategy is completed generally in accordance with completion criteria).

Box-Gum Woodland Investigation

Condition 43(b) of the TCM Project Approval (PA 11_0047) requires:

1. an investigation on factors likely to enhance or impede the effective long term restoration of degraded remnants of this EEC in offset areas or regeneration of this EEC on disturbed areas (i.e. an Investigation Report);
2. an implementation plan to maximise the prospects for rehabilitation and regeneration of the Box-Gum Woodland EEC (i.e. an Implementation Plan – this document); and
3. revision of the Biodiversity Management Plan (BMP).

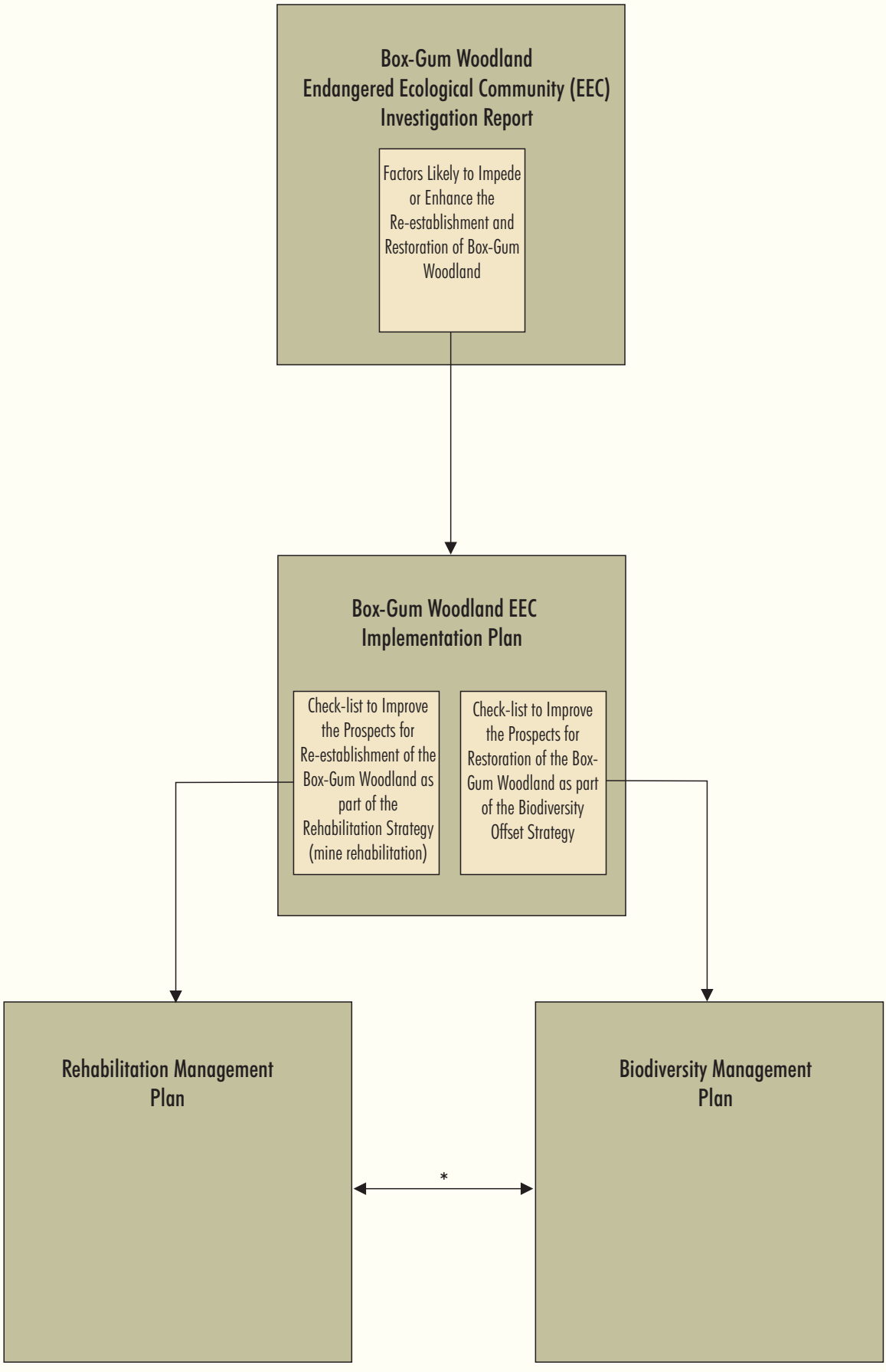
Figure 4 contains a flow diagram that shows how the Investigation Report, Implementation Plan and the BMP (and TCM Rehabilitation Management Plan [RMP]) relate.

In 2014, a separate report (the Investigation Report) (Appendix A) was prepared by Whitehaven which documented an investigation that was undertaken on factors likely to enhance or impede the effective restoration of degraded remnants of Box-Gum Woodland EEC in offset areas or re-establishment of Box-Gum Woodland EEC on disturbed areas (both offset areas and the site).

This document (the Implementation Plan) provides actions to maximise the prospects for rehabilitation and regeneration of the Box-Gum Woodland EEC on the offset areas and the mine site. The outcomes of the Implementation Plan are ‘checklists’ for implementing the Rehabilitation Strategy and Biodiversity Offset Strategy (where they relate to Box-Gum Woodland EEC). The approved Implementation Plan will be incorporated into a revised BMP and a revised RMP.

1.2 OBJECTIVES

The purpose of this report is to satisfy Condition 43(c) of TCM Project Approval (PA 11_0047) (Table 1) by considering the TCM Box-Gum EEC Investigation Report (Whitehaven, 2014; Appendix A) and providing an implementation plan to maximise the prospects for rehabilitation and regeneration of the Box-Gum Woodland EEC on the offset areas and the mine site. The implementation plan will be incorporated into a revised BMP and revised RMP.



* *Integration of relevant mine rehabilitation components in the Biodiversity Management Plan.*

BOX-GUM WOODLAND REPORT

FIGURE 4

Box-Gum Woodland EEC Investigation and Implementation Plan

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Table 1
Condition 43 of Project Approval (PA 11_0047)

Condition
43. For the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland Endangered Ecological Community the Proponent shall: *(a) ensure that the Biodiversity Offset Strategy and site Rehabilitation Strategy is focused on protection rehabilitation, re-establishment and long-term maintenance of viable stands of this community;* *(b) investigate in consultation with OEH and the Namoi CMA, all factors likely to enhance or impede the effective long term restoration of degraded remnants of this EEC in offset areas or regeneration of this EEC on disturbed areas (both offset areas and the site);* *(c) within 24 months of the date of this approval (and if possible in conjunction with Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy), submit a report of this investigation and provide an implementation plan to maximise the prospects for rehabilitation and regeneration of this EEC on the offset areas and the site, for approval by the Director-General; and* *(d) incorporate the approved implementation plan into the revised Biodiversity Management Plan, required under Condition 43.*

It has not been possible to prepare this report in conjunction with Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy being co-ordinated by the DP&E as it is yet to be developed. Nevertheless, this report is consistent with the intent of the Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy in that it seeks to improve the performance of the offset areas and has been prepared jointly with the Maules Creek Coal Mine.

1.3 CONSULTATION

Condition 43(b) of TCM Project Approval (PA 11_0047) (Table 1) does not require consultation with stakeholders regarding this implementation plan, however, consultation was undertaken with:

- Office of Environment and Heritage (OEH);
- North West Local Land Services (formerly the Namoi Catchment Management Authority); and
- DP&E

This implementation plan was revised in light of comments by or discussions with those stakeholders before it was submitted to DP&E for approval.

In their letter (dated 22 October 2014), OEH provided the following comments not directly related to this implementation plan:

> *OEH offers the following suggestions regarding the level of detail it expects should be included in the revisions of the RMP and BMP. This includes:*
>
> - *detailed descriptions, maps and area on each offset property for each condition state of the EEC and other vegetation types, and management area, if different*
> - *maps and area of the estimated area of habitat of each threatened species, and condition class if known*
> - *details of the presence of important structural, floristic and habitat elements present (eg caves, cliff lines, raptor nests, areas with abundant hollow-bearing trees, fallen debris, flora species specifically identified as providing habitat resources for threatened species etc.)*
> - *mapping and/or imagery and photographs which illustrate threats that can be mapped, such as weeds and erosion. Baseline data of the current extent of each threat described should also be provided (baseline information is required to assess the change in the level of the threat and to monitor success over time against relevant performance targets)*

- *objectives for managing biodiversity values for each management area, strategies and timing to be implemented to manage biodiversity threats and to ensure that biodiversity values are improved*
- *identified measurable performance measures and targets, how progress is to be measured and reported and at what intervals,*
- *completion criteria for each threat in each management area eg the area or number of individuals of a weed species per management domain, based on the level of the acceptable threat. Targets should relate to actual biodiversity outcomes, including species requirements at different times, rather than simply inputs and outputs,*
- *a risk assessment, trigger points and subsequent corrective actions to be implemented if the monitoring program identifies that the performance targets and therefore biodiversity management objectives are not being met.*

TCM would consider the above suggestions in relation to revisions to the RMP or BMP (whichever is most applicable to the individual point).

