



WAMBO COAL MINE ANNUAL REHABILITATION REPORT AND FORWARD PROGRAM

Prepared by Wambo Coal Pty Ltd

October 2022

Annual Rehabilitation Report and Forward Program Summary Table

WAMBO COAL MINE ANNUAL REHABILITATION REPORT AND FORWARD PROGRAM SUMMARY TABLE		
Name of Mine:	Wambo Coal Mine	
Annual Rehabilitation Report Commencement Date:	N/A	
Annual Rehabilitation Report Revision Dates and Version Numbers:	N/A	
Forward Program Commencement Date:	1 August 2022	
Mining Lease(s) / Lease Numbers / Expiry Dates:	CL 365	Expiry: 19/09/2032
	CL 374	Expiry: 21/03/2026
	CL 397	Expiry: 04/06/2034
	CCL 743	Expiry: 14/08/2022
	ML 1402	Expiry: 14/08/2022
	ML 1572	Expiry: 21/12/2026
	ML 1594	Expiry: 30/04/2028
	ML 1806	Expiry: 11/08/2041
Name of Lease Holder(s):	Wambo Coal Pty Limited	
Name of Mine Operator:	Wambo Coal Pty Limited	
Date of Submission:	6 October 2022	

Revisions

Rev No	Date	Description	By	Checked
1	1 August 2022	Original	WCPL	JB
2	5 October 2022	To address a revision to the Guideline: Mine Rehabilitation Portal	WCPL	JB

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1 ANNUAL REHABILITATION REPORT

In accordance with Part 1 of the New South Wales (NSW) Resources Regulator Form and Way – *Annual Rehabilitation Report and Forward Program for Large Mines (2021)* and clauses 9 and 13 of Schedule 8A of *Mining Regulations 2016*, an Annual Rehabilitation Report will be developed for Wambo Coal Mine (the Mine).

Requirements under the *Annual Rehabilitation Report and Forward Program for Large Mines (2021)* came into effect in July 2022. This is the first Annual Rehabilitation Report and Forward Program (ARRFP) prepared under these new guidelines.

The next Annual Rehabilitation Report will be submitted approximately 1 year following the submission of this report and will include reporting against the activities described in this ARRFP.

2 FORWARD PROGRAM

This Forward Program for the Mine has been prepared in accordance with Part 2 of the NSW Resources Regulator Form and Way – *Annual Rehabilitation Report and Forward Program for Large Mines (2021)* and clauses 9 and 13 of Schedule 8A of the *Mining Regulation 2016*. This Forward Program covers the period commencing 1 August 2022 to 1 August 2025 (i.e. the Forward Program term).

2.1. THREE-YEAR FORECAST – SURFACE DISTURBANCE ACTIVITIES

2.1.1. Project Description

The Mine is situated approximately 15 kilometres (km) west of Singleton, NSW (Figure 1). The Mine is owned and operated by Wambo Coal Pty Ltd (WCPL), a subsidiary of Peabody Energy Australia Pty Ltd (Peabody).

Development Consent (Development Application [DA] 305-7-2003) commenced in 2004, and allows for the following mining and process operations at the Mine (Figure 2):

- Underground mining operations in the approved North Wambo Underground Mine (completed).
- Underground mining operations in the approved South Bates Underground Mine (completed).
- Underground mining operations in the approved South Bates Extension Underground (SBUE) Mine (in progress).
- Underground mining operations in the approved South Wambo Underground Mine (future operation).
- Ongoing operation of the Coal Handling and Processing Plant (CHPP) and processing of coal from the underground mining operation and the United Wambo Open Cut Coal Mine, with up to 14.7 million tonnes per annum of run-of-mine (ROM) coal processed at the CHPP in any calendar year.

Under Development Consent (DA 305-7-2003) underground mining operations are approved until 31 August 2042.

