NEWCREST MINING LIMITED

CADIA

CADIA VALLEY OPERATIONS ANNUAL REVIEW FY23

FORWARD LOOKING STATEMENTS

This document includes forward looking statements and forward looking information within the meaning of securities laws of applicable jurisdictions, including within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended. We intend the forward-looking statements contained in this communication to be covered by the safe harbor provisions of such securities laws. All statements other than statements of historical fact in this communication or referred to or incorporated by reference into this communication are “forward looking statements” for purposes of these sections. Forward looking statements can generally be identified by the use of words such as “may”, “will”, “expect”, “intend”, “plan”, “estimate”, “target”, “anticipate”, “believe”, “continue”, “objectives”, “outlook” and “guidance”, or other similar words and may include, without limitation, statements regarding estimated reserves and resources, internal rates of return, expansion, exploration and development activities and the specifications, targets, results, analyses, interpretations, benefits, costs and timing of such activities; certain plans, strategies, aspirations and objectives of management, anticipated production, sustainability initiatives, climate scenarios, dates for projects, reports, studies or construction, expected costs, cash flow or production outputs and anticipated productive lives of projects and mines. Newcrest continues to distinguish between outlook and guidance. Guidance statements relate to the current financial year. Outlook statements relate to years subsequent to the current financial year.

These forward looking statements involve known and unknown risks, uncertainties and other factors that may cause Newcrest’s actual results, performance, and achievements to differ materially from any future results, performance or achievements, expressed or implied by these forward looking statements. Relevant factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations and general economic conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development, including the risks of obtaining necessary licences and permits and diminishing quantities or grades of resources or reserves, political and social risks, changes to the regulatory framework within which Newcrest operates or may in the future operate, environmental conditions including extreme weather conditions, recruitment and retention of personnel, industrial relations issues and litigation. In addition, with respect to the Newmont Transaction, relevant factors may include, among others: (1) the risk that the Newmont Transaction may not be completed in a timely manner or at all, (2) the occurrence of any event, change or other circumstance that could give rise to the termination of the SID, including in circumstances which would require Newcrest to pay a termination fee, (3) the effect of the announcement or pendency of the Newmont Transaction on Newcrest’s ability to retain and hire key personnel, its ability to maintain relationships with its customers, suppliers and others with whom it does business, or its operating results and business generally, (4) risks related to diverting management’s attention from Newcrest’s ongoing business operations, (5) the risk of litigation in connection with the Newmont Transaction, including resulting expense or delay, and (6) (A) those

risks discussed in Newcrest's Financial Report for the year ended 30 June 2023 and the Annual Information Form dated 14 December 2022, and (B) those risks discussed in other documents Newcrest files with the ASX and the Canadian Securities Administrators. For further information as to the risks which may impact on Newcrest's results and performance, please see the risk factors discussed in the Operating and Financial Review included in the Appendix 4E for the year ended 30 June 2023 and the Annual Information Form dated 13 December 2022 which are available to view at www.asx.com.au under the code "NCM" and on Newcrest's SEDAR profile.

Forward looking statements are based on management's current expectations and reflect Newcrest's good faith assumptions, judgements, estimates and other information available as at the date of this report and/or the date of Newcrest's planning or scenario analysis processes as to the financial, market, regulatory and other relevant environments that will exist and affect Newcrest's business and operations in the future. Newcrest does not give any assurance that the assumptions will prove to be correct. There may be other factors that could cause actual results or events not to be as anticipated, and many events are beyond the reasonable control of Newcrest. Readers are cautioned not to place undue reliance on forward looking statements, particularly in the current economic climate with the significant volatility, uncertainty and disruption caused by global events such as geopolitical tensions. Forward looking statements in this document speak only at the date of issue. Except as required by applicable laws or regulations, Newcrest does not undertake any obligation to publicly update or revise any of the forward looking statements or to advise of any change in assumptions on which any such statement is based.

Name of operation	Cadia Valley Operations
Name of operator	Cadia Holdings Pty Limited
Development consent / project approval #	06_0295
Name of holder of development consent / project approval	Cadia Holdings Pty Limited
Mining lease #	ML1405, ML1449, ML1472, ML1481, ML1689, ML1690.
Name of holder of mining lease	Cadia Holdings Pty Limited
Water licence #	31062, 31072, 36229, 32255, 32280, 31527, 31505
Name of holder of water licence	Cadia Holdings Pty Limited (31062, 36229, 32255, 32280, 31527, 31505) Cadia Holdings Pty Limited and Newcrest Operations Limited (31072)
Annual Review start date	1 July 2022
Annual Review end date	30 June 2023

I, Michael Dewar, certify that this report is a true and accurate record of the compliance status of Cadia for the period 1 July 2022 to 30 June 2023 and that I am authorised to make this statement on behalf of Cadia Holdings Pty Limited.

