NSW GOVERNMENT

NSW Resources Regulator

FWP0001580

CULLEN VALLEY MINE FORWARD PROGRAM

Wednesday 1 January 2025 to Friday 31 December 2027

Summary

DETAIL	
Mine	Cullen Valley Mine
Reference	FWP0001580
Forward program commencement date	Wednesday 1 January 2025
Forward program end date	Friday 31 December 2027
Forward program revision (if applicable)	
Contact	William Olson
Mining leases	ML 1556 (1992), ML 1455 (1992), ML 1557 (1992), ML 1488 (1992)
Project location	Shoalhaven Coal Pty Ltd
Date of submission	Monday 31 March 2025

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

The Cullen Valley Mine (CVM) is located near the village of Cullen Bullen and approximately 23 km north-west of Lithgow and is owned and managed by Shoalhaven Coal Pty Ltd (T/A Castlereagh Coal). DA 200-5-2003 was granted for the CVM extension on 19 August 2004 and has been modified on one occasion at the date of this Annual Rehabilitation Report. Approval is held for open cut operations around the western extents of the Tyldesley Hill. Up to 1 Mt of saleable coal is able to be produced per year for transport to domestic customers by road. Operations ceased at CVM in 2013 before Castlereagh Coal recommenced operations in May 2022 to recover residual coal remaining at CVM before again ceasing operations in the June of 2023. This mining will facilitate the final rehabilitation of the site which will be revegetated to forest habitat with comparable structure and floristics to the surrounding land.

Description of surface disturbance activities

Exploration activities

No plans for future exploration work are currently in place at CVM. However, Castlereagh Coal will continue to sample overburden materials as required to verify the inherent qualities of the material and to identify required management measures for handling. If exploration does occur during the reporting period, all exploration activities conducted at CVM will be subject to rehabilitation which will ensure all drill holes are sealed in accordance with the Borehole Sealing Guideline (DTI – Resources and Energy 2012) and any exploration disturbance is rehabilitated in accordance with the Exploration Code of Practice: Rehabilitation (DRG, July 2015). Disturbance for exploration activities will be kept to a minimum and rehabilitation works will be undertaken as soon as practicable following the completion of drilling activities as required.

Construction activities

At the time of reporting an application has been submitted to DPHI to modify DA200-5-2003. The application seeks approval to: • extend the life of mining from 19 August 2025 for a further five years until 19 August 2030 •amend the current development consent boundary to include water management infrastructure (Dams 2 and 3) that are currently outside the development consent area. This Forward Program will be revised and updated to provide further details post approval of the modification application. Access tracks may be constructed and used from time to time within the CVM mining leases to provide access to mining, infrastructure or rehabilitation areas as is required for day-to-day operations.

Mining schedule

Mining development method and sequencing and general mine features.

> Mining operations at CVM over the next year will entail the extraction of the remaining remnant coal for transportation to Castlereagh Coal's customers. CVM holds approval under DA200-5-2003 for mining operations to continue until the end of 2025. The modification DA200-5-2003 At the completion of mining, Castlereagh Coal will provide a focus on the final rehabilitation of the site to achieve the rehabilitation criteria as outlined in the Rehabilitation Management Plan (RMP). The majority of mining operations are proposed within areas which have previously been disturbed by mining operations. However, in the event that disturbance of new areas (or previous rehabilitation areas containing topsoil) is required, the topsoil will be stripped, loaded onto trucks and stockpiled for later use on mine rehabilitation areas. Truck and excavator operations will be undertaken to remove overburden materials and to uncover the ROM coal product which will then be loaded onto trucks and transported to the onsite ROM pad. No blasting is proposed to occur during these operations. ROM coal is sized to an appropriate size and transferred to the product coal stockpiles for later loading onto road registered trucks for transport directly to customers.