2 METHODS

This implementation plan was prepared by reviewing the factors likely to enhance the re-establishment and restoration of Box-Gum Woodland at the TCM and offset areas.

3 PROPOSED ACTIONS RELATING TO FACTORS LIKELY TO IMPEDE AND ENHANCE

Table 2 provides a list of proposed actions relating to each factor likely to impede and enhance the re-establishment and restoration of Box-Gum Woodland.

Although the offset land was previously a cattle station predominantly used for grazing livestock, the livestock have already been removed since the property was purchased in 2010 and natural regeneration processes have commenced.

Table 2
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
1. Substrate	1a. Poor soil chemistry – depleted soil nutrients (Eddy, 2002)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Avoidance of soils with high or low pH, high salinity, low fertility or sodic soils. • Rehabilitation trials focused on soil substrate. • Nutrient management options: – Amelioration of soils with agricultural gypsum, compost (i.e. mulch saved during clearing activities) or fertilisers depending on the nutrient deficiency. – Addition of woody debris to increase carbon levels (Harmon *et al.,* 1986; Debeljak, 2006; Manning *et al.,* 2013; Goldin and Brookhouse, 2014). – Use of Biochar to increase soil carbon[1].	The RMP will: • provide parameters for the physical and chemical characteristics of topsoils and overburden based on likely suitable characteristics for establishment of Box-Gum Woodland; • provide for soil testing to be undertaken on topsoil and overburden to identify issues with physical and chemical characteristics as well as determine amelioration requirements and rates; • provide for rehabilitation trials (focusing on rehabilitation and revegetation of Box-Gum Woodland) to be undertaken on different rehabilitation substrates; • provide for selective identification and placement (burial) of soils unsuitable for use as a growth media; • describe options for ameliorating soils to improve the suitability of the soils as a growth media (e.g. amelioration with agricultural gypsum, compost [i.e. mulch saved during clearing activities] or fertilisers depending on the nutrient deficiency); • describe the incorporation of vegetative material (cleared at the mine site) into the soil used for rehabilitation or as mulch; and • provide for selective use of slow-release native plant fertiliser (e.g. rock minerals) to promote plant growth (if required).
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Limited and selective use of specific fertilisers to facilitate growth of tube stock (Eddy, 2002). • Placement of woody debris to increase carbon and moisture levels (Goldin and Brookhouse, 2014).	The BMP will provide for selective use of slow-release fertiliser to promote plant growth (if required).
	1b. Poor soil chemistry – elevated soil nutrients, salinity and acid soils (Rawlings *et al.,* 2010; Department of the Environment, Climate Change and Water [DECCW], 2011)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Avoidance of soils with high or low pH, high salinity, low fertility or sodic soils. • Application of minimum topsoil and subsoil depths (Condition 25[c] of the Approval Decision EPBC 2011/5923). • Soil surveys and inventories prior to soil stripping (Condition 25[c] of the Approval Decision EPBC 2011/5923). • Soil handling processes for removal, storage and re-layering of topsoil and subsoil (Condition 25[d] of the Approval Decision EPBC 2011/5923). • Annual soil balances to manage soil handling. • Rehabilitation trials focused on soil substrate.	The RMP will: • provide parameters for the physical and chemical characteristics of topsoils and overburden based on likely suitable characteristics for establishment of Box-Gum Woodland; • provide for soil testing to be undertaken on topsoil and overburden to identify issues with physical and chemical characteristics as well as determine amelioration requirements and rates; • provide for selective identification and placement (burial) of soils unsuitable for use as a growth media; • describe minimum topsoil and subsoil depths for revegetation (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923); • provide for soil surveys and inventories to be undertaken prior to soil stripping (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923); • provide soil handling processes for removal, storage and re-layering of topsoil and subsoil (consistent with Condition 25[d] of the Approval Decision EPBC 2011/5923), including the length and mode of topsoil storage. This will specifically detail the stripping of topsoil likely to contain seeds; • provide for annual soil balances to be undertaken to facilitate management of soil handling; and • provide for rehabilitation trials (focusing on rehabilitation and revegetation of Box-Gum Woodland) to be undertaken on different rehabilitation substrates.

[1] Not proposed to be used due to preferential use of mulch and woody debris from clearing activities.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
1. Substrate (Cont.)	1c. Poor soil chemistry – elevated soil nutrients (Prober *et al.,* 2002; Rawlings *et al.,* 2010; DECCW, 2011)	Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• No application of fertilizers on soils with elevated concentrations of the same nutrients (Rawlings *et al.,* 2010). • Nutrient management options to lower soil nitrogen and phosphorus levels: – Crash grazing periodically to remove nutrients locked in weeds (Rawlings *et al.,* 2010)[2]. – Restriction of livestock access to limit further nutrient enrichment[3] (Rawlings *et al.,* 2010). – Hay cutting (Rawlings *et al.,* 2010)[4]. – Controlled burns (Rawlings *et al.,* 2010). – Carbohydrate addition (Rawlings *et al.,* 2010)[5]. – Topsoil removal (scalping) (cleared land only) (Gibson-Roy *et al.,* 2010; Rawlings *et al.,* 2010)[6]. – No kill and pasture cropping (Rawlings *et al.,* 2010)[7].	The BMP will describe the following nutrient reduction options and the relevant situations where they would be applied: • controlled burns.
	1d. Poor soil chemistry – acid rock drainage	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Selective identification and placement (burial) of potentially acid forming interburden materials (Condition 39[c] Schedule 3 of Project Approval 11_0047). • Application of minimum topsoil and subsoil depths (Condition 25[c] of the Approval Decision EPBC 2011/5923).	The RMP will: • provide for selective identification and placement (burial) of potentially acid forming interburden materials; and • describe minimum topsoil and subsoil depths for revegetation (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923).
	1e. Erosion and sedimentation (Rawlings *et al.,* 2010; DECCW, 2011; Tongway and Ludwig, 2011)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Establishing vegetation cover as soon as practicable following disturbance. • Application of a temporary sterile cover crop, or native grass covercrop established from native hays. • Adjust seed and planting densities to maximise ground cover. • Treatment of dispersive soils and spoils. • Design of the batter slopes to be stable. • Use of structural erosion controls (e.g. channel banks, slope drains and energy dissipaters). • Exclusion of livestock (Rawlings *et al.,* 2010). • Management of pressure from feral grazing animals and native grazing animals. • Use of benign (hard rock) mulch to stabilise batter surfaces. • Ecological function analysis to identify constraints and requirements for specific management measures (Tongway and Ludwig, 2011).	The RMP will: • provide for establishing vegetation cover as soon as practicable following disturbance to minimise the potential for erosion and weeds. This will involve the application of a temporary sterile cover crop (or native grasses) using species that are not likely to impede revegetation of the Box-Gum Woodland; • provide options for remediating erosion including adjust seed and planning densities to maximise ground cover; • provide options for minimising the risk of erosion including treatment of dispersive soils and spoils, as well as use of use of structural erosion controls (e.g. channel banks, slope drains and energy dissipaters); • describe how livestock will be excluded from areas undergoing active revegetation (i.e. planting or seeding); • consider the use of benign (hard rock) mulch to stabilise batter surfaces that has been sourced onsite (i.e. salvaged from clearing areas or from waste material); • include monitoring of landscape function; and • include provision to review the need for kangaroo control measures.
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010]) Offset Areas – Restoration of Existing Box-Gum Woodland (Condition State 1 [Rawlings *et al.,* 2010])	• Targeting revegetation along drainage lines. • Remediation of scalded areas. • Restriction of livestock access[8] (particularly along drainage lines) (Rawlings *et al.,* 2010). • Installation of new infrastructure in stable locations (e.g. access roads) (McIvor, 2002). • Maximised re-use of existing infrastructure (e.g. access roads) instead of creating new infrastructure. • Ecological function analysis to identify constraints and requirements for specific management measures (Tongway and Ludwig, 2011).	The BMP will: • include a visual inspection of each mapped vegetation management unit in each offset area to identify constraints and requirements for specific management measures; • describe targeted revegetation along drainage lines and scalded areas to minimise risk of erosion; • aim to locate new offset area management infrastructure (e.g. access roads) in stable locations; • aim to maximise the re-use of existing infrastructure (e.g. access roads) instead of creating new infrastructure; and • provision to review the need for kangaroo control measures.

