



**NSW
Resources
Regulator**

FWP0001130

ROCGLEN OPEN CUT COAL MINE FORWARD PROGRAM

Saturday 1 January 2022 to Tuesday 31 December 2024

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Summary

DETAIL

| | |
|--|--------------------------------|
| Mine | RocGlen Open Cut Coal Mine |
| Reference | FWP0001130 |
| Forward program commencement date | Saturday 1 January 2022 |
| Forward program end date | Tuesday 31 December 2024 |
| Forward program revision (if applicable) | |
| Contact | Daryl Robinson |
| Mining leases | ML 1620 (1992), ML 1662 (1992) |
| Project location | Whitehaven Coal Mining Limited |
| Date of submission | Thursday 9 March 2023 |

Important

The department may make the information in your program and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your program to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Three-year forecast – surface disturbance activities

Project description

Rocglen Coal Mine (Rocglen) (formerly known as Belmont Coal Project) is an open cut pit owned by Whitehaven Coal Limited and operated by Whitehaven Coal Mining Pty Ltd (Whitehaven) located approximately 28km north of Gunnedah. Coal production ceased in July 2019, with coal transporting activities ceasing in July 2019. Site activities are currently focused on decommissioning, rehabilitation, and water management.

Description of surface disturbance activities

Exploration activities

Production at Rocglen ceased in 2019, with coal production no longer occurring. Works remaining are limited to rehabilitation activities including: Bulk earth moving/shaping using dozers, placement of subsoil and topsoil, seeding, tube stock planting and rock lining of drainage structures.

Construction activities

There are no further construction activities planned for key infrastructure at Rocglen.

- Sedimentation dams will be constructed and retained during rehabilitation to collect runoff from rehabilitated areas until discharge water quality meets regulatory criteria and dams can be decommissioned.
- Final landform construction including the progressive earthworks as well as supplementary earthworks, which would involve reshaping of the out-of-pit and in-pit overburden emplacement areas and final depression to achieve the final landform.
- The construction of creek/river diversion works is not applicable to Rocglen.

Mining schedule

Mining development method and sequencing and general mine features.

Coal extraction at the Rocglen Coal Mine ceased in June 2019. There is no production or overburden dumping scheduled.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

Coal extraction at the Rocglen Coal Mine ceased in June 2019. There is no production or overburden dumping scheduled.

Processing infrastructure activities and the location of tailings facilities and schedule for emplacement

No processing or tailings facilities onsite.

Waste disposal and materials handling operations.

- Domestic-type wastes will be collected and disposed of by a licensed waste disposal contractor, with recyclable materials separated, where possible.
- Waste oils from maintenance activities are pumped from equipment to bunded storage tanks or removed from site by licensed waste disposal contractor.
- Sewage is managed via onsite facilities serviced by licensed contractors.
- Prior to decommissioning, soil assessment will be undertaken to identify potential land contamination. Should contamination be identified, consideration will be given to the remediation and management of contaminated soil on-site.
- During decommissioning, hazardous materials (hydrocarbons and chemicals) will be managed and stored in accordance with the approved site waste management strategies. Removal of hazardous materials will be undertaken by a licensed waste disposal contractor and disposed / recycled at a licensed waste facility.

Key production milestones

| MATERIAL | UNIT | YEAR 1 | YEAR 2 | YEAR 3 |
|--|-------------------|---------|--------|--------|
| Stripped topsoil (if applicable) | (m ³) | 0 | 0 | 0 |
| Rock/overburden | (m ³) | 673,921 | 0 | 0 |
| Ore | (Mt) | 0 | 0 | 0 |
| Reject material¹ | (Mt) | 0 | 0 | 0 |
| Product | (Mt) | 0 | 0 | 0 |

¹ This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

Outcomes of monitoring results (as described in Section 8.3.2 to 8.3.3 of the RMP) are incorporated within the Annual Site Rehabilitation Plan which is developed every year by the end of June to align with the budget period. The Annual Site Rehabilitation Plan provides additional specific detail, maps and statistics on planned rehabilitation activities and schedules for the next 12-month period. Notwithstanding this, planned activities are consistent with those in the Forward Program/LOM Plans. The Annual Site Rehabilitation Plan will provision for rehabilitation activities depending on the phase of rehabilitation at a particular area. The Annual Site Rehabilitation Plan will be the key document for tracking the progress of rehabilitation through rehabilitation phases. Any issue identified during rehabilitation inspection and documented in the annual rehabilitation monitoring report is actioned in the Annual Site Rehabilitation Plan.

