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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 (Mining Lease Applications 603 and 604) Whitehaven Coal Limited (all other mining leases listed below) | |
| Name of Mine Operator: | Whitehaven Coal Limited | |
| Rehabilitation Management Plan Commencement Date: | 1 August 2022 | |
| 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: 21/12/2020 |
| | Mining Lease 1471 | Expiry: 07/09/2021 |
| | Mining Lease 1718 | Expiry: 15/09/2036 |
| | Mining Lease Application 603 | |
| | Mining Lease Application 604 | |
| Date of Submission: | 25 July 2022 | |

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| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

CONTENTS

| | | |
|----------|--|-----------|
| 1 | INTRODUCTION TO MINING PROJECT | 1 |
| 1.1 | HISTORY OF OPERATIONS | 1 |
| 1.1.1 | Mine Operator and Proprietors | 1 |
| 1.1.2 | Significant Surface Disturbing Activities – Mining Operations, Ancillary Mining Activities and Exploration | 3 |
| 1.1.3 | Rehabilitation Undertaken Since Mine Commencement – Decommissioning/Demolition of Infrastructure | 5 |
| 1.2 | CURRENT DEVELOPMENT CONSENTS, LEASES AND LICENCES | 5 |
| 1.3 | LAND OWNERSHIP AND LAND USE | 9 |
| 1.3.1 | Land Ownership and Land Use Figure | 10 |
| 2 | FINAL LAND USE | 17 |
| 2.1 | REGULATORY REQUIREMENTS FOR REHABILITATION..... | 17 |
| 2.2 | FINAL LAND USE OPTIONS ASSESSMENT | 26 |
| 2.3 | FINAL LAND USE STATEMENT..... | 27 |
| 2.4 | FINAL LAND USE AND MINING DOMAINS | 27 |
| 2.4.1 | Final Land Use Domains | 27 |
| 2.4.2 | Mining Domains..... | 28 |
| 3 | REHABILITATION RISK ASSESSMENT | 29 |
| 4 | REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA | 33 |
| 4.1 | REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA | 35 |
| 4.2 | REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA – STAKEHOLDER CONSULTATION | 40 |
| 5 | FINAL LANDFORM AND REHABILITATION PLAN | 41 |
| 5.1 | FINAL LANDFORM AND REHABILITATION PLAN – ELECTRONIC COPY..... | 41 |
| 6 | REHABILITATION IMPLEMENTATION | 44 |
| 6.1 | LIFE OF MINE REHABILITATION SCHEDULE | 44 |
| 6.2 | PHASES OF REHABILITATION AND GENERAL METHODOLOGIES | 45 |
| 6.2.1 | Active Mining Phase | 45 |
| 6.2.2 | Decommissioning | 46 |
| 6.2.3 | Landform Establishment..... | 47 |
| 6.2.4 | Growth Medium Development | 47 |
| 6.2.5 | Ecosystem and Land Use Establishment..... | 47 |
| 6.2.6 | Ecosystem and Land Use Development..... | 48 |
| 6.3 | REHABILITATION OF AREAS AFFECTED BY SUBSIDENCE..... | 49 |

| | | | |
|---|------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

| | | |
|-----------|--|-----------|
| 7 | REHABILITATION QUALITY ASSURANCE PROCESS | 50 |
| 8 | REHABILITATION MONITORING PROGRAM..... | 53 |
| 8.1 | ANALOGUE SITE BASELINE MONITORING | 54 |
| 8.2 | REHABILITATION ESTABLISHMENT MONITORING | 54 |
| 8.2.1 | Remote Sensing | 54 |
| 8.2.2 | Agricultural – Grazing Areas | 54 |
| 8.2.3 | Native Vegetation Monitoring..... | 55 |
| 8.2.4 | Terrestrial Fauna and Habitat Monitoring..... | 55 |
| 8.3 | MEASURING PERFORMANCE AGAINST REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA..... | 56 |
| 9 | REHABILITATION RESEARCH, MODELLING AND TRIALS..... | 57 |
| 9.1 | CURRENT REHABILITATION RESEARCH, MODELLING AND TRIALS | 57 |
| 9.2 | FUTURE REHABILITATION RESEARCH, MODELLING AND TRIALS | 57 |
| 10 | INTERVENTION AND MANAGEMENT | 58 |
| 11 | REVIEW, REVISION AND IMPLEMENTATION..... | 68 |
| 12 | REFERENCES..... | 71 |

| | | | |
|---|------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Figures

| | |
|-----------|--|
| Figure 1 | Project Location |
| Figure 2a | Project General Arrangement – Project Mining Area |
| Figure 2b | Project General Arrangement – Indicative Rail Spur Alignment |
| Figure 3 | Land Ownership |
| Figure 4 | Land Use |
| Figure 5a | Vegetation Communities – Mining Area |
| Figure 5b | Vegetation Communities – Project Rail Spur |
| Figure 6 | Areas of Sensitivity |

Plans

| | |
|--------|-------------------------|
| Plan 1 | Final Landform Features |
| Plan 2 | Final Landform Contours |

Tables

| | |
|----------|---|
| Table 1 | Overview of Current Development Consents, Leases and Licences |
| Table 2 | Overview of the Land Ownership Surrounding the VCM |
| Table 3 | Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation |
| Table 4 | Canyon Coal Mine Final Land Use Domains |
| Table 5 | Vickery Coal Mine Final Land Use Domains |
| Table 6 | Mining Domains |
| Table 7 | Canyon Coal Mine Rehabilitation Risk Assessment |
| Table 8 | Vickery Coal Mine Rehabilitation Risk Assessment |
| Table 9 | Canyon Coal Mine Key Completion Criteria |
| Table 10 | Vickery Coal Mine Key Completion Criteria |
| Table 11 | Canyon Coal Mine - Proposed Rehabilitation Objectives and Rehabilitation Completion Criteria |
| Table 12 | Vickery Coal Mine - Proposed Rehabilitation Objectives and Rehabilitation Completion Criteria |
| Table 13 | Rehabilitation Quality Assurance Program |
| Table 14 | Canyon Coal Mine Rehabilitation Trigger Action Response Plan |
| Table 15 | Vickery Coal Mine Rehabilitation Trigger Action Response Plan |
| Table 16 | Site Environmental and Mining Management Relevant to Implementation of this RMP |

| | | | |
|---|------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

1 INTRODUCTION TO MINING PROJECT

1.1 HISTORY OF OPERATIONS

1.1.1 MINE OPERATOR AND PROPRIETORS

This RMP describes the proposed rehabilitation activities associated with the Vickery Coal Mine (VCM) ongoing exploration program, pre-construction activities for commencement of the Vickery Extension Project (the Project) development, and closure activities at the site of the former Canyon Coal Mine.

This RMP replaces the *Canyon Coal Mine Closure Mining Operations Plan* (7 September 2015 to 6 September 2022) and *Vickery Coal Mine Exploration Mining Operations Plan* (1 May 2020 to 31 December 2022).

The 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 Whitehaven Coal Mining Limited, a wholly owned subsidiary of Whitehaven Coal Limited (Whitehaven).

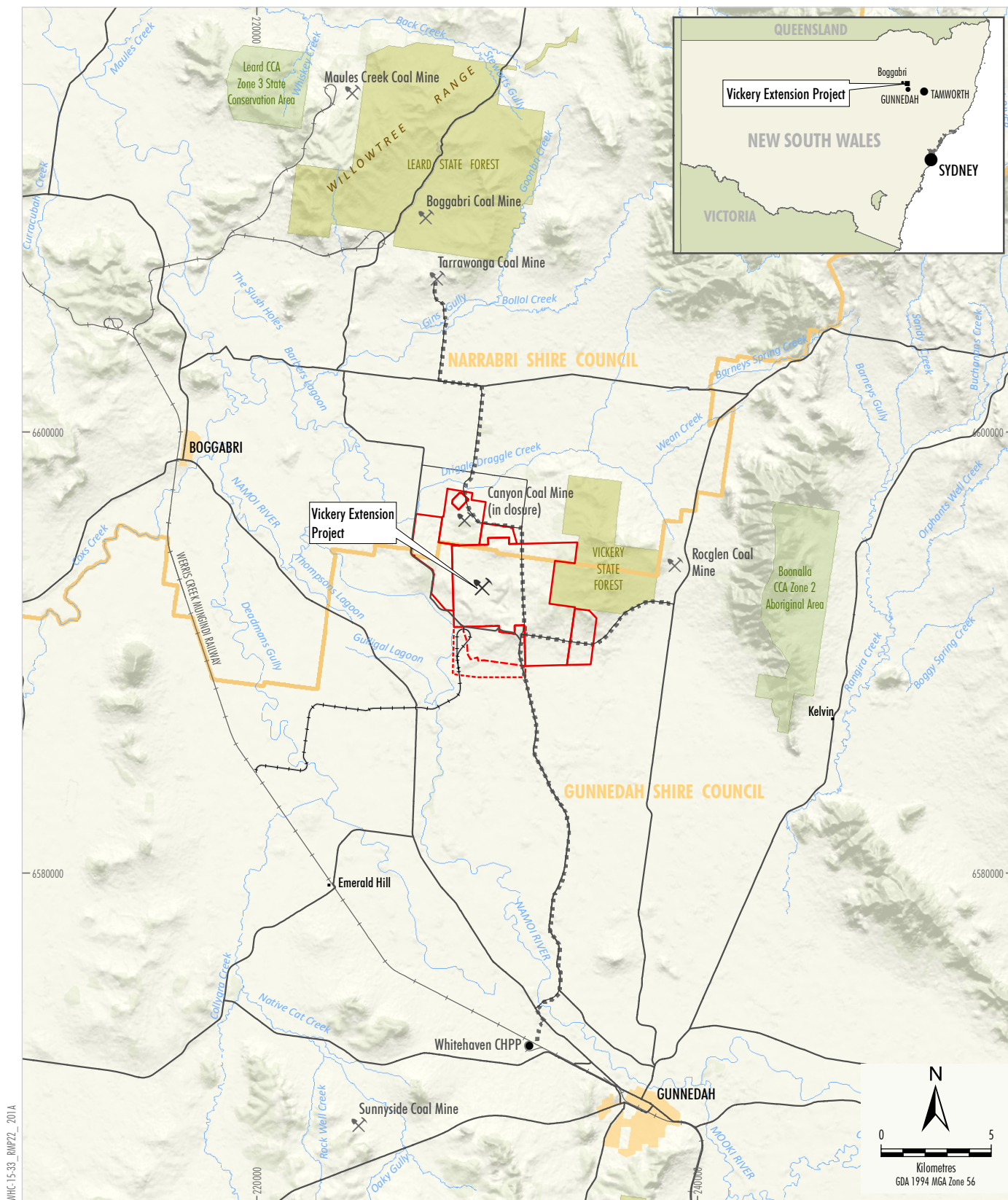
Development of the VCM and the Canyon Coal Mine closure activities are approved under Mining Lease (ML) 1464, ML 1471, ML 1718, Coal Lease (CL) 316, Mining Lease Applications (MLA) 603, MLA 604, and Development Consent (SSD-7480). Other key approvals, licences and permits for the VCM are described in Section 1.2.

Construction and operation of the approved open cut mine have not yet commenced. Whitehaven are currently undertaking exploration, pre-construction project evaluation and geotechnical activities at the VCM.

Canyon Coal Mine operated from September 2000 to July 2009 and is currently in closure, in accordance with Development Consent DA 8-1-2005. The Canyon mine lies within the mining leases ML 1464 and ML 1471.

Canyon Coal Mine is located adjacent to the VCM in the north-west and is now included within the scope of the VCM Rehabilitation Outcome Documents and VCM RMP.

This Rehabilitation Management Plan (RMP) has been prepared by Whitehaven in accordance with the new standard rehabilitation conditions on mining leases imposed through an amendment to the Regulation under the *Mining Act 1992*.



WHITEHAVEN COAL

VICKERY COAL MINE

Project Location

Figure 1

| | | | |
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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

1.1.2 SIGNIFICANT SURFACE DISTURBING ACTIVITIES – MINING OPERATIONS, ANCILLARY MINING ACTIVITIES AND EXPLORATION

Current Status of the VCM

Condition A7, Schedule 2 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 SSD-7480 (i.e. mining operations are approved to 12 August 2045).

Whitehaven commenced pre-construction activities under Development Consent (SSD-7480) for the VCM on 28 April 2022. Mine construction activities for the VCM have not commenced.

Accordingly, this RMP describes the proposed rehabilitation activities for the VCM's concurrent operations:

- closure activities within the former Canyon Coal Mine site;
- ongoing exploration activities;
- ongoing evaluation activities;
- minor remediation activities; and
- pre-construction works for the VCM.

Closure of Former Canyon Coal Mine

Mine operations at Canyon ceased in 2009 and rehabilitation activities conducted have included reshaping of waste rock emplacements, soil placement, installation of water management control measures, establishment of a cover crop, planting of tubestock, and monitoring and maintenance of rehabilitated areas.