2 This method is not proposed to be undertaken as grazing livestock were removed from the offset area in 2010.
3 Grazing livestock were removed from the offset area in 2010.
4 This method is not proposed to be undertaken due to the extensive areas required to be revegetated.
5 This method is only applicable over small areas (Rawlings *et al.,* 2010) and is therefore not proposed to be undertaken due to the extensive areas required to be revegetated.
6 This method is only applicable to the cleared lands but is not proposed to be undertaken due to the extensive areas required to be revegetated and high disturbance of the technique.
7 This method is only applicable to the derived grasslands but is not proposed to be undertaken in preference of other methods.
8 Grazing livestock were removed from the offset area in 2010.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
1. Substrate (Cont.)	1f. Soil compaction – inhibits germination of seeds or growth of seedlings (Eddy, 2002; Department of Sustainability and the Environment [DSE], 2005; Rawlings *et al.,* 2010; DECCW, 2011) Also adds to water logging issues.	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Restriction of vehicle access to avoid compacting soil (Eddy, 2002; DSE, 2005). • Pre-planting site preparation (e.g. ripping) (Rawlings *et al.,* 2010). • Exclusion of livestock (Rawlings *et al.,* 2010). • Mulching (Rawlings *et al.,* 2010). • Use of spiked rollers/air jetting to aerate soils to depth of 30 cm.	The RMP will: • describe that vehicle access will be predominantly restricted to designated tracks on mine landforms that have been revegetated to minimise ground disturbance (e.g. compaction); • describe site preparation (e.g. ripping or use of spiked rollers) to reduce soil compaction impacting the success of the revegetation; • describe how livestock will be excluded from areas undergoing active revegetation (i.e. planting or seeding); and • describe the incorporation of vegetative material (cleared at the mine site) into the soil used for rehabilitation or as mulch.
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Restriction of vehicle access to avoid compacting soil (Eddy, 2002; DSE, 2005). • Restriction of livestock access[9] (Rawlings *et al.,* 2010).	The BMP will: • describe that vehicle access will be predominantly restricted to designated tracks to minimise ground disturbance (e.g. compaction); and • describe site preparation in cleared land (e.g. ripping or use of spiked rollers) and (where relevant) in derived grassland (e.g. use of spiked rollers) to reduce soil compaction impacting the success of the revegetation.
		Offset Areas – Restoration of Existing Box-Gum Woodland (Condition State 1 [Rawlings *et al.,* 2010])		
	1g. Ground disturbance (Eddy, 2002; Rawlings *et al.,* 2010)	Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Avoidance of revegetation techniques that involve high level of physical disturbance (i.e. cultivation, ripping and excavation) (Eddy, 2002; DECCW, 2011). • Restriction of vehicle access to avoid unnecessary ground disturbance (DSE, 2005; Eddy, 2002). • Fencing and signage.	The BMP will: • describe that vehicle access will be predominantly restricted to designated tracks to minimise ground disturbance (e.g. compaction); • describe provision of fencing and signage around the perimeter of the offset areas to exclude livestock and avoid accidental clearance; and • restrict the use of revegetation techniques that involve high level of physical disturbance in existing Box-Gum Woodland and derived grasslands.
		Offset Areas – Restoration of Existing Box-Gum Woodland (Condition State 1 [Rawlings *et al.,* 2010])		
	1h. Depleted soil seed bank (DECCW, 2011)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Management of topsoil seed resource. • Soil seed bank germination testing (rehabilitation trials). • Supplementary seeding/tube stock planting (Gibson-Roy *et al.,* 2010).	The RMP will: • provide soil handling processes for removal, storage and re-layering of topsoil and subsoil (consistent with Condition 25[d] of the Approval Decision EPBC 2011/5923). This will specifically detail the stripping of topsoil likely to contain seeds; • provide for soil seed bank germination testing to be undertaken on topsoil stockpiles; and • describe a contingency for supplementary seeding/tube stock planting if the regeneration from the soil seed bank is not sufficient.
		Offset Areas	• Supplementary seeding/tube stock planting.	The BMP will favour natural regeneration in the derived grasslands and woodland areas over seeding or planting in the first instance followed by seeding or planting if required.
	1i. Insufficient topsoil and/or topsoil depth (DECCW, 2011)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Application of minimum topsoil and subsoil depths (Condition 25[c] of the Approval Decision EPBC 2011/5923). • Soil surveys and inventories prior to soil stripping (Condition 25[c] of the Approval Decision EPBC 2011/5923). • Soil handling processes for removal, storage and re-layering of topsoil and subsoil (Condition 25[d] of the Approval Decision EPBC 2011/5923). • Annual soil balances to manage soil handling.	The RMP will: • describe minimum topsoil and subsoil depths for revegetation (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923); • provide for soil surveys and inventories to be undertaken prior to soil stripping (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923); • provide soil handling processes for removal, storage and re-layering of topsoil and subsoil (consistent with Condition 25[d] of the Approval Decision EPBC 2011/5923). This will specifically detail the stripping of topsoil likely to contain seeds; and • provide for annual soil balances to be undertaken to facilitate management of soil handling.

[9] Grazing livestock were removed from the offset area in 2010.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
1. Substrate (Cont.)	1j. Poor soil water holding capacity (Eddy, 2002)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Amelioration of soils with compost/woody debris. • Selective placement of soils. • Addition of woody debris (Harmon *et al.,* 1986; Debeljak, 2006; Manning *et al.,* 2013; Goldin and Brookhouse, 2014).	The RMP will: • describe options for ameliorating soils to improve the suitability of the soils as a growth media (e.g. amelioration with agricultural gypsum, compost [i.e. mulch saved during clearing activities] or native plant fertilisers depending on the nutrient deficiency); • provide for selective identification and placement (burial) of soils unsuitable for use as a growth media; and • describe the incorporation of vegetative material (cleared at the mine site) into the soil used for rehabilitation or as mulch. • describe matching flora to landform position.
	1k. Instability of the final landform	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Design of the batter slopes to be stable. • Selective placement of soils. • Use of benign (hard rock) mulch to stabilise batter surfaces.	The RMP will: • describe how the batter slopes would be designed to minimise instability of the final landform; • provide for selective identification and placement (burial) of soils unsuitable for use as a growth media; and • consider the use of benign (hard rock) mulch to stabilise batter surfaces that has been sourced onsite (i.e. salvaged from clearing areas or from waste material).
	1l. Poor drainage of the final landform (Eddy, 2002)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Design of the batter slopes to be stable. • Amelioration of soils with compost.	The RMP will • describe how the batter slopes have been designed to minimise instability of the final landform; and • describe options for ameliorating soils to improve the suitability of the soils as a growth media (e.g. amelioration with agricultural gypsum, compost [ie. mulch saved during clearing activities] or native plant fertilisers depending on the nutrient deficiency).
	1m. Lack of soil mycorrhizae (Jasper, 2007)	Mine Rehabilitation - Establishment of Box-Gum Woodland on the post-mine landform	• Application of minimum topsoil and subsoil depths. • Soil surveys and inventories prior to soil stripping (Condition 25[c] of the Approval Decision EPBC 2011/5923). • Soil handling processes for removal, storage and re-layering of topsoil and subsoil (Condition 25[d] of the Approval Decision EPBC 2011/5923). • Use of rhizobial bacteria inoculants for acacia (CSIRO, 2005).	The RMP will: • describe minimum topsoil and subsoil depths for revegetation. • provide for soil surveys and inventories to be undertaken prior to soil stripping (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923). • provide soil handling processes for removal, storage and re-layering of topsoil and subsoil (consistent with Condition 25[d] of the Approval Decision EPBC 2011/5923), including the length and mode of topsoil storage. This will specifically detail the stripping of topsoil likely to contain seeds.
2. Clearing	2a. Incidental clearing, fragmentation and fire wood collection	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Restriction on clearing.	The RMP will describe that revegetation at the mine would not be cleared (unless for ecological thinning, maintenance or access for monitoring).
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Restriction on clearing. • Restriction on fire wood collection. • Use of low disturbance methods for site preparation in derived grasslands and existing Box-Gum Woodland.	The BMP will: • describe a restriction of clearing (unless for ecological thinning of density regrowth [i.e. selective removal of regrowth trees or shrubs], maintenance or access for monitoring); • not permit firewood collection; • describe provision of fencing and signage around the perimeter of the offset areas to manage livestock (i.e. exclusion or controlled entry of livestock for specific purposes) and avoid accidental clearance; • aim to maximise the re-use of existing infrastructure (e.g. access roads) instead of creating new infrastructure; and • aim to locate new offset area management infrastructure (e.g. access roads) preferentially in cleared land.
		Offset Areas – Restoration of Existing Box-Gum Woodland (Condition State 1 [Rawlings *et al.,* 2010])		