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

> Overburden is hauled by truck and emplaced into one of the three OEA's to be developed during the mining of the residual coal at CVM: North Dam Dump; North Dump or South Dump. The North Dump and South Dump are proposed as temporary storage locations to enable the mining of the residual coal. Castlereagh Coal will continue to identify opportunities for the progressive rehabilitation of the newly developed and existing unrehabilitated OEAs during the term of this Forward Program. At the completion of coal mining operations, it is noted that the majority of the overburden in these dumps will be rehandled back into the mined area to ensure that no final void remains within the landscape. No processing of the ROM coal is undertaken at CVM and accordingly there are no reject materials to be disposed of. However, any overburden materials potentially containing carbonaceous materials will be placed at least 5 m below the final landform elevation. Suitable rock and overburden materials which are identified during the mining process will be stockpiled for use in mine rehabilitation. For example, rock or clay materials which are identified suitable for use in the construction of drainage structures, road base and other activities are stockpiled for later use in these activities.

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

> There are no planned coal beneficiation processing activities proposed to be undertaken at the CVM during the term of this Forward Program.

Waste disposal and materials handling operations.

All sewage from the crib huts and office areas is directed to septic systems which are pumped out by a licensed waste collection and disposal contractor on an as-needs basis. Sewage waste will continue to be managed in this manner during the Forward Program period. Any maintenance works required on machinery and equipment during the term of this Forward Program will be undertaken within existing bunded areas at CVM. Waste oils and greases from these bunded areas including the workshop, is pumped or gravity flows to an oil-water separator and is cleaned on an as needs basis. Under emergency circumstances, i.e. breakdowns in the pit area, oils and grease will be pumped from the equipment to a tank on the service truck using an evacuation pump and will subsequently be transferred to the bulk waste oil storage tank at the maintenance workshop. All parts, packaging etc. will also be collected and transferred to the maintenance workshop for disposal or for future recycling. Waste oils and grease stored at the maintenance workshop are collected by a licensed waste recycling contractor on an as needs basis. Minimal oil and greases are stored on site. All paper and general wastes originating from the CVM site offices will be disposed of in garbage bins collected by a licenced waste collector as needed. Contaminated land from hydrocarbon or chemical spills is either removed from the site by a licenced waste contractor (where practicable) or flagged for future remediation.

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m^3)	0	0	0
Rock/overburden	(m^3)	255,354	511,000	511,000
Ore	(Mt)	0.03	0.06	0.1
Reject material[1]	(Mt)	0	0	0
Product	(Mt)	0.03	0.06	0.1

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

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

CVM operates under DA 200-5-2003 and the CVM EIS. Given that the CVM has generally not been operational since 2012, the progression of mining operations varies from that illustrated within the staged mine plans illustrated within the CVM EIS. The current program of mining is proposing to recover residual coal resource within the previously disturbed areas. It is anticipated that the mining of the coal from these previously disturbed areas will assist in funding the advancement of rehabilitation activities of the mine. Planning for rehabilitation activities has been undertaken as part of the mine planning process to mine the residual coal resource. Rehabilitation is scheduled to be undertaken progressively as areas of the OEAs have reached the final landform heights and are no longer required for operations. As previously indicated, the North Dump and Southern Dump will temporarily store the overburden materials which are required to infill the mining area to ensure no final void remains within the landscape. Accordingly, the rehabilitation of these OEAs will not be completed until the end of the term of the Forward Program. The Northern Dam Dump and any other areas that become available for rehabilitation will be progressively rehabilitated during the term of this Forward Program.

Stakeholder consultation

Castlereagh Coal has a Community Consultative Committee (CCC) that assists community discussion and feedback on its operations. Community representatives act as the point of contact to provide feedback between the mine and the community. Castlereagh Coal has informed the community members that they may contact the site at any time to enquire regarding mining operations. Castlereagh Coal will continue to liaise with the Resources Regulator and other relevant authorities.

Rehabilitation studies, risk assessments and/or design work

Subsurface heating has been identified as an ongoing issue at CVM. This subsurface heating has affected the establishment of vegetation in the rehabilitated landform. Castlereagh Coal is investigating a number of options to mitigating the occurrence of subsurface heating at CVM. The measures which have previously been identified for investigation include landform compaction, the physical digging up and disposal of heat causing substances and the irrigation of the affected areas. Trials in relation to the irrigation method have been conducted intermittently since 2022 in one of the rehabilitation areas. The irrigation method has been implemented at CVM by the applying water on a tiered surface which infiltrates the soils and causes a net cooling effect across the afflicted area. Whilst initial results are promising, further

testing of the method is proposed to identify if it is a functional method of cooling that can assist in meeting the desired rehabilitation outcomes. Annual Biodiversity surveys will be conducted in the Compensatory Habitat areas in and around the CVM and on rehabilitated lands in accordance with the approved Flora and Fauna Management Plan. This will provide feedback on the status of rehabilitated areas and their progression towards achieving biodiversity objectives.