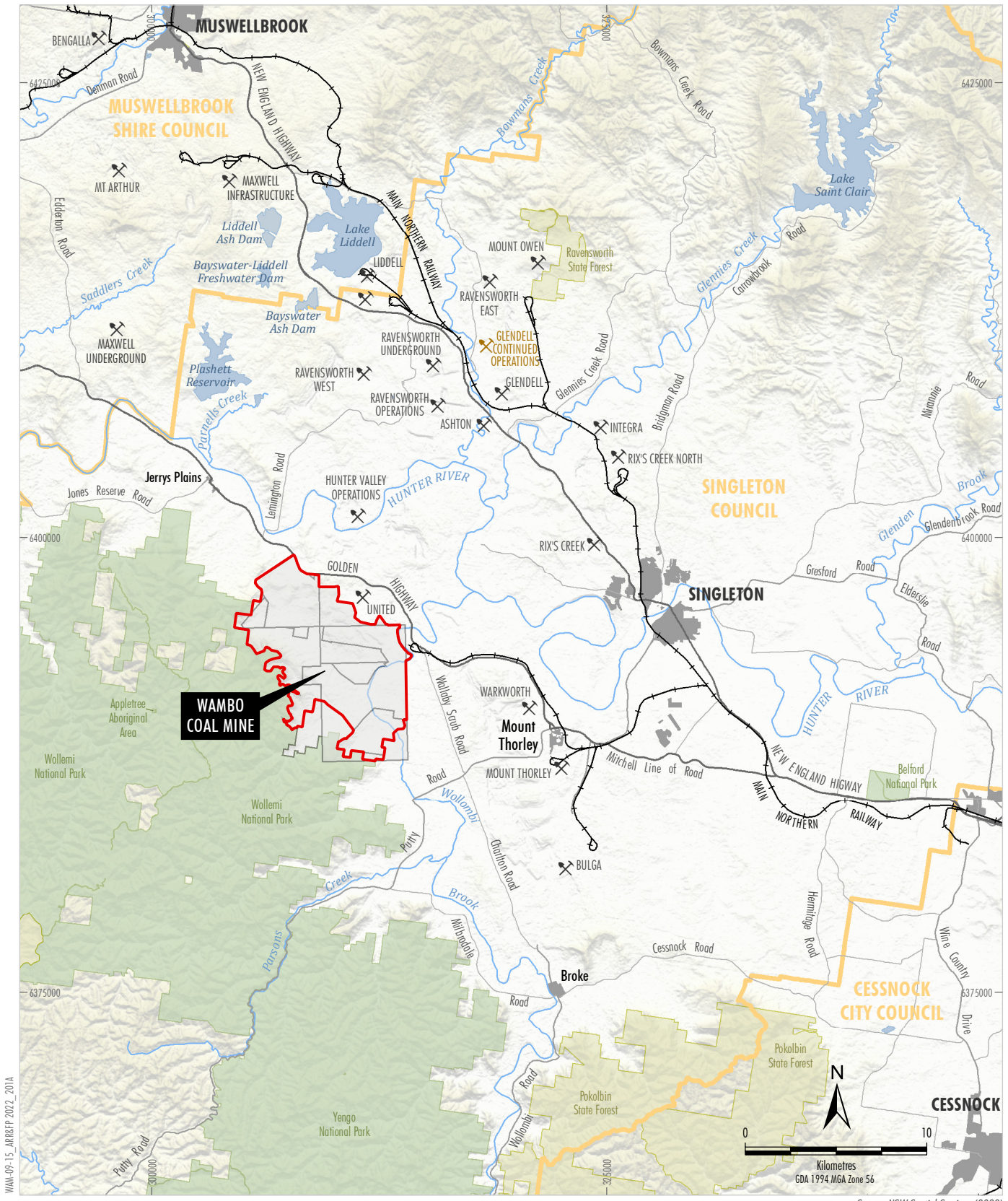
2.1.2. Description of Surface Disturbance Activities

a. Exploration Activities

The Exploration Drilling Program will continue to update gas and coal quality data for WCPL. In general, all land preparation required will be in accordance with the Surface Disturbance Permit process.

Disturbance relating to exploration is always minimised but may consist of slashing and removal of flora from access tracks and drill pad areas. Earth works may comprise the levelling of drill pads where a slope is present and installation of in-ground sumps where above-ground sumps are not feasible. Small scale earth moving machinery, water carts and track/tyred drill rigs will be utilised during site commissioning, operation and decommissioning.

On average, WCPL proposes to drill 20 boreholes each year during the Forward Program term.