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
3. Livestock	3a. Grazing by cattle – ground disturbance, remove or destroy seeds, seedlings or plantings (DSE, 2005; Rawlings *et al.,* 2010)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Fencing of areas undergoing revegetation to exclude grazing livestock and prevent grazing of seedlings (Eddy, 2002). • Maintenance of fencing used to exclude livestock.	The RMP will describe how livestock will be excluded from areas undergoing active revegetation (i.e. planting or seeding).
		Offset Areas	Grazing livestock were removed from the offset area in 2010.	Grazing livestock were removed from the offset area in 2010.
4. Introduced flora species (weeds)	4a. Weed invasion – perennial and annual grasses, perennial herbs, annual and biennial herbs and woody weeds (DSE, 2005; Rawlings *et al.,* 2010; Gibson-Roy *et al.,* 2010; DECCW, 2011)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Weed control (Condition 25[a] of the Approval Decision EPBC 2011/5923). • Establishing vegetation cover as soon as practicable following disturbance (Condition 25[b] of the Approval Decision EPBC 2011/5923). • Application of a temporary sterile cover crop, or native grass covercrop established from native hays. • Minimal unnecessary ground disturbance that may create opportunities for weeds (Rawlings *et al.,* 2010; DECCW, 2011). • Nutrient management (e.g. exclusion of grazing livestock which add nutrients) (Prober *et al.,* 2002; Rawlings *et al.,* 2010). • General weed hygiene (e.g. avoiding driving through weed infestations) (DECCW, 2011). • Correct spacing for species when planting seedlings to avoid excessive shading (Rawlings *et al.,* 2010). • Provisions to identify new invasive plant species (e.g. weed monitoring). • Weed management options: – Physical Removal (e.g. removing weeds by felling or pulling) (Gibson-Roy *et al.,* 2010; Rawlings *et al.,* 2010). – Herbicides (minimised through spot-spraying, basal spraying, stem injection or cut and paint application methods) (DSE, 2005; Rawlings *et al.,* 2010; DECCW, 2011). • Sowing of Kangaroo Grass to outcompete annual grass weeds (Prober *et al.,* 2002; Rawlings *et al.,* 2010).	The RMP will: • describe procedures to prevent, monitor and control weeds. The RMP will also describe relevant targets and performance indicators for weed management (consistent with Condition 25[a] of the Approval Decision EPBC 2011/5923); • provide for establishing vegetation cover as soon as practicable following disturbance to minimise the potential for erosion and weeds. This will involve the application of a temporary sterile cover crop (or native grasses) using species that are not likely to impede revegetation of the Box-Gum Woodland; • provide application rates for seeds as well as planting densities for tube stock to avoid excessive shading; and • include sowing of Kangaroo Grass (as this species has been known to out-compete annual grass weeds and provide inter tussock spaces for a diversity of ground cover species [eg. wildflowers]).
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Minimal unnecessary ground disturbance that may create opportunities for weeds (Eddy, 2002; DSE, 2005; Rawlings *et al.,* 2010). • Light grazing in autumn and/or winter to reduce vigour of annual grass weeds[10] (Rawlings *et al.,* 2010).	The BMP will: • provide application rates for seeds as well as planting densities for tube stock to avoid excessive shading; • provide the following weed management options: – Nutrient management. – Controlled burns (except in revegetation areas) during spring to reduce annual and perennial grass weeds (not broadleaf exotics). – Physical Removal (e.g. removing weeds by felling or pulling). – Targeted and timely herbicide application. • include sowing of Kangaroo Grass (as this species has been known to out-compete annual grass weeds and provide inter tussock spaces for a diversity of ground cover species [eg. wildflowers]).
		Offset Areas – Restoration of Existing Box-Gum Woodland (Condition State 1 [Rawlings *et al.,* 2010])	• Minimal unnecessary ground disturbance that may create opportunities for weeds (Eddy, 2002; DSE, 2005; Rawlings *et al.,* 2010).	
5. Herbicide	5a. Excessive herbicides – may have a negative effects on native species (Eddy, 2002)	All areas	• Use herbicides sparingly (minimised through spot-spraying, basal spraying, stem injection or cut and paint application methods) (DSE, 2005; Rawlings *et al.,* 2010; DECCW, 2011).	The RMP and BMP will provide methods for the use of herbicides (minimised through spot-spraying, basal spraying, stem injection or cut and paint application methods).
6. Impacts from Animals (exotics and grazing native animals)	6a. Grazing by feral pigs and goats – remove or destroy seeds, seedlings or plantings (Eddy, 2002; Rawlings *et al.,* 2010; DECCW, 2011)	All areas	• Monitoring and control feral pigs and goats (Eddy, 2002; Rawlings *et al.,* 2010). • Use of tree guards to protect young seedlings from browsing or grazing (Rawlings *et al.,* 2010).	The RMP and BMP will: • describe procedures to prevent, monitor and control feral animals (including feral pigs, goats, rabbits and foxes); and • provide an option for using tree guards to protect young seedlings from browsing or grazing native animals.

[10] Grazing livestock were removed from the offset area in 2010.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
6. Impacts from Animals (exotics and grazing native animals) (Cont.)	6b. Rabbits and hares (Eddy, 2002; DSE, 2005; DECCW, 2011)	All areas	• Monitoring and control of rabbits and hares (Eddy, 2002; DSE, 2005; Rawlings *et al.,* 2010).	The RMP and BMP will describe procedures to prevent, monitor and control feral animals (including feral pigs, goats, rabbits and foxes).
	6c. Grazing native fauna species (e.g. kangaroos) (DECCW, 2011)	All areas	• Use of tree guards to protect young seedlings from browsing or grazing (Rawlings et al. 2010). • Fencing farm dams.	The RMP and BMP will provide: • an option for using tree guards to protect young seedlings from browsing or grazing native animals. • provision to review the need for kangaroo control measures.
	6d. Feral foxes (Eddy, 2002; DECCW, 2011)	All areas	• Monitoring and control of feral foxes (Eddy, 2002; Rawlings *et al.,* 2010).	The RMP and BMP will describe procedures to prevent, monitor and control feral animals (including feral pigs, goats, rabbits and foxes).
	6e. Honeybees (DECCW, 2011)	All areas	• Management of honeybees[11].	-
	6f. Deer (DECCW, 2011)	All areas	• Management of Deer.	The BMP will provide monitoring of deer and feral cats and control (if required).
	6g. Feral Cat (Eddy, 2002; DECCW, 2011)	All areas	• Management of the Feral Cat.	The BMP will provide monitoring of deer and feral cats and control (if required).
	6h. Other Invasive Fauna	All areas	• Provisions to identify new invasive fauna species (e.g. fauna monitoring).	The BMP will provide provisions to identify new invasive fauna species (e.g. fauna monitoring).
7. Fire	7a. Uncontrolled bushfire (DECCW, 2011)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• No controlled burns whilst vegetation is establishing. • Maintain fire breaks and access. • Assess fuel loads.	The RMP will describe measures to prevent fires, such as maintaining fire breaks and access (i.e. no controlled burns would be undertaken on the mine rehabilitation whilst vegetation is establishing).
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• No controlled burns whilst vegetation is establishing. • Controlled grazing to reduce biomass[12] (Rawlings *et al.,* 2010). • Assess fuel loads.	The BMP will: • describe measures to prevent fires, such as maintaining fire breaks and access (i.e. no controlled burns would be undertaken whilst vegetation is establishing); • prescribe any controlled burns in patches of Box-Gum Woodland EEC to be no less than 5 years and then to occur in spring or autumn burns depending on a range of factors; • schedule for maintenance of fire breaks and fire trails; and • provide a schedule for assessing fuel loads.
		Offset Areas – Restoration of Existing Box-Gum Woodland (Condition State 1 [Rawlings *et al.,* 2010])	• DECCW (2011) suggests fire frequency should be a minimum interval of 5 years and a maximum interval of 40 years. Rawlings *et al.,* (2010) recommends fire frequency in patches should be every 4 to 8 years. • Spring or autumn burns depending on a range of factors (Gibson-Roy *et al.,* 2010; Rawlings *et al.,* 2010). • Maintain fire breaks and access. • Assess fuel loads.	
	7b. Controlled burns – too infrequent - may result in overexposure of soil, erosive processes and weed invasion, or too frequent - may result in loss of species diversity (Gibson-Roy *et al.,* 2010; DECCW, 2011)	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• No controlled burns whilst vegetation is establishing. • Assess fuel loads.	The RMP will describe measures to prevent fires, such as maintaining fire breaks and access (i.e. no controlled burns would be undertaken on the mine rehabilitation whilst vegetation is establishing).
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• No controlled burns whilst vegetation is establishing. • Assess fuel loads.	The BMP will prescribe any controlled burns in patches of Box-Gum Woodland EEC (existing woodland) to be no less than 5 years and then to occur in spring or autumn burns depending on a range of factors.
		Offset Areas – Restoration of Existing Box-Gum Woodland (Condition State 1 [Rawlings *et al.,* 2010])	• DECCW (2011) suggests fire frequency should be a minimum interval of 5 years and a maximum interval of 40 years. Rawlings *et al. (*2010) recommends fire frequency in patches should be every 4 to 8 years. • Assess fuel loads. • Spring or autumn burns depending on a range of factors (Rawlings *et al.,* 2010). • Controlled burns should be undertaken in a mosaic (i.e. retain some unburned areas (DECCW, 2011). • Maintain fire breaks and access.	