The site has been successfully returned to a mixture of open pasture areas and established woodland.

Exploration and Geotechnical Activities at the VCM

Exploration activities will be conducted for resource definition purposes, to support the current coal reserves and the proposed plan for mining operations.

The VCM exploration program will consist of the drilling of approximately 100 boreholes and approximately 50 geotechnical holes at the VCM. Works associated with exploration and geotechnical activities will be undertaken within 54 ha of land within the approved surface disturbance area at the VCM. No exploration works are proposed within the extent of the former Canyon Coal Mine site.

Drilling activities will be conducted in accordance with the Whitehaven Coal Exploration Management Plan, and generally in accordance with the objectives of *Guideline for mineral exploration drilling; drilling and integrity of petroleum exploration and production wells* (NSW Department of Planning, Industry and Environment, 2016). As far as is practicable, exploration

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|---|------------------|---------------------|------------|
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| | | Issue: | 1.0 |
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activities will follow the requirements of *Exploration Code of Practice: Environmental Management* (NSW Resources Regulator, 2021b) and *Exploration Code of Practice: Rehabilitation* (NSW Resources Regulator, 2021c).

VCM Activities following Development of the Project

The Development Consent (SSD-7480) allows for the construction and operation of an open cut coal mine producing approximately 7.2 million tonnes per annum (Mtpa) over 25 years.

Upon commencement of the full development of the Project, the main activities at the VCM will include:

- development of an open cut coal mine within CL 316, ML 1471, ML 1718, ML 1464 and MLA 603, MLA 604 and within Exploration Licence 7407;
- use of open cut mining equipment to extract run-of-mine (ROM) coal from the open cut at an average rate of 7.2 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. the Western Emplacement) 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, power line and road crossings) to connect the Project to the Werris Creek Mungindi Railway;
- 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 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 66 kV/22 kV electricity substations and connection to an existing 66 kV powerline to supply mine infrastructure areas;
- 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;

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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
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- 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 and Shannon Harbour Road;
- ongoing exploration activities; and
- other associated minor infrastructure, plant and activities.

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

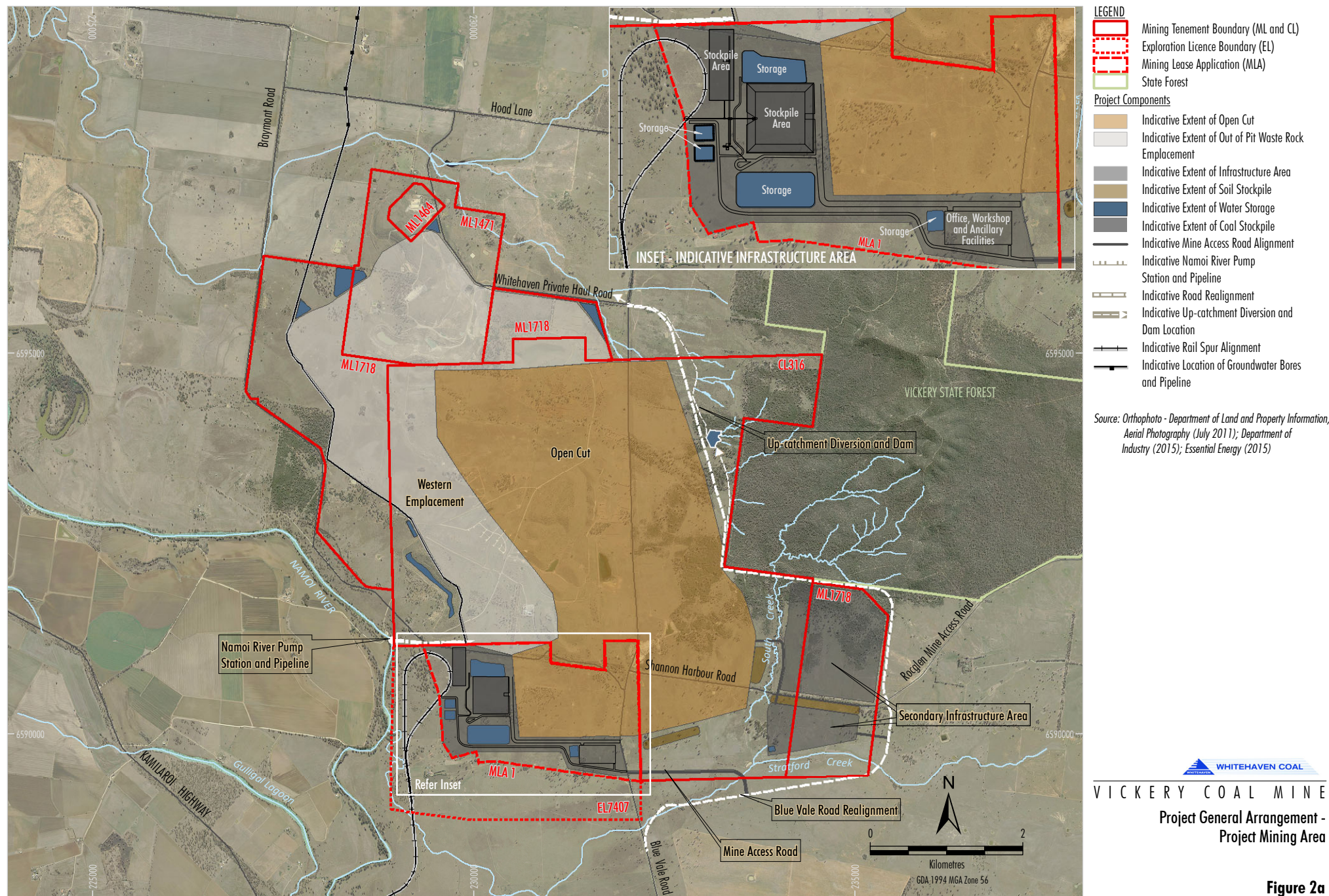
This RMP will be amended following commencement of mining operations at the VCM to reflect rehabilitation activities and processes associated with sustainable final land uses following completion of mining.

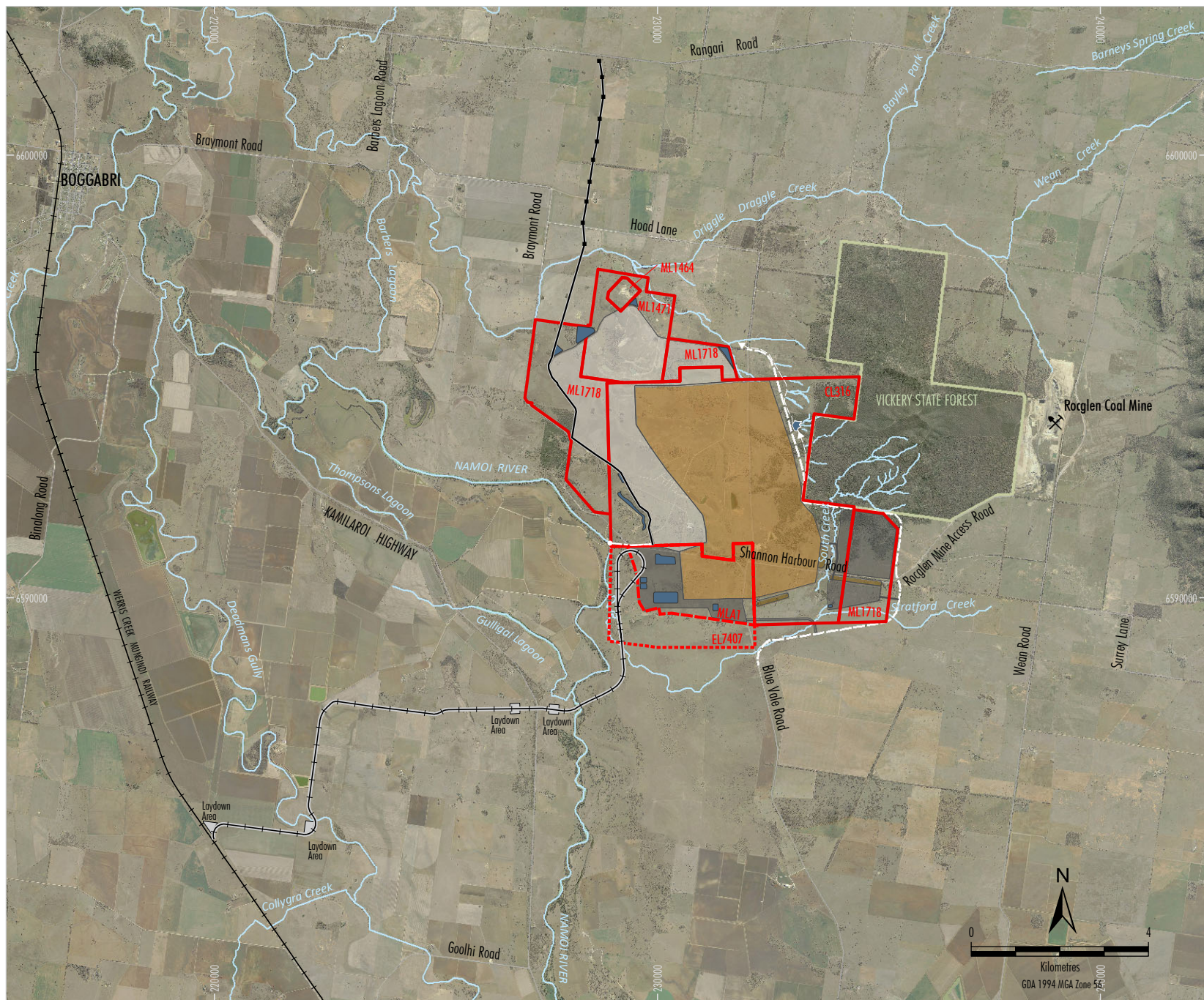
1.1.3 REHABILITATION UNDERTAKEN SINCE MINE COMMENCEMENT – DECOMMISSIONING/DEMOLITION OF INFRASTRUCTURE

Rehabilitation of disturbed areas has been undertaken progressively at the Canyon Coal Mine in accordance with previous Mining Operation Plans (MOPs). Canyon Coal Mine rehabilitation works have been completed with the area successfully established to a mixture of open pasture areas and woodland.

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.





LEGEND

- Mining Tenement Boundary (ML and CL)
- Exploration Licence Boundary (EL)
- Mining Lease Application (MLA)
- State Forest
- Railway

Project Components

- Indicative Extent of Open Cut
- Indicative Extent of Out of Pit Waste Rock Emplacement
- Indicative Extent of Infrastructure Area
- Indicative Extent of Soil Stockpile
- Indicative Extent of Water Storage
- Indicative Mine Access Road Alignment
- Indicative Road Realignment
- Indicative Namoi River Pump Station and Pipeline
- Indicative Up-catchment Diversion and Dam Location
- Indicative Rail Spur Alignment
- Indicative Location of Groundwater Bores and Pipeline

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

WHITEHAVEN COAL

VICKERY COAL MINE

Project General Arrangement - Indicative Rail Spur Alignment

Figure 2b

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). |
| 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 |
| | Mining Lease Application | MLA 603 | Pending approval | |
| | | MLA 604 | | |
| | Exploration Licence | EL 7407 | 22 October 2009 (last renewed 31 March 2022) | 21 October 2027 |
| | | EL4699 | 22 September 1994 | 22 September 2018 |
| | | AUTH406 | 29 November 1988 | 29 November 2019 (renewal lodged and is currently pending) |
| Environmental Protection Authority (EPA) | 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 Agriculture, Water and the Environment (DAWE) | 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.

The freehold land within existing mining leases 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 |

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*.

Parts of the VCM have been disturbed by previous mining activities associated with the former Vickery Coal Mine and the former Canyon Coal Mine. Historical mining areas have been rehabilitated following closure, returning disturbed land to areas of groundcover suitable for grazing and woodland areas.

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 mining leases granted under the NSW *Mining Act 1992*, indicative rail spur, groundwater bore locations and mining development is shown on Figures 2a and 2b.