Stakeholder consultation

Consultation will continue with stakeholders as follows

Resource Regulator

- Ongoing revisions of the RMP (Condition 36, Schedule 3 of PA10_0015)
- Submission of annual reviews and the Annual Rehabilitation Report

Department of Planning and Environment

- Annual Reviews
- Ongoing revisions of the RMP (Condition 36, Schedule 3 of PA10_0015)
- Submission of the Annual Review

Environmental Protection Authority

- Annual returns and reporting of any events

Community Consultative Committee

- Annual meetings
- Environmental monitoring reports
- Ongoing revisions of the RMP (Condition 36, Schedule 3 of PA10_0015)

Rehabilitation studies, risk assessments and/or design work

Multiple risk assessments have been completed historically for the rehabilitation and closure works associated with Rocglen.

Table 3-1 of the RMP summarises the completed rehabilitation and closure risk assessments. The objectives of the risk assessment were to:

- Identify the risks associated with rehabilitation and closure of Rocglen to achieve the approved post mining land uses;

- Identify knowledge gaps in Whitehaven's current understanding of the risks to rehabilitation;

- Identify the investigations/controls/action plans necessary to effectively mitigate risks and/or realise opportunities and to close any identified knowledge gaps;

- Inform the development of this RMP, to provide a basis to determine additional investigations and/or project works to be undertaken; and

- Provide the framework to satisfy relevant internal and government guidelines, requiring implementation of a risk-based approach to closure. The risk workshop assessed a total of 52 key rehabilitation risks, which are summarised as:

- 14 risks were ranked as not applicable;

- 28 risks were ranked as low;

- 9 risks were ranked as moderate;

- 0 risks were ranked as significant

- 1 risk were ranked as high; and

- 0 risks were ranked as critical.

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

Rehabilitation research and trials

| RRT NUMBER | PROJECT/TRIAL NAME | OBJECTIVE OF TRIAL/PROJECT | METHODOLOGY | EXPECTED DATE OF COMPLETION | STATUS |
|---------------|--------------------|----------------------------|-------------|--------------------------------|--------|
|---------------|--------------------|----------------------------|-------------|--------------------------------|--------|

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Rehabilitation maintenance and corrective actions

Infill planting where required. Tree mounds will be put across slopes on areas at risk of erosion.

Rehabilitation schedule

Activities associated with the ecosystem and land use development phase of rehabilitation are generally ongoing maintenance, land management activities and rehabilitation monitoring. Maintenance at rehabilitated areas will include, but not be limited to:

- Ongoing environmental management to minimise risks to rehabilitation;
 - Comparing specific ecosystem characteristics such as soil profile development, floristic composition and structure, faunal diversity and abundance with the characteristics of appropriate analogue sites; and
 - Undertaking adaptive management and remedial works where characteristics of the rehabilitation are not trending toward desired outcomes.
- Rehabilitation monitoring will be undertaken throughout the ecosystem and land use development phase until it can be demonstrated that rehabilitation areas have met completion criteria and all conditions for relinquishment. Rehabilitation maintenance activities will be identified by rehabilitation monitoring and ongoing requirements will be reported annually in the Annual Rehabilitation Report and Forward Program.

Subsidence remediation for underground operations

Rocglen is located in an area where no historic underground mining has been undertaken. Subsequently, mine subsidence is not applicable to Rocglen.