[11] Not proposed.
[12] Grazing livestock were removed from the offset area in 2010.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
8. Floristics	8a. Poor diversity in the seed mix or tube stock	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Monitoring of plant growth and survival (Rawlings *et al.,* 2010). • Strategic and long term seed collection, management and storage. • Site preparation and depth of sowing seed. • Supplementary planting or reseeding of absent species.	The RMP will: • describe how the growth and survival of the vegetation sown or planted will be monitored; and • describe procedures for strategic and long term seed collection, management and storage following the relevant Florabank guidelines. The RMP will describe procedures for sowing seed (e.g. appropriate sowing depths).
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Favour natural regeneration over seeding or planting in the first instance followed by seeding or planting if required (McIntyre, 2002).	The BMP will: • describe procedures for strategic and long term seed collection, management and storage following the relevant Florabank guidelines; • describe procedures for sowing seed (e.g. appropriate sowing depths); and • favour natural regeneration in the derived grasslands and woodland areas over seeding or planting in the first instance followed by seeding or planting if required.
	8b. Unsuitable species in the seed mix or tube stock	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Preferential use of local endemic (adapted) species (Rawlings *et al.,* 2010), however use of a high quality seed source over a low quality more local seed source (Broadhurst *et al.,* 2008 in DECCW, 2011).	The RMP will provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Favour natural regeneration over seeding or planting in the first instance followed by seeding or planting if required (McIntyre, 2002).	The BMP will: • provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source; and • favour natural regeneration in the derived grasslands and woodland areas over seeding or planting in the first instance followed by seeding or planting if required.
	8c. Shortage of sufficient seed or tube stock	All areas	• Review commercial seed and tube stock availability.	The RMP and BMP will describe a seed and tube stock supply strategy including calculation of the amount and species of seed and tube stock required each year and how the seed and tube stock will be sourced and managed to meet the demand.
	8d. Poor understorey diversity	All areas	• Planting of trees and shrubs at appropriate densities (DECCW, 2011). • Use local endemic (adapted) species (Eddy, 2002; Rawlings *et al.,* 2010). • Restore linkages to existing woodland patches. • Assess whether ecological thinning is necessary (Rawlings *et al.,* 2010). • Consider causing disturbance (e.g. through fire or grazing) (Eddy, 2002). • Include a wide diversity of species in the seed mix (Gibson-Roy *et al.,* 2010).	The RMP and BMP will: • provide application rates for seeds as well as planting densities for tube stock to avoid excessive shading; • provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source; • include provision to assess vegetation density and undertake ecological thinning (e.g. through selective clearance or fire) if necessary; • provide measures to improve understorey diversity (e.g. replanting, causing disturbance through fire or grazing); and • aim to include a wide diversity of species in the seed mix.
	8e. Over-collection of seed for revegetation purposes (Eddy, 2002; DECCW, 2011)	All areas	• Review commercial seed and tube stock availability. • Preferential use of local endemic (adapted) species (Rawlings *et al.,* 2010), however use of a high quality seed source over a low quality more local seed source (Broadhurst *et al.,* 2006a; Broadhurst *et al.,* 2006b; Broadhurst *et al.,* 2008 in DECCW, 2011).	The RMP and BMP will: • describe a seed and tube stock supply strategy including calculation of the amount and species of seed and tube stock required each year and how the seed and tube stock will be sourced and managed to meet the demand; and • provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.
	8f. Lack of pollinators	All areas	• Promotion of bees through provision of habitat (e.g. general revegetation and regeneration).	The RMP and BMP will describe revegetation and regeneration measures.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
9. Native plant growth	9a. Poor native plant growth	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Site preparation and depth of sowing seed. • Fencing of areas undergoing revegetation to exclude grazing animals (e.g. livestock)[13]. • Management of pressure from feral grazing animals and native grazing animals. • Correct spacing for species when planting seedlings to avoid excessive shading (Rawlings *et al.,* 2010). • Supplementary seeding or planting. • Revegetation trials. • Preferential use of local endemic (adapted) species (Rawlings *et al.,* 2010), however use of a high quality seed source over a low quality more local seed source (Broadhurst *et al.,* 2008 in DECCW, 2011). • Selective use of specific fertilisers only.	The RMP will: • describe procedures for strategic and long term seed collection, management and storage following the relevant Florabank guidelines. The RMP will describe procedures for sowing seed (e.g. appropriate sowing depths); • describe how livestock will be excluded from areas undergoing active revegetation (i.e. planting or seeding); • provide application rates for seeds as well as planting densities for tube stock to avoid excessive shading; • describe research that will aim to identify effective methodologies for achieving rehabilitation and revegetation of Box-Gum Woodland on the mine rehabilitation; • provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source; and • provide for selective use of slow-release fertiliser to promote plant growth (if required) including the use of trace elements. .
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Site preparation and depth of sowing seed. • Fencing of areas undergoing revegetation to exclude grazing livestock. • Management of pressure from feral grazing animals and native grazing animals. • Correct spacing for species when planting seedlings to avoid excessive shading (Rawlings *et al.,* 2010). • Supplementary seeding or planting. • Preferential use of local endemic (adapted) species (Rawlings *et al.,* 2010), however use of a high quality seed source over a low quality more local seed source (Broadhurst *et al.,* 2008 in DECCW, 2011).	The BMP will: • describe procedures for strategic and long term seed collection, management and storage following the relevant Florabank guidelines. The BMP will describe procedures for sowing seed (e.g. appropriate sowing depths); • provide application rates for seeds as well as planting densities for tube stock to avoid excessive shading; • favour natural regeneration in the derived grasslands and woodland areas over seeding or planting in the first instance followed by seeding or planting if required; and • provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.
	9b. Poor seed germination	All areas	• Supplementary seeding or planting. • Preferential use of local endemic (adapted) species (Rawlings *et al.,* 2010), however use of a high quality seed source over a low quality more local seed source (Broadhurst *et al.,* 2008 in DECCW, 2011). • Smoke water[14]. • Seed scarification for acacia or heat treatment.	• The BMP will favour natural regeneration in the derived grasslands and woodland areas over seeding or planting in the first instance followed by seeding or planting if required. • The RMP and BMP will provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.
	9c. Dense overstorey and midstorey revegetation (e.g. White Cypress Pine) – sometimes regeneration is too successful and trees may compete with each other for light, water and nutrients (Rawlings *et al.,* 2010; DECCW, 2011)	All areas	• Assess whether ecological thinning is necessary (Rawlings *et al.,* 2010). • Thinning with fire or manually (Rawlings *et al.,* 2010).	The RMP and BMP will include provision to assess vegetation density and undertake ecological thinning (e.g. through selective clearance or fire) if necessary.
	9d. Dense grass cover	All areas	• Consider causing disturbance (e.g. through fire or grazing) (Rawlings *et al.,* 2010).	The RMP and BMP will provide measures to improve understorey diversity (e.g. replanting, causing disturbance through fire or grazing).
	9e. Disease (e.g. *Phytophthora cinnamomi*) (DECCW, 2011)	All areas	• Hygiene protocols to minimise the risk of plant diseases (Rawlings *et al.,* 2010).	The RMP and BMP will include hygiene protocols to minimise the risk of plant diseases (i.e. restricting site access).
	9f. Fungi or pathogens – may cause germination failure (seeds) (Rawlings *et al.,* 2010).	All areas	• Preferential use of local endemic (adapted) species (Rawlings *et al.,* 2010), however use of a high quality seed source over a low quality more local seed source (Broadhurst *et al.,* 2008 in DECCW, 2011).	The RMP and BMP will provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.