WAM-09-15_AR&FP_2022_201A

Source: NSW Spatial Services (2022)

Date prepared: 29-07-2022

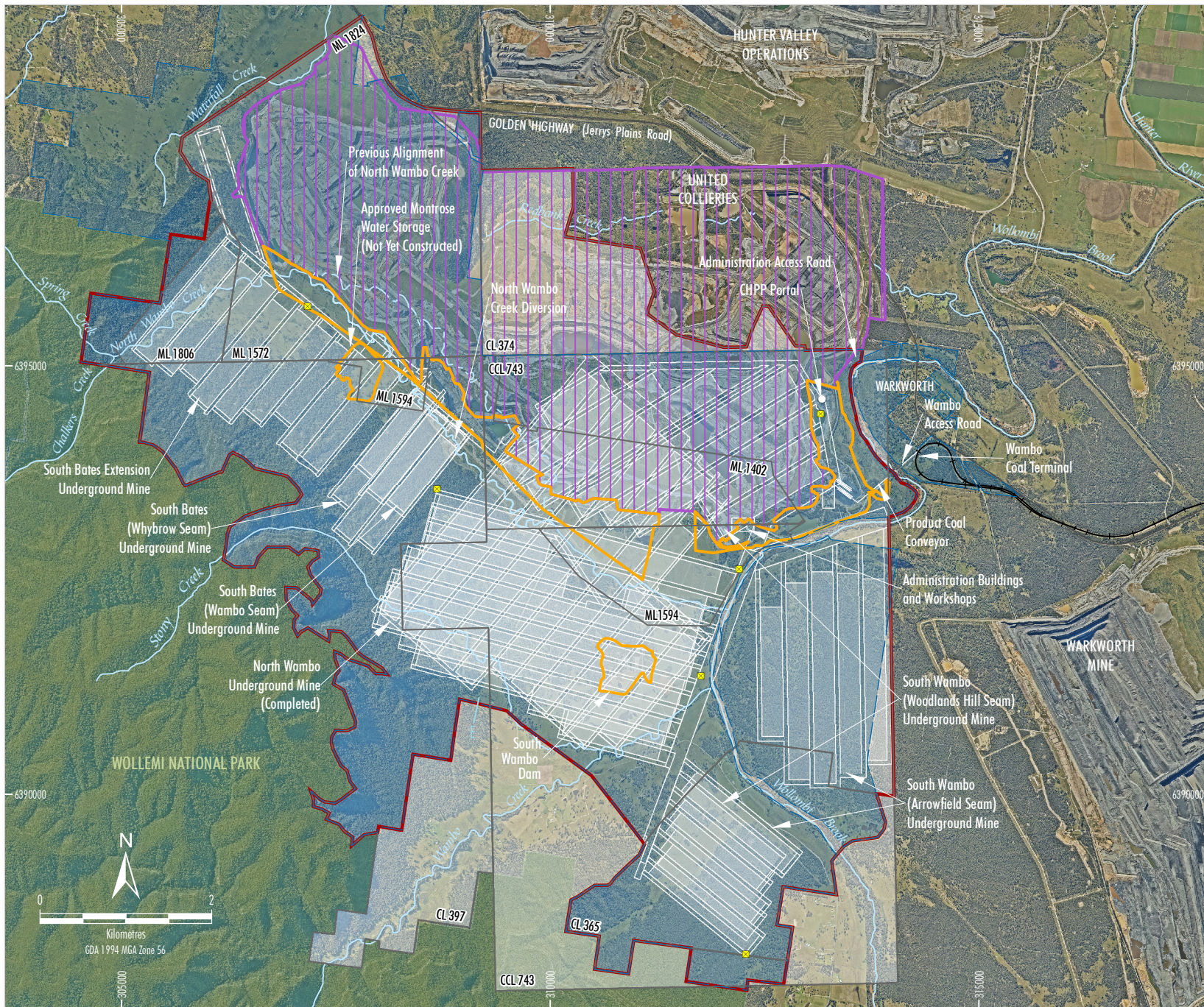


- LEGEND**
- Local Government Area
 - National Parks and Wildlife Estate
 - State Forest
 - ⚡ Mining Operation
 - ⚡ Proposed Mining Operations (Under Assessment)
 - Coal - Current Titles
 - Project Approval Boundary

Peabody
WAMBO COAL MINE
ANNUAL REHABILITATION REPORT
AND FORWARD PROGRAM 2022

Regional Location

Figure 1



- LEGEND**
- Wambo Coal Mine Rail Spur and Loop
 - National Park
 - WCPL Owned Land
 - Coal - Current Titles
 - SSD 7142 Operational Area #
 - Project Approval Boundary
 - Existing/Approved Wambo Coal Mine Surface Development Area
 - Existing/Approved Underground Development
 - Existing/Approved Underground Development (First Workings only)
 - Existing/Approved Ventilation Shaft

Under Phase 2 of mining at Wambo Coal Mine (commenced 1 December 2020), this area is operated by United Collieries Pty Ltd under the United Wambo Joint Venture Project.