Progressive mining and rehabilitation statistics

Three-yearly forecast cumulative disturbance and rehabilitation progression

| FORECAST | UNIT | YEAR 1 | YEAR 2 | YEAR 3 |
|--|------|---------|---------|--------|
| A Total surface disturbance footprint | (ha) | 373.3 | 373.3 | 373.3 |
| B Total active disturbance | (ha) | -167.88 | -168.85 | -170.1 |
| C Land prepared for rehabilitation | (ha) | 0 | 0 | 0 |
| D Ecosystem and land use establishment | (ha) | 165.48 | 166.45 | 167.7 |

Rehabilitation key performance indicators (KPIs)

| FORECAST | UNIT | YEAR 1 | YEAR 2 | YEAR 3 |
|--|------|--------|--------|--------|
| O Total new active disturbance area | (ha) | | | |
| P Area proposed for active rehabilitation | (ha) | 165.48 | 0.97 | 1.25 |
| Q Annual rehabilitation to disturbance ratio | | | | |

Attachment 1 – Reporting Definitions

| REPORTING CATEGORY | | DEFINITION |
|--------------------|---|--|
| A | Total disturbance footprint – surface disturbance | <p>All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.</p> <p>The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).</p> <p>Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.</p> |
| B | Total active disturbance | <p>Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).</p> |
| C | Rehabilitation – land preparation | <p>Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation– decommissioning, landform establishment and growth medium development.</p> <p>Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.</p> |
| D | Ecosystem and land use establishment | <p>Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites.</p> <p>Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.</p> |

| REPORTING CATEGORY | DEFINITION |
|--------------------|---|
| O | The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5). |
| P | The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases “Rehabilitation - Land Preparation” or the “Ecosystem & Land Use Establishment” (definitions C & D in Table 5). |
| Q | The rehabilitation to disturbance ratio (S / R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that period are the same. |

Attachment 2 – Definitions

| WORD | DEFINITION |
|---|---|
| Active | In the context of rehabilitation, land associated with mining domains is considered ‘active’ for the period following disturbance until the commencement of rehabilitation. |
| Active mining phase of rehabilitation | In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements. |
| Analogue site | In the context of rehabilitation, an analogue site is a ‘reference site’ that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains. |
| Annual rehabilitation report and forward program | As described in the Mining Regulation 2016. |
| Annual reporting period | As defined in the Mining Regulation 2016. |
| Closure | A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s). |
| Decommissioning | The process of removing mining infrastructure and removing contaminants and hazardous materials. |
| Decommissioning Phase of Rehabilitation | Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or ‘fit for purpose’ built infrastructure to be retained for future use(s) following lease relinquishment. |

| WORD | DEFINITION |
|---|---|
| Department | The Department of Regional NSW. |
| Disturbance | See Surface Disturbance. |
| Disturbance area | <p>An area that has been disturbed and that requires rehabilitation.</p> <p>This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).</p> |
| Domain | <p>An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.</p> |
| Ecosystem and Land Use Development | <p>This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria.</p> <p>For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile.</p> <p>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</p> |
| Ecosystem and Land Use Establishment | <p>This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform.</p> <p>For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.</p> |
| Exploration | Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007. |

| WORD | DEFINITION |
|---|--|
| Final landform and rehabilitation plan | As defined in the Mining Regulation 2016. |
| Final land use | As defined in the Mining Regulation 2016. |
| Form and way | Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website. |
| Growth Medium Development | <p>This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species).</p> <p>This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.</p> |
| Habitat | Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant). |
| Indicator | An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system. |
| Land | As defined in the <i>Mining Act 1992</i> . |
| Landform Establishment | <p>This phase of rehabilitation consists of the processes and activities required to construct the final landform.</p> <p>In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).</p> |
| Large mine | As defined in the Mining Regulation 2016. |
| Lease holder | The holder of a mining lease. |

| WORD | DEFINITION |
|-----------------------------------|---|
| Life of mine | The timeframe of how long a mine is approved to mine, from commencement to closure. |
| Mine rehabilitation portal | <p>Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to:</p> <ul style="list-style-type: none"> ■ upload rehabilitation geographical information system (GIS) spatial data ■ develop rehabilitation GIS spatial data (using online tracing functions) ■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. <p>Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.</p> |
| Mining area | As defined in the <i>Mining Act 1992</i> . |
| Mining domain | A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s). |
| Mining land | As defined in the <i>Mining Act 1992</i> . |
| Native vegetation | Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> . |
| Overburden | Material overlying coal or a mineral deposit. |
| Performance indicator | An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system. |