[13] Native animals would not be excluded. Feral animals would be controlled via other methods.
[14] This method is not proposed to be undertaken due to the extensive areas required to be revegetated.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
10. Fauna habitat	10a. Lack of bush rocks (Michael *et al.,* 2011)	All areas	• Maximise salvage and reuse of bush rocks.	The RMP will describe procedures to reuse bush rocks salvaged during vegetation clearance.
	10b. Lack of fallen timber/hollow logs (DECCW, 2011)	All areas	• Maximise salvage and reuse of timber/hollow logs.	The RMP will describe procedures to reuse timber/hollow logs salvaged during vegetation clearance, including: • placement of hollow limbs or artificial hollows in some select trees without hollows; and • use of artificial stag trees on the mine rehabilitation.
	10c. Lack of structural diversity (including lack of tree hollows) (Manning *et al.,* 2011; Michael *et al.,* 2011; Freudenberger *et al.,* 2004)	All areas	• Planting of scattered low shrubs, mid-sized shrubs and tall trees (Freudenberger *et al.,* 2004). • Maximise salvage and reuse of timber/hollow logs and placement of hollow limbs in trees without hollows. • Increase woodland patch size within the offset area (Prober *et al.* 2002).	• The RMP and BMP will describe that seed and tube stock used in revegetation will include a variety of grasses, low shrubs, mid-sized shrubs and tall trees to create structurally diverse habitat. The RMP will: • describe procedures to reuse bush rocks salvaged during vegetation clearance; and • describe procedures to reuse timber/hollow logs salvaged during vegetation clearance, including: – placement of hollow limbs or artificial hollows in some select trees without hollows; and – use of artificial stag trees on the mine rehabilitation. • The BMP will focus on increasing woodland patch size within the offset area and aim to enhance ecological connectivity.
11. Surrounding land uses	11a. Agriculture – pesticides and herbicides	Offset Areas	• Increase woodland patch size within the offset area (Rawlings *et al.,* 2010). • Communication with surrounding land users (either NPWS or private).	The BMP will: • focus on increasing woodland patch size within the offset area and aim to enhance ecological connectivity; and • include a description of the Community Consultative Committee.
	11b. Agriculture – exotic species (including incursions of stock and feral animals)	Offset Areas	• Increase woodland patch size within the offset area (Rawlings *et al.,* 2010). • Communication with surrounding land users (either NPWS or private). • Fencing and signage. • Co-ordinated management of exotic species with surrounding land users.	
	11c. Agriculture – increased runoff	Offset Areas	• Increase woodland patch size within the offset area (Rawlings *et al.,* 2010).	
	11d. Agriculture – nutrient enrichment	Offset Areas	• Increase woodland patch size within the offset area (Rawlings *et al.,* 2010).	
12. Weather	12a. Drought	Mine Rehabilitation – Establishment of Box-Gum Woodland on the post-mine landform	• Monitoring for signs of water stress (dieback). • Management of pressure from feral grazing animals and native grazing animals. • Irrigation. • Mulch.	The RMP will: • describe how the growth and survival of the vegetation sown or planted will be monitored; • describe the incorporation of vegetative material (cleared at the mine site) into the soil used for rehabilitation or as mulch; • include provision to review the need for kangaroo control measures; and • describe procedures to prevent, monitor and control feral animals (including feral pigs, goats, rabbits and foxes).
		Offset Areas – Re-establishment of Box-Gum Woodland from derived grasslands (Condition State 2 [Rawlings *et al.,* 2010])	• Monitoring for signs of water stress (dieback). • Limit grazing during drought periods[15] (DECCW, 2011). • Management of pressure from feral grazing animals and native grazing animals. • Irrigation[16]. • Mulch[17].	The BMP will: • describe how the growth and survival of the vegetation sown or planted will be monitored; • discuss an adaptive management framework and monitoring programme for the management of the Box-Gum Woodland EEC; • include provision to review the need for kangaroo control measures; and • describe procedures to prevent, monitor and control feral animals (including feral pigs, goats, rabbits and foxes).

[15] Native animals would not be limited during drought periods. General feral animal control measures would continue.
[16] This method is not proposed to be undertaken due to the extensive areas required to be revegetated.
[17] This method is not proposed to be undertaken due to the extensive areas required to be revegetated.

Table 2 (Continued)
Proposed Actions Relating to Factors Likely to Impede or Enhance the Re-establishment and Restoration of Box-Gum Woodland

Broad Factor	Factors Likely to Impede	Relevant Objective	Factors Likely to Enhance	Actions
12. Weather (Cont.)	12b. Flood/major rainfall	All areas	Refer to 1d. Erosion and sedimentation.	-
	12c. Wind	All areas	• Only use healthy seedlings (Rawlings *et al.,* 2010). • Use of tree guards to protect young seedlings (Rawlings *et al.,* 2010).	• The RMP and BMP will provide an option for using tree guards to protect young seedlings from browsing or grazing native animals. • The RMP will provide for establishing vegetation cover as soon as practicable following disturbance to minimise the potential for erosion and weeds. This will involve the application of a temporary sterile cover crop (or native grasses) using species that are not likely to impede revegetation of the Box-Gum Woodland.
	12d. Climate change (DECCW, 2011)	All areas	• Restoration of Box-Gum Woodland (DECCW, 2011). • Use of genetically diverse collections of seed sourced from large and health populations. • Increase woodland patch size within the offset area (to provide links for movement of plant propagules and fauna). • Provide increased connectivity through revegetation of derived grassland.	• The BMP will focus on increasing woodland patch size within the offset area and aim to enhance ecological connectivity. • The RMP and BMP will provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.
13. Management	13a. Unclear objectives	All areas	• Define objectives (Eddy, 2002; Rawlings *et al.,* 2010). • Management for patchiness (diversity) (Rawlings *et al.,* 2010).	The RMP and BMP will: • define the objectives for the Box-Gum Woodland EEC; and • discuss an adaptive management framework and monitoring programme for the management of the Box-Gum Woodland EEC.
	13b. Lack of maintenance	All areas	• Adaptive management (Rawlings *et al.,* 2010; Tongway and Ludwig, 2011).	
	13c. Poor monitoring design (measurement of success)	All areas	• Monitor to determine effectiveness (Eddy, 2002; DECCW, 2011). • Monitoring closely linked to objectives. • Use of photo-points to monitor changes over time (Eddy, 2002).	
	13d. Unqualified personnel	All areas	• Engage suitability qualified personnel.	The RMP and BMP will describe roles for suitability qualified personnel (e.g. restoration ecologist to provide direction about the rehabilitation and restoration of the Box-Gum Woodland EEC).

Note: The highlighted rows relate only to the Rehabilitation Strategy.

4 IMPLEMENTATION PLAN

There are two parts to the implementation plan:

- the first part of the implementation plan relates to re-establishment of Box-Gum Woodland on the mine rehabilitation (Rehabilitation Strategy) (Table 3); and
- the second part of the implementation plan relates to re-establishment and restoration of Box-Gum Woodland in the offset areas (Biodiversity Offset Strategy) (Table 4).