Land Ownership

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

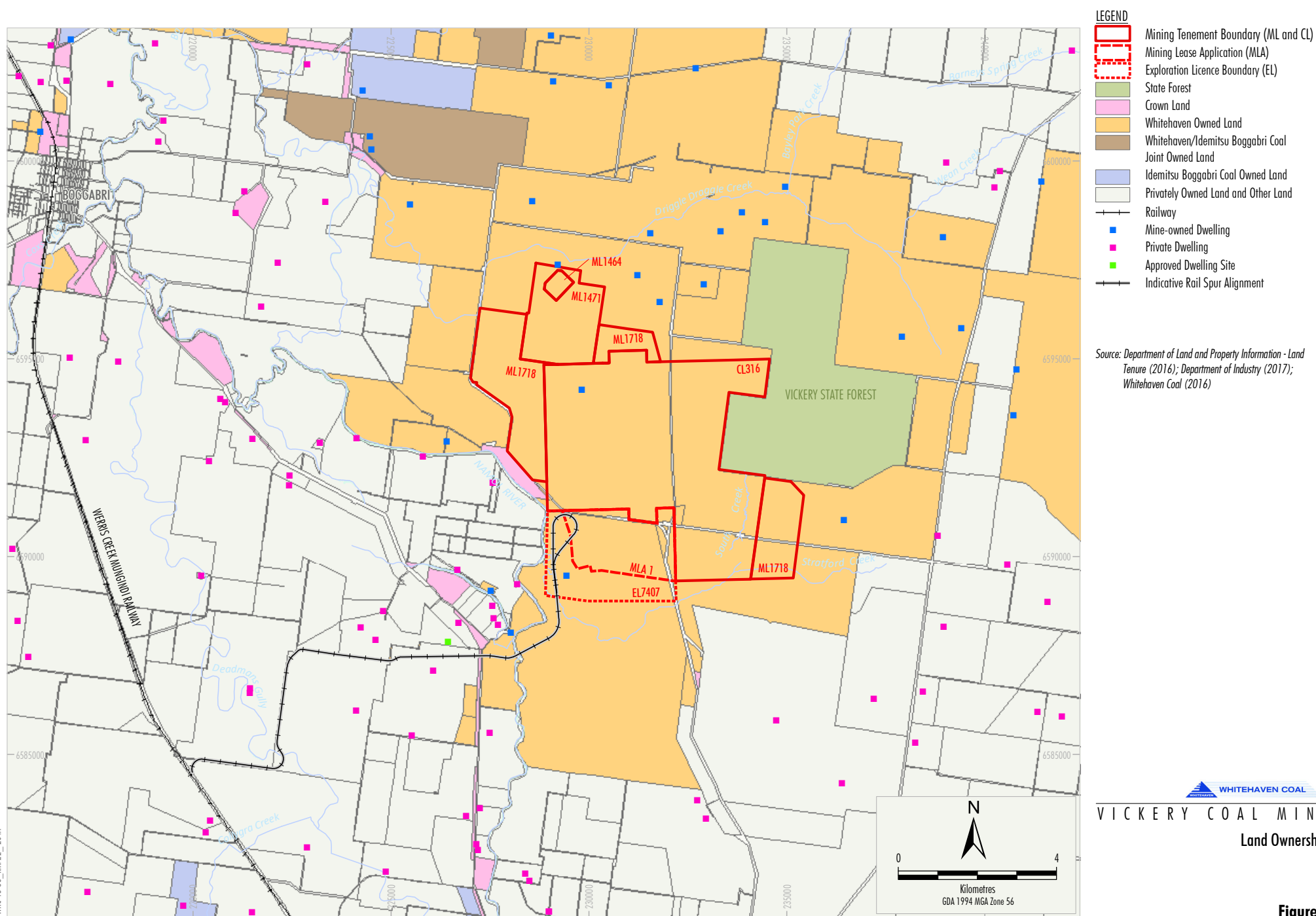


Figure 3

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Land Use

As described in Section 1.1.2, mining operations were carried at the former Canyon Coal Mine within the VCM site. Activities occurring at VCM include closure activities within the Canyon Coal Mine site, exploration, evaluation and pre-construction works (e.g. geotechnical investigations, minor remediation works).

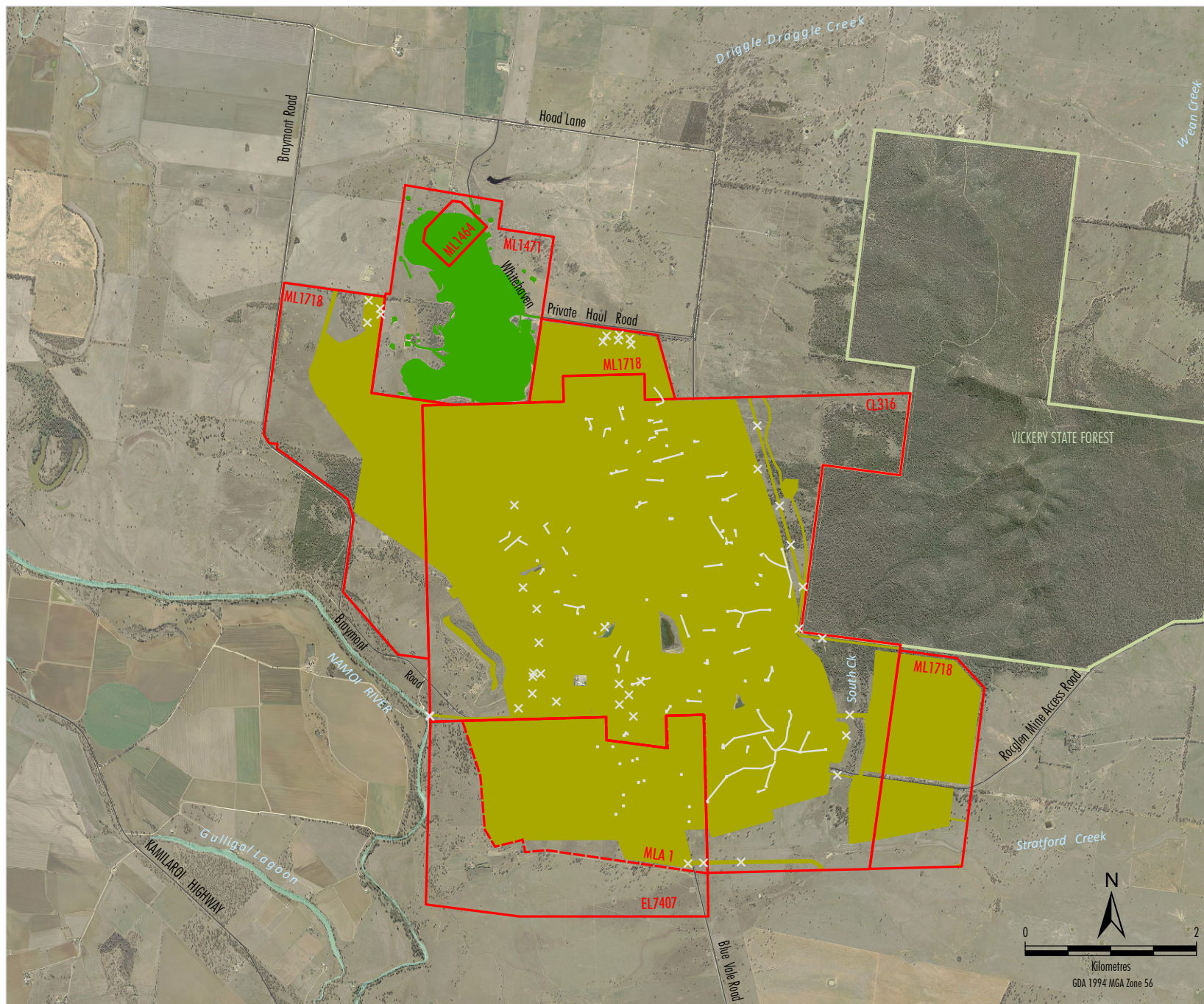
Land use in the vicinity of the VCM is characterised by a combination of historical mining operations that have been rehabilitated, agricultural cultivation and grazing and remnant native vegetation. The Vickery State Forest is a reserve area located on the north-east boundary of the VCM mining leases. 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.

Vegetation Communities

The vegetation communities within the mining area and Project rail spur area are depicted in Figures 5a and 5b, respectively, and are based on the vegetation mapping for the Project Environmental Assessments. Vegetation mapping is also shown for the existing approved VCM Offset Areas, which incorporates the offsets for the approved mine. The area conserved will include at least 132 hectares (ha) and will contribute to regional biodiversity connectivity of vegetation communities and threatened flora species in the vicinity of the mining area.

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 (HMP) considers the impacts of the development of the VCM on Aboriginal and cultural heritage sites. Aboriginal and cultural heritage sites in the vicinity of the VCM are depicted on Figure 6.



- LEGEND**
- Coal - Current Title
 - Closure
 - Potential Mining Disturbance
 - Indicative New Exploration and Geotechnical Activities and Associated Access Tracks*

* 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)


WHITEHAVEN COAL
VICKERY EXTENSION PROJECT
Land Use

Figure 4



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

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.

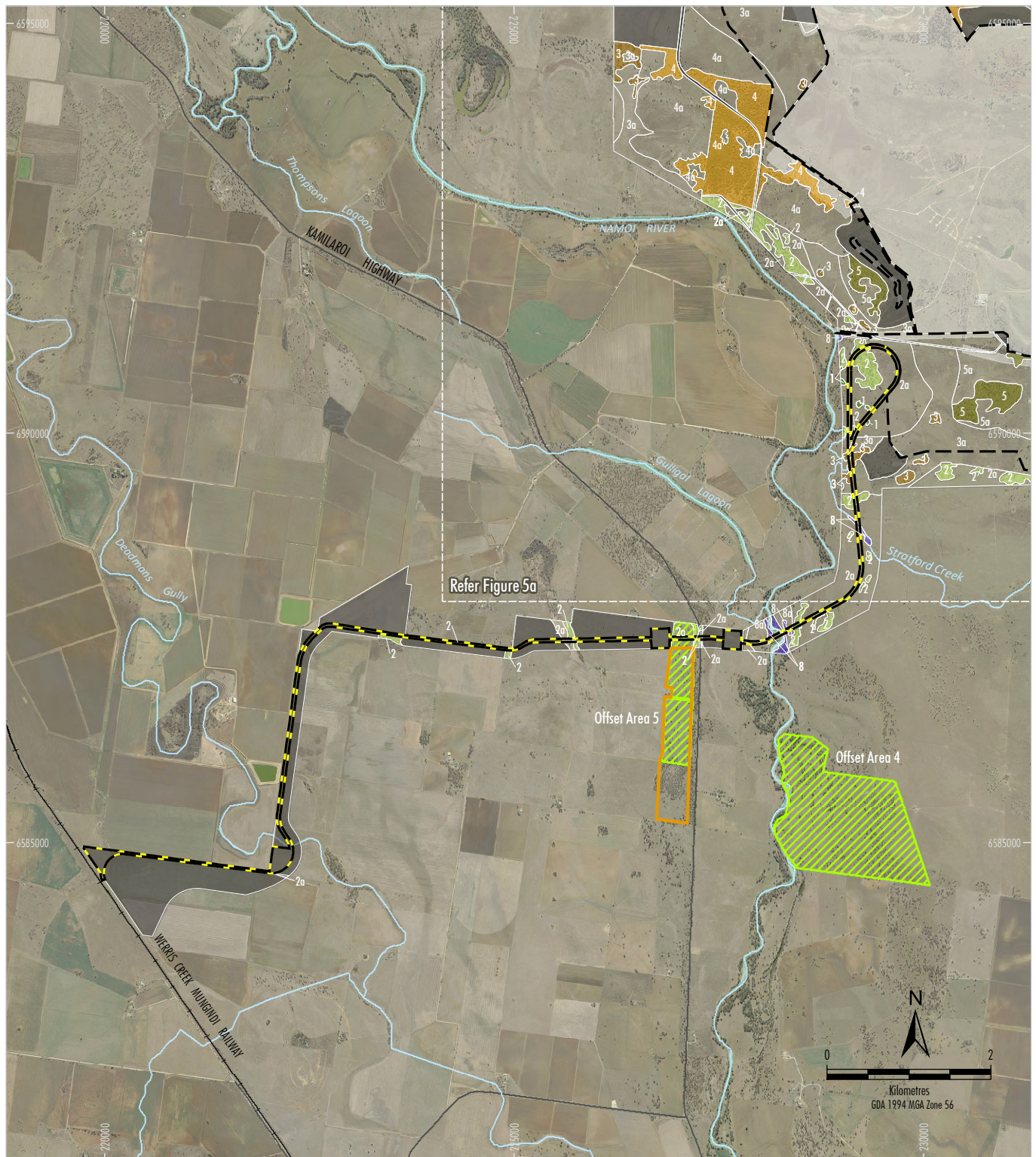
Source: Orthophoto - Department of Land and Property Information, Aerial Photography (July 2011); FloraSearch (2018)



