



VICKERY COAL MINE

Document Owner: VCM

Issue: 1.2

Last Revision Date: January 2025

WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN

WHITEHAVEN COAL

VICKERY COAL MINE REHABILITATION MANAGEMENT PLAN

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Rehabilitation Management Plan Summary Table

VICKERY COAL MINE REHABILITATION MANAGEMENT PLAN SUMMARY TABLE	
Name of Mine:	Vickery Coal Mine
Name of Lease Holder(s):	Vickery Coal Pty Ltd Whitehaven Coal Limited (all other Mining Leases listed below)
Name of Mine Operator:	Whitehaven Coal Limited
Rehabilitation Management Plan Commencement Date:	01 June 2023
Rehabilitation Management Plan Revision Dates and Version Numbers:	Original
Mining Lease(s) / Lease Numbers / Expiry Dates:	Coal Lease 316 Expiry: 15/06/2033
	Mining Lease 1464 Expiry: 20/12/2043
	Mining Lease 1471 Expiry: 06/09/2042
	Mining Lease 1718 Expiry: 15/09/2036
	Mining Lease 1838 Expiry: 13/09/2043
Date of Initial Submission:	31 May 2023

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1 PART 1 - INTRODUCTION TO MINING PROJECT

1.1 HISTORY OF OPERATIONS

Mine Operator and Proprietors

The Vickery Coal Mine (VCM) is located in the Gunnedah Coal Basin, approximately 25 kilometres (km) north of Gunnedah in New South Wales (NSW) (Figure 1). The VCM is operated by Vickery Coal Pty Limited, a wholly owned subsidiary of Whitehaven Coal Limited (Whitehaven).

Development of the VCM is approved under Mining Lease (ML) 1464, ML 1471, ML 1718, ML 1838, Coal Lease (CL) 316 and Development Consent (SSD-7480). Other key approvals, licences and permits for the VCM are described in Section 1.2.

This Rehabilitation Management Plan (RMP) has been prepared by Whitehaven in accordance with the requirements of the VCM ML conditions, Development Consent (SSD-7480) conditions and the new standard rehabilitation conditions on MLs imposed through an amendment to the Regulation under the *Mining Act 1992*. This RMP has been prepared in accordance with the rehabilitation requirements prescribed in the conditions of ML 1464, ML 1471, ML 1718, ML1838 and CL 316, and addresses the requirements for the VCM RMP provided within Condition B101 of the Development Consent (SSD-7480).

Whitehaven are currently undertaking construction and operation of the approved open cut mine at the VCM. Further detail associated with construction and operation activity at the VCM is described in '**Current Status of the VCM**' below.

This RMP describes the proposed rehabilitation activities associated with the construction and operation of the VCM.

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Significant Surface Disturbing Activities – Mining Operations, Ancillary Mining Activities and Exploration

Development Consent (SSD-7480) was granted to Whitehaven on 12 August 2020 under section 75J of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and includes the following significant surface disturbing activities:

- development of an open cut coal mine within CL 316, ML 1471, ML 1718, ML 1464 and ML 1838 (Figure 2)
- use of open cut mining equipment to extract run-of-mine (ROM) coal from the open cut at an average rate of 6.7 Million tonnes per annum (Mtpa) over 25 years, with a peak production of up to approximately 10 Mtpa;
- placement of waste rock (i.e. overburden and interburden) in an emplacement to the west of the open cut (i.e. Western Emplacement (Figure 2) and within the footprint of the open cut void;
- construction and operation of mine infrastructure areas, including ROM pads, workshops, offices, a Project Coal Handling and Preparation Plant (CHPP) and train load-out facility;
- construction and operation of a Project rail spur and loop (including associated watercourse, powerline and road crossings) to connect the Project to the Werris Creek Mungindi Railway (Figure 2);
- on-site excavation and production of waste rock and gravel construction fill materials for use in Project rail spur, mine infrastructure area and road construction;
- receipt of ROM coal transported by road from other Whitehaven mines and processing of this coal at the Project CHPP and/or stockpiling;
- processing of up to approximately 13 Mtpa ROM coal at the Project CHPP (from the combined sources of the Project and other Whitehaven mines);
- rail transport of up to approximately 11.5 Mtpa of metallurgical and thermal coal for the export market (from the combined sources of the Project and other Whitehaven mines);
- mechanical dewatering and co-disposal of coal reject material from the Project CHPP in the Project waste rock emplacement;
- construction of electricity substations and connection to an existing 66 kilovolt (kV) powerline to supply mine infrastructure areas;

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- construction and operation of ancillary infrastructure in support of mining, including haul roads, electricity supply, consumable storage areas, explosives storage facilities, light vehicle roads and access tracks;
- construction and use of water supply bores, and a surface water extraction point on the bank of the Namoi River and associated pump and pipeline systems;
- construction and use of dams, sediment dams, up-catchment diversions, channels, dewatering bores and other water management infrastructure;
- construction and use of soil stockpile areas, laydown areas and gravel/borrow areas;
- development of the Blue Vale Road realignment to the east of the open cut;
- closure of a portion of Braymont Road;
- ongoing exploration activities; and
- other associated minor infrastructure, plant and activities.

Current Status of the VCM

Condition A7, Schedule 2 Part A of Development Consent (SSD-7480) authorises mining operations to be carried out at the VCM for a period of 25 years following the date of Development Consent (SSD-7480) (i.e. mining operations are approved to 12 August 2045).

Whitehaven is commencing initial construction activities and mining under Development Consent (SSD-7480) for the VCM. The construction and initial mining stage is anticipated to be based on sequencing major construction activities, and will include the following activities:

- transport up to 3.5 Mtpa of ROM coal from the VCM per financial year to the Gunnedah CHPP via the approved haulage route until the Project rail spur is commissioned;
- construction of the mine infrastructure area;
- construction of ROM and product coal stockpile pads;
- initial development of the box cut;
- construction of temporary infrastructure facilities;
- construction of temporary ROM coal stockpiles;
- construction of workshops and offices;
- construction of water supply bores and Namoi River pump station and pipelines;
- construction of dams, sediment dams, up-catchment diversions, channels and other water management infrastructure;

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- construction of soil stockpile areas;
- construction of access roads and internal roads;
- closure of a portion of Braymont Road;
- construction of connection to the existing 66 kV powerline and construction of substations and power supply;
- construction of ancillary infrastructure including consumable storage areas, laydown areas, explosives storage facilities;
- ongoing exploration activities; and
- other associated minor infrastructure construction, use of other plant and other activities.

Earthworks associated with the development of the above infrastructure will include the excavation of waste rock, gravel and coal material from within the VCM open cut footprint. The earthworks will include the initial development of the box cut, with a small volume of ROM coal extracted for stockpile pad treatment, commissioning activities and transport to the Gunnedah CHPP. Additionally, a small volume of coal from other Whitehaven mines may be delivered to the VCM for stockpile pad treatment and CHPP commissioning activities.

The general arrangement of the VCM Mining Area and VCM indicative rail spur and groundwater bore locations are spatially depicted in Figure 2.

Rehabilitation Undertaken Since Mine Commencement – Decommissioning/Demolition of Infrastructure

Whitehaven will be responsible for progressive rehabilitation of disturbed areas at the VCM in accordance with this RMP. As major construction and operation of the VCM has commenced, Whitehaven have not had the opportunity to progressively rehabilitate at the VCM as required by Condition B103, Schedule 2 Part B of Development Consent (SSD-7480).

Whitehaven has successfully undertaken rehabilitation activities at Whitehaven’s other operations in the Gunnedah Coalfield (i.e. Tarrawonga Coal Mine, Sunnyside Mine, and Maules Creek Coal Mine).

1.2 CURRENT DEVELOPMENT CONSENTS, LEASES AND LICENCES

Details of the date of grant and duration of the Development Consent (SSD-7480), authorisations and licenses issued by the relevant government agencies for the VCM are provided in Table 1.

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Table 1: Overview of Current Development Consents, Leases and Licences

RELEVANT AUTHORITY	INSTRUMENT	APPROVAL/ LICENCE NO.	ISSUE DATE	EXPIRY DATE
Department of Planning and Environment (DPE)	Development Consent	SSD-7480	12 August 2020	The applicant may carry out mining operations until 25 years after the date of SSD-7480 (12 August 2045)
	Development Consent	SSD-5000	19 September 2014	30 April 2024
	Development Consent	DA-8-1-2005	30 June 2005	30 April 2024
NSW Resources Regulator	Coal Lease	CL 316	15 June 1988 (renewed 15 June 2012)	15 June 2033
	Mining Lease	ML 1464	21 December 1999	21 December 2020 (renewal lodged and is currently pending)
		ML 1471	7 September 2000	6 September 2042 (renewed on 24 June 2021)
		ML 1718	15 September 2015	15 September 2036
		ML 1838	13 September 2022	13 September 2043
	Exploration Licence	EL 7407	22 October 2009 (last renewed 31 March 2022)	21 October 2027
		EL 4699	22 September 1994	22 September 2018 (renewal lodged and is currently pending)
AUTH406		29 November 1988	29 November 2019 (renewal lodged and is currently pending)	
NSW Environment Protection Authority	Environment Protection Licence (EPL)	EPL 21283	17 May 2019	Until the licence is surrendered, suspended or revoked. The licence is subject to review every 5 years
Commonwealth Department of Climate Change, Energy and the Environment	Commonwealth Approval	EPBC 2016/7649	15 September 2021	31 December 2051

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1.3 LAND OWNERSHIP AND LAND USE

The VCM is owned and operated by Whitehaven and is located approximately 15 km south-east of Boggabri and approximately 25 km north of Gunnedah in NSW (Figure 1).

The freehold land within existing MLs is owned by Whitehaven. Table 2 identifies the schedule of land ownership surrounding VCM.

Table 2: Overview of the Land Ownership Surrounding the VCM

LOT/DEPOSITED PLAN	LAND TENURE	LAND OWNERSHIP	OCCUPANCY
1/219923	Freehold	Whitehaven-owned	No Dwelling
2/219923	Freehold	Whitehaven-owned	No Dwelling
33/553903	Freehold	Whitehaven-owned	No Dwelling
1/570414	Freehold	Whitehaven-owned	No Dwelling
2/570414	Freehold	Whitehaven-owned	No Dwelling
21/754929	Freehold	Whitehaven-owned	Mine-owned Dwelling
22/754929	Freehold	Whitehaven-owned	No Dwelling
23/754929	Freehold	Whitehaven-owned	Mine-owned Dwelling
25/754929	Freehold	Whitehaven-owned	No Dwelling
36/754929	Freehold	Whitehaven-owned	No Dwelling
37/754929	Freehold	Whitehaven-owned	Mine-owned Dwelling
39/754929	Freehold	Whitehaven-owned	No Dwelling
1/1015797	Freehold	Whitehaven-owned	No Dwelling
2/1015797	Freehold	Whitehaven-owned	Mine-owned Dwelling
1/1018347	Freehold	Whitehaven-owned	No Dwelling
2/1018347	Freehold	Whitehaven-owned	No Dwelling
3/1018347	Freehold	Whitehaven-owned	No Dwelling
5/1018347	Freehold	Whitehaven-owned	No Dwelling
7/1018347	Freehold	Whitehaven-owned	No Dwelling
1/1038308	Freehold	Whitehaven-owned	No Dwelling
2/1038308	Freehold	Whitehaven-owned	No Dwelling
3/1038308	Freehold	Whitehaven-owned	No Dwelling
1/1102940	Freehold	Whitehaven-owned	No Dwelling
2/1102940	Freehold	Whitehaven-owned	No Dwelling
4/1145592	Freehold	Whitehaven-owned	No Dwelling
4/1182289	Freehold	Whitehaven-owned	No Dwelling

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Table 2 (Continued): Overview of the Land Ownership Surrounding the VCM

LOT/DEPOSITED PLAN	LAND TENURE	LAND OWNERSHIP	OCCUPANCY
5/1182289	Freehold	Whitehaven-owned	No Dwelling
11/1182290	Freehold	Whitehaven-owned	No Dwelling
Roads located between or adjacent to the above parcels of land.	Freehold or Crown	Gunnedah Shire Council, Narrabri Shire Council or Crown	N/A
Creeks or streams located between or adjacent to the above parcels of land.	Crown	Crown	N/A
Rail lands located between or adjacent to the above parcels of land.	State Rail Authority of NSW	State Rail Authority of NSW	N/A

The VCM is located within the Narrabri Shire Council Local Government Area (LGA) and Gunnedah Shire Council LGA on land that is zoned RU1 (Primary Production) under both the *Narrabri Local Environmental Plan 2012* and *Gunnedah Local Environmental Plan 2012*.

Historic and current land use in the vicinity of the VCM is dominated by agricultural production (primarily grazing for beef production and cropping), forestry and mining and remnant vegetation. Historic mining has been undertaken at Vickery Coal Mine and the recently closed Rocglen Coal Mine.

Current Land use in the vicinity of the VCM is characterised by a combination of:

- historical mining operations that have been rehabilitated;
- active mining operations at Vickery Coal Mine, Tarrowonga Coal Mine, Boggabri Coal Mine and Maules Creek Coal Mine;
- agricultural cultivation and grazing and remnant native vegetation; and,
- forestry.

The Vickery State Forest is a reserve area located on the north-east boundary of the VCM MLs. A travelling stock reserve is also located on the western and southern sides of the mine site. Land use surrounding the VCM is spatially depicted in Figure 4.

The proposed final land use for the VCM is a combination agricultural and native woodland.

1.3.1 LAND OWNERSHIP AND LAND USE FIGURE

The VCM regional location is shown in Figure 1. The general arrangement of the VCM, including MLs granted under the NSW *Mining Act 1992*, indicative Project rail spur, groundwater bore locations and mining development is shown on Figures 2a and 2b.

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Land Ownership

Table 2 identifies the schedule of land ownership within the VCM MLs. This is depicted graphically on Figure 3.

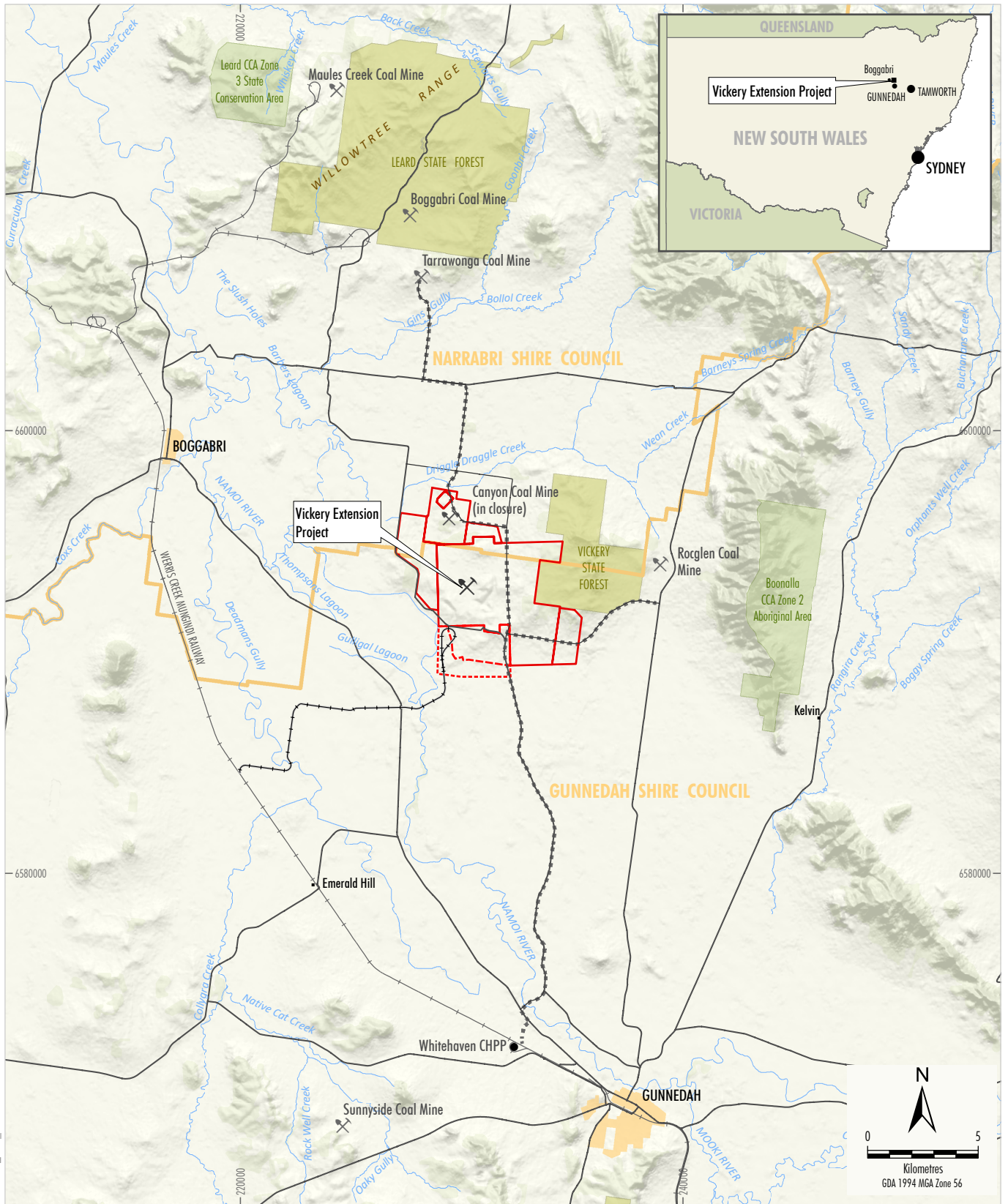
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Vegetation Communities

The vegetation communities within the mining area and VCM rail spur area are depicted in Figures 5a and 5b, respectively, and are based on the vegetation mapping identified in the Vickery Extension Project Environmental Impact Statement (EIS).

Areas of Sensitivity

Areas of sensitivity at the VCM including identified heritage sites and protected biodiversity areas are depicted in Figure 6. The VCM Heritage Management Plan and VCM Aboriginal Cultural Heritage Management Plan (ACHMP) considers the impacts of the development of the VCM on Aboriginal and historic heritage sites. Aboriginal and cultural heritage sites in the vicinity of the VCM are depicted on Figure 6.