The investigation has resulted in the identification of 48 individual actions relating to the Rehabilitation Strategy (Table 3) and 39 individual actions relating to the Biodiversity Offset Strategy (Table 4). Once approved by Department of Planning and Environment, the actions in Table 3 will be addressed in a revised RMP and the actions in Table 4 will be addressed in a revised BMP (Figure 4).

The actions listed in Table 3 will apply to different situations associated with rehabilitation of the mine disturbance areas. For example, some actions may be relevant to the revegetation of less disturbed areas (such as the soil stockpile locations or infrastructure areas) and others would be relevant to the revegetation of more disturbed areas (such as the backfilled mine void and waste dumps). The application of the actions will be described in the RMP.

Similarly, all of the actions listed in Table 4 may not necessarily apply across the entire offset area and will depend on the situation such as the current condition of the vegetation. For example, weed control may only be relevant to particular weed infested areas. Particular actions may also be trialled in certain areas to determine which are more effective. The application of the actions will be further detailed in a revision to the BMP.

The actions listed in Tables 3 and 4 are not necessarily the only actions that will be considered in the future to improve the prospects of the Rehabilitation Strategy and Biodiversity Offset Strategy. Actions may be modified over time to adapt to management outcomes, new threatening processes (e.g. a new weed incursion) or to apply new techniques and technologies. Any changes will be facilitated through revisions to the BMP.

As described in Section 1, the aim is to re-establish Box-Gum Woodland in these two landscapes:

1. through enhancement of existing woodland remnants of the Box-Gum Woodland in varying conditions; and
2. in cleared (mostly grazing) land with predominantly native grassland groundcover (derived grasslands).

These landscapes have different degrees of ecological resilience and management requirements. However, regardless of the landscape, it is recognised that detailed planning from the outset can help improve the prospects for achieving the aims (refer to Actions 1-5 in Table 3 and Actions 1 to 9 in Table 4). For example, the BMP will include a visual inspection of each mapped vegetation management unit in each offset area to identify constraints and requirements for specific management measures (refer to Action 3 in Table 4).

A brief description of each landscape is provided below in relation to the actions in Tables 3 and 4. These actions would be detailed in a spatially explicit manner within the revised RMP and revised BMP.

Landscape 1 - Post-mine Landform

Landscape 1 (the post-mine landform) will require the greatest attention to achieve a suitable substrate through landform design, dedicated soil stripping and handling, soil testing and amelioration as well as surface preparation (refer to Actions 5 to 18 in Table 3).

Adaptive management and research will be integral to successful revegetation of the post-mine landforms (refer to Actions 19 to 21 in Table 3).

Landscape 1 will likely have little ecological resilience (except that which may be provided through maintenance of the soil seed bank in topsoil) so this landscape will require active revegetation using seed or tube stock (refer to Actions 22 to 41in Table 3).

Habitat features (logs, rocks, hollows and nest boxes) also need to be purposely added into Landscape 1 (refer to Actions 43 to 44 in Table 3).

Table 3
Implementation Plan for Re-establishing Box-Gum Woodland in the Mine Rehabilitation Phase

	Actions for Implementing the Rehabilitation Strategy in the RMP
Planning	
1.	The RMP will define the objectives for the Box-Gum Woodland EEC.
2.	The RMP will discuss an adaptive management framework and monitoring programme for the management of the Box-Gum Woodland EEC.
3.	The RMP will include monitoring of landscape function.
4.	The RMP will describe roles for suitability qualified personnel (e.g. restoration ecologist to provide direction about the rehabilitation and restoration of the Box-Gum Woodland EEC).
Landform Design	
5.	The RMP will describe how the batter slopes have been designed to minimise instability of the final landform.
Soil Stripping and Handling	
6.	The RMP will provide for soil surveys and inventories to be undertaken prior to soil stripping (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923).
7.	The RMP will provide for selective identification and placement (burial) of potentially acid forming interburden materials.
8.	The RMP will provide for selective identification and placement (burial) of soils unsuitable for use as a growth media.
9.	The RMP will provide soil handling processes for removal, storage and re-layering of topsoil and subsoil (consistent with Condition 25[d] of the Approval Decision EPBC 2011/5923). This will specifically detail the stripping of topsoil likely to contain seeds.
10.	The RMP will provide for annual soil balances to be undertaken to facilitate management of soil handling.
11.	The RMP will provide options for minimising the risk of erosion including treatment of dispersive soils and spoils, as well as use of use of structural erosion controls (e.g. channel banks, slope drains and energy dissipaters).
12.	The RMP will describe minimum topsoil and subsoil depths for revegetation (consistent with Condition 25[c] of the Approval Decision EPBC 2011/5923).
13.	The RMP will describe the incorporation of vegetative material (cleared at the mine site) into the soil used for rehabilitation or as mulch.
Soil Testing	
14.	The RMP will provide parameters for the physical and chemical characteristics of topsoils and overburden based on likely suitable characteristics for establishment of Box-Gum Woodland.
15.	The RMP will provide for soil testing to be undertaken on topsoil and overburden to identify issues with physical and chemical characteristics as well as determine amelioration requirements and rates.
Soil Amelioration	
16.	The RMP will describe options for ameliorating soils to improve the suitability of the soils as a growth media (e.g. amelioration with agricultural gypsum, compost [i.e. mulch saved during clearing activities] or native plant fertilisers depending on the nutrient deficiency).

Table 3 (Continued)
Implementation Plan for Re-establishing Box-Gum Woodland in the Mine Rehabilitation Phase

Actions for Implementing the Rehabilitation Strategy in the RMP	
Surface Preparation	
17.	The RMP will describe site preparation (e.g. ripping or use of spiked rollers) to reduce soil compaction impacting the success of the revegetation.
18.	The RMP will consider the use of benign (hard rock) mulch to stabilise batter surfaces that has been sourced onsite (i.e. salvaged from clearing areas or from waste material).
Research Trials	
19.	The RMP will describe research that will aim to identify effective methodologies for achieving rehabilitation and revegetation of Box-Gum Woodland on the mine rehabilitation.
20.	The RMP will provide for soil seed bank germination testing to be undertaken on topsoil stockpiles.
21.	The RMP will provide for rehabilitation trials (focusing on rehabilitation and revegetation of Box-Gum Woodland) to be undertaken on different rehabilitation substrates.
Seed and Tube Stock Supply	
22.	The RMP will describe procedures for strategic and long term seed collection, management (including pre-treatment) and storage following the relevant Florabank guidelines. The RMP will describe procedures for sowing seed (e.g. appropriate sowing depths).
23.	The RMP will describe a seed and tube stock supply strategy including calculation of the amount and species of seed and tube stock required each year and how the seed and tube stock will be sourced and managed to meet the demand.
24.	The RMP will provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.
Revegetation	
25.	The RMP will provide for establishing vegetation cover as soon as practicable following disturbance to minimise the potential for erosion and weeds. This will involve the application of a temporary sterile cover crop (or native grasses) using species that are not likely to impede revegetation of the Box-Gum Woodland.
26.	The RMP will provide options for remediating erosion including adjust seed and planning densities to maximise ground cover.
27.	The RMP will describe that vehicle access will be predominantly restricted to designated tracks on mine landforms that have been revegetated to minimise ground disturbance (e.g. compaction).
28.	The RMP will provide for selective use of slow-release native plant fertiliser to promote plant growth (if required).
29.	The RMP will provide for the use of fresh topsoil where possible and practical.
30.	The RMP will describe a contingency for supplementary seeding/tube stock planting if the regeneration from the soil seed bank is not sufficient.
31.	The RMP will provide application rates for seeds as well as planting densities for tube stock to avoid excessive shading.
32.	The RMP will provide measures to improve understorey diversity (e.g. replanting, causing disturbance through fire or grazing).
33.	The RMP will describe that revegetation at the mine would not be cleared (unless for ecological thinning, maintenance or ecological monitoring).
34.	The RMP will include provision to assess vegetation density and undertake ecological thinning (e.g. through selective clearance or fire) if necessary.
35.	The RMP include sowing of Kangaroo Grass (as this species has been known to out-compete annual grass weeds and provide inter tussock spaces for a diversity of ground cover species [eg. wildflowers]).
36.	The RMP will describe that seed and tube stock used in revegetation will include a variety of grasses, low shrubs, mid-sized shrubs and tall trees to create structurally diverse habitat.
37.	The RMP will provide an option for using tree guards to protect young seedlings from browsing or grazing native animals.
38.	The RMP will describe how livestock will be excluded from areas undergoing active revegetation (i.e. planting or seeding).
39.	The RMP will describe how the growth and survival of the vegetation sown or planted will be monitored.
40.	The RMP will aim to include a wide diversity of species in the seed mix.
41.	The RMP will include hygiene protocols to minimise the risk of plant diseases (i.e. restricting site access).
42.	The RMP will include provision to review the need for kangaroo control measures.