VICKERY EXTENSION PROJECT

Vegetation Communities - Mining Area

Figure 5a



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

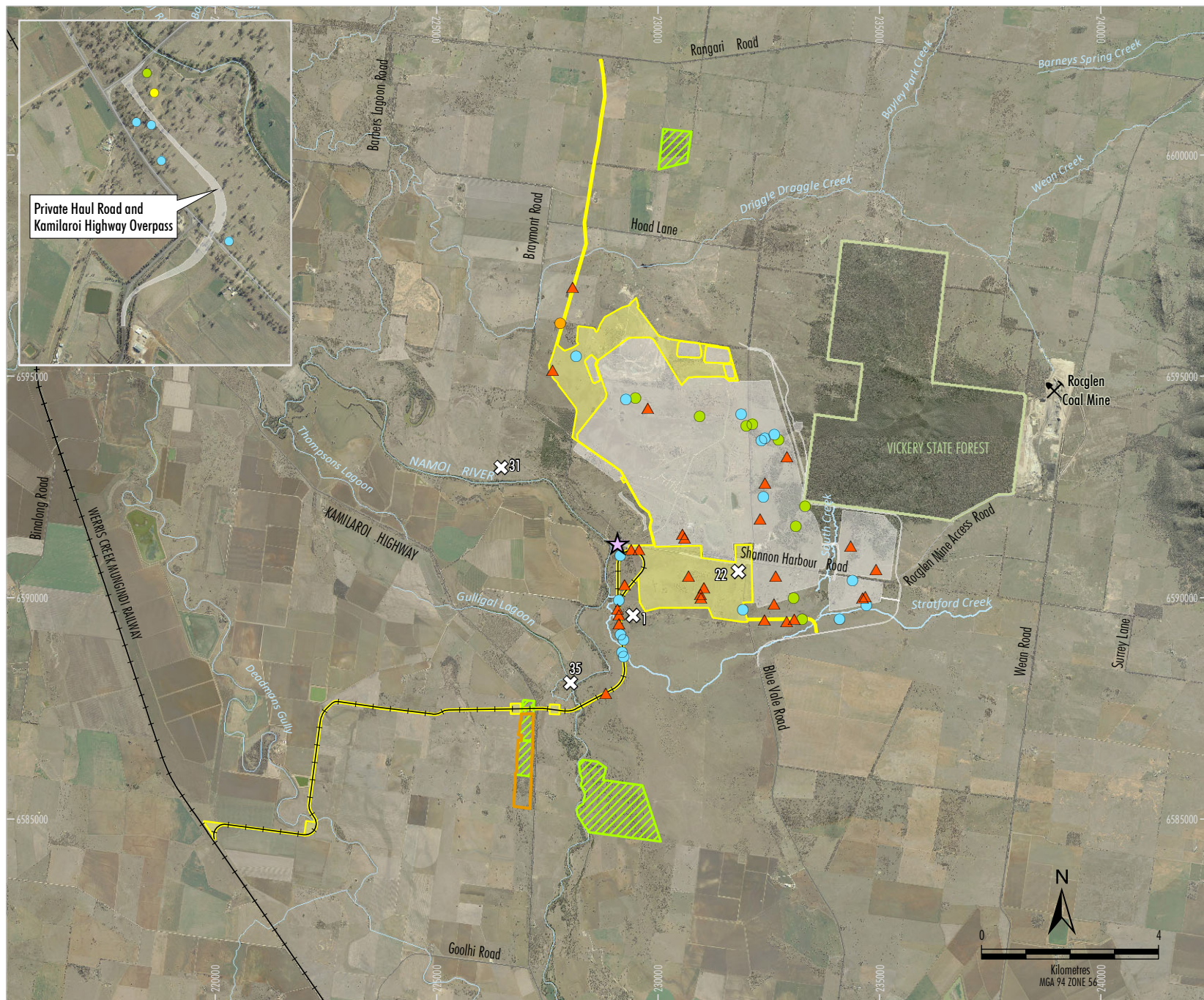
Note: Vegetation communities 1, 5, 6 and 7 are not present in the Project Rail Spur

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

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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
 - 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); Whinacop Archaeology (2018); Extent Heritage (2018)


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VICKERY EXTENSION PROJECT
Areas of Sensitivity

Figure 6

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 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 (of SSD 7480).</i> | Entire Site | Section 4.1 |
| Schedule 2 Part B, B102 | <i>The rehabilitation objectives in Table 12 (of SSD 7480) 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: This condition does not prevent further disturbance at some later stage of the development of areas that have been rehabilitated. | Entire Site | Section 6.1 |

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| | | Last Revision Date: | 27/07/2022 |
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Table 3: Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

| CONDITION | REQUIREMENT | AREA | RELEVANT RMP SECTION |
|-------------------------------|--|-------------|----------------------|
| 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 | N/A |

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| | | Last Revision Date: | 27/07/2022 |
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Table 3: Regulatory Requirements Relating to Post-mining Land Use and Rehabilitation

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

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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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) | <p>(o) describe how the rehabilitation measures would be integrated with the measures in the Biodiversity Management Plan referred to in condition B63;</p> <p>(p) describe how rehabilitation will be integrated with the mine planning process, including a plan to address premature mine closure;</p> <p>(q) include details of target vegetation communities and species to be established within the proposed revegetation areas;</p> <p>(r) investigate opportunities to refine and improve the final landform outcomes and minimise/eliminate any final voids over time;</p> <p>(s) include a risks and opportunities assessment and risk register;</p> <p>(t) include a post-mining land use strategy to investigate and facilitate post-mining beneficial land uses for the site (including any final voids), that:</p> <ol style="list-style-type: none"> align with regional and local strategic land use planning objectives and outcomes; support a sustainable future for the local community; utilise existing mining infrastructure, where practicable; avoid disturbing self-sustaining native ecosystems, where practicable; and includes a description of long-term land management objectives, including bushfire management, weed and feral animal control, water quality and public safety. <p>(u) include a stakeholder engagement plan to guide rehabilitation and mine closure planning processes and outcomes;</p> <p>(v) investigate ways to minimise adverse socio-economic effects associated with rehabilitation and mine closure;</p> <p>(w) 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</p> <p>(x) include details of the monitoring and management measures to ensure proper storage and protection of top soil.</p> | Entire Site (Continued) | N/A |

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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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:</i> <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>(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 (of SSD 7480), 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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| | | Last Revision Date: | 27/07/2022 |
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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 and CL 316 | | | |
| Condition 4, Schedule 8A | <p><i>Must prevent or minimise harm to environment</i></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><i>harm to the environment has the same meaning as in the Protection of the Environment Operations Act 1997.</i></p> | Entire Site | This RMP |
| Condition 5, Schedule 8A | <p><i>Rehabilitation to occur as soon as reasonably practicable after disturbance</i></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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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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 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 | <p>Section 4</p> <p>Section 2.1</p> <p>Section 3</p> |

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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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 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>(a) <i>a description of how the holder proposes to manage all aspects of the rehabilitation of the mining area,</i></p> <p>(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>(c) <i>a summary of rehabilitation risk assessments conducted by the holder,</i></p> <p>(d) <i>the risk control measures identified in the rehabilitation risk assessments,</i></p> <p>(e) <i>the rehabilitation outcome documents for the mining lease,</i></p> <p>(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>(a) <i>Must implement the matters set out in the rehabilitation management plan, and</i></p> <p>(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 and 5</p> <p>N/A</p> |

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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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 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 Environmental Impact Statement (EIS) (Whitehaven, 2018) 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);
- Infrastructure; and
- Final Voids.

2.3 FINAL LAND USE STATEMENT

The proposed final landform and final land use are depicted spatially in Section 5 of this RMP. This is generally in accordance with the conceptual final landform in the Project EIS (Whitehaven, 2018) and the Development Consent (SSD-7480). The final land uses are consistent with those described in Section 2.2.

As required by Condition B101, Schedule 2 Part B of the Development Consent (SSD-7480), the final land use and rehabilitation objectives outlined in Section 4.1 of this RMP are generally in accordance with the final land uses proposed in the Project EIS and associated documentation.

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 Canyon Coal Mine and VCM are provided in Tables 4 and 5, respectively.

Table 4: Canyon Coal Mine Final Land Use Domains

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

Table 5: Vickery Coal Mine Final Land Use Domains

| Final Land Use Domains | Code |
|------------------------|------|
| Agriculture - Grazing | B |

2.4.2 MINING DOMAINS

Mining domains refer to the footprint of areas disturbed for discrete mining-related activities. Mining domains for the VCM have been delineated based on operational or functional purpose and therefore are defined by their geophysical characteristics.

As described in Section 1, operations at the VCM consist of closure activities within the former Canyon Coal Mine site, exploration/evaluation activities, and pre-construction works. The codes associated with the VCM Mining Domains are presented in Table 6.

Table 6: Mining Domains

| Mining Domain | Code |
|--|------|
| Other (Exploration and Pre-construction Work Areas) | 8 |
| Other (Closure of Canyon Coal Mine) | 8 |

Prior to the commencement of mining operations approved for the VCM under Development Consent (SSD-7480), this RMP would be updated to reflect the approved mining domains at the VCM. At that stage of mining activities, Mining Domains are likely to include:

- waste rock emplacement;
- mine infrastructure including northern and southern part of secondary infrastructure area;
- water management dams;
- the Project rail spur corridor; and
- final voids.

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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

3 REHABILITATION RISK ASSESSMENT

Whitehaven has successfully undertaken rehabilitation activities at the former Canyon Coal Mine site to the extent that the mine is in closure.

Whitehaven have reviewed the risks involved with the next three years of rehabilitation activities for the purpose of this RMP (prior to commencement of mining operations) for the rehabilitation activities at Canyon Coal Mine and VCM (i.e. closure of the Canyon Coal Mine and exploration and geotechnical activities at the VCM).

As described in Table 7, no risks were identified for the closure of the Canyon Coal Mine. Table 8 describes the risks of rehabilitation activities relevant to exploration and geotechnical studies at the VCM. This includes:

- Risk of incomplete rehabilitation of exploration locations, drill pads and tracks leading to final post-closure landform not being fully achieved.
- Unsuitable groundcover or grass species leading to inadequate rehabilitation.
- Species seed mix not inclusive of endemic species leading to inadequate rehabilitation.
- Poor vegetation re-establishment due to variables such as seasonal or erosion factors.

Management and mitigation measures for the above-mentioned risks are provided in Table 8.

The results of rehabilitation monitoring at Canyon Coal Mine, and Whitehaven's other operations in the Gunnedah Coalfield, will inform the effectiveness of rehabilitation methods and requirements for contingency measures at the VCM.

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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 7: Canyon Coal Mine Rehabilitation Risk Assessment

| Final Land Use Domain | Rehabilitation Objectives | Risks to Rehabilitation | Management/Mitigation Measures |
|--------------------------------|--|---|---|
| All Domains | Safe, stable and non-polluting. | No risk to achieving the Rehabilitation Objective identified. | |
| | Fit for intended post-mining land use/s. | No risk to achieving the Rehabilitation Objective identified. | |
| | Establish the final landform and post-mining land use/s as soon as practicable after cessation of mining operations. | No risk to achieving the Rehabilitation Objective identified. | |
| | Minimise post-mining environmental impacts. | No risk to achieving the Rehabilitation Objective identified. | |
| Domain J Final Voids | The final void will be geo-technically stable, safe and non-polluting. | No risk to achieving the Rehabilitation Objective identified. | Will be addressed by mining in the future as part of the Project. |
| | The catchment reporting to the final void will be designed and constructed to provide flows that fill the void. | No risk to achieving the Rehabilitation Objective identified. | |
| | The final void lake will provide a permanent water resource with water quality suitable for native fauna and agricultural use. | No risk to achieving the Rehabilitation Objective identified. | |
| | Embankments above the permanent water level will be vegetated with native vegetation consistent with native vegetation rehabilitation areas to contribute to fauna habitat connectivity. | No risk to achieving the Rehabilitation Objective identified. | |

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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 7 (Continued): Canyon Coal Mine Rehabilitation Risk Assessment

| Final Land Use Domain | Rehabilitation Objective | Risks to Rehabilitation | Management/Mitigation Measures |
|--|---|---|--------------------------------|
| Domain B: Agricultural – Grazing | Establish/restore grassland areas to support sustainable agricultural activities. | No risk to achieving the Rehabilitation Objective identified. | |
| | Use species found in the local area that are suitable for pasture production. | No risk to achieving the Rehabilitation Objective identified. | |
| | Achieve land and soil capabilities that are equivalent or better than pre-mining. | No risk to achieving the Rehabilitation Objective identified. | |
| | Local adjacent to surrounding agricultural land, where practicable. | No risk to achieving the Rehabilitation Objective identified. | |
| Domain A: Native Ecosystem | At least 132 ha of native vegetation with characteristics analogous to analogue sites will be established on areas disturbed by mining. | No risk to achieving the Rehabilitation Objective identified. | |
| | Native vegetation areas will contribute to maintaining the genetic diversity of flora occurring in the locality by utilising locally collected seed and preserving the topsoil seedbank | No risk to achieving the Rehabilitation Objective identified. | |
| | Native vegetation areas will contribute to habitat resources and linkages with adjacent native vegetation including the Vickery State Forest. | No risk to achieving the Rehabilitation Objective identified. | |

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| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 8: Vickery Coal Mine Rehabilitation Risk Assessment

| Final Land Use Domain | Rehabilitation Objective | Risks to Rehabilitation | Management/Mitigation Measures |
|--|--|---|--|
| Domain B: Agricultural – Grazing | Safe, stable and non-polluting. | Risk of incomplete rehabilitation of exploration locations, drill pads and tracks leading to final post closure landform not been fully achieved. | Rehabilitation monitoring identifies areas of erosion, instability and/or incomplete rehabilitation. |
| | Fit for intended post-mining land use/s. | | |
| | Establish the final landform and post-mining land use/s as soon as practicable after cessation of mining operations. | | |
| | Minimise post-mining environmental impacts. | | |
| | Establish/restore grassland areas to support sustainable agricultural activities. | Unsuitable groundcover or grass species. | Separation of soil material types where possible prior to replacement to ensure natural regrowth. |
| | Use species found in the local area that are suitable for pasture production. | Species seed mix not inclusive of endemic species. | Ensuring reseeding occurs using accepted seed mix. |
| | Achieve land and soil capabilities that are equivalent or better than pre-mining. | Poor re-establishment due to variables such as seasonal or erosion factors. | Reuse of surface materials in rehabilitation consideration to timing/season. |
| | Local adjacent to surrounding agricultural land, where practicable. | N/A – adjoins other rehabilitation and/or agricultural land. | |

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| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

4 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

The key completion criteria for the Canyon Coal Mine and the VCM (Table 9 and Table 10 respectively) are designed to address rehabilitation objectives and incorporate outcomes from the assessment of completed rehabilitation in all final land use domains. Rehabilitation will need to achieve a standard which satisfies the NSW Resources Regulator that Whitehaven has met rehabilitation undertakings provided in this RMP such that rehabilitation bonds can be released.

