



Cadia Valley Operations

New South Wales, Australia

Annual Rehabilitation Report (ARR0001129)

Department: Environment & Social Performance	THIS DOCUMENT IS UNCONTROLLED IN HARD COPY FORMAT	Doc ID: ARR0001129
ARR	Date Issued: 12/12/2023	Date of Next Review: 30/06/2024



**NSW
Resources
Regulator**

ARR0001129

CADIA VALLEY OPERATIONS ANNUAL REHABILITATION REPORT

Friday 1 July 2022 to Friday 30 June 2023

Contents

Summary table	-1
Important	-1
Mine details.....	-1
Project description.....	-1
Life of mine	-1
Current development consents, leases and licences.....	-1
Changes to land ownership and land use	-1
Surface disturbance and rehabilitation activities during the reporting period	-1
Disturbance and rehabilitation statistics.....	-1
Current disturbance and rehabilitation progression	-1
Rehabilitation key performance indicators (KPIs)	-1
Progressive achievement of established rehabilitation.....	-1
Variation to the rehabilitation schedule.....	-1
Rehabilitation monitoring and research findings	-1
Rehabilitation monitoring.....	-1
Status of performance against rehabilitation objectives and rehabilitation completion criteria	-1
Outcomes of rehabilitation research and trials	13
Attachment 1 – Reporting Definitions	15
Attachment 2 – Definitions.....	18
Attachment 3 – Rehabilitation Complaints.....	24
Attachment 4 – Stakeholder consultation.....	-1
Attachment 5 – Plans.....	27

Summary table

DETAIL	
Mine	Cadia Valley Operations
Reference	ARR0001129
Annual report period commencement date	Friday 1 July 2022
Annual report period end date	Friday 30 June 2023
Forward program	FWP0001112
Mining leases	ML 1449 (1992), ML 1690 (1992), ML 1405 (1992), ML 1472 (1992), ML 1481 (1992), ML 1689 (1992)
Lease holder(s)	CADIA HOLDINGS PTY LIMITED
Contact	Paul Yeo
Date of submission	Tuesday 12 December 2023

Important

The department may make the information in your report 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 report to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Mine details

Project description

Cadia Valley Operations (Cadia), owned and operated by Cadia Holding Pty Limited, is located 25km southwest of Orange NSW, with mining operations approved until 30 June 2031. Cadia Hill open pit commenced mining in 1998 and was placed in care and maintenance in 2012. Cadia Hill has been used for tailings deposition since approval in 2018. Ridgeway underground mining commenced in 2002, with a block caving extension (Ridgeway Deeps) operational until 2017. Ridgeway is now in care and maintenance. The Cadia East Project was approved in 2010, incorporating Cadia East Mine and all facilities and processing activities. There have been 14 modifications to the Development Consent. Cadia East Underground Mine commenced underground operations in 2013. It has approval to extract copper, gold, molybdenum and other trace metals with a maximum of 32 Mtpa, until 2031. Concentrate is pumped to the Cadia Dewatering Facility (off-lease), where it is dewatered and product is transported via rail.

Life of mine

35 years

Current development consents, leases and licences

Development consents granted under the *Environmental Planning and Assessment Act 1979*

undefined

Authorisations covering the mining area granted under the *Mining Act 1992*

ML 1449 (1992), ML 1690 (1992), ML 1405 (1992), ML 1472 (1992), ML 1481 (1992), ML 1689 (1992)

Any other approvals, licences, or authorities issued by government agencies that are relevant to the progress of mining operation and rehabilitation activities

PA 06_0295
EPL 5590

Summary of the scope and/or purpose of the new applications or modifications to existing approvals (if applicable)

There has been no change to the status of Cadia's Project Approval (PA 06_0295) or existing Mining Leases during the annual reporting period. During the reporting period, Cadia

submitted a Scoping Letter, notifying of the intent to apply for a modification to PA 06_0295 (known as Modification 15). Modification 15 proposes changes to the Tailings Storage Facility (TSF) embankment footprints. The footprint change is required following further detailed design to achieve the approved tailings deposition height and the implementation of a combination of downstream and centreline lift construction methodologies for increasing the height of the embankments. In addition, a restart of the Ridgeway Underground Mine is sought to provide optionality of ore supplies, with relevant environmental studies being undertaken to assess any additional impacts associated with the restarting of mining (note that the Ridgeway restart is an option which requires further studies, reviews and assessment). A new mining lease which encompasses the change to the TSF embankment footprint from placing additional material on the exterior wall of the TSF (i.e. buttressing) will be required following approval of Modification 15. The application for Modification 15 is proposed to be submitted to the DPE in November 2023.