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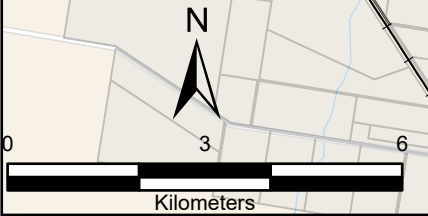
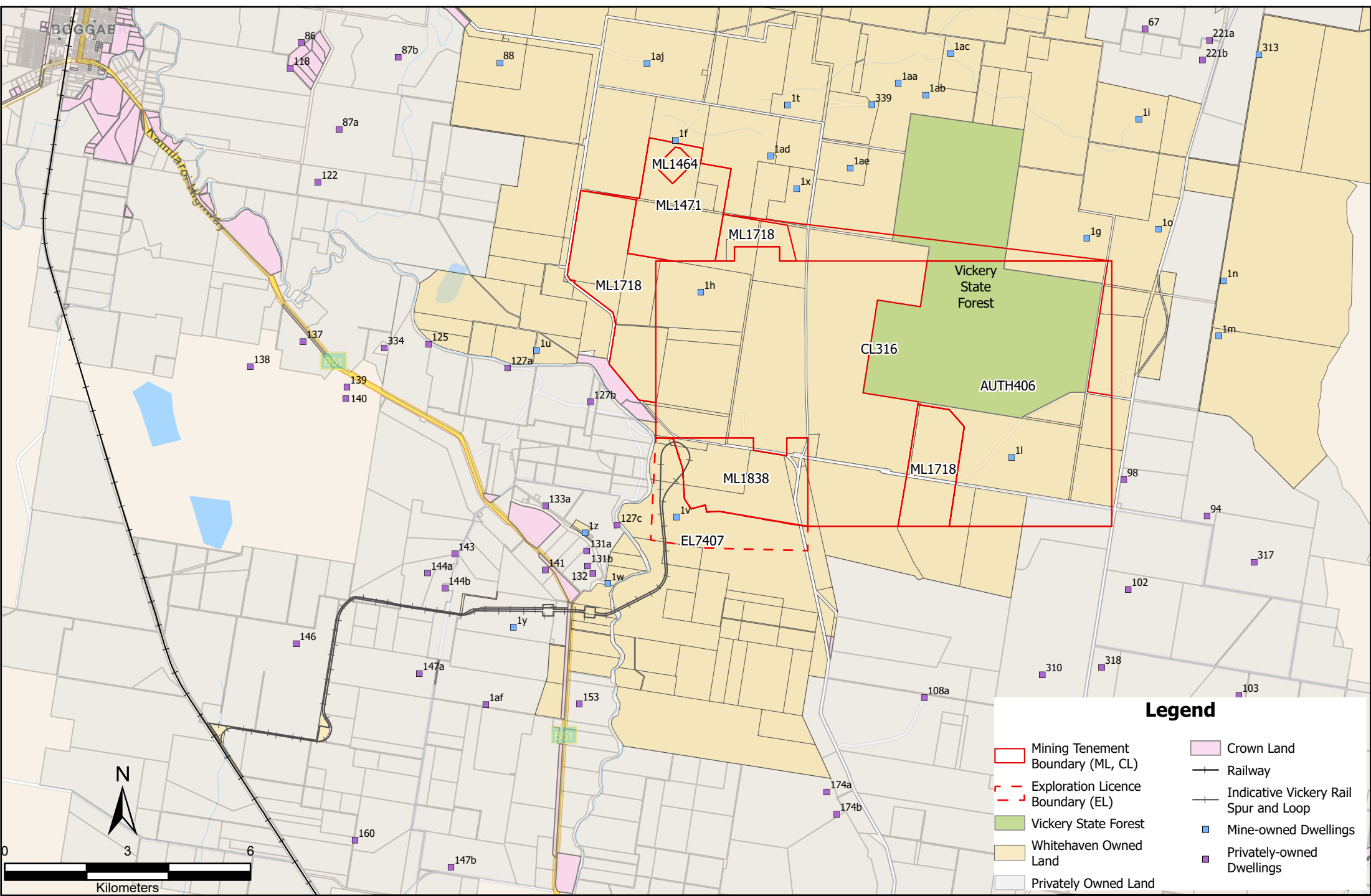
LEGEND

- Mining Tenement Boundary (ML and CL)
- Exploration Licence Boundary (EL)
- Mining Lease Application (MLA)
- Local Government Boundary
- State Forest
- State Conservation Area, Aboriginal Area
- Major Roads
- Railway
- Approved Road Transport Route
- Indicative Project Rail Spur

Source: LPMA - Topographic Base (2010); NSW Department of Industry (2015)

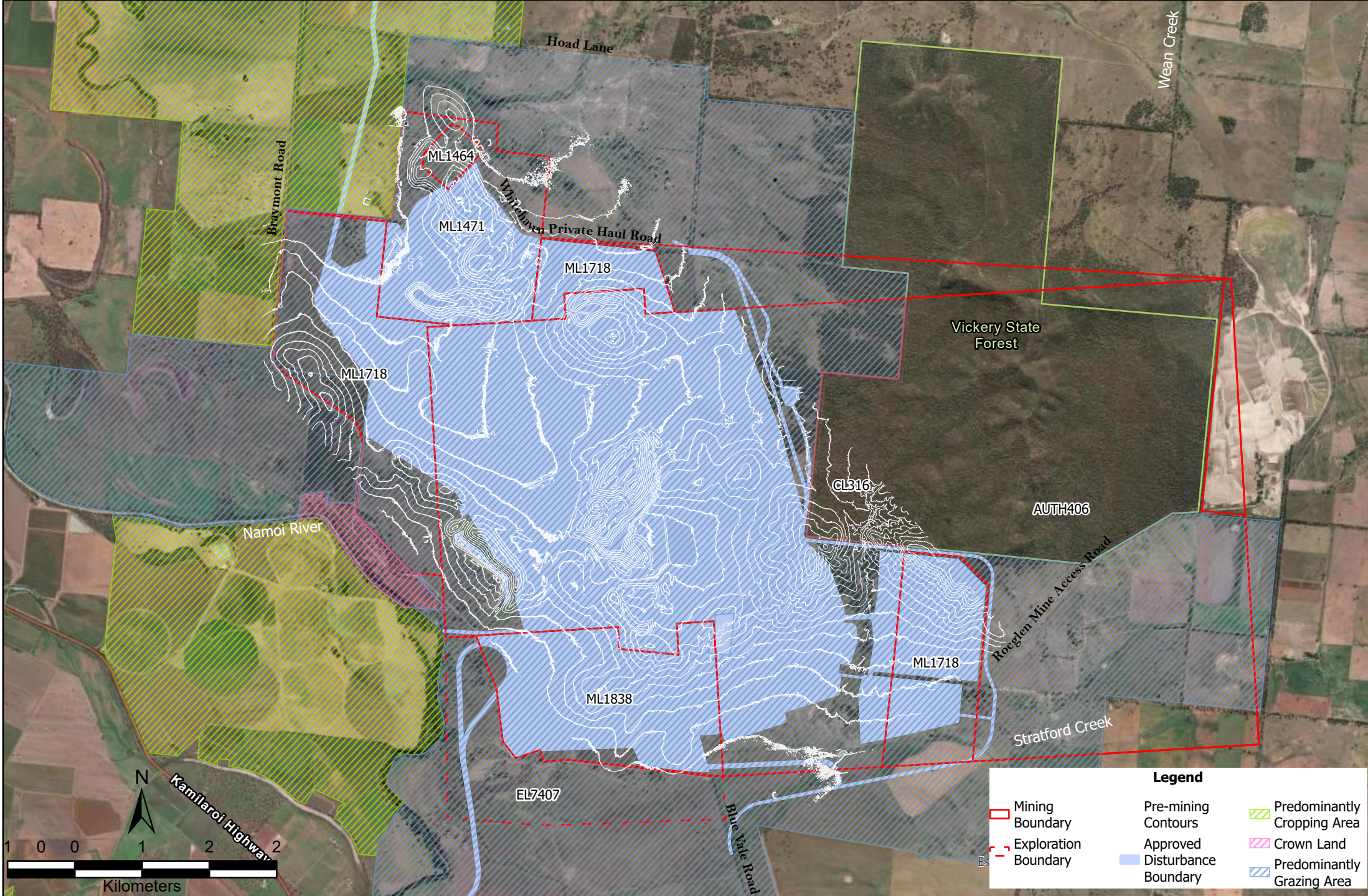
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VICKERY EXTENSION PROJECT
Project Location

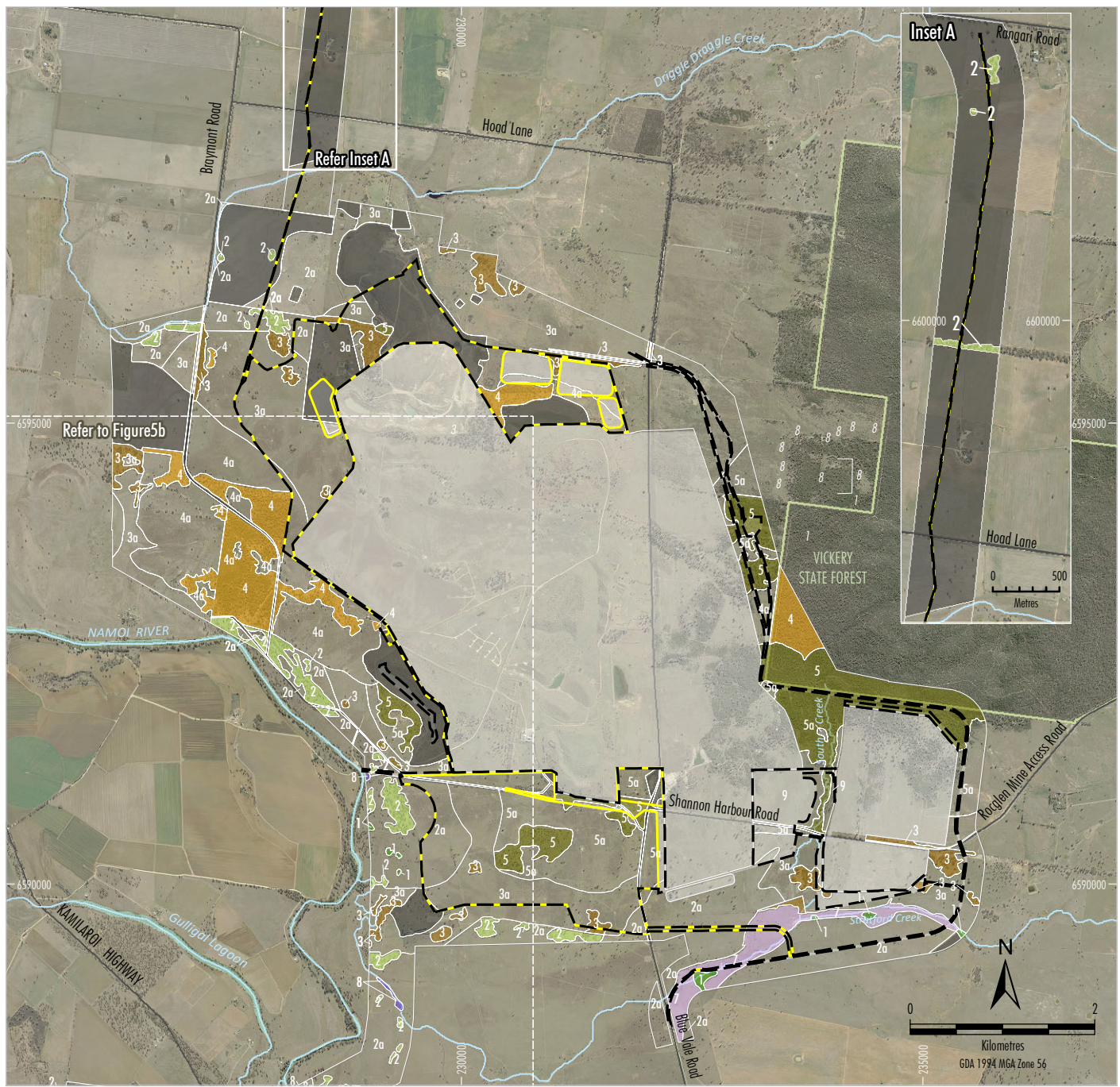
Figure 1-2



Legend

- Mining Tenement Boundary (ML, CL)
- Exploration Licence Boundary (EL)
- Vickery State Forest
- Whitehaven Owned Land
- Privately Owned Land
- Crown Land
- Railway
- Indicative Vickery Rail Spur and Loop
- Mine-owned Dwellings
- Privately-owned Dwellings





LEGEND

- State Forest
- Approximate Extent of Approved Mine
- Biodiversity Assessment Report
- Development Site Footprint - for Mining Area
- Approximate Extent of Vickery Extension Project (EPBC 2016/7649) Footprint

Vegetation Communities

Semi-arid Woodlands (Grassy Sub-formation)

- 1 Weeping Myall Woodland (NA219)[#]
- 2 Poplar Box Woodland on Alluvial Clay Soils (NA185)
- 2a Poplar Box Woodland on Alluvial Clay Soils (Secondary/derived grassland) (NA185)

Dry Sclerophyll Forests (Shrub/Grass Sub-formation)

- 3 Pilliga Box – Poplar Box Shrubby Woodland (NA324)
- 3a Pilliga Box – Poplar Box Shrubby Woodland (Secondary/derived grassland) (NA324)
- 4 White Box – Silver-leaved Ironbark Shrubby Open Forest (NA349)
- 4a White Box – Silver-leaved Ironbark Shrubby Open Forest (Secondary/derived grassland) (NA349)

Dry Sclerophyll Forests (Shrubby Sub-formation)

- 5 Narrow-leaved Ironbark – White Box Shrubby Forest (NA311)
- 5a Narrow-leaved Ironbark – White Box Shrubby Forest (Secondary/derived grassland) (NA311)

Freshwater Wetlands

- 7 Mixed Marsh Sedgeland (NA201)

Forested Wetlands

- 8 River Red Gum Riparian Tall Woodland (NA193)

Cleared Land

- 9 Exotic Dominant Grasslands
- DL Disturbed Land

[#] Listed as the Weeping Myall Woodland EEC

Note: Vegetation community 6 and 8a is not present within the mining area.

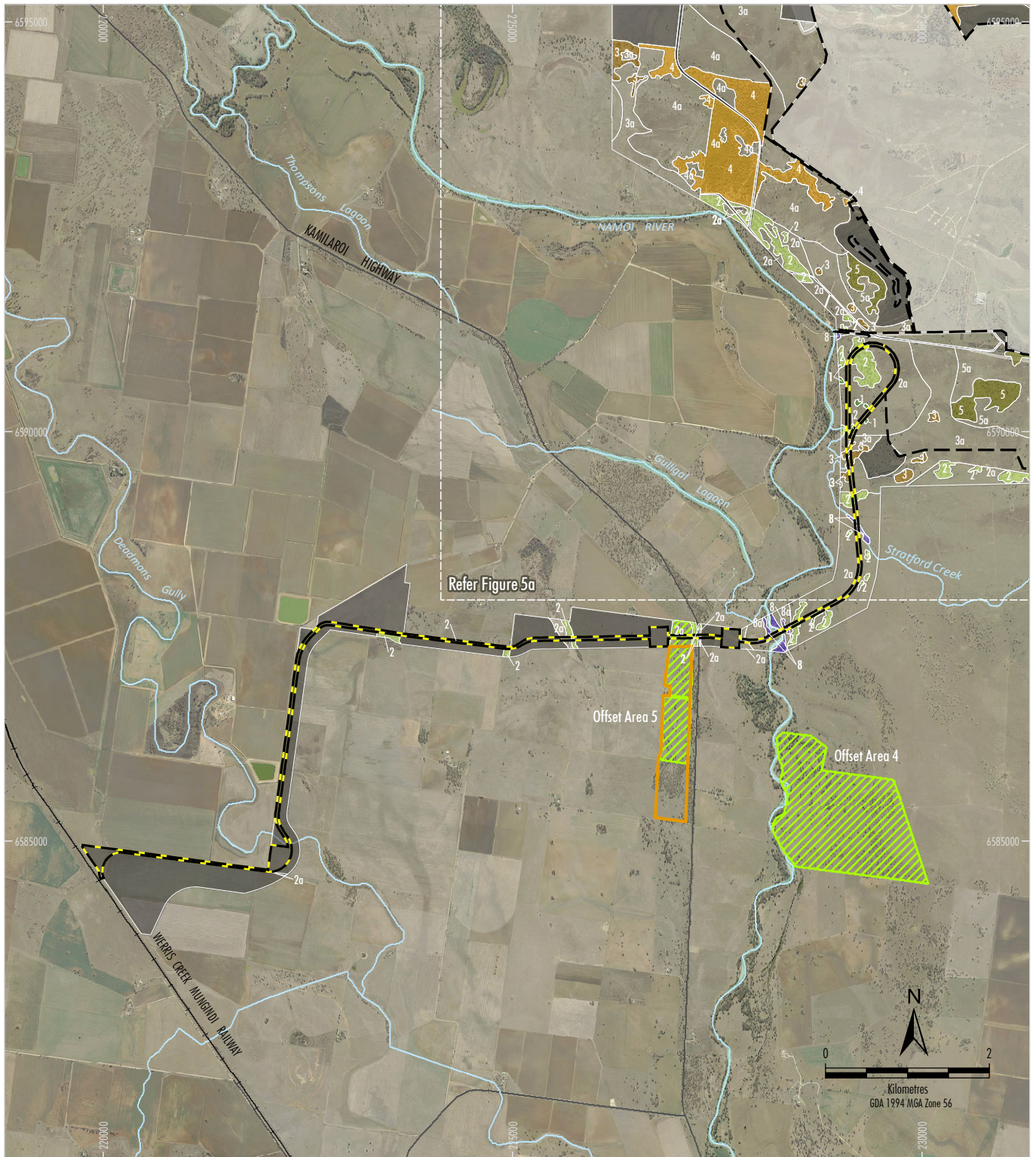
Source
 (1) FloraSearch (2018) (4) OEH (2017)
 (3) Niche (2013) (8) Hunter Eco (2018)
 Note: Sources 2 and 5 to 7 are not shown on this figure.

Source: Orthophoto - Department of Land and Property Information, Aerial Photography (July 2011); FloraSearch (2018)



VICKERY EXTENSION PROJECT
 Vegetation Communities -
 Mining Area

Figure 5a



WHC15-33_RMP22_206B

LEGEND

- Approximate Extent of Approved Mine
- Biodiversity Assessment Report Development Site Footprint
- Approximate Extent of Vickers Extension Project (EPBC 2016/7649) Footprint
- Existing Approved Offset Area for the Approved Mine
- Modified Offset Area 5

Vegetation Communities

- Semi-arid Woodlands (Grassy Sub-formation)**
- 1 Weeping Myall Woodland (NA219)
- 2 Poplar Box Woodland on Alluvial Clay Soils (NA185)
- 2a Poplar Box Woodland on Alluvial Clay Soils (Secondary/derived grassland) (NA185)
- Dry Sclerophyll Forests (Shrub/Grass Sub-formation)**
- 3 Pilliga Box – Poplar Box Shrubby Woodland (NA324)
- 3a Pilliga Box – Poplar Box Shrubby Woodland (Secondary/derived grassland) (NA324)

- Dry Sclerophyll Forests (Shrub/Grass Sub-formation)**
- 4 White Box – Silver-leaved Ironbark Shrubby Open Forest (NA349)
- 4a White Box – Silver-leaved Ironbark Shrubby Open Forest (Secondary/derived grassland) (NA349)
- Dry Sclerophyll Forests (Shrubby Sub-formation)**
- 5 Narrow-leaved Ironbark – White Box Shrubby Forest (NA311)
- 5a Narrow-leaved Ironbark – White Box Shrubby Forest (Secondary/derived grassland) (NA311)
- Forested Wetlands**
- 8 River Red Gum Riparian Tall Woodland (NA193)
- 8a River Red Gum Riparian Tall Woodland (Secondary/derived grassland) (NA193)
- Cleared Land**
- DL Disturbed Land

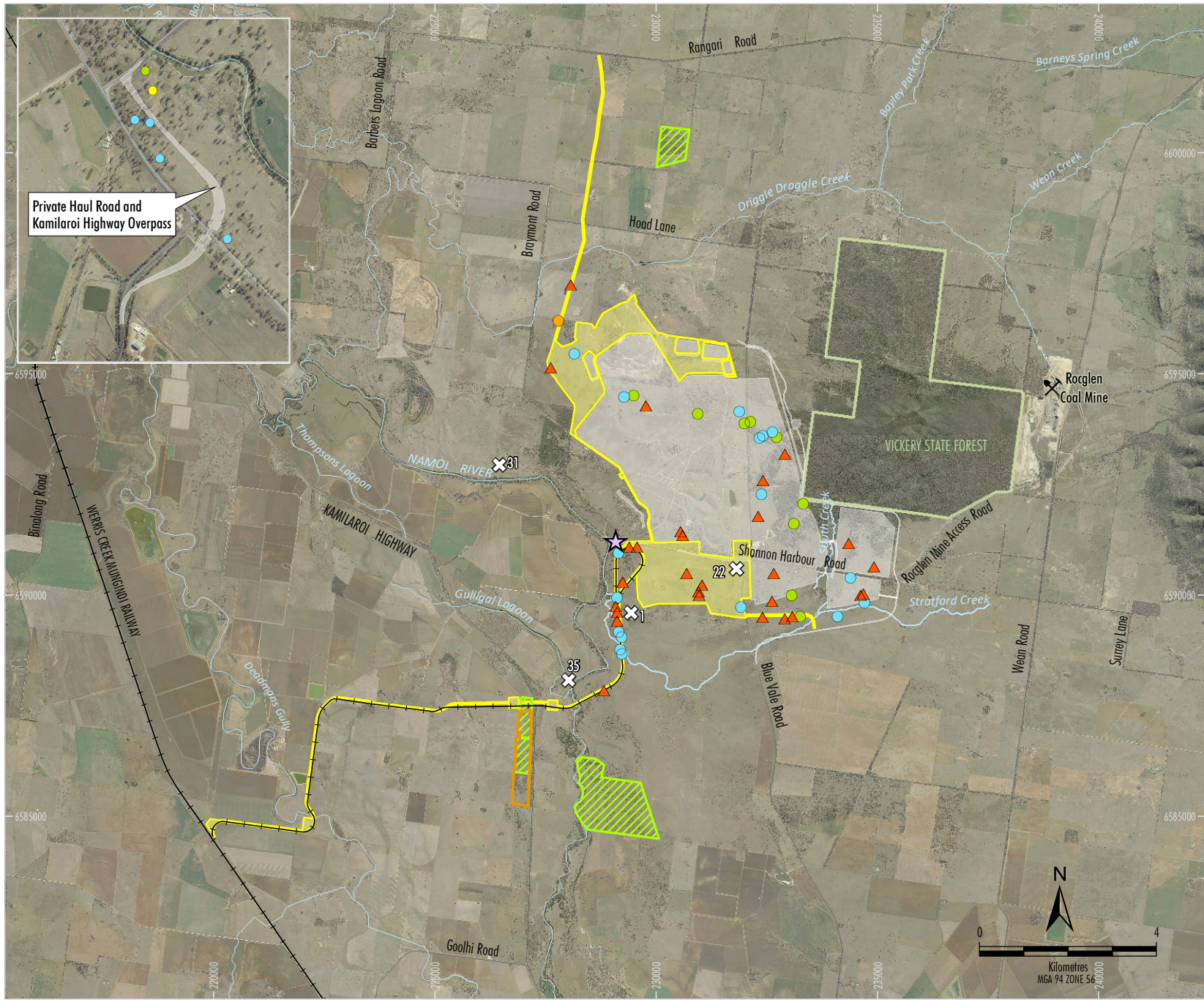
Note: Vegetation communities 1, 5, 6 and 7 are not present in the Project Rail Spur