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Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
RRT0001085	**Surface Irrigation - Sub-surface Heating Area 1**	To determine the effectiveness of irrigating a historic sub-surface heating to achieve a measurable decrease in temperature toward long term management and extinguishment	The application of water via surface irrigation to constructed furrows traversing a subsurface heating area of approximately 1000sqm, with regular thermal monitoring to determine outcomes success or otherwise.	31 Dec 2023	Ongoing

Rehabilitation maintenance and corrective actions

Rehabilitation maintenance and monitoring will continue to be undertaken across the rehabilitated areas and will be reported on in the Annual Rehabilitation Report (ARR). This maintenance and monitoring program may identify emerging issues or knowledge gaps which will require further corrective action to rectify and mitigate these issues from achieving the desired rehabilitation outcomes. Based on the rehabilitation monitoring information provided in the ARR, the RMP will be reviewed and updated as required on an annual basis to address any changes that may be required. The main maintenance actions which will be implemented in the rehabilitated areas are ecological monitoring, weed control, erosional feature management, supplementary seeding and tubestock planting, subsurface heating management and soil management. These are described in the approved Flora and Fauna Management Plan and the Rehabilitation Management Plan.

Rehabilitation schedule

Key activities include: • Rehabilitation of the previously shaped North Dam Dump overburden; • Reshaping and rehabilitation of North Dump after overburden rehandling from temporarily OEA storage area; • Rehabilitation of shaped overburden on the RL 985 m Dump; and • Completion of landform establishment within the completed mining void; There are no planned disturbances or rehabilitation activities for Year 1.

Completion of rehabilitation

NA

Subsidence remediation for underground operations

Historical underground mining operations within the former workings of Tyldesley Underground Mine located to the east of CVM open cut operations. There are currently no active underground mining operations at CVM. Ongoing intermittent / as required works will be undertaken to fill and pack small surface fractures emitting odours due to subsurface heating areas.

Progressive mining and rehabilitation statistics

Three-yearly forecast cumulative disturbance and rehabilitation progression

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
A1	Total disturbance footprint - surface disturbance	(ha)	189.96	189.96	189.96
B	Total active disturbance	(ha)	60.41	40.02	35.08
P	Total new area of land proposed for active rehabilitation	(ha)	10.87	31.25	36.19

Rehabilitation key performance indicators (KPIs)

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O	Total new disturbance area during reporting period	(ha)	0.96		
P	Total new area of land proposed for rehabilitation during the reporting period	(ha)	10.87	20.38	4.94
Q	Annual rehabilitation to disturbance ratio		11.35		

Attachment 1 – Reporting Definitions

REPORTING CATEGORY		DEFINITION
A	Total disturbance footprint – surface disturbance	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. 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). Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
B	Total active disturbance	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).
C	Rehabilitation – land preparation	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. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.
D	Ecosystem and land use establishment	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. 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.

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	An area that has been disturbed and that requires rehabilitation. 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).
Domain	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.
Ecosystem and Land Use Development	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. 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. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.
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	This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species. This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
Habitat	Has the same meaning as that term under the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994* (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 *Mining Act 1992.*
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