Changes to land ownership and land use

There has been no change to the land ownership and land use related to the land during the past annual reporting period.

Surface disturbance and rehabilitation activities during the reporting period

Surface disturbance and rehabilitation activities that were conducted and an analysis of the progress against the rehabilitation schedule

Surface Disturbance During the reporting period, surface disturbance activities occurred in the following areas: Cadia East subsidence zone associated with the construction of the preconditioning pad and access route, and minor increase in the subsidence crater. This disturbance was forecasted in the 2022 Forward Program (FP) yr 1 disturbance. Note that in coming FPs the subsidence caving disturbance will overlap with the vegetation clearing that is forecast and will be considered previously disturbed. South Waste Rock Dump (SWRD) which included ~10.5 Ha of 'dehabilitation' of a previously rehabilitated batter (section of the western batter slope) to recover Non-Acid Forming (NAF) rock for TSF buttressing - a slightly greater area of 'dehab' (22.3 Ha) was forecasted for disturbance in yr 1 of the 2022 FP. A section on the eastern face of the SWRD was forecast for 'dehabilitation' in yr 1 of the FP, but did not occur (to occur in FY24). Disturbance surrounding the North & South Tailings Storage Facilities (NTSF & STSF) including surface stripping associated with haul road construction, foundation excavations for buttressing activities, sediment retention dam preparation, and NAF rock stockpile preparation within the western containment bund. ~ 80 Ha of disturbance occurred in the reporting period, with 271.65 Ha forecasted in yr 1 of the 2022 FP.

Rehabilitation During the reporting period there was no opportunity for progressive rehabilitation to be conducted, with no additional rehabilitation reportable.

Rehabilitation planning activities that were conducted, including any specialist studies

During the period, works focused on addressing the directions of the Section 240 notices issued by the Resources Regulator. This included conducting a detailed Erosion Quantification Assessment and surface water flow modelling (hydrological assessment) of the NWRD and SWRD (utilising high density LiDAR data). This assessment identified in high detail the locations of erosion features and predicted erosion rates, and the function of the current surface water management features across the NWRD and SWRD. The data of which is being used to guide remedial designs. Details of the remedial works are captured in the Forward Works program.

Overview of subsidence repair and/or remediation works undertaken

No subsidence repair or remediation works were undertaken.

Overview of rehabilitation management and maintenance activities

During the period, rehabilitation management and maintenance activities focused on addressing the directions of the Section 240 notices issued by the Resources Regulator. This included conducting targeted vegetation thinning of acacia species, preparatory spraying and vegetation infill planting with select eucalypt species (~1160 trees and 7 eucalypt species including *E. macrorhynca*, *E. goniocalyx*, *E. polyanthemos*, *E. albens*, *E. melliodora*, *E. blakelyi*, and *E. bridgsiana*) was conducted over ~20 Ha of the NWRD. During the reporting period, weed management occurred across the rehabilitated areas of the site, including the rehabilitated sections of the NWRD & SWRD. Weeds targeted included blackberry, St. John's Wort, Paterson's Curse, and Sticky Nightshade.

Details of any rehabilitation actions taken as required by any letters, notices or directions issued by government agencies, including the NSW Resources Regulator

As required by the Section 240 notices issued by the Resources Regulator, Cadia completed a surface water modelling and erosion quantification assessment over the WRDs. With the results of these assessments, remedial designs have commenced for surface water management structures and erosion areas on the WRDs. Further, a vegetation thinning and infill planting program on the NWRD (as detailed above) was commenced as required by the Section 240 Notices.

Details of any rehabilitation areas that have achieved the final land use

No rehabilitation areas have achieved the final land use.