Note.

a) The Annual Review is an 'environmental audit' for the purposes of section 9.39 of the *Environmental Planning and Assessment Act 1979*. Section 9.42 provides that a person must not include information in (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.

b) *The Crimes Act 1900* contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).

Name of authorised reporting officer	Geoffrey Newcombe
Title of authorised reporting officer	Acting General Manager, Cadia Valley Operations
Signature of authorised reporting officer	
Date	31/10/2023

DOCUMENT HISTORY AND STATUS

Version	Issued to	Date Issued	Approved by	Date approved
1	NSW Department of Planning and Environment	31/10/2023		

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LIST OF ACRONYMS

ACHMP	Aboriginal Cultural Heritage Management Plan
AEMP	Aquatic Ecosystem Monitoring Project
AEMR	Annual Environmental Management Report
AGE	Australasian Groundwater and Environmental Consultants Pty Ltd
AQGGMP	Air Quality and Greenhouse Gas Management Plan
AQMP	Air Quality Monitoring Program
AWS	Automatic Weather Station
BAM	Beta Attenuation Monitors
BDF	Blayney Dewatering Facility
BFI	Baseflow Index (the ratio of baseflow to total flow)
Cadia	Cadia Valley Operations
CCC	Community Consultative Committee
CCOP	Cadia Continued Operations Project
CDEP	Cadia District Enhancement Project
CDF	Cadia Dewatering Facility
CHESS	Community, Health, Environment, Safety and Security System
CHPL	Cadia Holdings Pty Limited.
CMP	Conservation management plan
COS	Coarse Ore Stockpile
COVID-19	'CO' stands for corona, 'VI' for virus, and 'D' for disease. Formerly, this disease was referred to as '2019 novel coronavirus' or '2019-nCoV.'
CRD	Cumulative Rainfall Departure (curve)
CXP	Cadia Expansion Project
DCBW1	Diggers Creek Baseflow Weir
DDG	Dust Deposition Gauges
DPE	NSW Department of Planning and Environment
EA	Environmental Assessment
EC	Electrical Conductivity
ECCO	Environmentally Concerned Citizens of Orange
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environment Protection Authority of New South Wales
EPL	Environment Protection Licence
FY	Financial Year
H2S	Hydrogen sulfide
ha	Hectare

HDPE	High density poly-ethylene
HHMP	Historic Heritage Management Plan
Hi-vol	High Volume Air Samplers
HQ	Headquarters
ICMM	International Council on Mining & Metals
Koz	kilo ounce
kt	kilo tonne
LBMP	Land and Biodiversity Management Plan
mAHD	Elevation in metres with respect to the Australian Height Datum
MCA	Minerals Council Australia
ML	Megalitres and Mining Lease
MLA	Mine lease area
MOD14	Modification 14 of the Cadia East Project Approval (06_0295)
MOP	Mining Operations Plan
Mt	Million tonnes
NAF	Non acid forming
NAIDOC	National Aboriginal and Islanders Day Observance Committee
NIAC	Noise Impact Assessment Criteria
NLD	Northern Leachate Dam
NMP	Noise Management Plan
NP	Net Percolation
NTSF	Northern Tailings Storage Facility
NSW	New South Wales
OAMS	Orange Aboriginal Medical Service
OEH	NSW Office of Environment and Heritage
OTMP	Offsite Traffic management Plan
PA	Project Approval
PAF	Potentially Acid forming
PC1	Panel Cave 1
PC2	Panel Cave 2
PIRMP	Pollution Incident Response Management Plan
PM2.5	Particulate matter (particles with a diameter of 2.5 micrometres or less)
PM10	Particulate matter (particles with a diameter of 10 micrometres or less)
PTSF	Pit Tailings Storage Facility
RCDBW	Rodds Creek Downstream Baseflow Weir
RCUBW	Rodds Creek Upstream Baseflow Weir
RR	Resources Regulator
RWY	Ridgeway