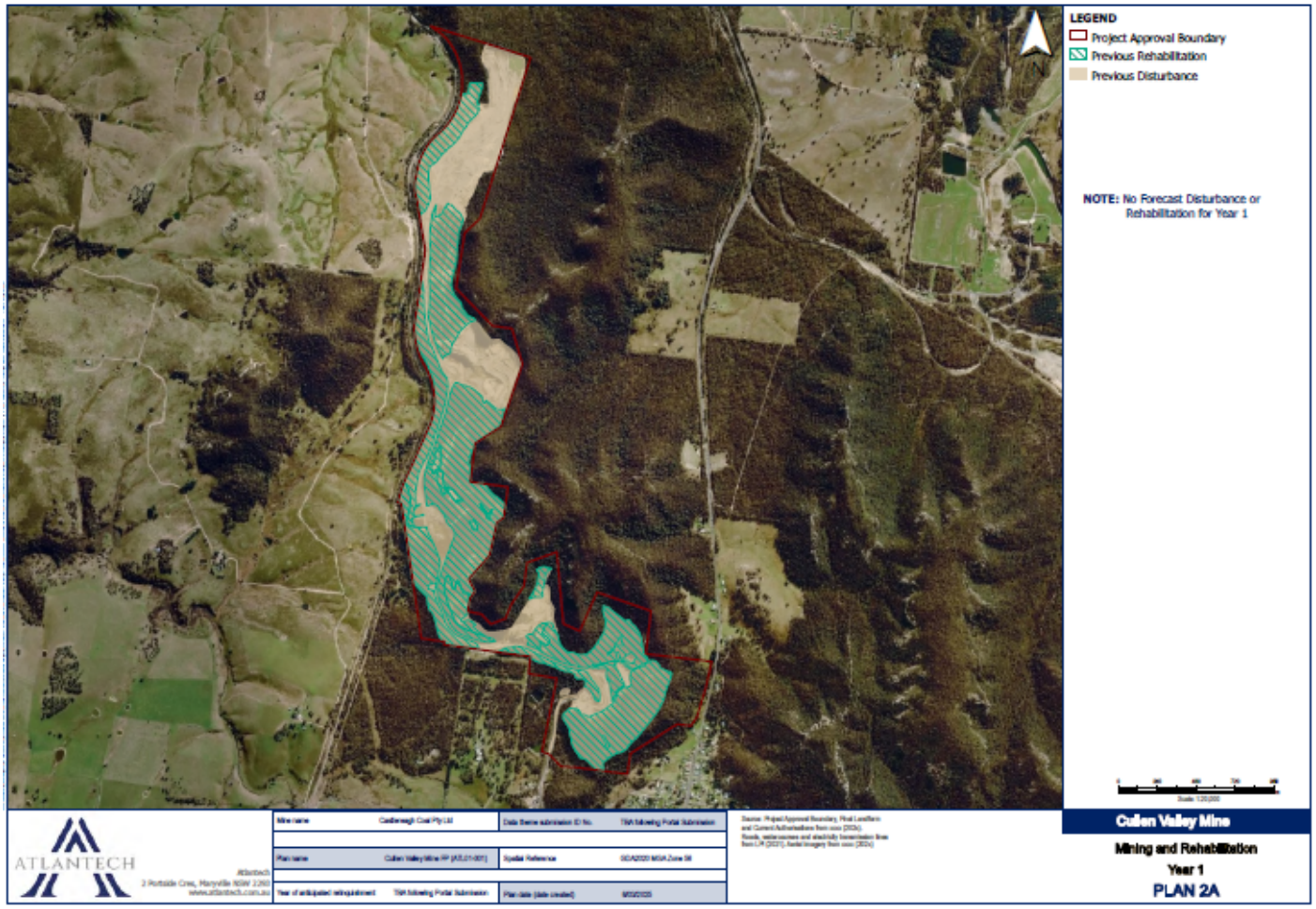
WORD	DEFINITION
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to: ■ upload rehabilitation geographical information system (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. 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.
Mining area	As defined in the *Mining Act 1992*.
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 *Mining Act 1992.*
Native vegetation	Has the same meaning as that term under section 60B of the *Local Land Services Act 2013.*
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.