Key production milestones

MATERIAL	UNIT	FWP0001112 YEAR 1	THIS REPORT
Stripped topsoil <small>(if applicable)</small>	(m ³)	644,800	87,295
Rock/overburden	(m ³)	2,959,500	281,132
Ore	(Mt)	32.68	29.05
Reject material¹	(Mt)	34.61	28.65
Product	(Mt)	0.53	0.41

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

Disturbance and rehabilitation statistics

Current disturbance and rehabilitation progression

ELEMENT	UNIT	THIS REPORT
A Total surface disturbance footprint	(ha)	2,254.25
B Total active disturbance	(ha)	1,926.33
C Land prepared for rehabilitation	(ha)	9.19
D Ecosystem and land use establishment	(ha)	0
E Ecosystem and land use development	(ha)	318.73
F Rehabilitation completion	(ha)	0

Rehabilitation key performance indicators (KPIs)

ELEMENT	UNIT	THIS REPORT
G Total new active disturbance area	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
H New rehabilitation commenced during annual reporting period	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
I Established rehabilitation	(ha)	318.73
J Annual rehabilitation to disturbance ratio	%	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
K Rehabilitated land to total mine footprint	%	14.14

Progressive achievement of established rehabilitation

ELEMENT	UNIT	THIS REPORT
L Established rehabilitation - agricultural final land uses	%	0.45
M Established rehabilitation - native ecosystem final land uses	%	90.75
N Established rehabilitation - other/non-vegetated final land uses	%	3.46

Variation to the rehabilitation schedule

Identify the components of the most recent forward program that were not achieved

N/A

Key factors that delayed progressive rehabilitation

N/A

Outline actions that will be included in the forward program and carried out to minimise disturbance and undertake progressive rehabilitation as far as reasonably practical

N/A

Rehabilitation monitoring and research findings

Rehabilitation monitoring

The rehabilitation monitoring carried out in the annual reporting period

The ecological rehabilitation monitoring report acknowledged whilst no rehabilitation sites have met all primary completion criteria, many sites experienced an increase in the diversity and abundance of groundcovers and overall ecological function of rehabilitation sites in light of improved seasonal conditions. There was an increase in the abundance of weeds coinciding with good climatic conditions, notably blackberry in many sites (this species has been targeted during a recent weed management program). Woodland rehabilitation areas continue to be dominated by acacia with limited occurrence of eucalyptus in most areas except select locations on the South Waste Rock Dump, no eucalypts were recorded in all sites on the North Waste Rock Dump. A program of tubestock planting had been undertaken in May-June 2023 to address eucalyptus density on the NWRD. A number of conclusions and recommendations were provided from the April 2023 rehabilitation monitoring program and included re-seeding and/or infill tubestock planting in sites that continue to have limited eucalypt establishment; increasing wildlife habitat, and ongoing monitoring and control of feral and pest animal populations. The recommendations from the ecological monitoring program have been incorporated into rehabilitation maintenance and corrective actions in the FP.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

Cadia has submitted proposed rehabilitation objectives to the Resources Regulator and is actively engaging with the regulator to finalise the approval of these. The objective of the current rehabilitation monitoring program is to track the progress of the existing rehabilitation ecological development and document trends in floristics, structure and habitat condition. Where appropriate, management recommendations are provided to improve biodiversity values. Proposed completion criteria have been prepared and are in the RMP and will be submitted for approval to the Resources Regulator as per the Form and Way Guidelines.

Are all rehabilitation areas in Landform Establishment phase or higher represented in the monitoring program to assess performance against the rehabilitation objectives and approved or, if not yet approved rehabilitation completion criteria and final landform and rehabilitation plan?

0

Year rehabilitation areas will be included as part of the monitoring program

2024

An appraisal of whether rehabilitation is moving towards achieving the proposed rehabilitation objectives, approved or, if not yet approved, rehabilitation completion criteria and final landform and rehabilitation plan as soon as reasonably practicable.

Although annual rehabilitation ecological monitoring conducted April 2023 identified the WRDs holistically are not trending towards the proposed rehabilitation objectives, rehabilitation completion criteria, and final landform and rehabilitation plan without additional intervention (including vegetation infill planting, vegetation thinning, and erosion control works), there were select locations on the SWRD that exhibited characteristics of the target vegetation communities.

Appraisal description

There are performance issues preventing rehabilitation moving towards achieving the final land use as soon as reasonably practicable.

Rehabilitation monitoring program findings

During the reporting period, annual ecological rehabilitation monitoring was conducted at existing monitoring transects over the NWRD and SWRD and existing established analogue sites in accordance with the monitoring program detailed in the Rehabilitation Management Plan (RMP). The monitoring was conducted during April 2023 and included monitoring of 13 rehabilitation sites across the NWRD, SWRD and Cadiangullong Creek, and 7 analogue sites. The monitoring techniques, timing of surveys, and parameters assessed are identical for analogue sites and rehabilitation sites, allowing the robust and repeatable assessment of rehabilitation success using measured parameters. Analogue sites and rehabilitation sites are assessed at the same time of the year to allow for seasonal influences. In addition to the ecological monitoring, the annual cover system performance monitoring was completed (results pending). This monitoring is to track the effectiveness of the constructed cover systems on the SWRD and NWRD rehabilitation areas. Other monitoring completed during the FY includes periodic inspections for weed and feral pest loads, topsoil inventory reconciliation, erosion and surface water management inspection following modelling and erosion quantification assessment, and tubestock monitoring following infill planting with eucalypt species.