Table 9: Canyon Coal Mine Key Completion Criteria

| COMPONENT | KEY COMPLETION CRITERIA |
|------------------------|--|
| All Domains | <ul style="list-style-type: none"> Survey or remote sensing of the rehabilitated landforms shows an absence of slumping. |
| Final Void | <ul style="list-style-type: none"> Survey or remote sensing of the rehabilitated landforms shows an absence of slumping. Rehabilitated slopes are verified by survey to be generally less than 11 degrees (°) (or 14° in the final void). Dirty water is captured and discharged in accordance with the EPL, (supported by records). |
| Agricultural – Grazing | <ul style="list-style-type: none"> Visual monitoring verifies that surface spoils are generally rock free. Total biomass at rehabilitation areas is shown (using multi-spectral imaging) to demonstrate no significant differences to analogue sites subject to similar management regimes. |
| Native Ecosystem | <ul style="list-style-type: none"> More than 75 per cent (%) of trees are healthy and growing as indicated by rehabilitation monitoring. Woodland rehabilitation areas contain species diversity that is shown (using a recognised statistical method) to demonstrate no significant differences when compared to the analogue sites. Woodland rehabilitation areas provide a range of structural habitats (e.g. eucalypts, shrubs, ground cover, developing litter layer etc.). |
| Infrastructure | <ul style="list-style-type: none"> Statutory responsibility for retained infrastructure is transferred (if required) and excised from ML1471. Land ownership and/or lease arrangements are finalised (if applicable). All concrete footings, foundation pads and pavements have been removed. Site investigation records indicate that infrastructure areas are free of any hazardous materials (e.g. petroleum, chemicals and explosive products). Records indicate that contaminated soils have been identified and remediated or removed in accordance with legislation. |

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| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 9 (Continued): Canyon Coal Mine Key Completion Criteria

| COMPONENT | KEY COMPLETION CRITERIA |
|--------------------------------------|---|
| Water Storage (Excluding Final Void) | <ul style="list-style-type: none"> The final landform drainage will be designed and constructed to integrate with surrounding catchments. Final landform drainage will be designed and constructed to minimise erosion and enhance geomorphic stability. The final landform water management will not adversely impact downstream water users. |

Table 10: Vickery Coal Mine Key Completion Criteria

| COMPONENT | KEY COMPLETION CRITERIA |
|-----------------------|---|
| Agriculture - Grazing | <ul style="list-style-type: none"> Safe, stable landforms consistent with the pre-exploration landform. Site functions the same before and after exploration activities. No clearing operations authorised. Site functions the same before and after exploration activities. Tools, plant and equipment removed within one month. Waste and cores removed within one month. Boreholes surveyed, sealed and rehabilitated within one month. Access tracks repaired and stabilised within six months. Clean and tidy work area. All water to remain on site. Reuse of water on site. Use of erosion and sedimentation controls where necessary. Use of erosion and sedimentation controls where necessary Land disturbed by exploration/geotechnical activities has been restored to Class 3 suitability land for grazing. Site functions the same before and after exploration activities Agricultural grazing grassland demonstrates no significant difference to surrounding agricultural land, where practicable. |

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| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

4.1 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

The overall objective for the final rehabilitation 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), detailed domain rehabilitation objectives are further outlined in Tables 11 and 12 for the Canyon Coal Mine and VCM, respectively.

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 objectives, indicators and completion criteria for each of the final land use and mining domains during the rehabilitation phases are specified in Table 11 and 12 for the Canyon Coal Mine and VCM, respectively.

In accordance with Clause 12, Schedule 8A of the *Mining Regulation 2016*, the Canyon Coal Mine and VCM Rehabilitation Objectives and Rehabilitation Completion Criteria have been submitted to the NSW Resources Regulator approval. Following approval of the Rehabilitation Objectives and Rehabilitation Completion Criteria, this RMP will be amended to substitute the proposed versions (Tables 11 and 12) with the version approved by the NSW Resources Regulator in accordance with Clause 11, Schedule 8A of the *Mining Regulation 2016*.

Should mining activities commence, this RMP including the Rehabilitation Objectives and Completion Criteria will be amended to reflect rehabilitation objectives and completion criteria associated with appropriate mining operations.

Table 11: Canyon Coal Mine Proposed Rehabilitation Objectives and Rehabilitation Completion Criteria

| FINAL LAND USE DOMAIN | MINING DOMAIN | REHABILITATION OBJECTIVES | INDICATORS | REHABILITATION COMPLETION CRITERIA | JUSTIFICATION/VALIDATION METHOD |
|------------------------------|---|---|------------------------------|---|--|
| Domain A Native Ecosystem | Domain 8 Other (Closure of Canyon Coal Mine) | Woodland rehabilitation areas species diversity is analogous to analogue native vegetation community. | Vegetation health | More than 75% of trees are healthy and growing as indicated by rehabilitation monitoring. | VCM RMP. |
| | | | Species composition | Woodland rehabilitation areas contain species diversity that is shown (using a recognised statistical method) to demonstrate no significant differences when compared to the analogue sites. | VCM RMP. |
| | | | Reproduction | Second generation tree seedlings are present or likely to be (e.g. presence of flowering). | VCM RMP. |
| | | | Habitat Structure | Woodland rehabilitation areas provide a range of structural habitats (e.g. eucalypts, shrubs, ground cover, developing litter layer etc.). | VCM RMP. |
| | | Weeds and feral animals do not present a risk to rehabilitation. | Weed presence | The densities of weed species in the rehabilitated areas are to be no worse than the analogue sites. All measurements will be undertaken in accordance with the methodology outlined in the Department of Agriculture, Fisheries and Forestry (2008) <i>Field Manual for surveying and Mapping Nationally Significant Weeds</i> . | VCM RMP. |
| | | | Feral animal density | Feral animal pests are controlled in accordance with legislation and the VCM RMP. | |
| | | Management measures will be implemented to minimise bushfire risks in rehabilitation areas. | Bushfire risk management | Bushfire mitigation actions including managing fuel loads, maintaining fire-breaks and firefighting access are implemented in accordance with the Bushfire Management Plan. | Stage 2 Statement of Environmental Effects (SEE) (Geoff Cunningham Natural Resource Consultants, 2005). VCM RMP. |
| | | Erosion does not present a safety hazard or compromise the post mining land capability. | Erosion and Sediment Control | Monitoring verifies there is no evidence of significant erosion. | VCM RMP. <i>BioMetric 2.0 Operational Manual Assessment Methodology</i> (NSW Department of Environment and Climate Change [DECC], 2008) |
| | | Soil nutrient cycling and structure is self-sustaining | Soil Quality | Soil testing indicates that soil characteristics (pH, electrical conductivity [EC], Exchangeable sodium percentage [ESP]) meet the following criteria: <ul style="list-style-type: none"> pH – between 4.5 and 8.5. EC – < 2ds/m. ESP – that is comparable to the analogue sites. | VCM RMP |
| | | | Surface cover | Rehabilitation monitoring records verify that ground cover (vegetation, leaf litter, mulch) greater than 50%. | VCM RMP |
| | | Habitat features are salvaged and re-used in native vegetation rehabilitation to provide fauna habitat resources. | Habitat features | Mapping shows where all available habitat features have been incorporated into woodland rehabilitation areas (including felled hollow bearing logs and coarse woody debris). | VCM RMP |

Table 11 (Continued): Canyon Coal Mine Proposed Rehabilitation Objectives and Rehabilitation Completion Criteria

| FINAL LAND USE DOMAIN | MINING DOMAIN | REHABILITATION OBJECTIVES | INDICATORS | REHABILITATION COMPLETION CRITERIA | JUSTIFICATION/VALIDATION METHOD |
|------------------------------------|---|--|--|---|---|
| Domain B Agricultural - Grazing | Domain 8 Other (Closure of Canyon Coal Mine) | Minimise visual impacts by creating a landform that blends with the adjoining landscape, and, with the exception of the final void, provides no obvious evidence of a prior mining land use. | Surface rock density through visual inspection by suitably qualified person. | Visual monitoring verifies that surface spoils are generally rock free. | VCM RMP. |
| | | Pasture areas will be capable of sustaining grazing with land capability that reflects the pre-mining environment | Productivity | Total biomass at rehabilitation areas is shown (using multi-spectral imaging) to demonstrate no significant differences to analogue sites subject to similar management regimes. | VCM RMP. SEE (Geoff Cunningham Natural Resource Consultants, 2005). Canyon Open Cut Mine Closure Plan (2009). |
| | | | Species composition | At least 75% of species surveyed are representatives of the specified perennial pasture species mix. | |
| | | | Natural regeneration | There is evidence of second-generation pasture plants. | |
| | | | Land Capability | Pasture Rehabilitation Areas are assessed to have a Rural Land Capability Class VI or better (capable of sustaining grazing). | |
| | | | | Pasture Rehabilitation Areas have at least 16 ha of land with Rural Land Capability Class II | |
| | | | Soil quality | Soil testing indicates that soil characteristics (pH, EC, ESP) meet the following criteria: <ul style="list-style-type: none"> pH – between 4.5 and 8.5. EC – < 2ds/m. ESP – that is comparable to the analogue sites. | |
| | | | Surface rock density | Visual monitoring verifies that surface spoils are generally rock free. | |
| | | Management measures will be implemented to minimise bushfire risks in rehabilitation areas. | Bushfire risk management | Bushfire mitigation actions including managing fuel loads, maintaining fire-breaks and firefighting access are implemented in accordance with the Bushfire Management Plan. | SEE (Geoff Cunningham Natural Resource Consultants, 2005). VCM RMP. |
| | | Grazing stock are excluded from rehabilitation areas prior to relinquishment. | Stock exclusion fencing | Rehabilitation areas are fenced to exclude grazing stock. | VCM RMP. |
| | | Erosion does not present a safety hazard or compromise the post mining land capability. | Erosion and Sediment Control | Monitoring verifies there is no evidence of significant erosion. | VCM RMP. <i>BioMetric 2.0 Operational Manual Assessment Methodology</i> (DECC, 2008). |
| | | Weeds and feral animals do not present a risk to rehabilitation. | Weed presence | The densities of weed species in the rehabilitated areas are to be no worse than the analogue sites. All measurements will be undertaken in accordance with the methodology outlined in the Department of Agriculture, Fisheries and Forestry (2008) <i>Field Manual for surveying and Mapping Nationally Significant Weeds</i> . | VCM RMP. |
| | | | Feral animal density | Feral animal pests are controlled in accordance with legislation and the VCM RMP. | |