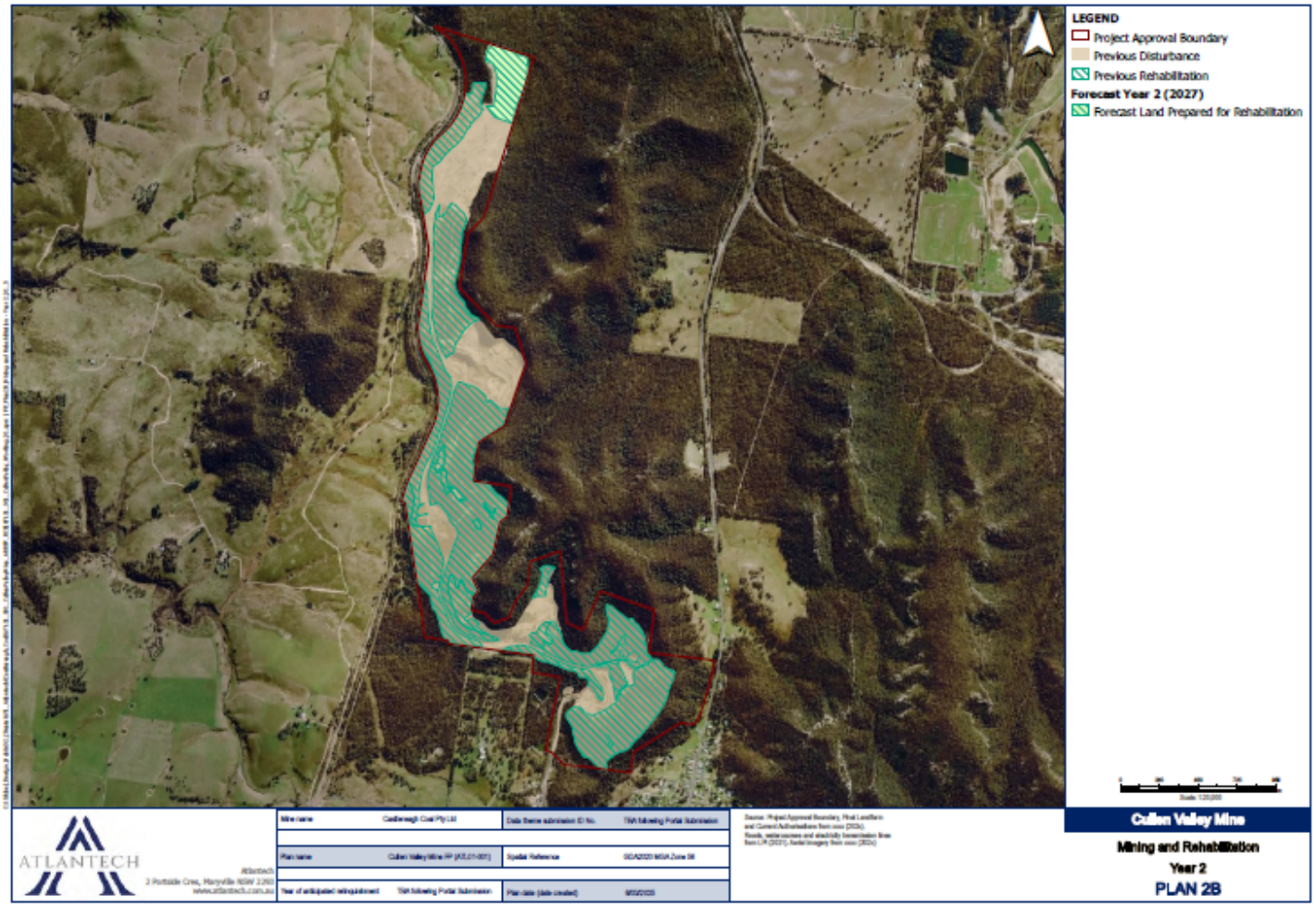
WORD	DEFINITION
Phases of rehabilitation	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ 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	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 *Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate* application by the lease holder.
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.