Performance issues and their causes including identification of any knowledge gaps that must be addressed

As discussed above, the following performance issues and their cause were identified: The densities of (in particular Acacias) vegetation are too great on the NWRD & SWRD resulting from legacy planting density and species mix selection, which now require vegetation thinning

to be conducted in these areas. This work was initiated during the annual reporting period. The density of Eucalyptus species on the NWRD & SWRD has been identified as insufficient to ensure the rehabilitation develops toward the target final land use (forest or woodland), and will require additional planting to achieve this. This work was initiated during the annual reporting period with initial round of tubestock commenced on the NWRD. There are some surface water management structures on the NWRD & SWRD that were identified as insufficient to manage surface water flows, which has resulted in some areas of erosion. Therefore, remedial activities are required to repair / improve the identified surface water management structures and erosion impacted areas. As discussed previously, the planning for these remedial works has commenced.

Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT000108 1	WRD Revegetation	Investigate methods to improve vegetation survivability	Utilise different guard methods to protect seed and tubestock growth.	30 Nov 2023	Ongoing	Yes
RRT000108 2	Constructed Wetlands	Investigate the impact of a constructed wetland to WRD leachate	Compare quality of leachate influenced by constructed wetlands to that of leachate with no wetland influence.	30 Dec 2028	Ongoing	Yes
RRT000110 7	Measuring and improving growth rates on tailings materials	Building on earlier research conducted on growing native vegetation and pasture species on tailings materials, using various ameliorants	Apply various ameliorants to tailings and assess the outcomes.	30 Dec 2026	Not started	Yes

Outcomes of completed trials and research

N/A

Attachment 1 – Reporting Definitions

REPORTING CATEGORY	DEFINITION
<p>A1 Total disturbance footprint – surface disturbance</p>	<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>
<p>A2 Underground Mining Area</p>	<p>Underground mining operations areas/subsidence management areas.</p>
<p>B Total active disturbance</p>	<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>
<p>C Rehabilitation – land preparation</p>	<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>

REPORTING CATEGORY	DEFINITION
<p>D Ecosystem and land use establishment</p>	<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>
<p>E Ecosystem and Land Use Development</p>	<p>Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the final rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring).</p> <p>This phase includes infrastructure areas that are to be retained for an approved post mining land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).</p>
<p>F Rehabilitation Completion</p>	<p>The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of <i>Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure</i>.</p>
<p>G New active disturbance area</p>	<p>The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).</p>
<p>H New rehabilitation commenced during annual reporting period</p>	<p>The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem & land use establishment phase (definitions C and D in Table 5).</p>
<p>I Established rehabilitation (hectares)</p>	<p>The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5).</p>

REPORTING CATEGORY	DEFINITION
<p>J Annual rehabilitation to disturbance ratio</p>	<p>The rehabilitation to disturbance ratio (H/G) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that year are the same.</p>
<p>K % Rehabilitated land to total mine footprint</p>	<p>The proportion of the total mine footprint (area of land that has been disturbed by past or present surface disturbance activities) that has established rehabilitation ($I/A1 \times 100$). For open cut mining, the proportion of the total mine footprint verified to be “established rehabilitation” should substantially increase as an operation progresses towards mine closure.</p>
<p>L Established rehabilitation for agricultural final land uses (hectares)</p>	<p>The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to an agricultural final land use.</p>
<p>M Established rehabilitation for native ecosystem final land uses (hectares)</p>	<p>The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or rehabilitation completion phase (definitions E & F in Table 5) that have been returned to native ecosystem final land use.</p>
<p>N Established rehabilitation for other/non-vegetated final land uses (hectares)</p>	<p>The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to other/non-vegetated final land use.</p>

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	<p>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.</p>
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	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation cost estimate	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation management plan	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation objectives	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation risk assessment	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation schedule	<p>The defined timeframes for progressive rehabilitation set out in the forward program.</p>

WORD	DEFINITION
Relevant stakeholders	<p>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:</p> <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 – Rehabilitation Complaints