Source: WCPL (2022); NSW Spatial Services (2022)
 Orthophoto: WCPL (May 2022)

Date prepared: 29-07-2022



**WAMBO COAL MINE
 ANNUAL REHABILITATION REPORT
 AND FORWARD PROGRAM 2022**

**Wambo Coal Mine
 General Arrangement**

Figure 2

Decommissioning and sealing of boreholes and site rehabilitation will be conducted in accordance with the *Wambo Coal Exploration Rehabilitation Management Plan* (WA-ENV-MNP-514). Decommissioning of exploration sites consists of the disposal of all waste from site, sealing of boreholes to the surface and removal of drill casings from 1 metre (m) below the surface. Drill sites are stabilised, decompacted, topsoil replaced and seed applied as necessary to facilitate the sites' return to its former land use.

b. Construction Activities

During the Forward Program term, WCPL will construct a replacement ventilation shaft for the South Bates Underground Mine, approximately 150 m north-west of the existing ventilation shaft within the approved surface development area.

c. Mining Schedule

Describe the method of mining development and sequencing and general mine features

Mining during this Forward Program term will be consistent with Phase 2 operations covered under Development Consent (DA 305-7-2003).

The Mine operates seven days a week, 24 hours a day on a rotating shift basis. The extraction of Longwall 22 at the SBUE Mine is currently underway and will be completed in approximately December 2022. The schedule and extraction of Longwall 23 will commence March 2023 and is anticipated to be completed in September 2023. Longwall 24 is estimated to commence in October 2023 which is anticipated to be completed in April 2024.

Following completion of the SBUE Mine, extraction will commence at the South Wambo Underground Mine in accordance with the relevant extraction plan.

Material production for the next three years is summarised in Table 1.

**Table 1
Material Production Schedule During the Next 3 Year Term**

Material	Unit	Year 1 (ending 1 August 2023)	Year 2 (ending 1 August 2024)	Year 3 (ending 1 August 2025)
Stripped Topsoil	m ³	2,320	0	0
Overburden/Rock	m ³	0	0	0
Fines/Reject Material	Mt	0.41	0.36	0.38
ROM Coal/Ore	Mt	2.72	1.86	1.89
Product Coal	Mt	1.74	1.26	1.26

Note: Mt = million tonnes, m³ = cubic metres.

Describe areas identified for emplacement, the sequencing of emplacements, construction and management

No rock/overburden management will be undertaken by WCPL during the Forward Program.

Coarse rejects produced by the CHPP are hauled back to the United Wambo Open Cut Mine mining operations and dispersed throughout the mine waste rock emplacements to manage its geochemical characteristics.

Coarse rejects and/or waste rock material may also be used as progressive covering of consolidated tailings disposal areas to be incorporated, encapsulated and/or capped within open cut voids. This allows flexibility in the mining sequence when the ROM and product stockpiles are at capacity. The final capping of inert overburden material will be to a minimum depth of cover of 2 m (or greater subject to final capping requirements), prior to final profiling and rehabilitation, to restrict oxygen and water ingress to the underlying tailings and prevent salts from rising to the soil surface.

Identify processing infrastructure activities and the location of tailings facilities and schedule for emplacement

Tailings produced by the CHPP are pumped as a slurry to approved purpose-built tailings dams constructed within extracted United Wambo Open Cut Mine voids from where supernatant waters will be recovered to the mine water management system for dust suppression or reuse in the CHPP.

Tailings disposal in the North East Tailings Dam ceased in 2004. Active tailings disposal is currently being undertaken in the Homestead In-Pit Tailings Dam and the Hunter Pit Tailings Dam.

Commencing in 2024, tailings will be disposed in the South Bates Sump Tailings Dam.