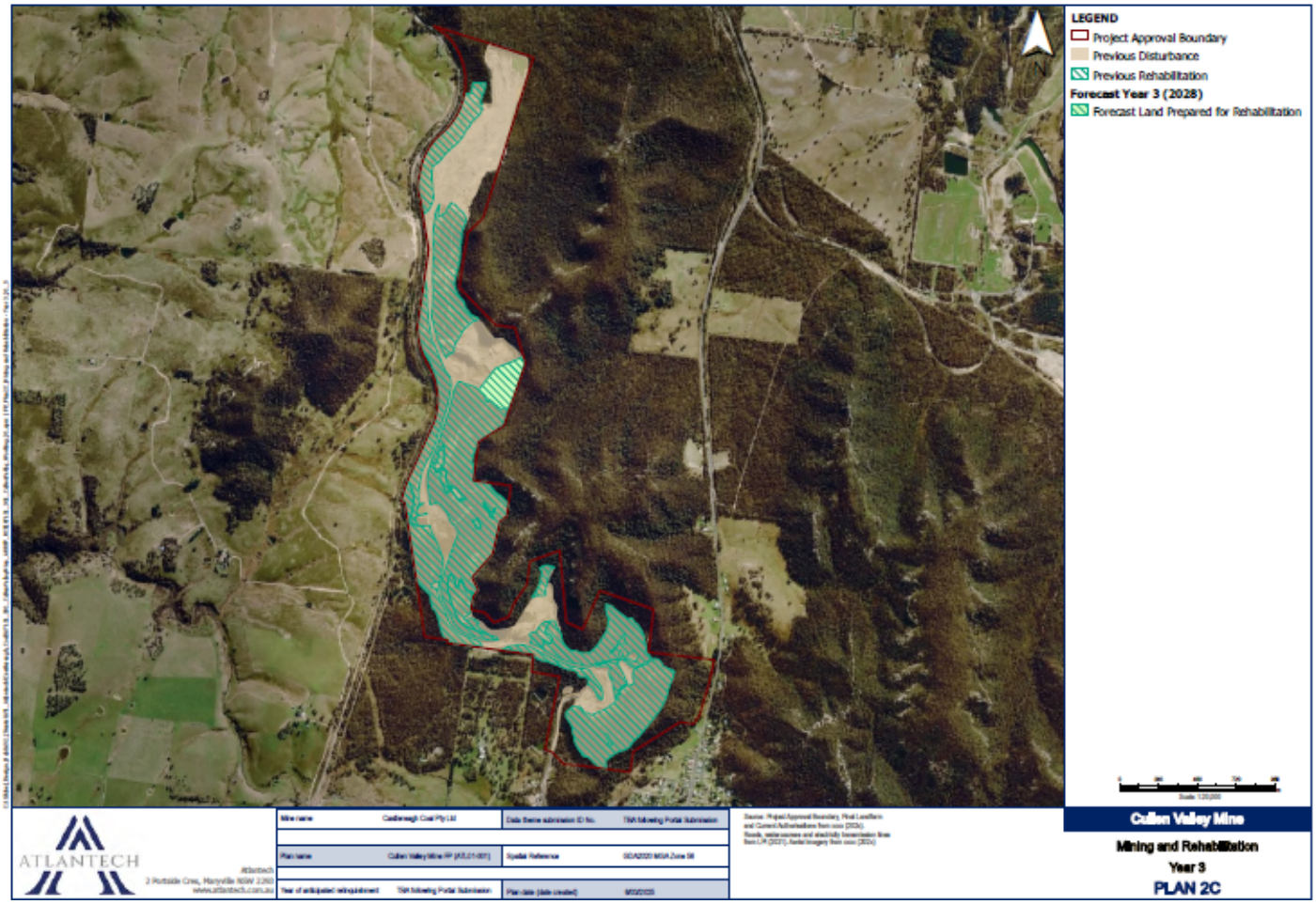
WORD	DEFINITION
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative 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 *Protection of the Environment Operations Act 1997*.

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

Attachment 3 – Plans




LEGEND
Project Approval Boundary
Previous Disturbance
Previous Rehabilitation
Forecast Year 2 (2027)
Forecast Land Prepared for Rehabilitation
N
ATLANTECH
Cullen Valley Mine
Mining and Rehabilitation
Year 2
PLAN 2B


LEGEND
Project Approval Boundary
Previous Disturbance
Previous Rehabilitation
Forecast Year 3 (2028)
Forecast Land Prepared for Rehabilitation
Cullen Valley Mine
Mining and Rehabilitation
Year 3
PLAN 2C
ATLANTECH