DATE	COMPLAINANT	COMPLAINT DETAILS	RESPONSE DETAILS	STATUS OF RESPONSE	DATE RESPONSE COMPLETED (IF APPLICABLE)
------	-------------	-------------------	------------------	--------------------	--

Attachment 4 – Stakeholder consultation

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
17 Nov 2022	Rehab and Final Landform Rehabilitation Working Group	Meeting	Meeting with local stakeholders to discuss rehabilitation at Cadia. Discussion points included harvesting of pines in former forestry land, discussion of proposed future land forms, and current rehabilitation bond.	Actions included a commitment to conducting an internal review regarding timings for TSF closure, and use of the NTSF for a solar farm / electricity generation.
6 Mar 2023	NSW Resources Regulator	Online Meeting	Proposed modelling methodology to accurately assess the issues with erosion and surface water management structures on the WRDs, and general update on section 240 notice updates.	Following agreement with Resources Regulator on proposed assessment methodology, Cadia engaged consultant WSP to commence surface water management structure and erosion quantification assessment.
23 Nov 2022	NSW Resources Regulator	Email	Re-issue of s 240 notices received from the Resources Regulator.	New dates to address the s 240 notices recorded. And re-scheduled.
14 Jun 2023	NSW Resources Regulator	Online Meeting	Section 240 notice updates and request for extension to directions within the s 240 notices	Verbal agreement from RR to extend the date for the s 240 notices, to be followed up with a request letter (see letter dated 15 June 2023).
29 Jul 2022	NSW Resources Regulator	Letter Response	Letter response together with required report submitted to RR	As above.
23 Sep 2022	NSW Resources Regulator	Phone call from Resources Regulator	Phone call and follow up email to Resources Regulator to discuss commitments made in the letter (dated 29 July 2023) and request feedback from RR on submitted report.	Commitments acknowledged.
8 Dec 2022	NSW Resources Regulator	Response Letter	Response to request for a schedule to meet NSW Rehabilitation Reforms	Cadia commenced preparation of required documentation and engaged a consultant (Umwelt) to

CADIA VALLEY OPERATIONS ANNUAL REHABILITATION REPORT

ARR0001129 | Friday 1 July 2022 to Friday 30 June 2023

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
				provide additional support. The letter also contains a schedule to meet the initial requests.
15 Jun 2023	NSW Resources Regulator	Letter	Cadia request an extension to the Section 240 notices to 30 November 2023	Cadia's progress against the s 240 notices was discussed, and an extension requested to address the required actions.
22 Jul 2022	NSW Resources Regulator	Online Meeting	Meeting with RR and NML to discuss status of section 240 notices.	Letter response (dated 29 July 2022) together with required report submitted to RR – detailing schedule.
19 Jan 2023	Rehab and Final Landform Rehabilitation Working Group	Meeting	Meeting with local stakeholders to discuss rehabilitation at Cadia, including various final land use options.	Investigation into various future uses of the site, in particular the NTSF. Outcome included identification of people at Cadia accountable for key actions.
19 Jun 2023	NSW Resources Regulator	Email	Extension to s 240 notices confirmed with re-issued s 240 notices received from the Resources Regulator.	N/A
13 Oct 2022	NSW Resources Regulator	Online Meeting	Discussion around progress of the section 240 notices and compliance with the rehab reform requirements.	N/A

Attachment 5 – Plans

Plan 1A attachment not provided.

Plan 1B attachment not provided.

Annual Report (LARGE MINE) v1.6

**PLAN 1A
CURRENT MINING AND
REHABILITATION (2023)**

Legend

- Project Approval Boundary PA
- Current Titles
- State

Mining Domain Type

- Beneficiation
- Infrastructure
- Overburden Emplacement
- Tailings Storage
- Underground Mining Area
- Active Mining Area (Open cut)
- Water Management