Source: Orthophoto - Department of Land and Property Information, Aerial Photography (July 2011); FloraSearch (2018)



VICKERY EXTENSION PROJECT
Vegetation Communities - Project Rail Spur

Figure 5b



- LEGEND**
- State Forest
 - Approximate Extent of Approved Mine
 - Approximate Extent of Vickers Extension Project Additional Areas
 - Indicative Rail Spur Alignment
 - X Historic Heritage Site
 - Existing Approved Offset Area for the Approved Mine
 - Modified Offset Area 5
- Aboriginal Heritage Sites**
- Isolated Artefact - Low Significance
 - Artefact Scatter - Low Significance
 - Artefact Scatter - Low-Moderate Significance
 - Artefact Scatter - Moderate Significance
 - Artefact Scatter and Scarred Tree - Low-Moderate Significance
 - Artefact Scatter and Grinding Grooves - Moderate Significance

Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Landscape Natural and Cultural Heritage Management (2012); Whincop Archaeology (2018); Extent Heritage (2018)

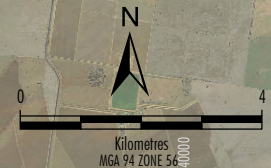


Figure 6

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2 FINAL LAND USE

2.1 REGULATORY REQUIREMENTS FOR REHABILITATION

Table 3 details the conditions of the Development Consent (SSD-7480), ML 1464, ML 1471, ML 1718, ML 1838 and CL 316 relevant to rehabilitation at the VCM. Table 3 also lists the timing to meet each rehabilitation requirement and provides the section where each condition has been addressed in the RMP.

Table 3: Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
Development Consent (SSD-7480)			
Schedule 2 Part B, B101	<i>The Applicant must rehabilitate the site in accordance with the conditions imposed on the mining leases(s) associated with the development under the Mining Act 1992. The rehabilitation must be generally consistent with the proposed rehabilitation objectives described in the documents listed in condition A2(c) (and shown conceptually in the figure in Appendix 6), and must comply with the objectives in Table 12.</i>	Entire Site	Section 4.1
Schedule 2 Part B, B102	<i>The rehabilitation objectives in Table 12 apply to the entire site, including all landforms constructed under either this consent or previous consents. However, the Applicant is not required to undertake any additional earthmoving works on landforms that have been approved and constructed under previous consents.</i>	Entire Site	Section 4.1
Schedule 2 Part B, B103	<i>The Applicant must rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion and weed incursion cannot be permanently rehabilitated.</i> Note: <i>This condition does not prevent further disturbance at some later stage of the development of areas that have been rehabilitated.</i>	Entire Site	Section 6.1

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
Development Consent (SSD-7480) (Continued)			
Schedule 2 Part B, B104	<p><i>The Applicant must prepare a Rehabilitation Strategy for the development to the satisfaction of the Planning Secretary. This strategy must:</i></p> <ul style="list-style-type: none"> <i>(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;</i> <i>(b) be prepared in consultation with the Resources Regulator, DPIE Water, NSC, BCD and GSC;</i> <i>(c) be submitted to the Planning Secretary for approval within six months of the date of commencement of development under this consent;</i> <i>(d) build on the Rehabilitation Objectives in Table 12 (of SSD 7480), describe the overall rehabilitation outcomes for the site, and address all aspects of rehabilitation including mine closure, final landform (including any final voids), post-mining land use/s and water management;</i> <i>(e) align with strategic rehabilitation and mine closure objectives and address the principles of the Strategic Framework for Mine Closure (ANZMEC and MCA, 2000);</i> 	Entire Site	This RMP

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
Development Consent (SSD-7480) (Continued)			
Schedule 2 Part B, B104 (Continued)	<ul style="list-style-type: none"> (f) <i>describe how the rehabilitation measures would be integrated with the measures in the Biodiversity Management Plan referred to in condition B63;</i> (g) <i>describe how rehabilitation will be integrated with the mine planning process, including a plan to address premature mine closure;</i> (h) <i>include details of target vegetation communities and species to be established within the proposed revegetation areas;</i> (i) <i>investigate opportunities to refine and improve the final landform outcomes and minimise/eliminate any final voids over time;</i> (j) <i>include a risks and opportunities assessment and risk register;</i> (k) <i>include a post-mining land use strategy to investigate and facilitate post-mining beneficial land uses for the site (including any final voids), that:</i> <ul style="list-style-type: none"> i. <i>align with regional and local strategic land use planning objectives and outcomes;</i> ii. <i>support a sustainable future for the local community;</i> iii. <i>utilise existing mining infrastructure, where practicable;</i> iv. <i>avoid disturbing self-sustaining native ecosystems, where practicable; and</i> v. <i>includes a description of long-term land management objectives, including bushfire management, weed and feral animal control, water quality and public safety.</i> (l) <i>include a stakeholder engagement plan to guide rehabilitation and mine closure planning processes and outcomes;</i> (m) <i>investigate ways to minimise adverse socio-economic effects associated with rehabilitation and mine closure;</i> (n) <i>include a program to review and refine the final landform and final void outcomes every five years, in consultation with the Resources Regulator and GSC, NSC, to meet the relevant Rehabilitation Objectives in Table 12 (of SSD 7480); and</i> (o) <i>include details of the monitoring and management measures to ensure proper storage and protection of top soil.</i> 	Entire Site (Continued)	This RMP

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
Development Consent (SSD-7480) (Continued)			
Schedule 2 Part B, B105	<i>The Applicant must implement the Rehabilitation Strategy approved by the Planning Secretary.</i>	-	-
Schedule 2 Part B, B106	<p><i>The Applicant must prepare and implement a Rehabilitation Management Plan in accordance with the conditions imposed on the mining lease(s) associated with the project under the Mining Act 1992. The plan must:</i></p> <ul style="list-style-type: none"> <i>(a) be prepared in accordance with the relevant requirements specified under the Mining Act 1992;</i> <i>(b) be prepared in consultation with the Department, MEG, DPIE Water, BCD, GSC and NSC;</i> <i>(c) include a detailed plan for the reinstatement and review of the proposed: <ul style="list-style-type: none"> <i>i. ecological rehabilitation and native woodland areas, including a protocol for progressive reviews to demonstrate that the target vegetation communities are being achieved; and</i> <i>ii. agricultural land rehabilitation;</i> </i> <i>(d) include a life of mine rehabilitation and mining schedule which outlines key progressive rehabilitation milestones from the commencement of operations through to decommissioning and mine closure;</i> <i>(e) include Rehabilitation Objectives, Rehabilitation Completion Criteria and a Final Landform and Rehabilitation Plan;</i> <i>(f) for ecological rehabilitation used for retiring ecosystem credits in Table 10 (of SSD 7480), include all information as required under section 12.2 of the Framework for Biodiversity Assessment of the NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014), including triggers for determining whether ecological rehabilitation credits should alternatively be retired as per Condition B60;</i> <i>(g) include an overview of the identified risks to achieving successful rehabilitation and the type of rehabilitation strategies to be implemented to address the identified risks;</i> <i>(h) describe the measures to be implemented on the site to achieve the Rehabilitation Objectives in Table 12, the requirements of the Rehabilitation Strategy referred to in condition B104;</i> <i>(i) include procedures for the reasonable use of interim stabilisation and temporary vegetation strategies to minimise the area exposed for dust generation (see condition B103);</i> 	Entire Site	This RMP addresses relevant requirements of the conditions imposed on mining leases associated with the project under the Mining Act 1992.

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
Development Consent (SSD-7480) (Continued)			
Schedule 2 Part B, B106 (Continued)	<p>(j) <i>include a program to monitor, audit and report on the progress against the Rehabilitation Objectives and Rehabilitation Completion Criteria and the Final Landform and Rehabilitation Plan;</i></p> <p>(k) <i>describe further studies, work, research or consultation that will be undertaken to expand the site-specific rehabilitation knowledge base, reduce uncertainty and improve rehabilitation outcomes; and</i></p> <p>(l) <i>outline intervention and adaptive management techniques to ensure rehabilitation remains on a trajectory of achieving the Rehabilitation Objectives, Rehabilitation Completion Criteria and the Final Landform and Rehabilitation Plan as soon as reasonably practical</i></p> <p>Note:</p> <ul style="list-style-type: none"> • <i>The Rehabilitation Management Plan may be combined with a Mining Operations Plan, or similar plan, required under the mining lease granted for the development.</i> 	Entire Site (Continued)	This RMP
ML 1464, ML 1471, ML 1718, ML 1838 and CL 316			
Condition 4, Schedule 8A	<p>Must prevent or minimise harm to environment</p> <p>(1) <i>The holder of a mining lease must take all reasonable measures to prevent, or if that is not reasonably practicable, to minimise, harm to the environment caused by activities under the mining lease.</i></p> <p>(2) <i>In this clause –</i></p> <p>harm to the environment has the same meaning as in the Protection of the Environment Operations Act 1997.</p>	Entire Site	This RMP
Condition 5, Schedule 8A	<p>Rehabilitation to occur as soon as reasonably practicable after disturbance</p> <p><i>The holder of a mining lease must rehabilitate land and water in the mining area that is disturbed by activities under the mining lease as soon as reasonably practicable after the disturbance occurs.</i></p>	Entire Site	Section 6 and 6.1

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
ML 1464, ML 1471, ML 1718, ML 1838 and CL 316 (Continued)			
Condition 6, Schedule 8A	<p>Rehabilitation must achieve final land use</p> <p>(1) <i>The holder of a mining lease must ensure that rehabilitation of the mining area achieves the final land use for the mining area.</i></p> <p>(2) <i>The holder of the mining lease must ensure any planning approval has been obtained that is necessary to enable the holder to comply with subclause (1).</i></p> <p>(3) <i>The holder of the mining lease must identify and record any reasonably foreseeable hazard that presents a risk to the holder's ability to comply with subclause (1).</i></p> <p>Note – <i>Clause 7 requires a rehabilitation risk assessment to be conducted whenever a hazard is identified under this subclause.</i></p> <p>(4) <i>In this clause –</i></p> <p>final land use <i>for the mining area means the final landform and land uses to be achieved for the mining area –</i></p> <p>(a) <i>as set out in the rehabilitation objectives statement and rehabilitation completion criteria statement, and</i></p> <p>(b) <i>for a large mine – as spatially depicted in the final landform and rehabilitation plan, and</i></p> <p>(c) <i>if the final land use for the mining area is required by a condition of development consent for activities under the mining lease – as stated in the condition.</i></p> <p>planning approval <i>means –</i></p> <p>(a) <i>a development consent within the meaning of the Environmental Planning and Assessment Act 1979, or</i></p> <p>(b) <i>an approval under that Act, Division 5.1.</i></p>	Entire Site	Section 4 Section 2.1 Section 3

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
ML 1464, ML 1471, ML 1718, ML 1838 and CL 316 (Continued)			
Condition 7, Schedule 8A	<p>Rehabilitation risk assessment</p> <p>(1) <i>The holder of a mining lease must conduct a risk assessment (a rehabilitation risk assessment) that –</i></p> <p style="margin-left: 20px;">(a) <i>Identifies, assesses and evaluates the risks that need to be addressed to achieve the following in relation to the mining lease –</i></p> <p style="margin-left: 40px;">(i) <i>the rehabilitation objectives,</i></p> <p style="margin-left: 40px;">(ii) <i>the rehabilitation completion criteria,</i></p> <p style="margin-left: 40px;">(iii) <i>for large mines – the final land use as spatially depicted in the final landform and rehabilitation plan, and</i></p> <p style="margin-left: 20px;">(b) <i>identifies the measures that need to be implemented to eliminate, minimise or mitigate the risks.</i></p> <p>(2) <i>The holder of a mining lease must implement the measures identified.</i></p> <p>(3) <i>The holder of a mining lease must conduct a rehabilitation risk assessment –</i></p> <p style="margin-left: 20px;">(a) <i>for a large mine – before preparing a rehabilitation management plan, and</i></p> <p style="margin-left: 20px;">(b) <i>for a small mine – before preparing the rehabilitation outcome documents for the mine, and</i></p> <p style="margin-left: 20px;">(c) <i>whenever a hazard is identified under clause 6(3) – as soon as reasonably practicable after it is identified, and</i></p> <p style="margin-left: 20px;">(d) <i>whenever given a written direction to do so by the Secretary.</i></p>	Entire Site	Section 3
			Section 3
			Section 3

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
ML 1464, ML 1471, ML 1718, ML 1838 and CL 316 (Continued)			
Condition 10, Schedule 8A	<p>Rehabilitation management plans for large mines</p> <p>(1) <i>The holder of a mining lease relating to a large mine must prepare a plan (a rehabilitation management plan) for the mining lease that includes the following –</i></p> <p style="margin-left: 20px;">(a) <i>a description of how the holder proposes to manage all aspects of the rehabilitation of the mining area,</i></p> <p style="margin-left: 20px;">(b) <i>a description of the steps and actions the holder proposes to take to comply with the conditions of the mining lease that relate to rehabilitation,</i></p> <p style="margin-left: 20px;">(c) <i>a summary of rehabilitation risk assessments conducted by the holder,</i></p> <p style="margin-left: 20px;">(d) <i>the risk control measures identified in the rehabilitation risk assessments,</i></p> <p style="margin-left: 20px;">(e) <i>the rehabilitation outcome documents for the mining lease,</i></p> <p style="margin-left: 20px;">(f) <i>a statement of the performance outcomes for the matters addressed by the rehabilitation outcome documents and the ways in which those outcomes are to be measured and monitored.</i></p> <p>(2) <i>If a rehabilitation outcome document has not been approved by the Secretary, the holder of the mining lease must include a proposed version of the document.</i></p> <p>(3) <i>A rehabilitation management plan is not required to be given to the Secretary for approval.</i></p> <p>(4) <i>The holder of the mining lease –</i></p> <p style="margin-left: 20px;">(a) <i>Must implement the matters set out in the rehabilitation management plan, and</i></p> <p style="margin-left: 20px;">(b) <i>If the forward program specifies timeframes for the implementation of the matters – must implement the matters within those timeframes.</i></p>	Entire Site	<p>This RMP</p> <p>Section 6.2</p> <p>Section 5</p> <p>Section 3</p> <p>Section 3</p> <p>Section 4 and 5</p> <p>Section 4</p> <p>Section 4</p> <p>Section 4 and 5</p> <p>N/A</p>

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Table 3 (Continued): Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

CONDITION	REQUIREMENT	AREA	RELEVANT RMP SECTION
ML 1464, ML 1471, ML 1718, ML 1838 and CL 316 (Continued)			
Condition 12, Schedule 8A	Rehabilitation outcome documents (1) <i>The holder of a mining lease must prepare the following documents (the rehabilitation outcome documents) for the mining lease and give them to the Secretary for approval –</i> (a) <i>the rehabilitation objectives statement, which sets out the rehabilitation objectives required to achieve the final land use for the mining area,</i> (b) <i>the rehabilitation completion criteria statement, which sets out criteria, the completion of which will demonstrate the achievement of the rehabilitation objectives,</i> (c) <i>for a large mine, the final landform and rehabilitation plan, showing a spatial depiction of the final land use.</i> (2) <i>If the final land use for the mining area is required by a condition of development consent for activities under the mining lease, the holder of the mining lease must ensure the rehabilitation outcome documents are consistent with that condition.</i>	Entire Site	Section 4 Section 4 Section 5
Other Relevant NSW Legislation			
<i>Biodiversity Conservation Act 2016</i>	The NSW <i>Biodiversity Conservation Act 2016</i> may be applicable to the rehabilitation of the Project. A number of threatened flora and fauna species listed under the NSW <i>Biodiversity Conservation Act 2016</i> are known to occur or have the potential to occur within the Mining Area or surrounds.	Entire Site	N/A

Note: DPIE – Water (now DPE – Water) = Water Group within the Department, NSC = Narrabri Shire Council, BCD = Biodiversity & Conservation Division within the Department, GSC = Gunnedah Shire Council, Department = NSW Department of Planning, Industry and Environment, MEG = Regional NSW – Mining, Exploration and Geoscience and OEH = Office of Environment and Heritage.

2.2 FINAL LAND USE OPTIONS ASSESSMENT

The conceptual final land use for the VCM has been assessed and is detailed in the Vickery Extension Project EIS (Whitehaven, 2018), Rehabilitation Strategy and Condition B101, Schedule 2 Part B of Development Consent (SSD-7480). Approved final land uses at the VCM include:

- Native Ecosystem;
- Agriculture – Grazing;
- Water Storage (Excluding Final Void) and
- Final Void;

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2.3 FINAL LAND USE STATEMENT

The proposed final landform and final land use at the VCM is depicted spatially in the Final Landform and Rehabilitation Plan provided in Section 5 of this RMP. The final land uses are consistent with those described in Section 2.2 and the features outlined within Condition B101, Schedule 2 Part B of Development Consent (SSD-7480). The proposed final landform has been depicted to reflect the conceptual final landform detailed in Appendix 6 of Development Consent (SSD-7480) and remains consistent with the objectives outlined within Condition B101, Schedule 2 Part B of Development Consent (SSD-7480).

Additional consultation regarding the proposed landform and approval requirements for the post-mining environment at the VCM may be undertaken with DPE and other government agencies. When revised, this RMP will be updated to reflect the outcomes of any consultation undertaken.

2.4 FINAL LAND USE AND MINING DOMAINS

2.4.1 FINAL LAND USE DOMAINS

Final land use domains are land management units characterised by a similar post-mining land use objective. Consistent with contemporary rehabilitation guidelines and rehabilitation planning best practice, final land use domains have been developed for the VCM. In accordance with the Final Landform and Rehabilitation Plan outlined in Section 5 of this RMP, the final land use domains and associated codes at the VCM are provided in Table 4.

Table 4: Vickery Coal Mine Final Land Use Domains

Final Land Use Domains	Code
Native Ecosystem	A
Agriculture - Grazing	B
Water Storage (Excluding Final Void)	G
Final Void	J

2.4.2 MINING DOMAINS

As described in Section 1, mining operations will consist of infrastructure areas, water management areas, waste emplacement area (i.e. Western Emplacement) and open cut pit. The codes associated with the VCM mining domains are presented in Table 5.

Table 5: Vickery Coal Mine Mining Domains

Mining Domain	Code
Infrastructure Area	1
Water Management Area	3
Overburden Emplacement Area	4
Active Mining Area (Open Cut Void)	5

Mining domains at the VCM have been delineated based on operational or functional purpose and therefore are defined by their geophysical characteristics.

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3 REHABILITATION RISK ASSESSMENT

Key risks associated with proposed rehabilitation activities at the VCM were identified and assessed in a risk assessment undertaken by Whitehaven on 3 May 2023 in accordance with clause 7, Schedule 8A of the *Mining Regulation 2016*, and in consideration of Guideline: *Rehabilitation Risk Assessment* and the Joint Australian and New Zealand Standard AS/NZS 31000:2009 *Risk Management – Principles and Guidelines* (Standards Australia).