Table 11 (Continued): Canyon Coal Mine Proposed Rehabilitation Objectives and Rehabilitation Completion Criteria

| FINAL LAND USE DOMAIN | MINING DOMAIN | REHABILITATION OBJECTIVES | INDICATORS | REHABILITATION COMPLETION CRITERIA | JUSTIFICATION/VALIDATION METHOD |
|--|--|--|--------------------------|--|--|
| Domain G Water Storage (Excluding Final Void) | Domain 8 Other (Closure of Canyon Coal Mine) | Downstream water users are not impacted by mining at Canyon Coal Mine. | EPL | EPL is extinguished by the NSW EPA. | EPL. Water Management Plan. |
| | | Downstream water users are not adversely affected. | Final landform drainage | Final landform drainage structures including drains, banks, drop structures and dams have been constructed in accordance with Blue Book requirements. | <i>BioMetric 2.0 Operational Manual Assessment Methodology</i> (DECC, 2008). |
| | | | Geomorphic stability | Visual assessment by a suitably qualified person certifying that drainage structures are stable with no active gully heads, tunnel erosion or bank failure that are likely to compromise the long-term stability of the structure. | |
| | | Final landform drainage will integrate with surrounding catchments, achieve long term geomorphic stability and minimise erosion. | Discharge water quality | Discharge water quality meets EPL requirements. | EPL. Water Management Plan. |
| | | | Geomorphic stability | Drainage structures are assessed to be stable after at least 5 years. | SEE (Geoff Cunningham Natural Resource Consultants, 2005). VCM RMP. |
| Domain I Infrastructure | Domain 8 Other (Closure of Canyon Coal Mine) | Land associated with the maintenance facility and hardstand areas will be retained for post-mining use. | Statutory Responsibility | Statutory responsibility for retained infrastructure is transferred (if required) and excised from ML1471. | VCM RMP. |
| | | | Land Ownership | Land ownership and/or lease arrangements are finalised (if applicable). | VCM RMP. |
| | | All infrastructure not required in the final landform is removed from site. | Carbonaceous Material | All concrete footings, foundation pads and pavements have been removed. | VCM RMP. |
| | | | Hazardous materials | Site investigation records indicate that infrastructure areas are free of any hazardous materials (e.g. petroleum, chemicals and explosive products). | |
| | | | Contaminated Soils | Records indicate that contaminated soils have been identified and remediated or removed in accordance with legislation. | |
| | | | Monitoring Points | Any ancillary disturbance or equipment associated with surface water and rehabilitation monitoring points is removed and/or rehabilitated. | |
| | | | Access Tracks | Access tracks not required in the final landform are decommissioned and rehabilitated. | |
| Domain J Final Void | Domain 8 Other (Closure of Canyon Coal Mine) | Design and construct the final landform, including appropriate slopes and surface water management, to create a low maintenance, geo-technically stable, and non-polluting final landform. | Stability | Survey or remote sensing of the rehabilitated landforms shows an absence of slumping. | VCM RMP. |
| | | | Slope degree | Rehabilitated slopes are verified by survey to be generally less than 11 °(or 14 ° in the final void). | SEE (Geoff Cunningham Natural Resource Consultants, 2005). |

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Table 12: Vickery Coal Mine Proposed Rehabilitation Objectives and Rehabilitation Completion Criteria

| FINAL LAND USE DOMAIN | MINING DOMAIN | REHABILITATION OBJECTIVES | INDICATORS | REHABILITATION COMPLETION CRITERIA | JUSTIFICATION/VALIDATION METHOD |
|---|---|--|--|---|---|
| Domain B Agricultural – Grazing | Domain 8 <i>Other (Exploration and Pre-construction Work Areas)</i> | Safe, stable and non-polluting. | Site inspections to close out site following rehabilitation of exploration sites. | Safe, stable landforms consistent with the pre-exploration landform. | Land disturbance protocol. Exploration Management Plan. |
| | | Land to be compatible with pre-exploration use. | Land disturbance protocol restricts certain activities. | No clearing operations authorised. | Land disturbance protocol. |
| | | | Comparative photography of the exploration activity before and after. | Site functions the same before and after exploration activities. | Exploration Management Plan. |
| | | Disturbance areas will be progressively rehabilitated and revegetated. | Progressive rehabilitation and revegetation of disturbance areas each year shown through inspections and annual reporting. | Tools, plant and equipment removed within one month. Waste and cores removed within one month. Boreholes surveyed, sealed and rehabilitated within one month. Access tracks repaired and stabilised within six months. | Land disturbance protocol. The Project EIS, Section 7. Exploration Management Plan. |
| | | Minimise visual impact as far as is reasonable and feasible. | Regular site inspections for tidiness. Use of waste management contractor. | Clean and tidy work area. | Condition B101, Schedule 3 Part B of Development Consent (SSD-7480). Land disturbance protocol. Exploration Management Plan. |
| | | Sedimentation and erosion controls applied where appropriate. | Use of water reuse systems. Site inspections to identify the reuse of water on site. Site inspections to identify the need for erosion and sedimentation controls. | All water to remain on site. Reuse of water on site. Use of erosion and sedimentation controls where necessary. | Land disturbance protocol. Exploration Management Plan. |
| | | Establish/restore grassland areas to support sustainable agricultural activities. | Exploration site inspection by suitably trained person and progressive photo comparisons. | Use of erosion and sedimentation controls where necessary. | Condition B101, Schedule 3 Part B of Development Consent (SSD-7480). Land disturbance protocol Exploration Management Plan. |
| | | Use agricultural species found in the local area that are suitable for pasture production. | Ongoing monitoring relating to weed presence, stability and runoff, as well as vegetation cover. | Land disturbed by exploration/geotechnical activities has been restored to Class 3 suitability land for grazing. | |
| | | Achieve land and soil capabilities that are equivalent or better than pre-mining. | Site inspections to identify the need for erosion and sedimentation controls | Site functions the same before and after exploration activities. | |
| | | Locate adjacent to surrounding agricultural land, where practicable. | Comparative photography of the exploration activity before and after. | Agricultural grazing grassland demonstrates no significant difference to surrounding agricultural land, where practicable. | |

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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

4.2 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA – STAKEHOLDER CONSULTATION

Whitehaven has undertaken an extensive consultation program with key stakeholders through the preparation of the Project EIS (Whitehaven, 2018) and Project approval application. Further to this, consultation has been undertaken with key stakeholders during the preparation of the previous Canyon Coal Mine MOP and VCM MOP.

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

The consultation undertaken during the preparation of all previous MOPs relevant to the VCM and Canyon Coal Mine is considered relevant to the preparation of this RMP as the overarching final land use, rehabilitation procedures, monitoring and completion criteria are unchanged.

In accordance with Clause 9, Schedule 8A of the *Mining Regulation 2016*, this RMP has been prepared in a form as specified by the Secretary using the *Form and Way – Rehabilitation Management Plan for Large Mine* (the Form and Way Guidelines)(Resources Regulator, 2021a).

This RMP has been provided to the NSW Resources Regulator for comment. Once received, the NSW Resource Regulator's correspondence will be included in the Record of Consultation.

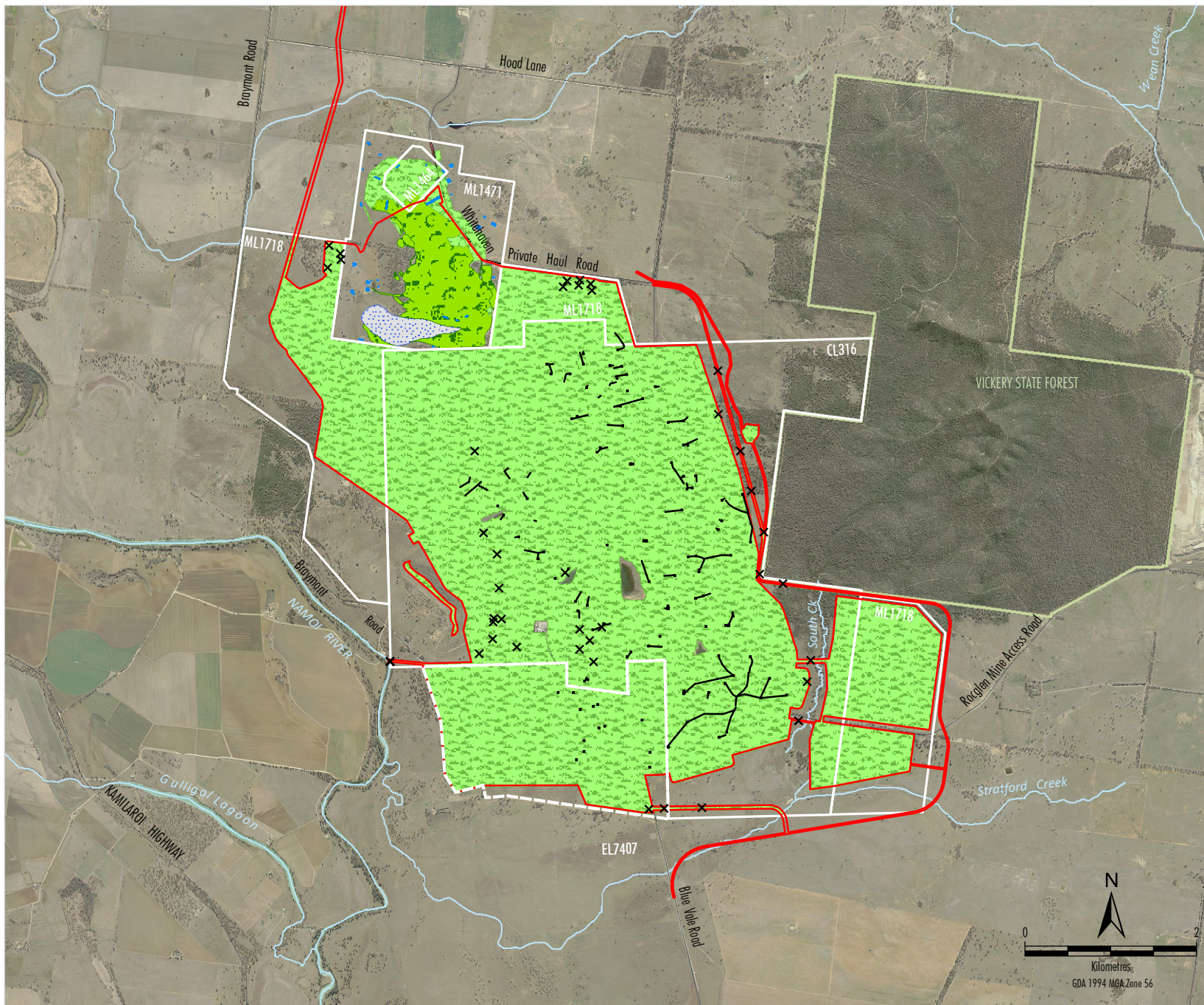
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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

5 FINAL LANDFORM AND REHABILITATION PLAN

5.1 FINAL LANDFORM AND REHABILITATION PLAN – ELECTRONIC COPY

Final Land Use and Rehabilitation Plans have been prepared to show the proposed Final Land Use (Plan 1) and Final Landform (Plan 2) at the end of the mine life. These plans are generally in accordance with the details of the Project EIS and subsequent assessments.

In accordance with Clause 12, Schedule 8A of the *Mining Regulation 2016*, the VCM Final Land Use and Rehabilitation Plans have been submitted to the NSW Resources Regulator for approval. Following approval of the Final Land Use and Rehabilitation Plans, 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 Development Area
 - Coal - Current Title
 - Final Landuse Domain
 - Agricultural – Grazing
 - Final Void
 - Infrastructure
 - Native Ecosystem
 - Water Storage (Excluding Final Void)
 - Indicative New Exploration and Geotechnical Activities and Associated Access Tracks*

* 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

Plan 1



LEGEND

- Project Development Area
- Coal - Current Title
- Final Landform Contours (2m Intervals)

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



Plan 2

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6 REHABILITATION IMPLEMENTATION

6.1 LIFE OF MINE REHABILITATION SCHEDULE

In accordance with Condition A7 of Schedule 2 of Development Consent (SSD-7480), mining activities at the VCM will be undertaken over a 25 year period after Development Consent (SSD-7480) was issued (i.e. through to 12 August 2045). Historically, areas disturbed at the Canyon Coal Mine were progressively rehabilitation in accordance with previous MOPs and is evident in the current closure of the Canyon Coal Mine.

Currently, rehabilitation of the VCM is undertaken progressively, following the completion of exploration and geotechnical activities and involves the rehabilitation of disturbed land to previous vegetation and/or rehabilitation land.

Plans for the Canyon Coal Mine Life of Mine Rehabilitation Schedule are not applicable to the scope of this RMP as all mining activities have ceased and the area has undergone extensive rehabilitation. The majority of surface infrastructure, including coal handling and processing infrastructure has been removed from site and areas rehabilitated.

Plans for the VCM Life of Mine Rehabilitation Schedule have not been included within this current RMP scope as closure of the Canyon Coal Mine, exploration and geotechnical and pre-construction activities for VCM will not carry over past the commencement of operations.

A subsequent amended version of this RMP will include the Life of Mine Rehabilitation Schedule with the required five-year intervals prior to commencement of mining operations.

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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

6.2 **PHASES OF REHABILITATION AND GENERAL METHODOLOGIES**

The rehabilitation methodologies described in this section have been developed in consideration of the exploration and geotechnical activities and pre-construction works of the VCM. The rehabilitation activities associated with the closure of the Canyon Coal Mine are also described in this section.

Upon commencement of mining operations, this RMP will be amended to include rehabilitation and general methodologies linked to relevant risks identified.

6.2.1 **ACTIVE MINING PHASE**

Currently, exploration, evaluation, remediation and geotechnical activities are implemented at the VCM. As such, sub-sections “a” to “d”, “f” to “m” and “o”, will be updated upon commencement of mining operations.

- a) *Soils and Materials***
- b) *Flora Management Measures***
- c) *Fauna Management Measures***
- d) *Rock/Overburden Emplacement***
- e) *Waste Management***

The type of waste materials that may be produced by the exploration, maintenance and geotechnical activities are as follows:

- liquid waste consisting of drill cuttings and drilling fluids – stored in skip bins/above ground bins or sumps for removal by a hydro-vac truck;
- general solid waste (non-putrescible) – small quantities removed from the drill sites on a regular basis; and
- contaminated and general waste that may be recovered during maintenance activities.