| WORD | DEFINITION |
|---|---|
| Phases of rehabilitation | <p>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</p> <ul style="list-style-type: none"> ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development. |
| Progressive rehabilitation | The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria. |
| Rehabilitation Completion | <p>The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.</p> |
| Rehabilitation Completion criteria | As defined in the Mining Regulation 2016. |
| Rehabilitation cost estimate | As defined in the Mining Regulation 2016. |
| Rehabilitation management plan | As defined in the Mining Regulation 2016. |
| Rehabilitation objectives | As defined in the Mining Regulation 2016. |
| Rehabilitation risk assessment | As defined in the Mining Regulation 2016. |
| Rehabilitation schedule | The defined timeframes for progressive rehabilitation set out in the forward program. |

| WORD | DEFINITION |
|------------------------------|--|
| Relevant stakeholders | Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: <ul style="list-style-type: none"> ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative committee (if required under the development consent) or equivalent consultative group ■ affected land holder(s) ■ government agencies relevant to the final land use ■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) ■ local Aboriginal communities, and ■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease. |
| Risk | The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009). |
| Secretary | The Secretary of the Department. |
| Security deposit | An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future). |
| Surface disturbance | Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration. |
| Tailings | A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water ² . |
| Waste | Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> . |

² Commonwealth of Australia (DITR), 2007. *Tailings Management*.

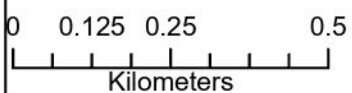
Attachment 3 – Plans

Plan 2A attachment not provided.

Plan 2B attachment not provided.

Plan 2C attachment not provided.

Forward Program (LARGE MINE) v2.1




Legend

Rehabilitation Domains Dec 2023

- Ecosystem Establishment
- Landform
- Active Mining Area (Open Cut Void)
- Overbrden Emplacement Area
- Infrastructure Area
- Water Management Area

Forecast Activity 2023


- Forecast Disturbance
- Forecast Land Prepared for Rehabilitation
- Ecosystem and Land Use Establishment


 **WHITEHAVEN COAL**

Datum: MGA Zone 56 **Image:** UAV Jan 22
Date: Feb 2023 **Author:** A.Raal **Scale:** 1:1200 (A3)


RocGlen Coal Mine Forward Program

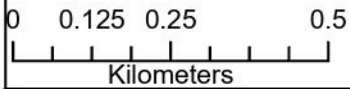
**Plan 2A Mining Rehabilitation
Year 1 (2023)**

 Mining Lease


 Project Approval Boundary

MCR167 \Spatial\ARCGIS\WHC Survey Rehab\Rehab_GIS_Portal.gdb





- Rehabilitation Domains Dec 2023
- Active Minig Area (Open Cut Void)
 - Active Mining
 - Ecosystem Establishment
 - Infrastructure Area
 - Active Mining
 - Overbrden Emplacement Area
 - Water Management Area
- Forecast Activity 2024
- Forecast Disturbance
 - Forecast Land Prepared for Rehabilitation
 - Ecosystem and Land Use Establishment




WHITEHAVEN COAL


Datum: MGA Zone 56 **Image:** UAV Jan 22

Date: Feb 2023 **Author:** A.Raal **Scale:** 1:1200 (A3)