The methods used for the risk assessment will include the following key steps:

- identifying the rehabilitation related risks, including what could happen, when and where;
- analysing the risks using a qualitative risk approach (i.e. identifying existing controls, determining specific consequences/likelihoods and then determining the residual level of risk);
- making decisions based on the outcomes of the risk assessment about which of the risks need controls or the implementation of a mitigation strategy; and
- establishing controls to mitigate/treat the risks identified as part of the process.

For each of the key rehabilitation and mine closure risks identified, appropriate risk reduction strategies/actions will be developed to adequately control the risk. Table 6 outlines the risk matrix used for the risk assessment.

This risk assessment was reviewed by site staff on 11th July 2024.

The risk assessment review identified a total of 39 key risks, which are summarised as (Table 7):

- 13 risks were ranked as negligible;
- 16 risks were ranked as minor;
- 9 risks were ranked as Medium and
- 1 risk was ranked as Major.

Rehabilitation risks, controls and proposed controls will regularly be reviewed and revised (as required).

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Table 6: Risk Matrix

	Description	Frequency	Probability	LEVEL	Consequence Rating				
					1. Insignificant	2. Minor	3. Medium	4. Major	5. Critical
Likelihood Rating	The event is expected to occur	Could occur within days to weeks	99% chance of occurring in the next year	5. Almost certain	M5	H10	H15	C20	C25
	The event will occur at some time	Could occur within weeks to months	>50% chance of occurring in the next year	4. Likely	L4	M8	H12	H16	C20
	The event should occur at some time	Could occur within months to years	>10% chance of occurring in the next year	3. Possible	L3	M6	M9	H12	H15
	The event could occur at some time	Could occur within a few years	>5% chance of occurring in the next year	2. Unlikely	L2	L4	M6	M8	H10
	The event may occur in exceptional circumstances	Could occur years to decades	<1% chance of occurring in the next year	1. Rare	L1	L2	L3	L4	M5



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Table 7: Risk Assessment

Unwanted event / impact	Existing Risk Controls / Comments (What has been done to prevent it from happening?)	Proposed Additional Controls (What else can I do to prevent it from happening?)	Risk Rating Post Additional Controls				Role/Person Accountable for Proposed Additional Control	
			Consequence	Likelihood	Code	Risk Rating		
Spoils and materials (biological resource salvage)	Inadequate topsoil and capping material quantity available to be salvaged during construction and early operations for later use in rehabilitation. Limited pre-existing biological resources for salvage. Reclaiming topsoil from previously rehabilitated areas, decommissioning existing water storages present pre-mining.	1. Excavation/Land disturbance permit 2. Process for clearing veg and soil management. 3. Manage topsoil heights - generally 3 m height. 4. Seeding of topsoil stockpiles where required. 5. Topsoil and subsoil stripping depth - EIS plan of soil types/depths 6. Clearing Inspections 7. Topsoil QA/QC sign off 8. Ability to collect increased subsoil	1. Topsoil & spoil balance register - MCC Maules register example	Minor (2)	Unlikely	Minor (2) Unlikely	L4	Environmental
	Contamination of topsoil due to over stripping.	1. Appropriately skilled operator 2. Soil stockpiling identification 3. Allocation of segregated / contaminated material 6. Clearing Inspections 7. Topsoil QA/QC sign off 8. Ability to collect increased subsoil 9. Topsoil depth check pits pre-stripping 10. Amelioration of soil	1. Topsoil balance register.	Minor (2)	Unlikely	Minor (2) Unlikely	L4	
	Loss of topsoil properties due to rehandling or failure to collect.	1. LDP process. 2. Topsoil stockpiling & sampling. 3. 3m topsoil stockpile height. 4. Mine Planning Process	1. Topsoil balance register.	Minor (2)	Unlikely	Minor (2) Unlikely	L4	



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Table 7 (Continued): Risk Assessment

Unwanted event / impact	Existing Risk Controls / Comments (What has been done to prevent it from happening?)	Proposed Additional Controls (What else can I do to prevent it from happening?)	Risk Rating Post Additional Controls				Role/Person Accountable for Proposed Additional Control	
			Consequence	Likelihood	Code	Risk Rating		
Rock/Overburden Emplacement	Adverse geochemical/chemical composition of materials such as overburden, interburden, processing wastes (rejects), subsoils and topsoils and imported cover materials.	1. EIS geochem assessment 2. Rejects Disposal Procedure 3. Geotechnical Inspections 4. Rejects testing 5. Topsoil and Subsoil testing	1. Further sampling of material (Overburden)	Minor (2)	Unlikely	Minor (2) Unlikely	L4	Production and Technical Services Teams
	Inappropriate management/disposal of waste during operations which causes a long-term rehab issue.	1. EPL 2. Geotechnical Inspections 3. Rejects testing 4. Waste MP	1. Reject Limit Cones (physical boundaries)	Minor (2)	Unlikely	Minor (2) Unlikely	L4	Production and Technical Services Teams
Final landform construction	Not dumping to LoM landform which results in re handle (rehabilitation) at end of mine life. Working to maximum permissible RL and slope angles. Final landform extent to water management system.	1. Mine planning short term 2. Survey control 3. Progressive rehabilitation 4. Working to maximum permissible RL and slope angles. 5. Final landform extent to water management system 6. QA/QC Sign off process	-	Major (4)	Rare	Major (4) Rare	L4	-
	Final voids, highwalls and low walls pose a risk to public safety and/or sterilises the land available for future final land uses	1. Site fencing and sign-posting 2. Safety bunds 3. Future closure management planning. 4. Geotechnical inspections 4. Landform Design 5. Water Licensing 6. Rehabilitation Process 7. Water Management infrastructure 8. Appropriate final alnd use 9. Regulator Sign off 10. Closure risk assessment	1. Closure Management Plan developed	Medium (3)	Rare	Medium (3) Rare	L3	GOC Rehabilitation Team

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4 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

For each mining domain and final land use domain, rehabilitation objectives have been developed in consideration of Condition B101, Schedule 2 Part B of Development Consent (SSD-7480).

In accordance with clause 12, Schedule 8A of the *Mining Regulation 2016*, these Rehabilitation Objectives have been submitted to the NSW Resources Regulator and approved. The approved Rehabilitation Objectives and Completion Criteria are outlined in Attachment 1.

4.1 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

The overall objective for the final rehabilitated landform is to establish a safe, stable and non-polluting landform that is fit for the intended post-mining land uses. In accordance with Condition B101, Schedule 2 Part B of the Development Consent (SSD-7480), Table 12 of Development Consent (SSD-7480), and the NSW Resources Regulators' *Guideline: Rehabilitation objectives and rehabilitation completion criteria*, detailed domain rehabilitation objectives have been prepared for the VCM and are outlined in Attachment 1.

The rehabilitation objectives are considered to be broader objectives that cover specific aspects of rehabilitation. To complement these objectives, Whitehaven has developed performance indicators and completion criteria for each rehabilitation domain based on the SMART principle. The approved objectives, indicators and completion criteria for each of the final land use and mining domains during the rehabilitation phases are specified in Attachment 1.

The proposed objectives, indicators and completion criteria for each of the final land use and mining domains are specified in Attachment 1.

In accordance with clause 12, Schedule 8A of the *Mining Regulation 2016*, the VCM Rehabilitation Objectives and Rehabilitation Completion Criteria have been submitted to the NSW Resources Regulator and approved. Following this approval of the Rehabilitation Objectives and Rehabilitation Completion Criteria, this RMP has been amended to substitute the proposed version with the version approved by the NSW Resources Regulator in accordance with clause 11, Schedule 8A of the *Mining Regulation 2016*.

Table 8 provides the rehabilitation objectives outlined in Condition B101, Schedule 2 Part B of the Development Consent (SSD-7480).

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Table 8: Rehabilitation Objectives Condition B101, Schedule 2 Part B of the Development Consent (SSD-7480)

<i>Rehabilitation Objective Category</i>	<i>Rehabilitation Objectives</i>	<i>Spatial Reference</i>

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4.2 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA – STAKEHOLDER CONSULTATION

Ongoing consultation with the community and relevant stakeholders occurs via the Vickery Extension Project Community Consultative Committee, Whitehaven’s website, and the VCM community hotline.

Whitehaven has consulted with, and will continue to consult with, the DPE, NSW Mining, Exploration and Geoscience, DPE – Water, Biodiversity & Conservation Division, Gunnedah Shire Council and Narrabri Shire Council and other stakeholders in regard to operations and rehabilitation at the VCM.

As the Vickery Extension Project EIS progressed, update meetings were held with the DPE to discuss a number of key Project-related issues including rehabilitation measures, the proposed final landform design and land use for the VCM area.

The Final Landform and Rehabilitation Plan has been prepared to be consistent with the Rehabilitation Plan in Appendix 6 of Development Consent (SSD-7480) and no changes are currently proposed to the Final Landform and Rehabilitation Plan.

A summary of the consultation completed for rehabilitation at the VCM is provided in Table 9 below.

Table 9: Stakeholder Consultation for the Rehabilitation Management Plan

Relevant Stakeholder	Consultation Activity/Form of Consultation	Matters discussed and Actions Taken in Response
DPE	<ul style="list-style-type: none"> • Via the DPE - Major Projects Planning Portal. • Review of formal documentation. 	•
NSW Mining, Exploration and Geoscience	<ul style="list-style-type: none"> • Via the DPE - Major Projects Planning Portal. • Review of formal documentation 	•
DPE – Water	<ul style="list-style-type: none"> • Via the DPE - Major Projects Planning Portal. • Review of formal documentation. 	•
Biodiversity & Conservation Division	<ul style="list-style-type: none"> • Via the DPE - Major Projects Planning Portal. • Review of formal documentation. 	•
Gunnedah Shire Council	<ul style="list-style-type: none"> • CCC meetings and presentations. 	•

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Narrabri Shire Council	<ul style="list-style-type: none"> • CCC meetings and presentations. 	<ul style="list-style-type: none"> •
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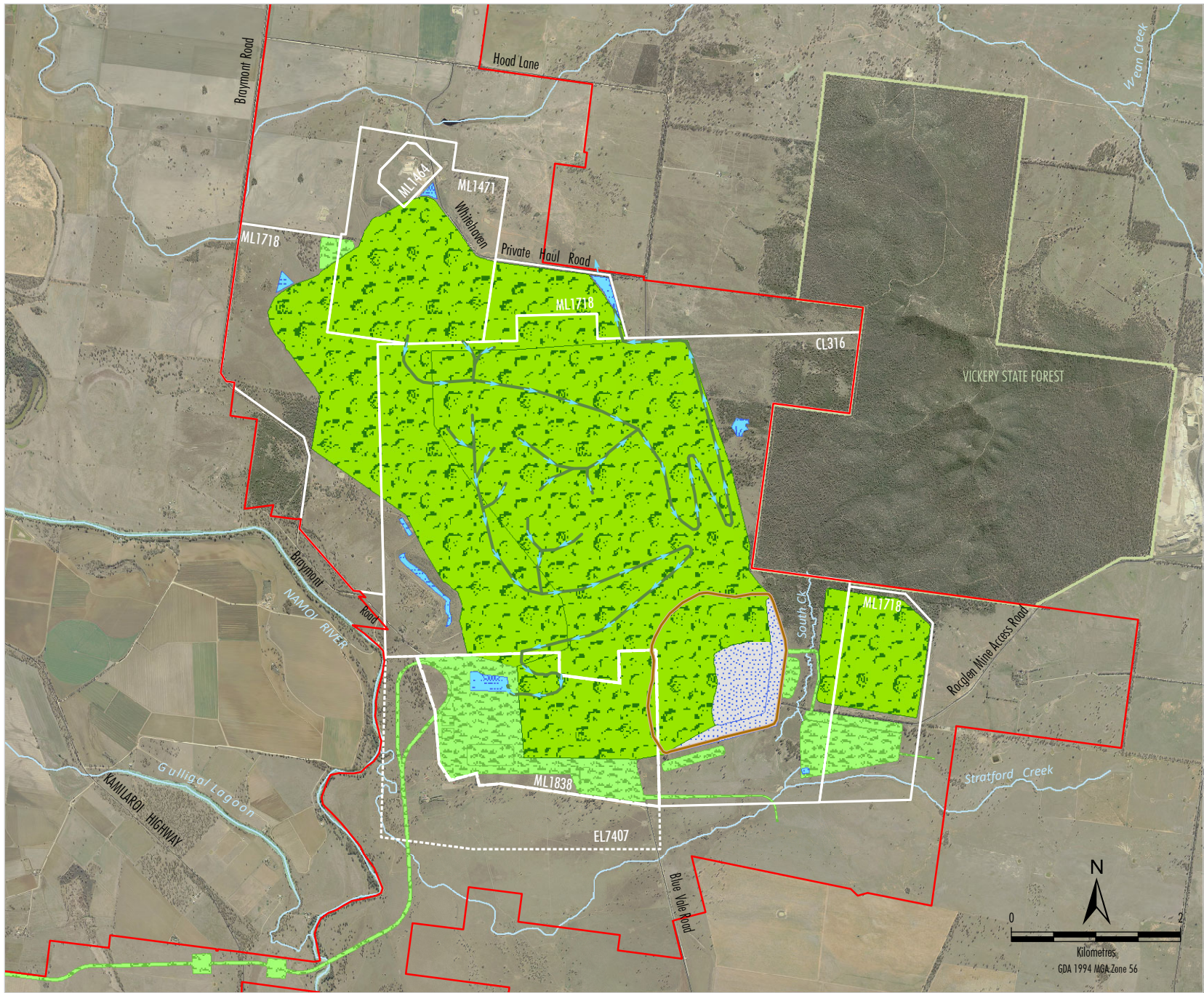
5 FINAL LANDFORM AND REHABILITATION PLAN

5.1 FINAL LANDFORM AND REHABILITATION PLAN – ELECTRONIC COPY

The Final Landform and Rehabilitation Plan has been prepared to show the proposed final land use and final landform at the end of the mine life. These plans are generally in accordance with the details of the Vickery Extension Project EIS and Development Consent (SSD-7480).

In accordance with clause 12, Schedule 8A of the *Mining Regulation 2016*, the VCM Final Land Use and Rehabilitation Plan has been submitted to the NSW Resources Regulator for approval.

Following approval of the Final Landform and Rehabilitation Plan, this RMP will be amended to substitute the proposed version (Plans 1 and 2) with the version approved by the NSW Resources Regulator in accordance with clause 11, Schedule 8A of the *Mining Regulation 2016*.



- LEGEND**
- Project Approval Boundary*
 - Coal - Current Title
 - Final Landuse Domain**
 - Agricultural – Grazing
 - Final Void
 - Native Ecosystem
 - Water Management Areas
 - Indicative Constructed Channels
 - Indicative Final Void Perimeter Bund

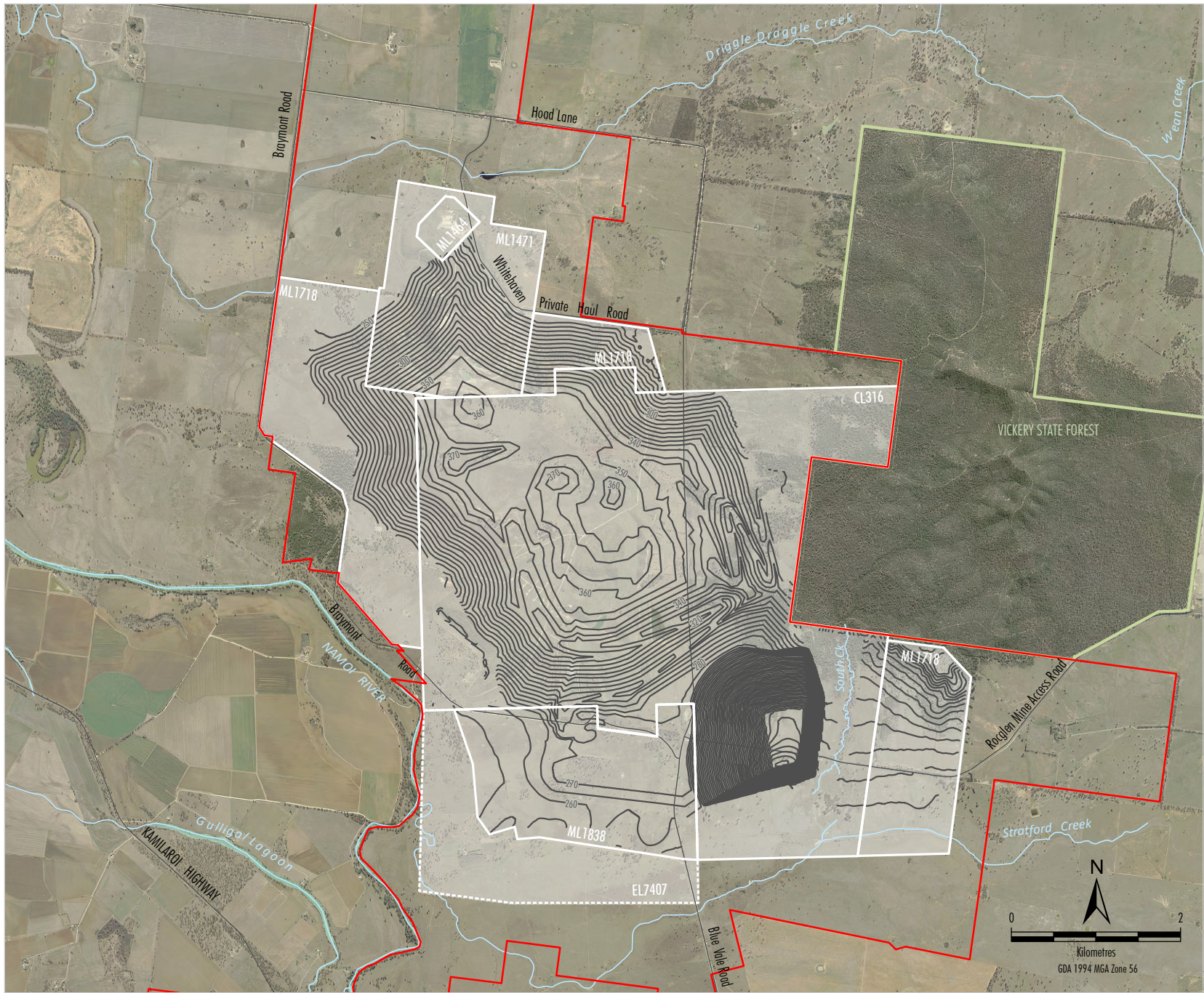
* Appendix 1 of Development Consent (SSD 7480)

* Note: In the order of approx. 54 ha within the larger polygon
 Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Department of Industry (2015); Whitehaven (2013)



VICKERY EXTENSION PROJECT
 Final Landform Features





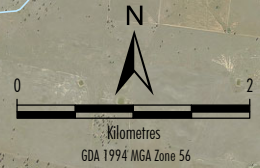
- LEGEND**
- Project Approval Boundary*
 - Coal - Current Title
 - Final Landform Contours (2m Intervals)

* Appendix 1 of Development Consent (SSD 7480)

Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Department of Industry (2015); Whitehaven (2013)



VICKERY EXTENSION PROJECT
Final Landform Contours



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6 REHABILITATION IMPLEMENTATION

6.1 LIFE OF MINE REHABILITATION SCHEDULE

Areas that are disturbed by the VCM will be progressively rehabilitated following mining activities in accordance with Condition A7 of Schedule 2 Part A of Development Consent (SSD-7480). Mining and construction operations may be carried out at the VCM for a period of 25 years following the date of Development Consent (SSD-7480).