All waste material will be removed from site to authorised and licenced waste facilities as part of the rehabilitation of the exploration drill pads.

- f) *Water Management***
- g) *Geology and Geochemistry***
- h) *Material Prone to Spontaneous Combustion***
- i) *Material Prone to Generating Acid Mine Drainage***
- j) *Ore beneficiation waste management (reject and tailing disposal)***
- k) *Erosion and Sediment Control***

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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

l) Ongoing Management of Biological Resources for Use in Rehabilitation

m) Management of Potential Cultural and Heritage Issues

n) Exploration Activities

Exploration and geotechnical activities will be undertaken as described in Section 1.1.2. The VCM exploration program will consist of the drilling of approximately 100 boreholes and approximately 50 geotechnical holes. Works associated with exploration and geotechnical activities will be undertaken within 54 ha of land within the approved surface disturbance area at the VCM (Plan 1). No exploration works are proposed within the extent of the former Canyon Coal Mine site.

Drilling will include a combination of both open hole hammer (125 mm) and HQ core (99 mm) boreholes and may include specific large diameter core (100–200 mm) or larger diameter open holes. The exploration drill holes will be located to minimise potential surface disturbance and clearing

Drilling activities will be conducted in accordance with the Whitehaven Exploration Management Plan, and generally in accordance with the objectives of *Guideline for mineral exploration drilling; drilling and integrity of petroleum exploration and production wells* (NSW Department of Planning, Industry and Environment, 2016). As far as is practicable, exploration activities will follow the requirements of *Exploration Code of Practice: Environmental Management* (Resources Regulator, 2021b) and *Exploration Code of Practice: Rehabilitation* (Resources Regulator, 2021c).

o) Mine Subsidence

6.2.2 DECOMMISSIONING

Currently, exploration and geotechnical activities are implemented at the VCM. As such, sub-sections “a” to “g”, will be updated upon commencement of mining operations.

a) Site Security

b) Infrastructure to be removed or demolished

c) Decommissioning and Demolition Activities

d) Buildings, Structures and Fixed Plant to be Retained

e) Management of Carbonaceous/Contaminated Material

f) Hazardous Materials Management

g) Underground Infrastructure

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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
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6.2.3 LANDFORM ESTABLISHMENT

Currently, exploration and geotechnical activities are implemented at the VCM. As such, sub-sections “a” to “e”, will be updated upon commencement of mining operations.

- a) *Water Management Infrastructure*
- b) *Final Landform Construction: General Requirements*
- c) *Final Landform Construction: Reject Emplacement Areas and Tailings Dams*
- d) *Final Landform Construction: Final Voids, Highwalls and Low Walls*
- e) *Construction of Creek/River Diversion Works*

6.2.4 GROWTH MEDIUM DEVELOPMENT

Currently, exploration and geotechnical activities are implemented at the VCM. As such, this section will be updated upon commencement of mining operations. Sub-sections that may be included in future iterations of this RMP include:

- Topsoil Management.
- Erosion and Sediment Controls.
- Weed Management.
- Direct Seeding Management.
- Tubestock Preparation.

6.2.5 ECOSYSTEM AND LAND USE ESTABLISHMENT

Currently, exploration and geotechnical activities are implemented at the VCM. As such, this section will be updated upon commencement of mining operations. Sub-sections that may be included in future iterations of this RMP include:

- Pasture Establishment.
- Seed Collection/Purchase and Tubestock Supply.
- Direct Seeding.
- Tubestock Installation.
- Canopy Density.
- Weed management and pest animal control to protect juvenile vegetation.
- Overview of methodologies that may be applied as part of the revegetation process.

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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

6.2.6 ECOSYSTEM AND LAND USE DEVELOPMENT

At the ecosystem and land use development phase, rehabilitation monitoring results would be used to confirm rehabilitation areas are on a trajectory towards a self-sustaining ecosystem and meeting the rehabilitation completion criteria. Monitoring results would 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. As the Canyon Coal Mine is currently in closure, rehabilitation monitoring is implemented as per the Rehabilitation Monitoring Program described in Section 8.

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

- rehabilitation monitoring (Section 8);
- rehabilitation maintenance including ongoing:
 - weed and feral animal control;
 - erosion control work maintenance;
 - maintenance fertilizing and re-seeding or re-planting (where required);
 - repair of fence lines, access tracks and other general related land management activities; and
- 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.

Feral animals have not been a significant issue over the life of the mine and are not considered to present a significant risk to rehabilitation. 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.

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

- 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 has been 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).

6.3 REHABILITATION OF AREAS AFFECTED BY SUBSIDENCE

VCM has no areas affected by underground mining subsidence.

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|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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.

The Rehabilitation Quality Assurance Process will be integrated into day to day operations at the VCM and implemented throughout the life of the operation, as outlined in Table 13.

Currently, the Rehabilitation Quality Assurance Process details rehabilitation, key actions and/or processes nominated to the exploration and pre-construction works at the VCM. Upon commencement of open cut mining operations, the Rehabilitation Quality Assurance Process will be amended to reflect mining activities and substitute the exploration and pre-construction version (Table 13). Rehabilitation validation monitoring is undertaken as described in Section 8.

| | | | |
|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 13: Rehabilitation Quality Assurance Program

| REHABILITATION PHASE | QUALITY ASSURANCE ACTIONS AND PROCESSES | RESPONSIBILITIES FOR IMPLEMENTATION | METHOD FOR DOCUMENTING AND RECORDING PROCESSES | METHOD AND TIMEFRAME FOR REVIEWING AND REFINING PROCESS |
|----------------------------------|--|--|--|---|
| Exploration and Pre-construction | <ul style="list-style-type: none"> • 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. • Visual monitoring. • Surface water quality monitoring. • Groundwater quality monitoring. • Erosion and sediment control monitoring. | Environment and Community Superintendent. Suitably qualified persons. | Inspections and documentation. Validation Reports. Annual Review. Annual Rehabilitation Report and Forward Program. | Process reviewed annually and/or following an incident. |
| Closure of Canyon Coal Mine | <ul style="list-style-type: none"> • Rehabilitation site inspection and photo comparisons to analogue native ecosystem areas. • Remote-sensing based landscape assessment (multi-spectral imagery). • Native vegetation survey. | Environment and Community Superintendent. Suitably qualified persons. | Inspections and documentation. Validation Reports. Annual Review. Annual Rehabilitation Report and Forward Program. | Process reviewed annually and/or following an incident. |

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|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 13 (Continued): Rehabilitation Quality Assurance Program

| REHABILITATION PHASE | QUALITY ASSURANCE ACTIONS AND PROCESSES | RESPONSIBILITIES FOR IMPLEMENTATION | METHOD FOR DOCUMENTING AND RECORDING PROCESSES | METHOD AND TIMEFRAME FOR REVIEWING AND REFINING PROCESS |
|--------------------------------------|---|-------------------------------------|--|---|
| Active Mining | N/A | N/A | N/A | N/A |
| Decommissioning | N/A | N/A | N/A | N/A |
| Landform Establishment | N/A | N/A | N/A | N/A |
| Growth Medium Development | N/A | N/A | N/A | N/A |
| Ecosystem and Land Use Establishment | N/A | N/A | N/A | N/A |

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|---|------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

8 REHABILITATION MONITORING PROGRAM

Monitoring of the VCM rehabilitation is largely associated with the closure of Canyon Coal Mine. For the purpose of monitoring rehabilitation related to exploration and geotechnical activities, rehabilitation will be focused upon inspection to assess weed presence, stability and runoff, and vegetation cover.

Rehabilitation is monitored on a regular basis to ensure vegetation is establishing in 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 Completion Criteria (Section 4).

For the Canyon Coal Mine, a multi-scale, multi-data source monitoring approach has been used, incorporating remote sensing to monitor the entire target area as well as targeted field work. Monitoring has been directed into control and impact areas for both Agricultural - Grazing and Native Ecosystem environments.

Rehabilitation monitoring reports are prepared annually and include:

- remote-sensing based landscape assessment (multi-spectral imagery);
- 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.

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

8.1 ANALOGUE SITE BASELINE MONITORING

Whitehaven undertakes monitoring at appropriate analogue sites to assist in quantifying the key desirable indicators of Native Ecosystem and Agricultural – Grazing rehabilitation. Canyon Coal Mine established sufficient analogue sites located within the mine lease boundary in pasture areas and remnant woodland areas not disturbed by mining.

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.

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 related to Canyon Coal Mine.

8.2.1 REMOTE SENSING

Multi-spectral imagery provides information relating to land cover and condition across the entire site, including rehabilitated areas and control zones.

Multi-spectral imagery is captured across rehabilitation and control areas then processed into a normalised difference vegetation index (NDVI). The combination of true colour, false colour and NDVI image visualisation products gives an indication of the extent and condition of each land cover type in the area.

Significant changes identified via analysis of remote sensing data ($> \pm 2$ standard deviations from average) instigates further investigation including targeted rapid on ground assessments. If changes are confirmed or discovered on-ground site specific management responses and remedial actions are developed and implemented.

8.2.2 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 (pH, EC, OM, N or P) are assessed in surveys of grazing areas.

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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 is also recorded and any recommended weed treatments are documented in the annual monitoring report.

Biomass is also 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.

8.2.3 NATIVE VEGETATION MONITORING

Vegetation surveys are 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, 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.

8.2.4 TERRESTRIAL FAUNA AND HABITAT MONITORING

Terrestrial fauna and habitat monitoring focuses on native vegetation areas, and targets:

- woodland birds, as they are relatively mobile and are often one of the first fauna groups to make use of maturing rehabilitation areas;

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

- *Phascolarctos cinereus* (Koala), *Neophema pulchella* (Turquoise Parrot) and *Pomatostomus temporalis* (Grey-crowned Babbler) since they are listed under either the TSC Act and/or the EPBC Act and are locally important; and
- reptiles, as specific habitat was established to attract these species.

Analysis includes 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 Rehabilitation Objectives and Completion Criteria described in Section 4.1 to track rehabilitation progress. Outcomes of the rehabilitation monitoring will be provided in subsequent Annual Reviews, and the Annual Rehabilitation Report and Forward Program.

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.

| | | | |
|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

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, will inform rehabilitation activities at the VCM.

9.2 FUTURE REHABILITATION RESEARCH, MODELLING AND TRIALS

As per Section 1.1.3 of this RMP, rehabilitation at the Canyon Coal Mine has been rehabilitated to the mixture of woodland and open pasture areas. Thus, rehabilitation research, modelling and trials completed for the Canyon Coal Mine will inform rehabilitation of exploration and geotechnical activities and pre-construction works at the VCM.

| | | | |
|---|------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

10 INTERVENTION AND 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 and Canyon Coal Mine 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 Trigger Action Response Plan (TARP).

The following TARP for rehabilitation related to exploration and geotechnical activities and closure of the Canyon Coal Mine has been developed to identify required management actions when unexpected variations occur from the rehabilitation outcomes. A TARP has been developed based on identified threats to rehabilitation at the VCM. Any emerging threats to rehabilitation success will be identified through the ongoing monitoring programs described in Section 8.