RocGlen Coal Mine Forward Program

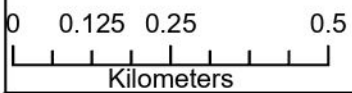
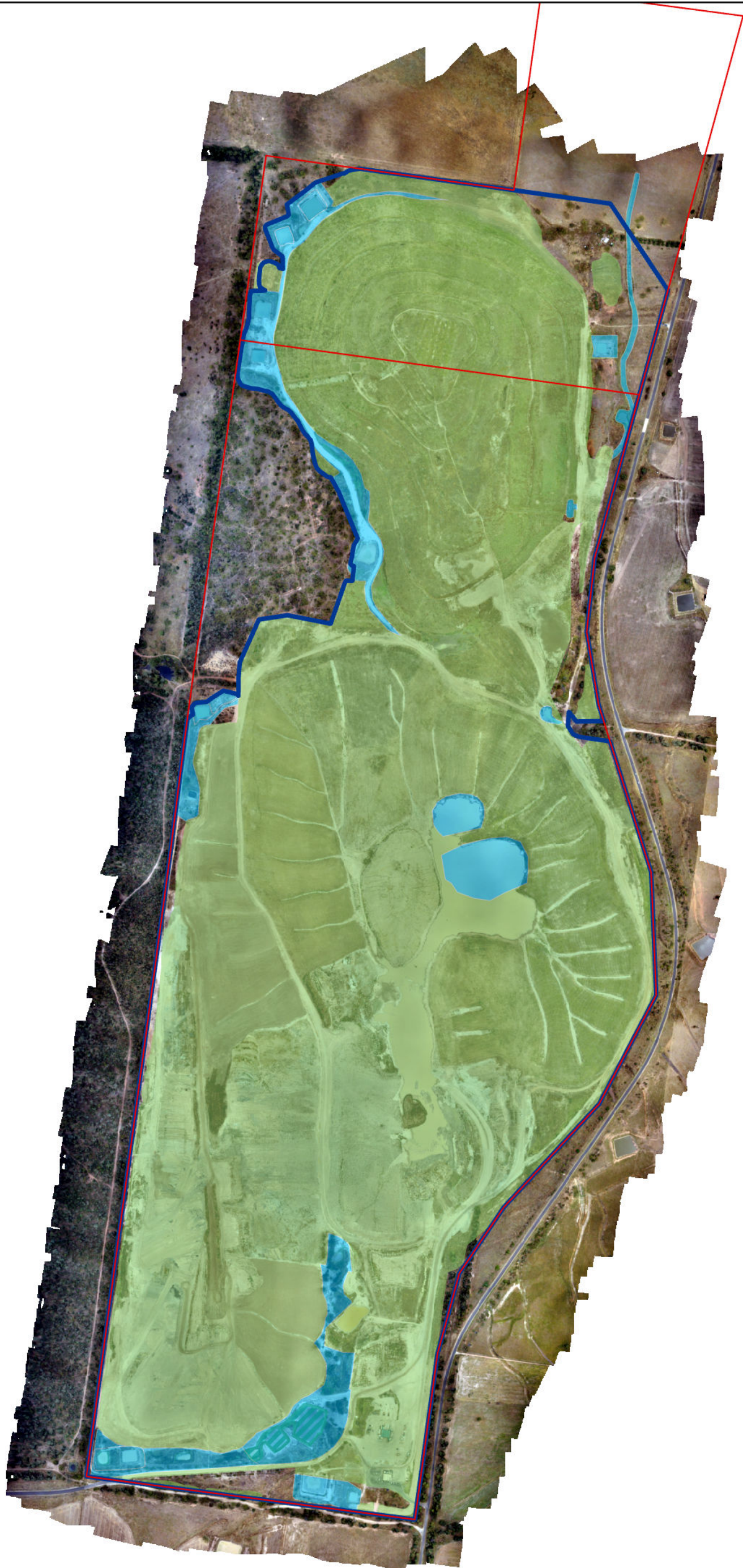
**Plan 2B Mining Rehabilitation
Year 2 (2024)**

 Mining Lease


 Project Approval Boundary

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- Rehabilitation Domains Dec 2024
- Ecosystem Establishment
 - Water Management Area
- Forecast Activity 2025
- Forecast Disturbance
 - Forecast Land Prepared for Rehabilitation
 - Ecosystem and Land Use Establishment




WHITEHAVEN COAL


Datum: MGA Zone 56 **Image:** UAV Jan 22

Date: Feb 2023 **Author:** A.Raal **Scale:** 1:1200 (A3)

RocGlen Coal Mine Forward Program

Plan 2C Mining Rehabilitation Year 3 (2025)

 Mining Lease

 Project Approval Boundary

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