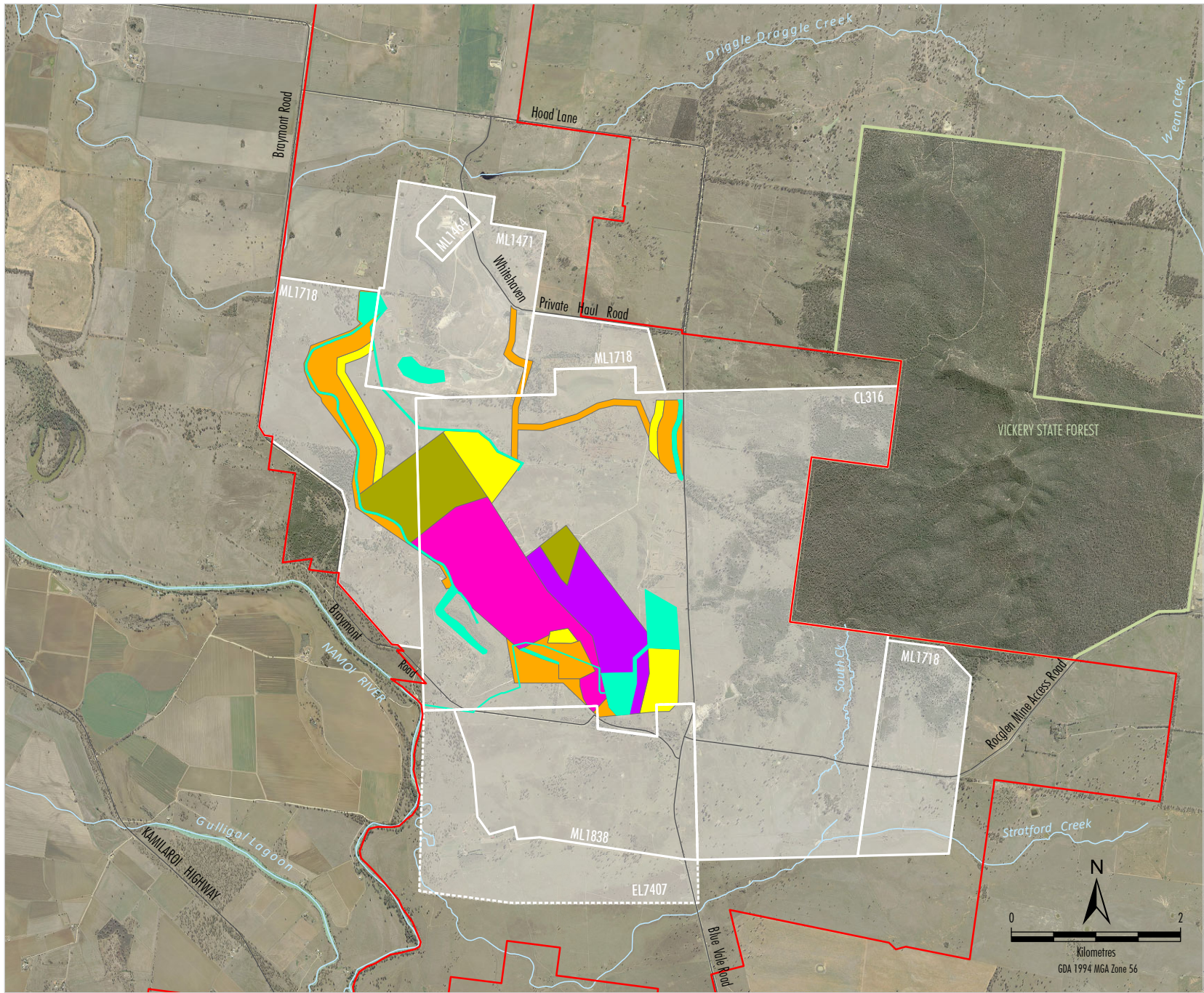
Rehabilitation at the VCM will be undertaken progressively, behind advancing open cut or once areas become available for rehabilitation with the aim of creating a structurally stable landform capable of sustaining the agreed post-mining land use(s).

Plans 3A to 3E outline the proposed rehabilitation schedule over the life of the VCM, from the commencement of this RMP until achievement of the rehabilitation completion criteria and relinquishment.

The VCM Annual Rehabilitation Report and Forward Program will provide further details of activities at the VCM.

In developing the rehabilitation schedule, several assumptions were made to ensure that rehabilitation is undertaken progressively and as soon as reasonably practicable, including:

- No major changes to mining schedules due to market conditions or other reasons.
- There are no extreme weather events that will prohibit landform establishment or rehabilitation progression (e.g. severe and prolonged dry or wet periods).



- LEGEND**
- Project Approval Boundary *
 - Coal - Current Title
 - Mining Domain Types
 - Active Mining Area (Open Cut Void)
 - Infrastructure Area
 - Overburden Emplacement Area
 - Other (Topsoil Stockpile Area)
 - Other (Topsoil Stripped)
 - Water Management Area

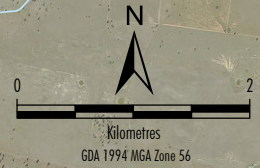
* Appendix 1 of Development Consent (SSD 7480)

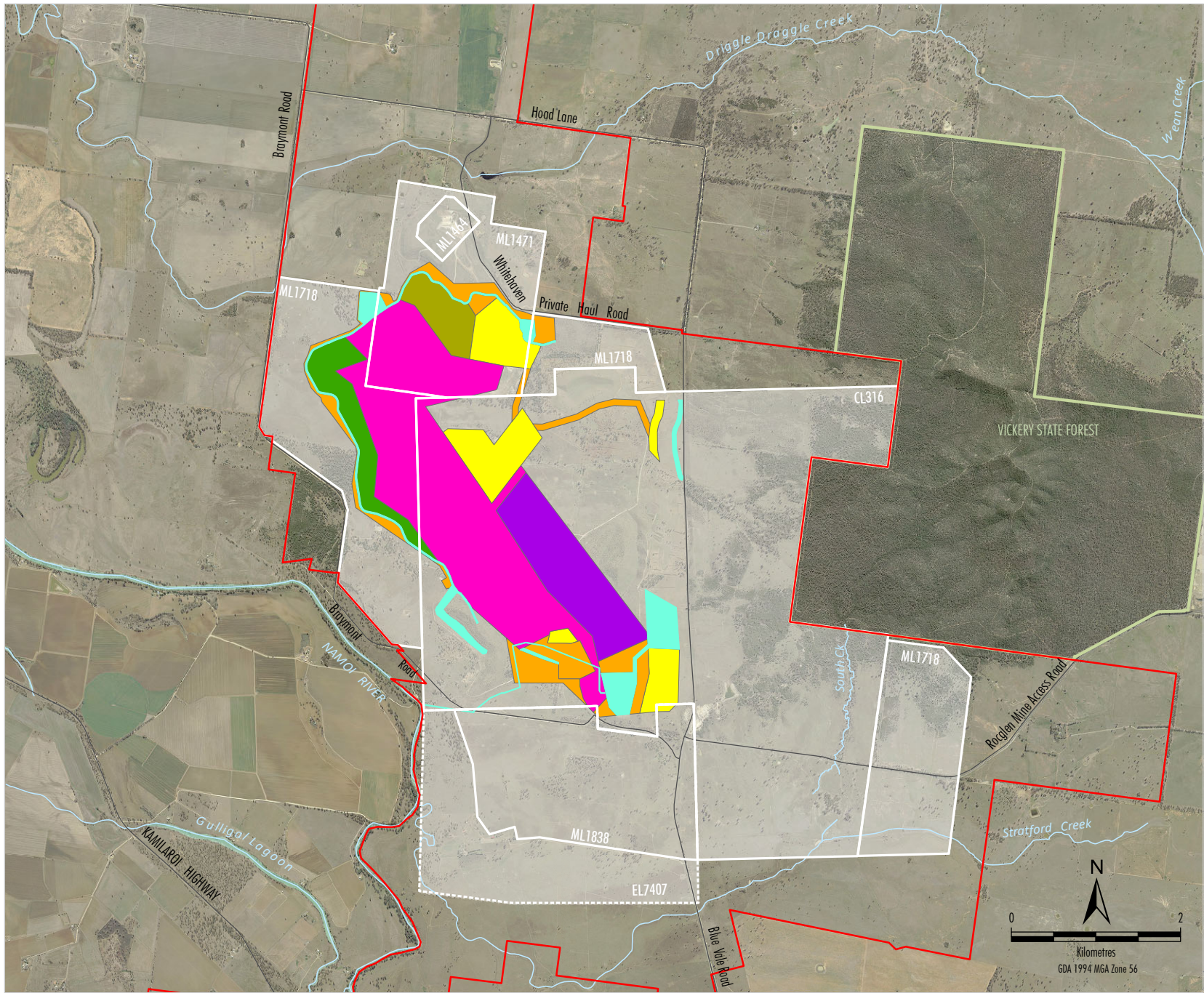
Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Department of Industry (2015); Whitehaven (2013)



VICKERY EXTENSION PROJECT

Life of Mine Rehabilitation Schedule – RMP Commencement





- LEGEND**
- Project Approval Boundary *
 - Coal - Current Title
 - Mining Domain Types
 - Active Mining Area
 - Infrastructure Area
 - Overburden Emplacement Area
 - Rehabilitation
 - Other (Topsoil Stockpile Area)
 - Other (Topsoil Stripped Area)
 - Water Management Area

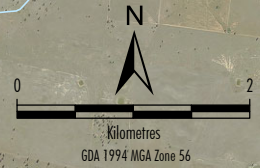
* Appendix 1 of Development Consent (SSD 7480)

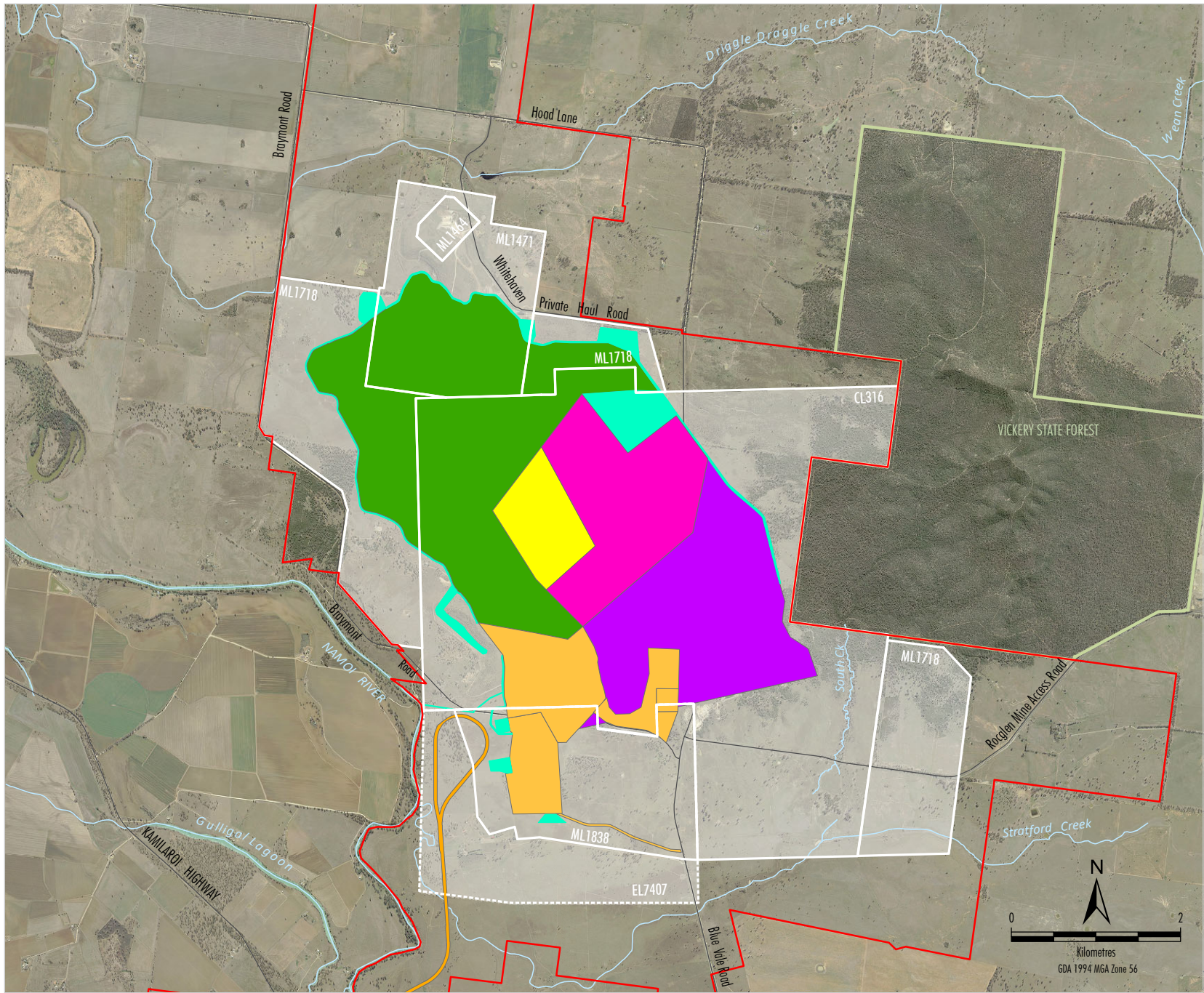
Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Department of Industry (2015); Whitehaven (2013)



VICKERY EXTENSION PROJECT

Life of Mine Rehabilitation Schedule –
Year 5 (2028)





- LEGEND**
- Project Approval Boundary *
 - Coal - Current Title
 - Mining Domain Types
 - Active Mining Area (Open Cut Void)
 - Infrastructure Area
 - Overburden Emplacement
 - Rehabilitation
 - Other (Topsoil Stockpile Area)
 - Water Management Area

* Appendix 1 of Development Consent (SSD 7480)

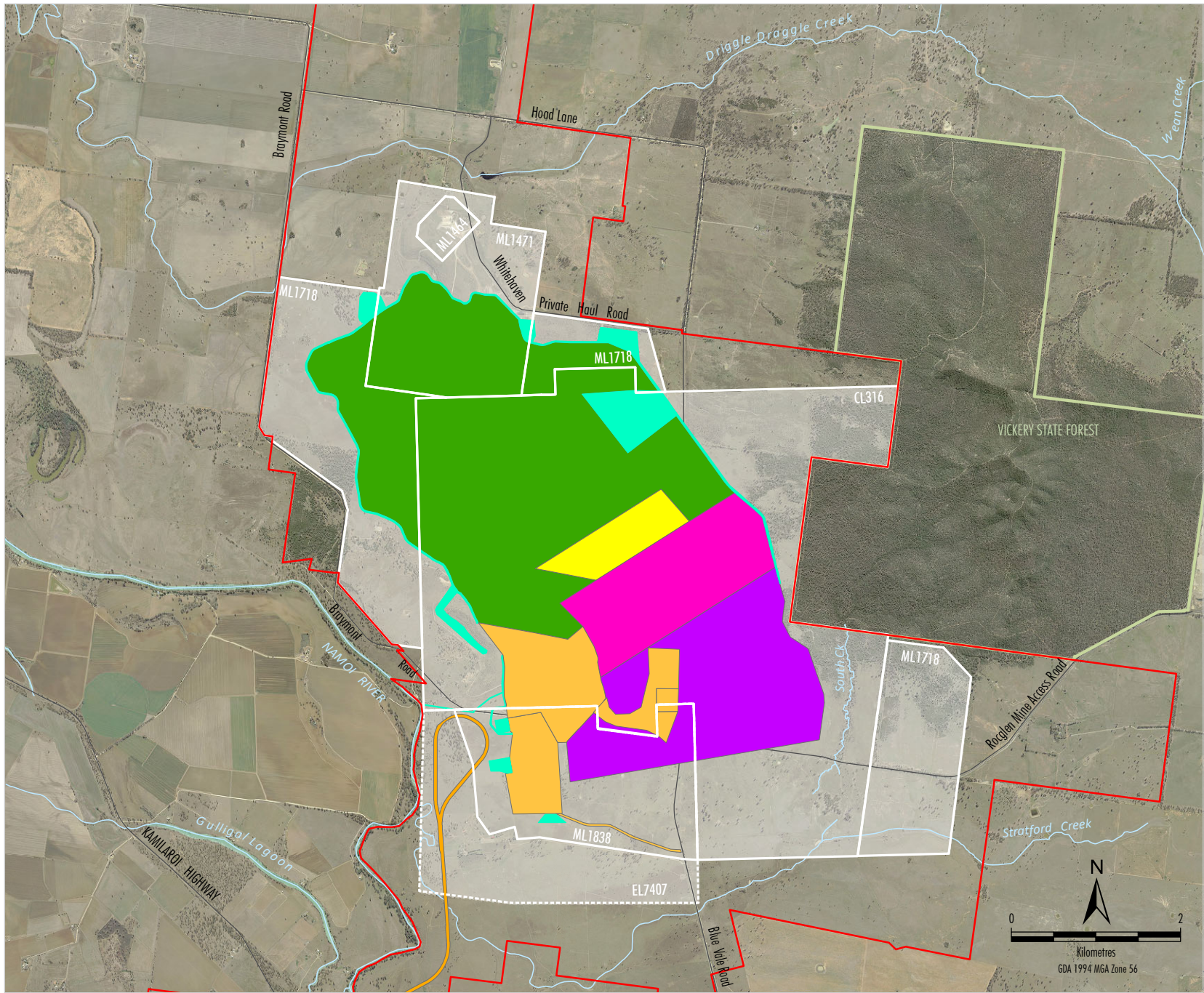
Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Department of Industry (2015); Whitehaven (2013)



VICKERY EXTENSION PROJECT

Life of Mine Rehabilitation Schedule –
Year 10 (2033)

Plan 3C



- LEGEND**
- Project Approval Boundary *
 - Coal - Current Title
 - Mining Domain Types
 - Active Mining Area (Open Cut Void)
 - Infrastructure Area
 - Overburden Emplacement Area
 - Rehabilitation
 - Other (Topsoil Stockpile Area)
 - Water Management Area

* Appendix 1 of Development Consent (SSD 7480)

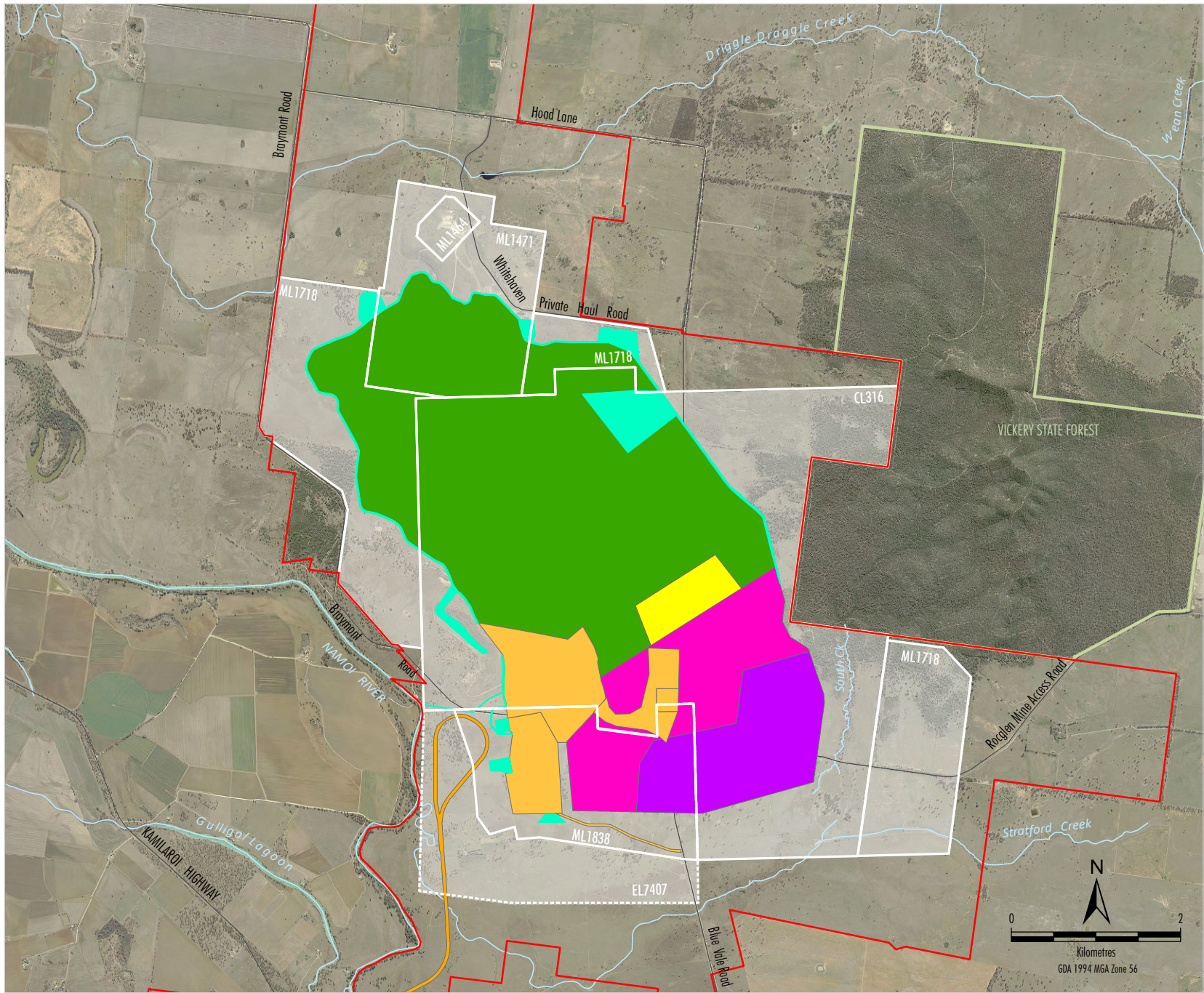
Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Department of Industry (2015); Whitehaven (2013)



VICKERY EXTENSION PROJECT

Life of Mine Rehabilitation Schedule –
Year 15 (2038)

Plan 3D



- LEGEND**
- Project Approval Boundary *
 - Coal - Current Title
 - Mining Domain Types
 - Active Mining Area (Open Cut Void)
 - Infrastructure Area
 - Overburden Emplacement
 - Rehabilitation
 - Other (Topsoil Stockpile Area)
 - Water Management

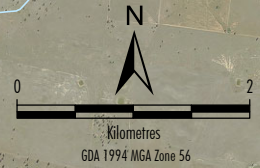
* Appendix 1 of Development Consent (SSD 7480)

Source: Orthophoto - Department of Land and Property Information, Aerial Photography Flown (July 2011); Department of Industry (2015); Whitehaven (2013)



VICKERY EXTENSION PROJECT

Life of Mine Rehabilitation Schedule –
Year 20 (2043)



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6.2 PHASES OF REHABILITATION AND GENERAL METHODOLOGIES

The rehabilitation methodologies described in this section have been developed in consideration of the key risks identified at the VCM (Section 3). The methodologies are link to the risk reduction strategies/actions developed to adequately control the individual risk items as described in Section 3.