The TARP for Canyon Coal Mine and VCM is provided in Tables 14 and 15, respectively. These TARPs will be revised as conditions at VCM change or new risks to rehabilitation are identified.

| | | | |
|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 14: Canyon Coal Mine Rehabilitation Trigger Action Response Plan

| Aspect/Category | Key Element | Trigger/Response | 1 st Level Trigger | 2 nd Level Trigger |
|--------------------|-------------------------|------------------|---|---|
| Landform Stability | Slope Gradient | Trigger | Slopes >10° but <14°, unless assessed to be stable. | Slopes >15°, unless assessed to be stable. |
| | | Response | Undertake stability enhancement works including revegetation if required. | Undertake a review of the landform design, and make an assessment of the stability of the landform including material characterisation. Undertake stability enhancement works including revegetation if required. Consider re-grading to achieve stability. |
| | Erosion Control | Trigger | Minor gully or tunnel erosion. | Slumping and/or gully or tunnel erosion present and/or significant rilling. |
| | | Response | An inspection of site will be undertaken by a suitably trained person. Investigate opportunities to install (or augment existing) water management infrastructure to address erosion. Remediate as appropriate. | Remediate as appropriate. If required, consult with a land management specialist to assist with the management of erosion and sedimentation at the site and provide recommendations as appropriately remediate the erosion. Remediate as soon as practicable. Review the Erosion and Sediment Control Plan and update where required. |
| | Free Draining Landforms | Trigger | Landforms exhibiting minor ponding. | Landforms exhibiting significant drainage issues, threatening or causing material harm to the environment. |
| | | Response | An inspection of the site will be undertaken by a suitably trained person. Investigate opportunities to address issues. Remediate as appropriate. | Undertake a review of the landform design, including survey if required. Undertake re-grading and re-vegetation of the area. |

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 14 (Continued): Canyon Coal Mine Rehabilitation Trigger Action Response Plan

| Aspect/Category | Key Element | Trigger/Response | 1 st Level Trigger | 2 nd Level Trigger |
|--------------------|-----------------------------|------------------|--|---|
| Landform Stability | Water Management Structures | Trigger | Water management structures (sediment dams, channels, contour banks) exhibit minor erosion and/or scouring. | Water management structures fail or display significant scouring/erosion. |
| | | Response | An inspection of the site will be undertaken by a suitably trained person. Identify remedial actions such as amelioration, revegetation or alternative scour protection. | Remediate as appropriate. If required, consult a water management specialist to develop a site-specific remediation plan and review water management structure design criteria. |
| Soil Quality | Salinity | Trigger | Increasing trend in soil/spoil salinity levels. | Presence of salt scalds. |
| | | Response | Undertake soil/spoils testing to verify EC and recommend further soil/spoil amelioration. | Engage a specialist consultant to develop a site-specific management report to be implemented to remediate salinity scalds. |
| | Soil ESP | Trigger | ESP > 8% and < 15%. | ESP > 15%. |
| | | Response | Undertake testing to determine required amelioration and undertake amelioration as required. | Review material handling practices. Ameliorate dispersive spoils (for example with coarse gypsum). Re-vegetate if required. |
| | Soil EC | Trigger | Soil EC > 600 micro-Siemen per centimetre (µS/cm). | Soil EC > 800 µS/cm. |
| | | Response | Engage a consultant to recommend appropriate measures to reduce soil EC. Undertake consultant recommendations where possible and viable. | Engage a consultant to recommend appropriate measures to reduce soil EC. Undertake consultant recommendations to reduce EC to an appropriate level. |

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 14 (Continued): Canyon Coal Mine Rehabilitation Trigger Action Response Plan

| Aspect/Category | Key Element | Trigger/Response | 1 st Level Trigger | 2 nd Level Trigger |
|-----------------|-------------------------|------------------|---|--|
| Soil Quality | Soil pH | Trigger | Soil pH <8.5 but >4.0. | Soil pH is <4.0 or > 9.5. |
| | | Response | Undertake analytical soil testing and evaluation. Where appropriate implement recommendations for amelioration to increase/reduce pH to within rehabilitation guidelines. | Undertake analytical soil testing and evaluation. Where appropriate, implement recommendations for amelioration of pH to within rehabilitation guidelines. Undertake evaluation recommendations to achieve soil pH within appropriate range. |
| Water Quality | Void water Quality | Trigger | Monitoring detects void surface water EC greater than adjacent storage dams. | Monitoring detects ongoing increasing trend in void surface water EC. |
| | | Response | Undertake additional monitoring to identify if there is an increasing EC trend that indicates groundwater interaction. | Engage specialist consultant to investigate groundwater interaction with void and development remedial actions to ensure there is an impermeable barrier between surface and groundwater. |
| | Groundwater | Trigger | Monitoring detects decreasing groundwater depth. | Monitoring detects ongoing trend in decreasing groundwater levels. |
| | | Response | Undertake additional monitoring to identify if there is a decreasing trend that indicates groundwater loss into the void | Engage specialist consultant to investigate groundwater interaction with void and develop remedial actions to ensure there is an impermeable barrier between surface and groundwater. |
| | Discharge Water Quality | Trigger | Sediment basin discharge exceeds L2 condition within the Canyon Coal Mine EPL (10094) criteria for pH, Total Suspended Solids (TSS) and oil/grease. | Long term upward trend outside ANZECC quality guideline limits. |
| | | Response | Repeat sampling to confirm results exceed limits, and investigate potential causes. | Review sediment basin maintenance and discharge procedures, and sediment basin capacity requirements. |

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 14 (Continued): Canyon Coal Mine Rehabilitation Trigger Action Response Plan

| Aspect/Category | Key Element | Trigger/Response | 1 st Level Trigger | 2 nd Level Trigger |
|-----------------|--------------|------------------|--|--|
| Land Management | Weeds | Trigger | Weeds represent >10% but <25% of total ground cover. | Weed represent >25% cover of total groundcover in Ecosystem Establishment phase. |
| | | Response | Undertake weed management to remove/spray introduced weed species. Treatment of infestations as appropriate to the species. | Undertake weed management to remove introduced weed species. Investigate management measures to reduce weeds including additional soil amelioration, establishment and retention of cover crops until weed presence is at acceptable levels. Implement recommendations as appropriate. |
| | | Trigger | Isolated occurrences Class 4 or 5 noxious weeds (including Bathurst Burr and Prickly Pear) are identified. | Occurrences of Class 1,2 or 3 noxious weeds, or infestations of Class 4 or 5 noxious weeds are identified. |
| | | Response | Control using herbicides in accordance with legislation and the relevant Narrabri Shire Council Weed Management Plan. | Control using the appropriate control requirements stipulated for the noxious weed control class. Notify NSC and NSW DPE of occurrences of Class 1, 2 or 5 noxious weeds. |
| | Pest animals | Trigger | Pest animal species presence and density increased in annual monitoring events. | Significant numbers of pest animals causing widespread damage to rehabilitation. |
| | | Response | Consult with relevant government agencies (including OEH) to recommend and implement appropriate pest animal control campaign. | Consult with relevant government agencies (including OEH) to recommend and implement appropriate pest animal control campaign. |
| | | Trigger | Pest animal species are causing damage to rehabilitation. | Continued damage to rehabilitation from native fauna after tree guards and fencing has been installed. |

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 14 (Continued): Canyon Coal Mine Rehabilitation Trigger Action Response Plan

| Aspect/Category | Key Element | Trigger/Response | 1 st Level Trigger | 2 nd Level Trigger |
|---|----------------------|------------------|--|---|
| Land Management | Pest Animals | Response | Consult with relevant government agencies (including OEH) to recommend and implement appropriate pest animal control campaign. | Liaise with government agencies and consider a culling program in accordance with National Parks and Wildlife Service regulations. |
| Biodiversity (Native Vegetation Rehabilitation Areas) | Ground cover percent | Trigger | Bare patches are > 30% (excluding rocks and logs). Bare patches present that are > 20 metres squared (m ²) or >10m in length downslope are present. | Bare patches are > 50% (excluding rocks and logs). Bare patches present that are > 30m ² or > 20m in length downslope are present. |
| | | Response | Undertake a field survey to identify likely causes of unsatisfactory germination rates. Re-seed areas with unsatisfactory cover. Review seeding procedures including seasonal mixes, timing and seed rate per hectare. | Undertake analytical soil testing and evaluation, Where appropriate implement recommendations for amelioration. Implement appropriate management actions including revising rehabilitation procedures if required. |
| | Vegetation Health | Trigger | < 75% but > 55% of shrubs and/or trees are 'healthy' when ranked 'healthy, sick or dead' in vegetation monitoring during the Ecosystem Sustainability phase. | <55% of shrubs and/or trees are 'healthy' when ranked 'healthy, sick or dead' in vegetation monitoring during the Ecosystem Sustainability phase. |
| | | Response | Undertake a field survey to identify likely causes of vegetation sickness and/or death rates. Re-seed or re-plant areas with high sickness or death rates. Review seeding and/or planting procedures. | Engage a suitably qualified specialist to investigate causes for vegetation sickness and death. Implement appropriate management actions including revising rehabilitation procedures if required. |

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 14 (Continued): Canyon Coal Mine Rehabilitation Trigger Action Response Plan

| Aspect/Category | Key Element | Trigger/Response | 1 st Level Trigger | 2 nd Level Trigger |
|---|--------------------------|------------------|--|---|
| Biodiversity (Native Vegetation Rehabilitation Areas) | Native Fauna Presence | Trigger | Decrease the number of vertebrate species over successive seasons at rehabilitation areas that is not consistent with changes recorded at analogue sites. | Continued decline in trend in recorded vertebrate species numbers and/or presence and abundance (allowing for any variability observed at analogue sites). |
| | | Response | Engage ecologist to undertake investigation to determine the cause of change. | Engage ecologist to undertake investigation to determine the cause of change. Liaise with relevant government agencies. |
| | | Trigger | Loss or deterioration of nest boxes, or pest animal species usage of nest boxes. | Decline in trend recorded fauna numbers and/or presence and abundance (allow for natural variation occurring in analogue sites). |
| | | Response | Replace damaged/lost nest boxes. Relocate and replace boxes adopted by pests. | Engage ecologist to undertake investigation to determine the cause of change. A site-specific management report may be prepared and implemented where necessary that aligns with the RMP. |
| Pasture areas | Pasture Composition | Trigger | Palatable, nutritious pasture grass species cover < 70% but >50% during the Ecosystem Establishment phase. | Palatable, nutritious pasture grass species cover < 50% Ecosystem Establishment phase. |
| | | Response | Undertake a field survey to identify likely causes of unsatisfactory germination and/or grown rates. Re-seed areas with unsatisfactory cover. Review seeding procedures including seasonal mixes, timing and seed rate per ha. | Undertake analytical soil testing and evaluation. Where appropriate, implement recommendations for amelioration. Implement appropriate management actions including revising rehabilitation procedures if required. |

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|---|------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 14 (Continued): Canyon Coal Mine Rehabilitation Trigger Action Response Plan

| Aspect/Category | Key Element | Trigger/Response | 1 st Level Trigger | 2 nd Level Trigger |
|-----------------|----------------------|------------------|--|---|
| Pasture areas | Ground cover percent | Trigger | During Ecosystem Establishment, a minimum of 70% ground cover is not present (or 50% if rocks, logs or other features of cover are present). Bare surfaces > 20m ² in area or >10m in length downslope are present. | During Ecosystem Establishment, vegetative cover is 50% or less. Bare surface > 30m ² in area or >20m in length downslope are present. |
| | | Response | Undertake a field survey to identify likely causes of unsatisfactory germination rates. Re-seed areas with unsatisfactory cover. Review seeding procedures incl. seasonal mixes, timing and seed rate per hectare. | Undertake analytical soil testing and evaluation, Where appropriate implement recommendations for amelioration. Implement appropriate management actions including revising rehabilitation procedures if required. |

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|---|-------------------------|---------------------|------------|
|  | WHITEHAVEN GROUP | Document Owner: | VCM |
| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 15: Vickery Coal Mine Rehabilitation Trigger Action Response Plan

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

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Table 15 (Continued): Vickery Coal Mine Rehabilitation Trigger Action Response Plan

| Trigger | Action | Response |
|---|--|--|
| Unintended interaction with heritage site | Stop works immediately. Report heritage site find to the Environmental Officer. Review whether the Land Disturbance Protocol has been implemented correctly. | Investigate how and why the interaction occurred. Prevent any further damage and report as necessary. Report to regulator as required. |
| Poor visual impact to community members | Investigate reasons for poor visual impact. Review adherence to Exploration Management Plan and Land Disturbance protocol. | Improve the visual aspects of the site. Ensure works are occurring in daylight hours only. Report as necessary. |

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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:

- to substitute the proposed version of the rehabilitation objectives and rehabilitation completion criteria (Section 4) or Final Landform and Rehabilitation Plan (Section 5) with the version approved by the Secretary – within 30 days after the document is approved;
- 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) – within 30 days after the amendment is made;
- 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 review and updating of this RMP will include the Life of Mine Rehabilitation Schedule for the five year intervals until the closure of the mine site and will include the any additional stakeholder consultation. 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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| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Annual Review

In accordance with Condition E9, Part E of the Project Approval (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 and former Canyon Coal Mine. The Annual Review will report on Whitehaven's compliance with all conditions of Development Consent (SSD-7480), VCM's mining leases 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).

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 16.

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| | | Issue: | 1.0 |
| | | Last Revision Date: | 27/07/2022 |
| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

Table 16: Site Environmental and Mining Management Relevant to Implementation of this RMP

| Management Team Member(s) | Role and Responsibility |
|--|--|
| Operations 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. |
| Superintendent – Mine Planning | <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. |
| Superintendent – Environment and Community | <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. |

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| WHC-PLN-VCM REHABILITATION MANAGEMENT PLAN | | | |

12 REFERENCES

Department of Agriculture, Fisheries and Forestry (2008) *Field Manual for surveying and Mapping Nationally Significant Weeds*.

Department of Environment and Climate Change NSW (2008) *BioMetric 2.0 Operational Manual Assessment Methodology*.

Geoff Cunningham Natural Resource Consultants (2005) *Stage 2 Statement of Environmental Effects*.

New South Wales Department of Industry, Skills and Regional Development, Division of Resources and Energy (2016) *Exploration and production guideline; drilling and integrity of petroleum exploration and production wells*.

New South Wales Resources Regulator (2021a). *Form and Way – Annual Rehabilitation Report and Forward Program for Large Mines*.

New South Wales Resources Regulator (2021b). *Exploration Code of Practice: Environmental Management*.

New South Wales Resources Regulator (2021c). *Exploration Code of Practice: Rehabilitation*.

Whitehaven (2018) *Vickery Extension Project: Environmental Impact Statement*.