Table 3 (Continued)
Implementation Plan for Re-establishing Box-Gum Woodland on Mine Rehabilitation

Actions for Implementing the Rehabilitation Strategy in the RMP	
Habitat Features	
43.	The RMP will describe procedures to reuse bush rocks salvaged during vegetation clearance.
44.	The RMP will describe procedures to reuse timber/hollow logs salvaged during vegetation clearance, including: - placement of hollow limbs or artificial hollows in some select trees without hollows; and - use of artificial stag trees on the mine rehabilitation.
Feral Animal Management	
45.	The RMP will describe procedures to prevent, monitor and control feral animals (including feral pigs, goats, rabbits and foxes).
Weed Management	
46.	The RMP will describe procedures to prevent, monitor and control weeds. The RMP will also describe relevant targets and performance indicators for weed management (consistent with Condition 25[a] of the Approval Decision EPBC 2011/5923)
47.	The RMP will provide methods for the use of herbicides (minimised through spot-spraying, basal spraying, stem injection or cut and paint application methods).
Fire Management	
48.	The RMP will describe measures to prevent fires, such as maintaining fire breaks and access (i.e. no controlled burns would be undertaken on the mine rehabilitation whilst vegetation is establishing).

Table 4
Implementation Plan for the Box-Gum Woodland in the Offset Areas

Actions for Implementing the Biodiversity Offset Strategy in the BMP	
Planning	
1.	The BMP will define the objectives for the Box-Gum Woodland EEC.
2.	The BMP will discuss an adaptive management framework and monitoring programme for the management of the Box-Gum Woodland EEC.
3.	The BMP will include a visual inspection of each mapped vegetation management unit in each offset area to identify constraints and requirements for specific management measures.
4.	The BMP will describe targeted revegetation along drainage lines and scalded areas to minimise risk of erosion.
5.	The BMP will aim to maximise the re-use of existing infrastructure (e.g. access roads) instead of creating new infrastructure.
6.	The BMP will aim to locate new offset area management infrastructure (e.g. access roads) preferentially in cleared land.
7.	The BMP will aim to locate new offset area management infrastructure (e.g. access roads) in stable locations.
8.	The BMP will describe provision of fencing and signage around the perimeter of the offset areas to exclude livestock and avoid accidental clearance.
9.	The BMP will describe roles for suitability qualified personnel (e.g. restoration ecologist to provide direction about the rehabilitation and restoration of the Box-Gum Woodland EEC).
Surface Preparation	
10.	The BMP will describe site preparation in cleared land (e.g. ripping or use of spiked rollers) and (where relevant) in derived grassland (e.g. use of spiked rollers) to reduce soil compaction impacting the success of the revegetation.
11.	The BMP will restrict the use of revegetation techniques that involve high level of physical disturbance in existing Box-Gum Woodland and derived grasslands.
Revegetation, Seeds and Tube Stock	
12.	The BMP will describe a seed and tube stock supply strategy including calculation of the amount and species of seed and tube stock required each year and how the seed and tube stock will be sourced and managed to meet the demand.
13.	The BMP will describe procedures for strategic and long term seed collection, management (including pre-treatment) and storage following the relevant Florabank guidelines. The BMP will describe procedures for sowing seed (e.g. appropriate sowing depths).

Table 4 (Continued)
Implementation Plan for the Box-Gum Woodland in the Offset Areas

Actions for Implementing the Biodiversity Offset Strategy in the BMP
***Revegetation, Seeds and Tube Stock* (Cont.)**
14. The BMP will favour natural regeneration in the derived grasslands and woodland areas over seeding or planting in the first instance followed by seeding or planting if required.
15. The BMP will provide for the preferential use of local endemic (adapted) species, however consideration would be given to the use of a high quality seed source further from the site over a low quality more local seed source.
16. The BMP will provide application rates for seeds as well as planting densities for tube stock to avoid excessive shading.
17. The BMP will focus on increasing woodland patch size within the offset area and aim to enhance ecological connectivity.
18. The BMP will describe that seed and tube stock used in revegetation will include a variety of grasses, low shrubs, mid-sized shrubs and tall trees to create structurally diverse habitat.
19. The BMP include sowing of Kangaroo Grass (as this species has been known to out-compete annual grass weeds and provide inter tussock spaces for a diversity of ground cover species [eg. wildflowers]).
20. The BMP will aim to include a wide diversity of species in the seed mix.
21. The BMP will include provision to review the need for kangaroo control measures.
Maintenance
22. The BMP will include provision to assess vegetation density and undertake ecological thinning (e.g. through selective clearance or fire) if necessary.
23. The BMP will provide measures to improve understorey diversity (e.g. replanting, causing disturbance through fire or grazing).
24. The BMP will provide for selective use of slow-release native plant fertiliser to promote plant growth (if required).
25. The BMP will provide an option for using tree guards to protect young seedlings from browsing or grazing native animals.
26. The BMP will describe how the growth and survival of the vegetation sown or planted will be monitored.
27. The BMP will include hygiene protocols to minimise the risk of plant diseases (i.e. restricting site access).
28. The BMP will describe a restriction of clearing (unless for ecological thinning, maintenance or access for monitoring).
Habitat Features
29. The BMP will not permit firewood collection.
Weed Management
30. The BMP will provide the following weed management options and the relevant situations where they would be applied: - Nutrient management (e.g. exclusion of grazing livestock which add nutrients). - Controlled burns during spring to reduce annual and perennial grass weeds (not broadleaf exotics). - Physical Removal (e.g. removing weeds by felling or pulling). - Targeted and timely herbicide application.
31. The BMP will provide methods for the use of herbicides (minimised through spot-spraying, basal spraying, stem injection or cut and paint application methods).
Feral Animal Management
32. The BMP will describe procedures to prevent, monitor and control feral animals (including feral pigs, goats, rabbits and foxes).
Fire Management
33. The BMP will describe measures to prevent fires, such as maintaining fire breaks and access (i.e. no controlled burns would be undertaken whilst vegetation is establishing).
34. The BMP will prescribe any controlled burns in patches of Box-Gum Woodland EEC (existing woodland) to be no less than 5 years and then to occur in spring or autumn burns depending on a range of factors.
35. The BMP will schedule for maintenance of fire breaks and fire trails.
36. The BMP will provide a schedule for assessing fuel loads.
37. The BMP will provide an option for using controlled grazing to reduce biomass or controlled burns of derived grasslands.

Table 4 (Continued)
Implementation Plan for the Box-Gum Woodland in the Offset Areas

Actions for Implementing the Biodiversity Offset Strategy in the BMP	
General	
38.	The BMP will describe that vehicle access will be predominantly restricted to designated tracks to minimise ground disturbance (e.g. compaction).
39.	The BMP will include a description of the Community Consultative Committee.

Landscape 2 - Cleared (Mostly Grazing) Land with Predominantly Native Grassland Groundcover (Derived Grasslands)

Landscape 3 is consistent with Condition State 2 in the State and Transition Model described by Rawlings *et al.,* (2010) (Appendix B). Landscape 3 already meets the definition of the Box-Gum Woodland EEC in derived native grassland form. Weed control is a key factor relevant to Landscape 3 (refer to Actions 30 to 31 in Table 4).

Landscape 3 has some resilience and left alone might progress towards woodland, but it is more likely to progress towards woodland with the help of supplementary plantings (refer to Actions 12 to 21in Table 4).

Landscape 3- Remnants of the Box-Gum Woodland in Varying Conditions

Landscape 4 is consistent with Condition State 1 in the State and Transition Model described by Rawlings *et al.,* (2010) (Appendix B). The main activities in Landscape 3 are related to the management of weeds and feral animals.

5 CONCLUSION

This implementation plan has been developed to maximise the prospects for rehabilitation and regeneration of the Box-Gum Woodland EEC on the offset areas and on the mine site. The investigation has resulted in the identification of 48 individual actions relating to the Rehabilitation Strategy and 39 individual actions relating to the Biodiversity Offset Strategy. The approved implementation plan will be incorporated into the RMP and a revised BMP.

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