The final land use objectives will be achieved through a series of rehabilitation phases as defined in the NSW Resources Regulator’s (2021a) *Form and Way: Rehabilitation Management Plan for Large Mines* and detailed below:

- **Active Mining** – Land associated with mining domains is considered ‘active’ for the period following disturbance until the commencement of rehabilitation.
- **Phase 1: Decommissioning** – This phase of rehabilitation includes activities associated with the removal of mining infrastructure, unless agreed to be retained, and the removal, remediation or management of contaminated and hazardous materials.
- **Phase 2: Landform Establishment** – This phase of rehabilitation consists of the processes and activities required to construct the approved final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials, and prepare a substrate with the desired physical and chemical characteristics.
- **Phase 3: Growth Media Development** – This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short-lived pioneer species). This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
- **Phase 4: Ecosystem and Land Use Establishment** – This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community (e.g. seeding or tube stocking) and implementing land management activities such as weed control.
- **Phase 5: Ecosystem and Land Use Development** – This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving rehabilitation objectives, completion criteria and the Final Landform and Rehabilitation Plan. Completion criteria for this phase will include components of floristic structure, nutrient cycling recruitment and recovery, community structure and function which are the key elements of a sustainable landscape.

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- Phase 6: Rehabilitation Completion** – This final phase of rehabilitation occurs where a rehabilitation area has achieved the final land use for the mining area as stated in the approved rehabilitation objectives and the approved rehabilitation completion criteria and spatially depicted in the approved Final Landform and Rehabilitation Plan. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder.

The phases listed above, and methodologies (where relevant) are discussed in more detail in the following sub-sections.

6.2.1 ACTIVE MINING PHASE

As stated in Section 6.1, mining activities at the VCM are authorised for a period of 25 years following the date of Development Consent (SSD-7480). Accordingly, the following subsections summarise how key aspects of the VCM active mining phase are managed and how relevant components may continue into the closure phase.

a) Soils and Materials

The following management measures will be implemented during the stripping of soils:

- areas of disturbance will be stripped progressively, as required, to reduce the potential for erosion and sediment generation, and to minimise the extent of soil stockpiles and the period of soil storage;
- areas of disturbance requiring soil stripping will be clearly defined following vegetation clearing;
- soil stripping during periods of high soil moisture content (i.e. following heavy rain) will be avoided, wherever practicable, to reduce the likelihood of damage to soil structure; and
- in preference to stockpiling, stripped soil will be directly replaced on completed sections of the final landforms wherever practicable.

Long-term soil stockpiles will be managed to maintain long-term soil viability through the implementation of relevant management practices as listed below:

- Soil stockpiles will be retained at a height of up to 3 metres (m), with slopes no greater than 1:2 (V:H) and a slightly roughened surface to minimise erosion.
- Soil stockpiles will be constructed to minimise erosion, encourage drainage, and promote revegetation.
- Ameliorants such as lime, gypsum and fertiliser will be applied to stockpiles where needed to improve the condition of stripped soil.
- All soil stockpiles will be seeded with a non-persistent cover crop to reduce erosion potential as soon as practicable after completion of stockpiling.

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- Soil stockpiles will be located in positions to avoid surface water flows. Silt stop fencing will be placed immediately down-slope of stockpiles until stable vegetation cover is established.
- A preliminary soil material balance was developed to determine the quantity of soil available for rehabilitation. The balance indicated that approximately 8,681,691 cubic metres of soil will be available for rehabilitation in the VCM mining area.
- An inventory of soil resources (available and stripped) on the VCM site will be maintained and reconciled annually with rehabilitation requirements.
- Weed control programs will be implemented on soil stockpiles if required.

b) Flora

Risks of impacts to flora are avoided, mitigated and managed through the implementation of VCM Land Disturbance Permit (LDP).

The LDP is applied prior to the clearing of any native vegetation and is used to manage the clearing process and to document all licensing, safety and management requirements.

The LDP form is a checklist that must be completed for each stage of clearing by key personnel responsible for the clearing activities, the relevant technical expert (e.g., Surveyor or Electrical Engineer to confirm no presence of cables, etc.) and signed off by the site's Environmental Officer or a delegate.

An independent ecological expert will undertake regular assessments to confirm that maximum disturbance (in hectares) limits, specified for each of the years 5, 10, 15 and 17 is generally consistent with the planned disturbance program for the mine.

Vegetation Clearance Measures

Progressive vegetation clearing would be undertaken during both construction and operational phase of the VCM.

Pre-clearance surveys will be undertaken for the Finger Panic Grass in suitable potential habitat between the months of December and May. The surveys will be undertaken by an appropriately qualified person. If Finger Panic Grass is identified during the pre-clearance surveys, the following management measures will be evaluated and applied, where practicable:

- evaluation of whether the occurrence can be avoided (e.g. modifying a stockpile);
- further survey work to evaluate the complete extent of the population;
- collection and propagation of seed/vegetative material for use in revegetation and rehabilitation; and/or
- conservation of Finger Panic Grass in an offset area or funds towards conservation of Finger Panic Grass in NSW.

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The Winged Peppergrass (*Lepidium monoplocoides*) is a threatened flora species listed as 'Endangered' under the BC Act and Commonwealth *Environment Protection and Biodiversity Act 1999* (EPBC Act), and has been previously recorded at the VCM (Niche Environment and Heritage, 2013). Management measures specific to the Winged Peppergrass, including seed collection and translocation of plants identified within the Approved Mine footprint and monitoring and maintenance of the Winged Peppergrass Protection Area as detailed in the Biodiversity Management Plan.

Bushfire Risk Management

Bushfire management measures will include clearing restrictions, controlled grazing where practicable, restricted vehicle movements, fire breaks, the use of diesel vehicles, prohibition of smoking and rapid response to any outbreak of fire.

Approved Private Haul Road and Kamilaroi Highway Overpass

The approved private haul road and Kamilaroi Highway overpass will be constructed to minimise the number of mature trees that will be felled.

c) Fauna

Fauna will be managed at VCM in accordance with the VCM Biodiversity Management Plan.

Potential fauna habitat (e.g. logs/hollows) salvaged during pre-clearance surveys will be relocated to the woodland/forest rehabilitation areas. Habitat features such as tree hollows, logs and stags will be salvaged from the disturbance areas where possible and provided as a habitat resource for fauna. Tree hollows and logs will be selectively chosen for placement in areas where habitat enhancement is required. Cleared vegetation from within areas of disturbance will be re-used in the mine rehabilitation program.

d) Rock/Overburden Emplacement

The waste rock emplacement will reach an elevation of approximately 370 m Australian Height Datu, it will include natural landform design features such as:

- Micro-relief (i.e. gently undulating surface typically ranging in elevation by 1 to 2 m) to assist in drainage design that replicates natural drainage systems.
- Macro-relief (i.e. 10 to 20 m hills similar to those found in the Vickery State Forest) to the top surface of the waste rock emplacement to improve the integration of the landform with the surrounding environment and mitigate potential visual impacts.

e) Waste Management

The approved VCM Waste Management Plan describes the measures that will be implemented to avoid, minimise, reuse and recycle all waste streams generated during the construction and operation stages of the VCM.

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The following waste management strategies will be implemented to ensure waste generated and received at VCM are minimised:

- Site induction including information regarding the management of waste and correct disposal of waste streams to support segregation and recycling occurs where available.
- Waste storage areas appropriately signposted.
- Appropriate waste receptacles made available.
- Drill wastes will be disposed of in accordance with the relevant approvals. The disposal of drill wastes is subject to obtaining the necessary approvals under the EP&A Act and will be disposed of in accordance with that approval.
- Coal rejects from the Gunnedah CHPP will be managed in accordance with the Vickery Extension Project EIS that describes the coal reject disposal strategy. No reject material will be placed within 30 m of the edge of the Western Emplacement, and reject material will be covered with at least 5 m of inert material on the outer surfaces of the waste rock emplacement.
- No long term storage of any waste.
- Avoid over-ordering of materials.
- Procuring alternate products or bulk ordering will be considered to reduce packaging.
- Regular review of stock levels.
- Except as permitted in the applicable EPL, specific resource recovery order or exemption under the *Protection of the Environment Operations (Waste) Regulation 2014*, receiving waste at the site for storage, treatment, processing, reprocessing or disposal will not be undertaken.

f) Geology and Geochemistry

The VCM is located within the Gunnedah Basin, which contains sedimentary rocks, including coal measures, of Permian and Triassic age.

The VCM coal resource is located within the Maules Creek sub-basin of the Early Permian Bellata Group. The target coal seams are contained within the Maules Creek Formation. The Maules Creek Formation is the primary coal bearing unit and consists of conglomerate, coal, lithic sandstone and mudstones.

The Geochemistry Assessment prepared by Geo-Environmental, concluded that the majority of the overburden and interburden generated from the VCM will generally be expected to have a low sulfur content and be non-acid forming (NAF).

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Coal rejects will be managed in accordance with the Coal Reject Disposal Strategy as described in the Vickery Extension Project EIS. Dewatered coal rejects would be co-disposed with waste rock and would not be placed within 30 m of the edge of the western emplacement, and reject material would be covered with at least 5 m of inert material on the outer surfaces of the waste rock emplacement.

Reject material will be periodically sampled during the mine life to confirm geochemical characteristics and to enable the reject disposal strategy to be adjusted as necessary.

g) Material Prone to Spontaneous Combustion

Spontaneous combustion events have the potential to give rise to odour emissions. Based on experience from previous mining in the vicinity of the VCM (i.e. the former Canyon Coal Mine), Whitehaven does not expect spontaneous combustion events to occur for the VCM. Measures to avoid potential spontaneous combustion events, including mine planning, risk identification and assessment and identification of potential hot spots will be incorporated into ongoing mining procedures.

h) Material Prone to Generating Acid Mine Drainage

A small quantity of overburden was identified as containing increased sulfur concentrations but with low acid generating capacity. These materials are anticipated to produce acid conditions only if left exposed to the atmosphere for a number of years.

Some interburden material (typically mudstone) was identified as containing increased sulfur concentrations and higher acid generating capacity. Blending of this material during excavation, transport and dumping is expected to produce an overall NAF material.

The rejects material is typically expected to be NAF. A small proportion of the rejects are likely to have a very low acid neutralising capacity and as such there is a risk that some of these materials will be potentially acid forming (PAF). However, due to the low total sulfur content, any PAF coal rejects are expected to only have a low capacity to generate acid.

In the event that low pH conditions or high metal concentrations are identified through surface water monitoring, an investigation will be undertaken and remedial measures will be implemented, if required.

The Water Management Plan (WMP) has been developed for the VCM in consideration of the requirements of an EPL and relevant Development Consent (SSD-7480) conditions for the VCM. The WMP includes a comprehensive monitoring program that will enable the detection of poor-quality water, and exceedance of trigger values in the Trigger Action Response Plans (TARPs) will initiate an investigation to assess whether the identified exceedance has been caused by the VCM.

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i) Ore beneficiation waste management (reject and tailing disposal)

Until the VCM CHPP, train load-out and rail spur infrastructure reach full operational capacity, the Approved Road Transport Route will continue to be used for transport of VCM ROM coal to the Gunnedah CHPP.

Combined transport of ROM coal from the VCM and Tarrawonga Coal Mine to the Gunnedah CHPP will not exceed 3.5 Mtpa, or 4.5 Mtpa with the construction of the approved private haul road and Kamilaroi Highway overpass.

The potential risks associated with coal rejects (coarse and fine) generated by the processing of ROM coal from the VCM were assessed as part of the Geochemistry Assessment undertaken by Geo-Environmental.

j) Erosion and Sediment Control

The site sediment and erosion control system will be managed through a WMP developed for the VCM. The sediment and erosion control system will be updated periodically to address changes over the VCM life. The effectiveness of the system will be assessed through regular monitoring.

The operational sediment and erosion control works will be retained and maintained during initial rehabilitation. Following the establishment of self-sustaining, stable final landforms, key elements of the operational sediment control structures will either be removed unless otherwise agreed with the relevant government agencies and landholders (e.g. the sediment dams may be retained for agricultural purposes or as passive water control storages).

k) Ongoing Management of Biological Resources for Use in Rehabilitation

Biological resources such as native seeds and habitat features (stag trees, fallen logs and large flat rocks) will be managed to ensure viability for use in rehabilitation. Management measures include but are not limited to the management of weeds, effective storage, regular inspections and maintenance programs.

l) Mine Subsidence

No subsidence impacts will occur as a result of the operations planned at the VCM, as mining operations are open cut.

m) Management of Potential Cultural and Heritage Issues

Aboriginal heritage is managed in accordance with the ACHMP which was developed in consultation with Registered Aboriginal Parties (RAPs) and Heritage NSW.

Engagement with RAPs will be maintained throughout the life of the VCM including as part of detailed mine closure planning.

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n) Exploration Activities

Exploration within the VCM mining area has been conducted since the 1970s, with approximately 1,400 exploration holes investigated to date. Whitehaven has also conducted three ground magnetic surveys to evaluate various geological features.

During the life of the VCM, exploration activities will continue to be conducted in the Development Application area. Exploration activities will be undertaken in accordance with the requirements of the *Exploration Code of Practice: Rehabilitation* (NSW Resources Regulator, 2021b).

6.2.2 DECOMMISSIONING

The Decommissioning Phase encompasses all works required to prepare land for rehabilitation including decommissioning of infrastructure.

Decommissioning, demolition, and removal of infrastructure from the mine site will generally be undertaken during the mine closure phase. Any infrastructure including dams, roads and buildings which is beneficial for future use by post mining landowners may be left in place subject to relevant landowner agreements and regulatory approvals.

Decommissioning and demolition activities will be appropriately planned and documented to ensure that appropriate approvals are in place for the works. Further detail regarding demolition activities will be determined as the operation approaches closure. Detail in this regard will be reported in the Forward Program.

a) Site Security

Site security measures will be implemented during and following the decommissioning process to prevent access by members of the public and secure rehabilitation areas, including any heritage places or objects and any retained infrastructure items. Site security measures include:

- site sign-in and induction processes;
- maintenance of existing security fences and signage; and
- restricted offroad access to rehabilitated areas.

b) Infrastructure to be removed or demolished

Under Condition B107 Schedule 2 Part B of Development Consent (SSD-7480), Whitehaven is required to decommission and remove surface infrastructure at the VCM. Whitehaven is also required to decommission structures over the Kamilaroi Highway.

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The priority will be to dismantle fixed equipment and infrastructure for removal from site and re-use at another location, or for recycling. Non-salvageable/non-recyclable infrastructure will be disposed of at suitable off-site disposal areas, or on-site, subject to demonstration that no land contamination risk will be posed and relevant approvals are obtained.

c) Buildings, Structures and Fixed Plant to be Retained

Infrastructure will only be retained post-mining in agreement with the relevant regulatory authority and landowners.

d) Management of Carbonaceous/Contaminated Material

Potential land contamination risks from the VCM include leaks/spills, fires and explosions associated with the transport, storage and use of hydrocarbons and chemicals.

General measures to reduce the potential for contamination of land will include the following:

- Contractors that transport dangerous goods to and from site will be appropriately licensed in accordance with the provisions of the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2014) (or its latest version).
- On-site consumable storage areas will be designed with appropriate bunding.
- Fuel and explosive storage areas will be regularly inspected and maintained.

e) Hazardous Materials Management

Prior to commencing any demolition of the structures on site, a hazardous material survey will be undertaken to assess the potential for lead paints and asbestos-containing material within building structures to allow management/removal actions to be appropriately implemented.

Hazardous and explosive materials will be transported and stored on-site in accordance with the NSW *Work Health and Safety Act 2011* and supporting *Work Health and Safety Regulation 2017*, the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and the supporting *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*, as well as the NSW *Explosives Act 2003* and supporting *Explosives Regulation 2013*.

A number of hazard control and mitigation measures are described in management plans for the VCM (e.g. Blast Management Plan and WMP).

Management measures will also be developed to control and mitigate potential waste and bushfire hazards.

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f) *Underground Infrastructure*

VCM is an open cut mine, subsequently there is currently no underground infrastructure.

6.2.3 LANDFORM ESTABLISHMENT

The following subsection details the key characteristics of landform establishment at the VCM in accordance with the design of the Final Landform and Rehabilitation Plan (Section 5).

a) *Water Management Infrastructure*

Water management structures will be established during the construction and operational phase of the VCM. Wherever possible, water management structure will be established in locations where they can remain for the life of the mine, however in some cases water management structures will be temporary, and will need to be relocated (e.g. as the open cut and waste emplacement are progressively developed and rehabilitated).

Following closure, the two mine water dams and three coal contact water dams will be removed and the area rehabilitated to land suitable for cattle grazing, consistent with the existing Agricultural Suitability of these areas (i.e. Class 3 and 4 Agricultural Suitability Land).

Following the establishment of self-sustaining, stable final landforms, key elements of the operational sediment control structures will be removed unless otherwise agreed with the relevant government agencies and landholders (e.g. the sediment dams may be retained for agricultural purposes or as passive water control storages).

Elements of the final landform such as constructed channels will be shaped, as much as practical, to undulating profiles in keeping with natural landforms of the surrounding environment. Water management structures will be designed to collect surface runoff from rehabilitation or disturbed areas.

Water management areas to be retained following closure of the VCM are shown on Plan 1.

b) *Final Landform Construction: General Requirements*

The final landform has been designed to integrate with the surrounding natural landforms (i.e. Vickery State Forest), including consideration of elevation, slope and drainage. The final landform has been constructed to include the following:

- A waste rock emplacement incorporating natural landform design features (i.e. micro-relief and macro-relief) that reflect characteristics of the topography found in the adjacent Vickery State Forest (e.g. elevated landforms with steeper slopes in some areas relative to the surrounding plains).
- Drainage features designed to be stable in the long-term.

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- Rehabilitated infrastructure areas that are flat and contiguous with the surrounding agricultural areas.

c) Final Landform Construction: Reject Emplacement Areas and Tailings Dams

Reject Emplacement Areas

Waste rock (including overburden and interburden) would be placed in the Western Emplacement and within the footprint of the open cut void.