Rehabilitation Phase

- Landform
- Growth Media
- Ecosystem and Land Use



Title Holder: Cadia Holdings Pty Ltd

Mine Name: Cadia Valley Operations

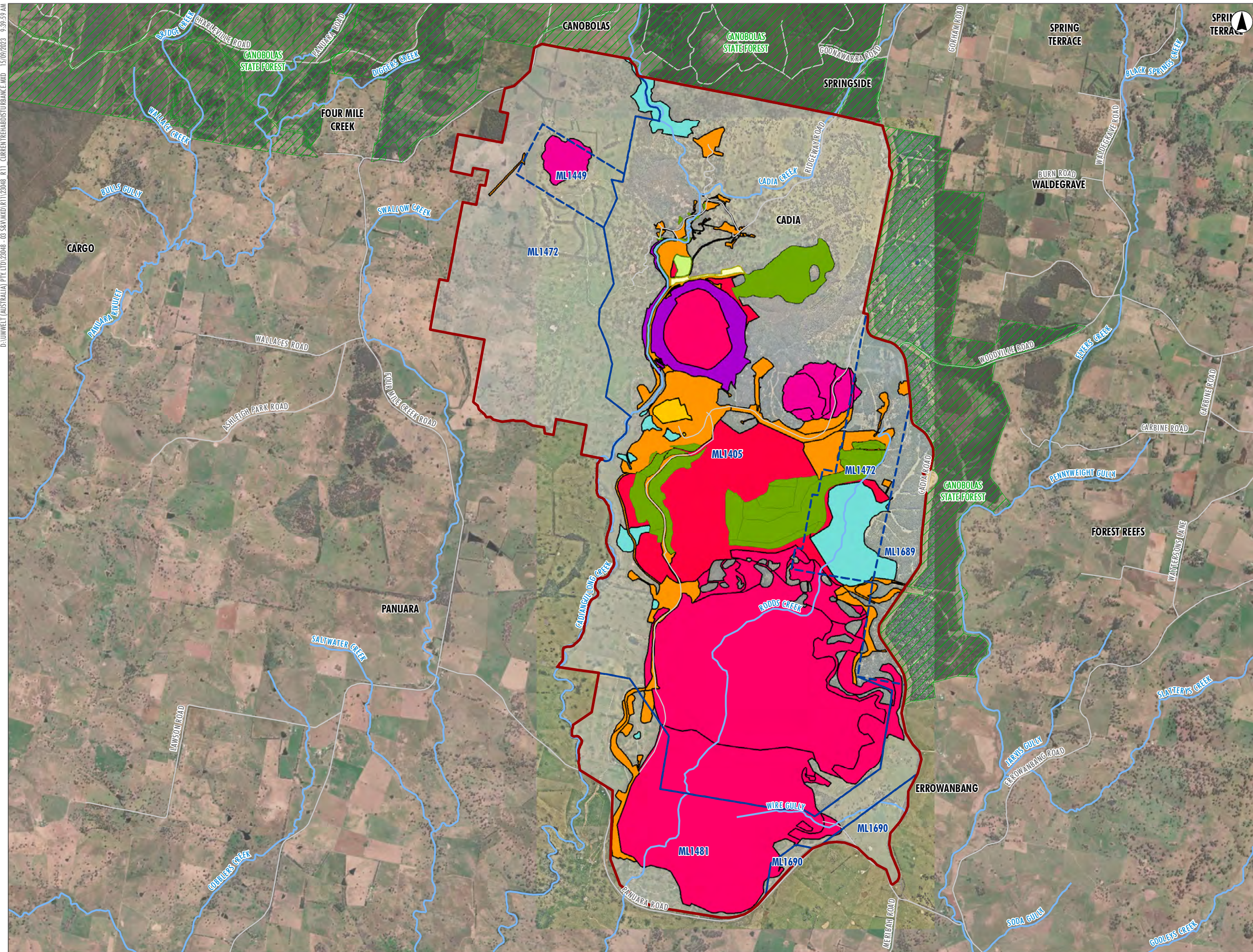
Coordinate System: GDA 1994 MGA Zone 55

Scale: 1:5000 at A3

Date: 15/09/2023

Prepared by: Umwelt Pty Ltd

D:\UMWELT (AUSTRALIA) PTY LTD\2046 - 03 SRV\MOI\112046_R11_C00RENTREHABDISTURBANCE.MXD 15/09/2023 9:39:59 AM



**PLAN 1B
CURRENT LANDFORM
CONTOURS (2023)**

Legend

- Project Approval Boundary PA 06_0295
- Current Titles
- Current Landform Contour
- State Forest
- Creek/River
- Road



Title Holder: Cadia Holdings Pty Ltd

Mine Name: Cadia Valley Operations

Coordinate System: GDA 1994 MGA Zone 55

Scale: 1:5000 at A3

Date: 20/09/2023

Prepared by: Umwelt Pty Ltd

D:\UMWELT (AUSTRALIA) PTY LTD\2048 - 05 SRV\WDR\112948 R11 EXISTING CONTOURS.MXD 20/09/2023 10:44:37 AM