Once tailings disposal areas have reached capacity and have been allowed to consolidate, decommissioning will commence with a progressive covering of coarse rejects and/or waste rock material using a combination of encapsulation and incorporation when the surface of the tailings dam is deemed trafficable and safe.

WCPL is responsible for the decommissioning, landform establishment and subsequent rehabilitation phases of the South Bates Sump Tailings Dam and the decommissioning and initial capping of Homestead In-Pit Tailings Dam.

Describe waste disposal and materials handling operations over the next three years. This should include a discussion of disposal of putrescible waste, hydrocarbons and management of contaminated soils

Waste management at the Mine is undertaken by a licensed waste management company under the basic principles of the Total Waste Management System. During the Forward Program term, the following activities will be undertaken:

- waste streams are identified and the quantities generated are monitored;
- waste management measures are identified to minimise waste generation; and
- waste generated is appropriately stored, handled and disposed of.

Routine inspections of the Remnant Woodland Enhancement Areas and revegetation areas will include monitoring of potential waste management issues, including illegal dumping of waste, and removal of waste if/when required.

2.2. THREE-YEAR REHABILITATION FORECAST

2.2.1. Rehabilitation Planning Schedule

As the majority of the disturbed surface area (e.g. Infrastructure Areas) will be required for the life of the Mine, no rehabilitation planning activities are expected to be undertaken during the Forward Program term.

Provide an overview of relevant stakeholder consultation that will be carried out over the next three years

Ongoing consultation during this Forward Program term will continue including regular discussions with the Community Consultative Committee (through the quarterly meetings), Singleton Shire Council, surrounding landowners, Registered Aboriginal Parties, United Wambo, the Department of Planning and Environment, and the NSW Resources Regulator. WCPL will utilise the outcomes of ongoing consultation with relevant authorities, stakeholders and the results of rehabilitation trials to refine mining and rehabilitation activities.

Provide an overview of rehabilitation studies, risk assessments, and/or design work associated with finalising the rehabilitation methodologies relating to establishment of the final landform, surface water management, final void management, and tailings dam decommissioning that will be carried out over the next three years

Risks associated with rehabilitation were identified during the most recent rehabilitation risk assessment undertaken in July 2020, which is detailed in the Mine's Rehabilitation Management Plan (RMP). No risk assessments and/or design work associated with finalising rehabilitation methodologies relating to establishment of the final landform, surface water management, final void management and tailings dam decommissioning are proposed within this Forward Program term.

2.2.2. Rehabilitation Research and Trials

Current Research and Trials

A number of rehabilitation trials and studies have been conducted at WCPL to date and include:

- Capping studies on the North East Tailings Dam to identify a safe and viable method of capping the tailings dam surface.
- Large scale biosolid application trials to improve soil structure and effectiveness of the soil as plant growth medium.
- Trialling the application of tree mulch on the surface of rehabilitation areas to assist with dust suppression and erosion control, as well as providing a source of organic matter in the stripped topsoil.
- Incorporation of Organic Growth Medium with topsoil material.
- A trial to assess tree establishment and development on waste rock emplacements.
- Undertake detailed soil characterisation program of waste rock emplacement areas and topsoil.
- Rationalise and improve Landscape Function Analysis (LFA) monitoring program.
- Subsidence repair trials.

- Remediation of approximately 1 km of the North Wambo Creek Diversion, as guided by the North Wambo Creek Diversion Management Plan, including the application of gypsum to improve soil sodicity and structure beneath newly constructed rock chutes.
- Revise rehabilitation monitoring program to address knowledge gaps, develop appropriate quantifiable criteria and revise triggers and responses in the Trigger Action Response Plan.

Future Research Trials

WCPL continue to refine the methodology used to rehabilitate subsidence impacted areas. Several methodologies have been used in the last 5 years and are being monitored to determine their progression. Trial areas are inspected biannually with results reviewed to determine the most successful rehabilitation methodology. Future rehabilitation of subsidence will be conducted based on the results of these trials. The current methodology used based on existing trial results includes the digging out of subsidence cracks and potholes to a depth of 2 m, before installing geofabric and backfilling with gypsum ameliorated fill material.