Dewatered coal rejects from the Gunnedah CHPP would be co-disposed with waste rock. No reject material would be placed within 30 m of the edge of the Western Emplacement, and reject material would be covered with at least 5 m of inert material on the outer surfaces of the waste rock emplacement

Reject material would be periodically sampled during the mine life to confirm geochemical characteristics and to enable the reject disposal strategy to be adjusted as necessary.

Drainage Design

Micro-relief will be integrated into the waste rock emplacement to direct runoff into vegetated drainage paths, and improve the geotechnical performance, stability and hydrological function of the final landform.

The vegetated drainage paths will be designed to minimise flow velocities and located to minimise the overall slope of the drainage path. The drainage paths will be developed in consideration of length, slope, reporting catchment area and final land use.

The drainage paths will meander between macro-relief (i.e. 10 to 20 m hills similar to those found in the Vickery State Forest) along the top of the waste rock emplacement and down the waste rock emplacement batters.

Larger drainage paths will flow into sediment dams (adjacent to the waste rock emplacement) constructed to manage runoff on part of mine operations. This will provide an opportunity to allow for flow velocities to decrease before flowing to the surrounding environment.

Revegetation

The waste rock emplacement will be revegetated with native tree, shrub and grass species, between the native vegetation in the Vickery State Forest and the Namoi River.

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d) Final Landform Construction: Final Voids, Highwalls and Low Walls

Geomorphic Design Principles

The mine plan for the VCM allows for progressive emplacement of waste rock within the footprint of the open cut. The final landform will include a rehabilitated final void with a depth of approximately 235 m below the pre-mining surface level. The existing Blue Vale final void will also remain in the final landform.

The final void within the perimeter bund will be bounded by highwalls on its eastern, northern and southern sides, with shallower slopes (i.e. 10 to 15 degrees) on the western side. The highwalls for the final voids will be designed to be geotechnically stable in the long-term. If required, additional works will be undertaken following the completion of mining to improve their long-term geotechnical stability.

Final Void Surface Water and Groundwater Inflows

Once mining operations cease, groundwater inflows to the final void will no longer be collected and pumped out, and as a result, it will gradually begin to fill with water. Water in other on-site operational storages may also be transferred to the final void to facilitate decommissioning and rehabilitation.

Inflows into the final void will comprise groundwater and incident rainfall runoff within the final void catchment area. The catchment area of the final void will be defined by a permanent perimeter bund.

The final void water recovery analyses include simulations of the long-term salinity of the final void waterbody. Salinity is expected to increase through accumulation of salt, primarily from groundwater inflows, and evaporation from the final void lake.

Following closure, any water in the Blue Vale final void will be removed (e.g. transferred to the VCM final void) and the Blue Vale final void rehabilitated consistent with existing rehabilitation condition (i.e. rehabilitated to grassland).

e) Construction of Creek/River Diversion Works

The up-catchment diversion system associated with the catchments reporting to the final voids will be permanent structures that will remain post-mining and not require rehabilitation.

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6.2.4 GROWTH MEDIUM DEVELOPMENT

In the context of this RMP, growth medium development encompasses activities to reinstate soils with the initial physical, chemical and biological characteristics required to establish the desired vegetation community.

Characterisation

Sampling will determine if the topsoil and subsoil is suitable for rehabilitation use or if it requires amelioration or selective handling and placement. If the growth medium cannot be effectively ameliorated, unsuitable subsoil and spoil, will be buried and capped.

Capping spoil will be ameliorated if required, and contour ripped prior to the placement of the topsoil.

Topsoil Respreading and Amelioration

Topsoil will be spread onto areas requiring rehabilitation to a nominal depth of approximately 0.2 m to 0.3 m will be used for areas rehabilitated to native woodland/forest (McKenzie Soil Management, 2012; Thackway and Freudenberger, 2016), and a nominal re-application depth of 0.9 m will be used for areas rehabilitated to land suitable for agricultural uses (McKenzie Soil Management, 2012) (to be refined during the VCM life based on operational experience and mine progression and extent).

The soil testing results will be used to determine if physical and/or chemical amelioration is required, and the rates and method of application. The spreading of soil, addition of soil ameliorants, fertiliser, and application of seed will be carried out where possible in consecutive operations to reduce the potential for soil loss to wind and water erosion.

All soils will be lightly ripped prior to seeding. This will be conducted on the contour where possible and will be managed to minimise the potential for unsuitable spoil material being ripped up to the surface.

Seed Bed Preparation

Thorough seedbed preparation will be undertaken to ensure optimum establishment and growth of vegetation. All soils will be lightly ripped prior to seeding to ensure any ameliorants are incorporated into the soil and rough surface is established to capture seed. This will be conducted along the contour where possible and will be managed to minimise the potential for unsuitable spoil material being ripped up to the surface.

For tree planting / tubestock areas, tree mounds should be scheduled well ahead of the target planting date to allow for settlement, to capture rain, improve soil moisture and ongoing moisture retention.

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6.2.5 ECOSYSTEM AND LAND USE ESTABLISHMENT

Agricultural – Grazing Establishment

Assessment of the physical and chemical properties of the soils within the western part of the VCM will be suitable rehabilitation medium for agricultural uses post-mining.

The areas to be rehabilitated to agricultural land uses will be prepared with a nominal total soil profile depth of approximately 0.9 m (to be refined based on operational experience). This soil profile will provide root zone chemical and physical conditions that are at least as favourable for grazing as the existing agricultural land in the VCM mining area (i.e. Class 3 or 4 Agricultural Suitability Land).

Native Ecosystem Establishment

As part of the Biodiversity Offset Strategy for the VCM, woodland/forest vegetation is to be established on the final landforms to enable ecosystem credits to be generated under the NSW Offset Policy.

The final landforms will be revegetated to one or more of the native woodland/forest vegetation types that occur in the surrounding sub-region and are the same vegetation class as required to be provided as part of the Biodiversity Offset Strategy.

The woodland/forest will be a recognisable vegetation type that is self-sustaining and listed in the *NSW BioNet Vegetation Information System: Classification* (OEH, 2016) as required by the *NSW Biodiversity Offset Policy for Major Projects* (OEH, 2014). Native species to be planted in revegetation areas will be selected on a site by site basis depending on pre-existing vegetation, nearby remnant vegetation associations, soil types, aspect and site conditions.

6.2.6 ECOSYSTEM AND LAND USE DEVELOPMENT

At the ecosystem and land use development phase, rehabilitation monitoring results will be used to confirm rehabilitation areas are on a trajectory towards a self-sustaining ecosystem and meeting the rehabilitation completion criteria. Monitoring results will also be used to determine the recommendations and requirements for maintenance and/or contingency measures (e.g. supplementary plantings, weed control and erosion repair) to improve rehabilitation performance.

Key activities in the ecosystem and land use development phase include:

- rehabilitation monitoring (Section 8);
- rehabilitation maintenance including ongoing:
 - weed and feral animal control;

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- erosion control work maintenance;
- maintenance fertilizing and re-seeding or re-planting (where required); and
- repair of fence lines, access tracks and other general related land management activities;
- intervention and adaptive management (Section 10).

Weed and Feral Animal Control of Rehabilitation Areas

Weed management practices adopted include:

- ongoing visual assessments and annual weed monitoring;
- application of herbicides where required to control weed infestations;
- recording and controlling any occurrences of Class 4 noxious weeds in accordance with the Narrabri Shire Council management plan;
- restriction of grazing and vehicular traffic to minimise spread of weeds; and
- liaison with the North West Local Land Services (LLS) and adjacent landowners.

Controls in place to minimise the impact and potential for feral animal infestation include:

- Ongoing visual observations of feral animal activity including inspections for all the nominated vertebrate pests will be conducted in conjunction with the Biodiversity Management Plan and Rehabilitation Monitoring Program.
- Liaison with adjoining landholders and the North West LLS, and participation with any local landholder and/or North West LLS vertebrate pest control programmes. Pest control actions may include 1080 poison baiting for European Rabbits, Feral Pigs and European Red Foxes, and the trapping of Feral Pigs.

Seedlings (tubestock) planted in rehabilitation areas may be protected from grazing pest animals including rabbits by installing plastic tree guards if required.

Native Vegetation Rehabilitation Management and Agricultural Monitoring

Rehabilitation monitoring will be established for the grazing areas and native ecosystem areas of rehabilitation.

Rehabilitation monitoring for the native vegetation and grazing areas includes a combination of visual monitoring and Ecosystem Function Analysis monitoring. These monitoring methods are described in the Rehabilitation Monitoring Program (Section 8).

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6.3 REHABILITATION OF AREAS AFFECTED BY SUBSIDENCE

VCM has no areas affected by underground mining subsidence.

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7 REHABILITATION QUALITY ASSURANCE PROCESS

A Rehabilitation Quality Assurance Process will be implemented which details rehabilitation, key actions and/or processes nominated for each phase throughout the life of the operations to ensure that:

- Rehabilitation is implemented in accordance with the nominated methodologies.
- Identified risks to rehabilitation are adequately addressed before proceeding to the next phase of rehabilitation.
- Rehabilitation is completed to the standard required to achieve the applicable completion criteria.

The Rehabilitation Quality Assurance Process will measure how the requirements of this RMP have been met and will document the rehabilitation evidence used for assessing against the completion criteria. The Rehabilitation Quality Assurance Process will be integrated into day to day operations at the VCM and implemented throughout the life of the operation, including into closure until rehabilitation relinquishment has been achieved. The Rehabilitation Quality Assurance Process is outlined in Table 10. Rehabilitation validation monitoring is undertaken as described in Section 8.



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Table 10: Rehabilitation Quality Assurance Program

REHABILITATION PHASE	DOMAIN	QUALITY ASSURANCE ACTIONS AND PROCESSES	RESPONSIBILITIES FOR IMPLEMENTATION	METHOD FOR DOCUMENTING AND RECORDING PROCESSES
Active Mining	Domain 5 Active Mining Area (Open Cut Void)	<ul style="list-style-type: none"> • Documentation of pre-clearance surveys. • Resource salvage records (e.g. soil, rocks and habitat trees). • Records of competent personnel for active mining and rehabilitation. • Soil testing. 	HSE personnel and Production Department	<ul style="list-style-type: none"> • Inspections and documentation. • Pre clearance records • Soil tracking register
Decommissioning	All Mining Domains	<ul style="list-style-type: none"> • Infrastructure Decommissioning Strategy. • Contaminated land assessment. • Hazardous material assessment. • Removal of waste. 	HSE personnel	<ul style="list-style-type: none"> • Annual Rehabilitation Report and Forward Program. • Annual Review. • Inspections and documentation. • Validation report.
	Domain 1 Infrastructure Area	<ul style="list-style-type: none"> • Infrastructure Decommissioning Strategy. • Inspections and demolition reports. 	HSE personnel	<ul style="list-style-type: none"> • Demolition report. • Inspections and documents.



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Table 10 (Continued): Rehabilitation Quality Assurance Program

REHABILITATION PHASE	DOMAIN	QUALITY ASSURANCE ACTIONS AND PROCESSES	RESPONSIBILITIES FOR IMPLEMENTATION	METHOD FOR DOCUMENTING AND RECORDING PROCESSES
Decommissioning (Continued)	Domain 3 Water Management	<ul style="list-style-type: none"> Water quality monitoring. Hydraulic and hydrologic modelling. Retained water infrastructure assessed. 	HSE Team	<ul style="list-style-type: none"> Annual Rehabilitation Report and Forward Program. Annual Review. Consultation records. Modelling reports. Monitoring reports. Survey. Validation reports.
	Domain 4 Overburden Emplacement Area	<ul style="list-style-type: none"> Contaminated land assessment. Monitoring and assessment of final landform. 	Mine rehabilitation and closure team	<ul style="list-style-type: none"> Demolition report. Inspections and documents.
	Domain 8 Other (Topsoil Stockpile Areas)	<ul style="list-style-type: none"> Infrastructure Decommissioning Strategy. 	Mine rehabilitation and closure team	<ul style="list-style-type: none"> Demolition report. Inspections and documents.



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Table 10 (Continued): Rehabilitation Quality Assurance Program

REHABILITATION PHASE	DOMAIN	QUALITY ASSURANCE ACTIONS AND PROCESSES	RESPONSIBILITIES FOR IMPLEMENTATION	METHOD FOR DOCUMENTING AND RECORDING PROCESSES
Landform Establishment	All Final Land Use Domains	<ul style="list-style-type: none"> Final landform topographic survey. Landform erosion modelling. Surface water quality monitoring. Groundwater quality monitoring. Erosion and sediment control monitoring. Geotechnical assessment of stability. Photographic monitoring of rehabilitation landforms. Visual monitoring. 	Mine rehabilitation and closure team	<ul style="list-style-type: none"> Expert assessment reports. Inspections and documentation. Validation reports. Survey.
Growth Medium Development	All Final Land Use Domains	<ul style="list-style-type: none"> Supervision of topsoil spreading. Visual and photographic monitoring. Tracking and review of topsoil balance. Soil chemistry analysis. Erosion and sediment control monitoring. 	HSE team	<ul style="list-style-type: none"> Annual Rehabilitation Report and Forward Program. Annual Review. Inspections and documentation. Monitoring reports.
Ecosystem and Land Use Establishment	Domain A Native Ecosystem	<ul style="list-style-type: none"> Analysis of ecosystem function. Landscape Function Analysis (LFA). Surface water quality monitoring. Groundwater quality monitoring. Visual and photographic monitoring. 	HSE team	<ul style="list-style-type: none"> Annual Rehabilitation Report and Forward Program. Annual Review. Inspections and documentation. Monitoring reports.



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Table 10 (Continued): Rehabilitation Quality Assurance Program

REHABILITATION PHASE	DOMAIN	QUALITY ASSURANCE ACTIONS AND PROCESSES	RESPONSIBILITIES FOR IMPLEMENTATION	METHOD FOR DOCUMENTING AND RECORDING PROCESSES
Ecosystem and Land Use Establishment (Continued)	Domain B Agricultural – Grazing	<ul style="list-style-type: none"> • LFA. • Surface water quality monitoring. • Groundwater quality monitoring. • Visual and photographic monitoring. 	HSE team	<ul style="list-style-type: none"> • Annual Rehabilitation Report and Forward Program. • Annual Review. • Inspections and documentation. • Monitoring reports.
Ecosystem and Land Use Development	Domain A Native Ecosystem	<ul style="list-style-type: none"> • Analysis of ecosystem function. • LFA. • Water quality monitoring. • Visual and photographic monitoring. 	HSE team	<ul style="list-style-type: none"> • Annual Rehabilitation Report and Forward Program. • Annual Review. • ESF2 or equivalent. • Inspections and documentation. • Monitoring reports. • Validation reports.



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Table 10 (Continued): Rehabilitation Quality Assurance Program

REHABILITATION PHASE	DOMAIN	QUALITY ASSURANCE ACTIONS AND PROCESSES	RESPONSIBILITIES FOR IMPLEMENTATION	METHOD FOR DOCUMENTING AND RECORDING PROCESSES
Ecosystem and Land Use Development (Continued)	Domain B Agricultural – Grazing	<ul style="list-style-type: none"> • Agronomic assessment of land capability and agricultural suitability classification. • LFA. • Water quality monitoring. • Visual and photographic monitoring. 	HSE personnel	<ul style="list-style-type: none"> • Annual Rehabilitation Report and Forward Program. • Annual Review. • Inspections and documentation. • Monitoring reports.
	Domain F Water Management Areas	<ul style="list-style-type: none"> • Water quality monitoring. • Visual and photographic monitoring. 	HSE personnel	<ul style="list-style-type: none"> • Annual Rehabilitation Report and Forward Program. • Annual Review. • Monitoring reports. • Validation reports.
	Domain G Water Storage (Excluding Final Void)	<ul style="list-style-type: none"> • Water quality monitoring. • Visual and photographic monitoring. 	HSE personnel	<ul style="list-style-type: none"> • Annual Rehabilitation Report and Forward Program. • Annual Review. • Monitoring reports. • Validation reports.

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8 REHABILITATION MONITORING PROGRAM

Monitoring of the VCM rehabilitation areas is conducted in accordance with the following sections. Rehabilitation is monitored on a regular basis to ensure vegetation is establishing in the rehabilitation areas and to determine the need for any maintenance and/or contingency measures (e.g. supplementary plantings, weed or erosion control). The monitoring also aims to demonstrate the effectiveness of the rehabilitation techniques and track the progression towards achieving the Rehabilitation Objectives and Rehabilitation Completion Criteria (Section 4).

Rehabilitation monitoring reports are prepared annually and include:

- monitoring of grazing areas (using a combination of pasture attributes);
- native vegetation surveys;
- terrestrial fauna and habitat surveys; and
- analysis of results including statistical analysis (where appropriate).

The aim of the rehabilitation monitoring reports is to document the annual spring monitoring results and provide a quantitative assessment of rehabilitation performance against nearby unmined (i.e. control) landscapes. Specific monitoring objectives include:

- quantitative tracking of rehabilitation performance;
- assess key aspects of flora (upper, mid and lower strata) in woodland areas;
- compare data with previous monitoring;
- evaluate monitoring results against monitoring triggers and rehabilitation objectives as outlined in this RMP; and
- provide recommendations to assist with the improvement of rehabilitation or monitoring methods and mine closure for Whitehaven.

8.1 ANALOGUE SITE BASELINE MONITORING

Whitehaven will undertake monitoring at appropriate analogue sites to assist in quantifying the key desirable indicators of Native Ecosystem and Agricultural – Grazing rehabilitation.

Monitoring at pasture analogue sites is used to determine bench marks for indicators including percent pasture cover, total biomass, pasture species composition and weed species presence. Native vegetation analogue site monitoring is used to determine bench marks for indicators including percent foliar coverage for midstorey and canopy species, species presence and abundance for all strata (groundcover, midstorey and canopy) and weed species presence.

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Native vegetation analogue sites are also monitored to compare utilisation of rehabilitation areas and undisturbed areas by target fauna species including the Grey-crowned Babbler.

8.2 REHABILITATION ESTABLISHMENT MONITORING

The following rehabilitation establishment monitoring is associated with closure activities proposed for the VCM.

Remote Sensing

Annual high resolution LiDAR will to be used to monitor changes across the entire site. The remotely sensed data will allow for quantitative comparison of key land surface condition parameters in agricultural and native vegetation environments. Repeat annual capture and analysis of the LiDAR imagery will allow for identification and mapping changes in land and vegetation cover. Targeted field work will be implemented to examine the causes of any change.

If changes are confirmed or discovered on-ground site specific management responses and remedial actions are developed and implemented.

Agricultural – Grazing Areas

Monitoring for Agricultural – Grazing provides quantitative data on key pasture and soil attributes as they relate to land agricultural capability. Pasture species, weed species, biomass, groundcover composition as well as parameters related to soil erosion and soil nutrient status (e.g. pH, electrical conductivity, organic matter, nitrogen or phosphorus) are assessed in surveys of grazing areas.

Groundcover composition is recorded during surveys of pasture areas for all plots and takes into account the percentage cover of weeds, pasture, bare ground and litter. Records of groundcover composition allow for comparison between rehabilitation areas and analogue sites as well as changes between sampling periods. The number of pasture and weed species present in rehabilitated plots versus control plots at analogue sites will also be recorded and any recommended weed treatments are documented in the annual monitoring report.

Biomass will also be measured during surveys of pasture areas, and generally reflects the variations in percentage pasture cover. Some variation between rehabilitation areas and analogue sites is due to varying management practices (i.e. grazing pressure), however changes in biomass between sampling periods at rehabilitation areas provides an indicator of the pasture areas' carrying capacity and potential for sustainable grazing with management inputs analogous to local grazing operations.

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Native Vegetation Monitoring

Vegetation surveys will be undertaken for Native Ecosystem, focus on the condition, composition and structure of woodland vegetation in rehabilitation areas and analogue sites.

The native vegetation monitoring program provides quantitative data on woodland structure and composition, exotic fauna species and soil attributes. Surveys of native vegetation areas are used to detect any significant declines in each strata, specifically:

- overstorey: cover, health, richness, recruitment;
- mid storey: cover, richness; and
- groundcover: total percent ground cover, native ground cover (cover and richness), weeds (percent cover and richness).

During native vegetation monitoring events, native and exotic fauna observations and soil erosion observations are also recorded.

For the purposes of rehabilitation monitoring, change in vegetation condition for rehabilitated sites is measured against control sites; in this case control sites selected outside of the area of influence of the mine which are representative of the native vegetation communities (structure and floristics) in the surrounding landform.

Revegetation surveys will be undertaken by an appropriately qualified and experienced person to identify the success of rehabilitation and identify any additional measures required to achieve ongoing rehabilitation success.

Terrestrial Fauna and Habitat Monitoring

Terrestrial fauna and habitat monitoring will be focused on native vegetation areas, will specifically target:

- woodland birds, as they are relatively mobile and are often one of the first fauna groups to make use of maturing rehabilitation areas;
- *Phascolarctos cinereus* (Koala), *Neophema pulchella* (Turquoise Parrot) and *Pomatostomus temporalis* (Grey-crowned Babbler) since they are listed under either the *Threatened Species Conservation Act 1995* and/or the EPBC Act and are locally important; and
- reptiles, as specific habitat will be established to attract these species.


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Analysis will include presence/absence, species diversity and use of habitat. More detailed fauna surveys may be required when vegetation community structure develops and the habitat becomes more complex.

8.3 **MEASURING PERFORMANCE AGAINST REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA**

The results of rehabilitation monitoring will be compared against the proposed Rehabilitation Objectives and Rehabilitation Completion Criteria (where appropriate) described in Section 4.1 and **Attachment 1** to track rehabilitation progress. Outcomes of the rehabilitation monitoring will be provided in subsequent Annual Reviews and the Annual Rehabilitation Report .

Summaries of the monitoring results and performance against rehabilitation objectives and completion criteria will be included in this section when this RMP is updated or revised.

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9 REHABILITATION RESEARCH, MODELLING AND TRIALS

Whitehaven is committed to ensuring that activities are undertaken effectively to ensure that the success of rehabilitation enables the overall rehabilitation objectives to be achieved.

For rehabilitation to be effective, Whitehaven are able to transfer knowledge of rehabilitation practices, trials and research at other operations within the region, to improve the knowledge of rehabilitation. Additionally, historical rehabilitation at the VCM is able to be referred to and is demonstrated by the successful historical rehabilitation completed which is self-sustaining.

Whitehaven has extensive experience in both Native Ecosystem and Agricultural – Grazing rehabilitation, with successful rehabilitation areas completed at the Canyon Coal Mine. Learnings from the rehabilitation works undertaken at the Canyon Coal Mine to date, along with industry best practice guidelines are employed methodology for new rehabilitation areas.

9.1 CURRENT REHABILITATION RESEARCH, MODELLING AND TRIALS

No active rehabilitation research, modelling or trials are being undertaken at the VCM. Notwithstanding, the successful rehabilitation at the Canyon Coal Mine, and Whitehaven's other operations in the Gunnedah Coalfield (i.e. Tarrawonga Coal Mine, Sunnyside Mine, and Maules Creek Coal Mine), will guide rehabilitation at the VCM for new rehabilitation areas.

9.2 FUTURE REHABILITATION RESEARCH, MODELLING AND TRIALS

As per Section 1 of this RMP, construction and operation of the VCM commenced in 2023 and is still in the early mining stage and there has been limited opportunity for progressive rehabilitation.

10 INTERVENTION AND ADAPTIVE MANAGEMENT

Whitehaven will use adaptive management techniques where a response or action is required based on a pre-determined trigger. The key rehabilitation risks associated with the VCM have been identified in a Rehabilitation Risk Assessment (Section 3).

Whitehaven will undertake ongoing rehabilitation maintenance works as required which will be instigated by the TARP. The TARP reflects the key risks to successful rehabilitation at the VCM identified by the risk assessments conducted to date, as described in Section 3, and will be identified through the rehabilitation monitoring program, as described in Section 8. The TARP in Table 11 and risk assessment in Section 3 will be reviewed regularly to continuously improve rehabilitation practices, as outlined in Form and Way – *Rehabilitation Management Plan for Large Mines*.

Table 11: Vickery Coal Mine Rehabilitation Trigger Action Response Plan

Aspect/Category	Trigger	Action	Response
Spoils and materials (biological resource salvage)	Unsafe, unstable and polluting	Immediately make the site safe and remove pollution source. Site inspection by suitably trained person. Undertake investigation.	Identify remedial recommendations. Implement remedial actions. Report as required.
Ecosystem and land use development	Minor gully or tunnel erosion present with minor rilling	Site inspection by suitably trained person. Undertake investigation. Reduce erosion risks at the source immediately. Action erosion and/or sedimentation controls where appropriate.	Identify remedial recommendations. Implement remedial actions. Management of tracks and roads. Installation of appropriate erosion controls. Stabilisation of gully areas.
Exploration activities	Land incompatible with pre-exploration use	Exploration site inspection and progressive photo comparisons. Identify the causes of poor land compatibility. Ongoing monitoring relating to weed presence, stability and runoff, as well as vegetation cover.	Review procedures and implementation of existing controls and management plans. Implement remedial actions. Report as necessary.

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Table 11 (Continued): Vickery Coal Mine Rehabilitation Trigger Action Response Plan

Aspect/Category	Trigger	Action	Response
Water management	Exceedance of surface and groundwater quality criteria	<p>Inspect sites to ensure water remains on site.</p> <p>Take water samples to review and investigate.</p> <p>Review if management controls are working and appropriate.</p> <p>Report if groundwater is released.</p> <p>Review separation of clean and dirty water.</p>	<p>Implement relevant remedial measures where required.</p> <p>Undertake assessment to identify sources of water quality degradation and recommend remedial actions.</p> <p>Implement remedial recommendations.</p>
Management of potential cultural and heritage issues	Unintended interaction with heritage site	<p>Stop works immediately.</p> <p>Report heritage site find to the Environmental Officer.</p> <p>Review whether the Land Disturbance Protocol has been implemented correctly.</p>	<p>Investigate how and why the interaction occurred.</p> <p>Prevent any further damage and report as necessary.</p> <p>Report to regulator as required.</p>
General	Poor visual impact to community members	<p>Investigate reasons for poor visual impact.</p> <p>Review adherence to Exploration Management Plan and Land Disturbance Protocol.</p>	<p>Improve the visual aspects of the site.</p> <p>Ensure works are occurring in daylight hours only.</p> <p>Report as necessary.</p>

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11 REVIEW, REVISION AND IMPLEMENTATION

Review and Revision of this RMP

In accordance with Clause 11, Schedule 8A of the *Mining Regulation 2016*, Whitehaven will amend this RMP in the following circumstances (Table 12):

- as a consequence of an amendment made to the rehabilitation objectives and rehabilitation completion criteria (Section 4) or Final Landform and Rehabilitation Plan (Section 5);
- to reflect any changes to the risk control measures in the RMP that are identified in a rehabilitation risk assessment – as soon as practicable after the rehabilitation risk assessment is conducted; and
- whenever directed in writing to do so by the Secretary – in accordance with the direction.

Whitehaven will ensure that the RMP remains current and relevant to ensure it defines the rehabilitation outcomes to be achieved in relation to the mining area and sets out the strategy to achieve those outcomes. This will be partly informed by ensuring that the effectiveness of the rehabilitation risk assessment and controls adopted in the life of mine progressive rehabilitation schedule and rehabilitation phases are routinely evaluated throughout the life cycle of the VCM.

Whenever any foreseeable hazard is identified that presents a risk to achieving the rehabilitation objectives and rehabilitation completion criteria, or the Final Landform and Rehabilitation Plan, Whitehaven will update the rehabilitation risk assessment and RMP.

If necessary, Whitehaven will update this RMP to include more detailed mine closure activities as rehabilitation progresses. The results of any environmental performance monitoring undertaken during the Forward Program term will also contribute to refining future RMPs.

The rehabilitation principles and targets described in this RMP will continue to be tracked via Whitehaven’s internal review and tracking systems and the reporting and auditing mechanisms.

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Table 12: Review, Revision and Implementation

Condition	Review Trigger Requirement
Development Consent (SSD-7480) Schedule 2, Condition E5	<p><i>Within three months of:</i></p> <p><i>a) the submission of an incident report under condition E7;</i></p> <p><i>b) the submission of an Annual Review under condition E9;</i></p> <p><i>c) the submission of an Independent Environmental Audit under condition E10; or</i></p> <p><i>d) the modification of the conditions of this consent (unless the conditions require otherwise),</i></p> <p><i>the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.</i></p>
Mining Amendment Regulation 2016 clause 11, Schedule 8A	<p><i>In accordance with Clause 11 of Schedule 8A to the Mining Regulation 2016, the lease holder must amend the prepared rehabilitation management plan in the following circumstances:</i></p> <ul style="list-style-type: none"> <i>• as a consequence of an amendment made to the rehabilitation objectives, rehabilitation completion criteria or final landform and rehabilitation plan</i> <i>• to reflect any changes to the risk control measures in the rehabilitation management plan that are identified in a rehabilitation risk assessment</i> <i>• whenever directed in writing to do so by the Secretary.</i>

Annual Review

In accordance with Condition E9, Part E of the Development Consent (SSD-7480), Whitehaven will prepare an Annual Review prior to the end of March each year (or other timing as may be agreed with the Secretary of the DPE) to review the environmental performance of the VCM. The Annual Review will report on Whitehaven’s compliance with all conditions of Development Consent (SSD-7480), VCM’s MLs and other relevant environmental approvals and licences.

In addition to addressing the requirements of Condition E9, Part E of Development Consent (SSD-7480), the Annual Review will include:

- a description of rehabilitation activities undertaken during the reporting period and the forecasted rehabilitation activities proposed for the next reporting period;
- a summary of rehabilitation monitoring results and any observations of the effectiveness of the rehabilitation practices and measures;
- a review of the rehabilitation monitoring results against the rehabilitation performance indicators and completion criteria; and
- an update on the mine closure planning process.

In accordance with Condition E14, Part E of Development Consent (SSD-7480), the Annual Review is made publicly available on the Whitehaven website (www.whitehavencoal.com.au).

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Implementation of this RMP

A general overview of the responsibility of Whitehaven personnel in regard to the monitoring, review and implementation of this RMP is provided in Table 13.

Table 13: Site Environmental and Mining Management Relevant to Implementation of this RMP

Management Team Member(s)*	Role and Responsibility
Mine Manager	<ul style="list-style-type: none"> Provide adequate resourcing to support site environmental management. Provide strategic direction. Overall site management responsibility. Responsibility for management of mining contractors and Whitehaven Staff.
Technical Services Manager	<ul style="list-style-type: none"> Responsible for monitoring, review and implementation of planning and engineering aspects of this RMP. Annual internal auditing and reporting (Annual Review). Responsible for the performance of activities undertaken within the mining area.
Environment Manager	<ul style="list-style-type: none"> Responsible for monitoring, review and implementation of environmental aspects of this RMP. Environment related approval and planning. Management of the implementation and compliance with Environmental Management Plan, approvals, licensing and permits. Responsible for site environmental monitoring. Annual internal auditing and reporting (Annual Review). Progressive rehabilitation planning, development and reporting. External government and stakeholder consultation. Responsible for community enquiry and initiatives management.
General staff and Contractors	<ul style="list-style-type: none"> All general staff members trained in environmental procedures and protocols as part of the induction process and regular site meetings. All general staff members responsible for immediate reporting environmental incidents. All general staff members responsible for undertaking works in an environmentally sound manner and in accordance with this RMP. Environmental Management Plan, and site commitments.

* Or nominated delegate

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- McKenzie Soil Management (2012). *Vickery Coal Project Agricultural Resource Assessment*. Report prepared for Whitehaven Coal Limited.
- National Transport Commission (2014). *Australian Code for the Transport of Dangerous Goods by Road and Rail*.
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ATTACHMENT 1

REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

Rehabilitation Objective Category	Rehabilitation Objectives	Spatial Reference (e.g. A3)
Ecological rehabilitation	<p>Ecological rehabilitation objective 1: The vegetation composition of the rehabilitation contains species that are commensurate with native vegetation communities:</p> <ul style="list-style-type: none"> - <i>Pilliga Box -Poplar Box Shrubby Woodland (PCT 397 & NA324),</i> - <i>Poplar Box Woodland on Alluvial Clay Soils (PCT 101 & NA185) or</i> - <i>White Box - White Cypress Pine shrubby open forest of the Nandewar and Brigalow Belt South Bioregions (PCT 1308 & NA225)</i> <p>contained within the BioNet Vegetation Classification.</p>	A1
Ecological rehabilitation	<p>Ecological rehabilitation objective 2: The vegetation structure of the rehabilitation is similar to that of native vegetation communities:</p> <ul style="list-style-type: none"> - <i>Pilliga Box -Poplar Box Shrubby Woodland (PCT 397 & NA324),</i> - <i>Poplar Box Woodland on Alluvial Clay Soils (PCT 101 & NA185) or</i> - <i>White Box - White Cypress Pine shrubby open forest of the Nandewar and Brigalow Belt South Bioregions (PCT 1308 & NA225)</i> <p>contained within the BioNet Vegetation Classification.</p>	A1
Ecological rehabilitation	<p>Ecological rehabilitation objective 3: Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.</p>	A1
Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	A1
Landform stability	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	A1

Surface water	Runoff water quality from mine site meets the requirements of Development Consent (SSD-7480) and relevant Environment Protection Licence (EPL) (currently EPL 21283) and does not present a risk of environmental harm. Runoff water quality from mine site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation. Water retained on the site is fit for the intended post-mining land use/s.	A1
Groundwater	Groundwater quality meets the requirements of (SSD-7480) and relevant EPL (currently EPL 21283) does not present a risk of environmental harm.	A1
Groundwater	Impacts to groundwater regime are within range as per SSD 7480 (including the associated Water Management Plan) /pre-mining environmental assessment.	A1
Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	A1
Land contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	A1
Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	A1
Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community	A1
Retention of infrastructure	All infrastructure that is to remain as part of the final land use benefits from the relevant approvals (e.g. Development Consent [SSD-7480] and/or licence/lease/binding agreement, etc).	A1

Management of waste and process materials	Residual waste materials stored on site (e.g. tailings, coarse rejects and other wastes) will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended land use.	A1
Water Approvals	Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the Water Management Act 2000) and where required ensure sufficient licence shares are held in the water source(s) to account for water take.	A1
Ecological rehabilitation	<p>Ecological rehabilitation objective 1: The vegetation composition of the rehabilitation contains species that are commensurate with native vegetation communities:</p> <ul style="list-style-type: none"> - Pilliga Box -Poplar Box Shrubby Woodland (PCT 397 & NA324), - Poplar Box Woodland on Alluvial Clay Soils (PCT 101 & NA185) or - White Box - White Cypress Pine shrubby open forest of the Nandewar and Brigalow Belt South Bioregions (PCT 1308 & NA225) <p>contained within the BioNet Vegetation Classification.</p>	A4
Ecological rehabilitation	<p>Ecological rehabilitation objective 2: The vegetation structure of the rehabilitation is similar to that of native vegetation communities:</p> <ul style="list-style-type: none"> - Pilliga Box -Poplar Box Shrubby Woodland (PCT 397 & NA324), - Poplar Box Woodland on Alluvial Clay Soils (PCT 101 & NA185) or - White Box - White Cypress Pine shrubby open forest of the Nandewar and Brigalow Belt South Bioregions (PCT 1308 & NA225) <p>contained within the BioNet Vegetation Classification.</p>	A4
Ecological rehabilitation	<p>Ecological rehabilitation objective 3: Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.</p>	A4

Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	A4
Landform stability	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	A4
Surface water	Runoff water quality from mine site meets the requirements of Development Consent (SSD-7480) and relevant Environment Protection Licence (EPL) (currently EPL 21283) and does not present a risk of environmental harm. Runoff water quality from mine site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation. Water retained on the site is fit for the intended post-mining land use/s.	A4
Groundwater	Groundwater quality meets the requirements of (SSD-7480) and relevant EPL (currently EPL 21283) does not present a risk of environmental harm.	A4
Groundwater	Impacts to groundwater regime are within range as per SSD 7480 (including the associated Water Management Plan) /pre-mining environmental assessment.	A4
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Land contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	A4
Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	A4
Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community	A4

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Ecological rehabilitation	<p>Ecological rehabilitation objective 2: The vegetation structure of the rehabilitation is similar to that of native vegetation communities:</p> <ul style="list-style-type: none"> - <i>Pilliga Box -Poplar Box Shrubby Woodland (PCT 397 & NA324),</i> - <i>Poplar Box Woodland on Alluvial Clay Soils (PCT 101 & NA185) or</i> - <i>White Box - White Cypress Pine shrubby open forest of the Nandewar and Brigalow Belt South Bioregions (PCT 1308 & NA225)</i> <p>contained within the BioNet Vegetation Classification.</p>	A5

Ecological rehabilitation	Ecological rehabilitation objective 3: Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	A5
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Groundwater	Groundwater quality meets the requirements of (SSD-7480) and relevant EPL (currently EPL 21283) does not present a risk of environmental harm.	A5
Groundwater	Impacts to groundwater regime are within range as per SSD 7480 (including the associated Water Management Plan) /pre-mining environmental assessment.	A5
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Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	A5

Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community	A5
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Water Approvals	Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the Water Management Act 2000) and where required ensure sufficient licence shares are held in the water source(s) to account for water take.	A5
Agricultural revegetation	Revegetation is sustainable for the long-term and only requires maintenance that is consistent with the intended final land use.	B1
Agricultural revegetation	Land use capability is capable of supporting the target agricultural land use.	B1
Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	B1
Landform stability	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	B1
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Groundwater	Groundwater quality meets the requirements of (SSD-7480) and relevant EPL (currently EPL 21283) does not present a risk of environmental harm.	B1
Groundwater	Impacts to groundwater regime are within range as per SSD 7480 (including the associated Water Management Plan) /pre-mining environmental assessment.	B1
Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	B1
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Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	B1
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Water Approvals	Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the Water Management Act 2000) and where required ensure sufficient licence shares are held in the water source(s) to account for water take.	B1

Agricultural revegetation	Revegetation is sustainable for the long-term and only requires maintenance that is consistent with the intended final land use.	B3
Agricultural revegetation	Land use capability is capable of supporting the target agricultural land use.	B3
Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	B3
Landform stability	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	B3
Surface water	Runoff water quality from mine site meets the requirements of Development Consent (SSD-7480) and relevant Environment Protection Licence (EPL) (currently EPL 21283) and does not present a risk of environmental harm. Runoff water quality from mine site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation. Water retained on the site is fit for the intended post-mining land use/s.	B3
Groundwater	Groundwater quality meets the requirements of (SSD-7480) and relevant EPL (currently EPL 21283) does not present a risk of environmental harm.	B3
Groundwater	Impacts to groundwater regime are within range as per SSD 7480 (including the associated Water Management Plan) /pre-mining environmental assessment.	B3
Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	B3
Land contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	B3

Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	B3
Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community	B3
Retention of infrastructure	All infrastructure that is to remain as part of the final land use benefits from the relevant approvals (e.g. Development Consent [SSD-7480] and/or licence/lease/binding agreement, etc).	B3
Management of waste and process materials	Residual waste materials stored on site (e.g. tailings, coarse rejects and other wastes) will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended land use.	B3
Water Approvals	Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the Water Management Act 2000) and where required ensure sufficient licence shares are held in the water source(s) to account for water take.	B3
Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	G3
Landform stability	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	G3
Surface water	Runoff water quality from mine site meets the requirements of Development Consent (SSD-7480) and relevant Environment Protection Licence (EPL) (currently EPL 21283) and does not present a risk of environmental harm. Runoff water quality from mine site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation. Water retained on the site is fit for the intended post-mining land use/s.	G3

Groundwater	Groundwater quality meets the requirements of (SSD-7480) and relevant EPL (currently EPL 21283) does not present a risk of environmental harm.	G3
Groundwater	Impacts to groundwater regime are within range as per SSD 7480 (including the associated Water Management Plan) /pre-mining environmental assessment.	G3
Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	G3
Land contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	G3
Removal of infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	G3
Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community	G3
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Landform stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	J5
Landform stability	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	J5
Surface water	Runoff water quality from mine site meets the requirements of Development Consent (SSD-7480) and relevant Environment Protection Licence (EPL) (currently EPL 21283) and does not present a risk of environmental harm. Runoff water quality from mine site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation. Water retained on the site is fit for the intended post-mining land use/s.	J5
Groundwater	Groundwater quality meets the requirements of (SSD-7480) and relevant EPL (currently EPL 21283) does not present a risk of environmental harm.	J5
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