WCPL is committed to researching collaborative opportunities with external research institutions to partner in possible rehabilitation trials and studies conducted at WCPL to enable continued improvements in the rehabilitation practice.

2.2.3. Rehabilitation Maintenance and Corrective Actions

Rehabilitation is monitored on a regular basis to ensure vegetation in the rehabilitation areas is establishing 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 performance and completion criteria, as per Section 4.1 of the Mine's RMP.

Maintenance of rehabilitation activities undertaken include:

- Visual monitoring.
- Ecosystem Function Analysis, including:
 - LFA;
 - vegetation dynamics; and
 - habitat complexity.
- Subsidence inspections.
- Biometric Vegetation Assessment.
- Mining Closure Monitoring.

Amendments to the monitoring programs during the post-closure phase, following identification of any rehabilitation performance issues or knowledge gaps in the Annual Rehabilitation Report, will be reflected in the relevant environmental management plan revisions as well as future iterations of the ARRFP. It is expected that the residual monitoring programs will be undertaken for approximately 10 years following mine closure.

2.2.4. Rehabilitation Schedule

Rehabilitation works proposed over the Forward Program term will likely include:

- Continuation of subsidence remediation works in the vicinity of South Bates and SBUE Mines.
- Continuation of North Wambo Creek Diversion remediation works, as guided by the North Wambo Creek Diversion Rehabilitation and Maintenance Plan.
- Continuation of historical exploration works rehabilitation program.

In previously rehabilitated areas, ongoing maintenance activities will include controlling weeds and pests, repairing landforms, re-seeding and application of maintenance fertilisers as required.

2.2.5. Subsidence Remediation for Underground Operations

Minor cracks that develop are not expected to require remediation as geomorphologic processes will result in natural filling of these cracks over time.

Remediation of typical surface cracks (generally in the order of 25-50 millimetres (mm), but up to approximately 150 mm) will be undertaken using conventional earthmoving equipment and will include:

- Infilling of surface cracks with soil or other suitable materials.
- Locally re-grading and re-compacting the surface.

Areas of surface cracking will be stabilised using erosion protection measures (e.g. vegetation seeding and planting and/or brush matting). Drainage works and rehabilitation of subsidence troughs (i.e. areas of induced ponding) will be conducted as necessary, and may include stabilisation of banks subject to soil slumping.

If surface crack remediation works are required in remnant vegetation areas, compact mobile equipment will be utilised, where practicable, to minimise damage to surrounding vegetation.

2.3. PLAN 2 – MINING AND REHABILITATION THREE-YEAR FORECAST

2.3.1. Submission of Plan 2 Spatial Data to the Mine Rehabilitation Portal

As there are no major disturbance or rehabilitation activities expected to be undertaken during the Forward Program term, no spatial data has been submitted to the Mine Rehabilitation Portal.

2.3.2. Submission of Plan 2 Electronic Copy

As there are no major disturbance or rehabilitation activities expected to be undertaken during the Forward Program term, Plan 2 has not been included in the Forward Program submission.

2.4. PROGRESSIVE MINING AND REHABILITATION STATISTICS

2.4.1. Three-yearly Forecast Cumulative Disturbance and Rehabilitation Progression

The predicted cumulative disturbance and rehabilitation progression during the Forward Program term is described in Table 2.

Table 2
Predicted Cumulative Disturbance and Rehabilitation Progression
During the Next Three Year Term

YEAR	1 (ending 1 August 2023)	2 (ending 1 August 2024)	3 (ending 1 August 2025)
Total disturbance footprint – surface disturbance (ha)	0	0	0
Total active disturbance (ha)	0	0	0
Rehabilitation – land preparation (ha)	0	0	0
Ecosystem and land use establishment (ha)	0	0	0

Note: ha = hectares.

2.4.2. Rehabilitation Key Performance Indicators (KPIs)

The progressive rehabilitation key performance indicators for the next three years of activity at the Wambo Coal Mine will be calculated following the submission of the Annual Rehabilitation Report (i.e. during the next reporting period).

2.5. REHABILITATION COST ESTIMATE

A Rehabilitation Cost Estimate (RCE), as defined in the *Mining Regulation 2016*, has been developed for the Mine in accordance with the NSW Resources Regulator’s Rehabilitation Cost Estimate Tool.

The RCE has been prepared as the maximum total disturbance over the Forward Program term.