SAG	Semi autogenous
SCBW2	Swallow Creek Baseflow Weir Number 2
SLB	Southern Lease Boundary
SLD	Southern Leachate Dam
SOE	Statement of Operational Efficiencies
SPR03	Spring Number 3
SROP	Site Runoff Pond
SSGV	Site Specific Guideline Value
STSF	Southern Tailings Storage Facility
t	tonne
TARP	Trigger Action Response Plan
TEOM	Tapered Element Oscillating Microbalance
TSF	Tailings Storage Facility
TSP	Total Suspended Particulate
TSS	Total Suspended Solids
TWMC	Total Waste Management Contract
URCD	Upper Rodds Creek Dam
WAF	Water Accounting Framework
WAL	Water Access Licence
WMP	Water Management Plan
WRD	Waste Rock Dump

1 STATEMENT OF COMPLIANCE

A summary of compliance at Cadia during 2022/2023 is provided below, in Table 1-1.

Table 1-1 Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	Yes/ No
Cadia East PA (06_0295)	No
EPL5590	No
ML 1405	No
ML 1449	No
ML1472	No
ML1481	No
ML1689	No
ML 1690	No

Table 1-2 contains the compliance status descriptions used to classify non-compliances during the reporting period. A summary of non-compliances with the Cadia East PA (06_0295), the Environment Protection Licence (EPL) 5590 (EPL5590) and relevant mining leases (ML1405, ML1449, ML1472, ML1481, ML1689, and ML1690) during the reporting period is provided in Table 1-3. All actions taken in response to the following non-compliances are addressed in Table 21-2.

Table 1-2 Compliance Status Categories

Risk Level	Colour Code	Description
High	Non-Compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-Compliant	Non-compliance with: potential for serious environmental consequences, but is unlikely to occur; or potential for moderate environmental consequences, but is likely to occur
Low	Non-Compliant	Non-compliance with: potential for moderate environmental consequences, but is unlikely to occur; or potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-Compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm

Table 1-3 Non-Compliances During FY23

Relevant Approval and Condition	Condition Description (Summary)	Date	Compliance Status	Comment
EPL 5590 L4.1 and PA06_0295 Schedule 3 condition 2	Noise Exceedance at Warrengong	1.08.2022	Non-compliant	Cadia's incident response to remediate instability identified in the VR14-1 ventilation rise required night-time activities which led to noise exceedances.
EPL 5590 L1.1	Historical mine adit expression	2.12.2022	Non-compliant	Due to significant rainfall, water began to express out of an old mine adit. The water had elevated concentrations of copper.
PA06_0295 Schedule 3 Condition 23	Blayney Return Water Leak	20.09.2022	Non-compliant	Approximately 30L of return water spilled from return water air valve into a contained drain alongside Cadia road.
EPL 5590 L4.1 and PA06_0295 Schedule 3 condition 2	Noise exceedance	23.09.2022	Non-compliant	Noise exceedance of night-time limit by 2 dB due to pump and potential heavy vehicles.
PA06_0295 Schedule 3, Condition 5	Traffic Noise	4-13.10.2022 14-21.10.2022	Non-compliant	Exceedance of unattended traffic noise monitoring criteria at a property on Orchard Road.
PA06_0295 Schedule 3, Condition 5	Traffic Noise	19-26.10.2022	Non-compliant	Exceedance of noise criteria at a property on Cadia Road.
EPL 5590 L1.1	Stormwater Collection Pond Overflow	14.11.2022	Non-compliant	Surface water runoff, likely comprising notable baseflow (groundwater) contribution, flowed from the external catchment into the CDF stormwater collection pond, causing it to overflow to an adjacent unnamed watercourse. This was caused by the highly saturated water catchment, high rainfall intensity and volume.
EPL 5590 L2.1	Sediment basin water quality exceedance	21.11.2022 26.11.2022	Non-compliant	1 exceedance for Total Suspended Solids (TSS), 1 exceedance for Turbidity due to the highly saturated water catchment, high rainfall intensity and volume.
EPL 5590 L2.1	Discharge water quality exceedance	7.12.2022	Non-compliant	Exceedances of manganese and phosphorus due to potential interaction from highly saturated catchment.
PA06_0295 Schedule 3, Condition 2 EPL 5590 L4.2	Unattended Noise Monitoring	9-22.12.2022	Non-compliant	Exceedances of unattended noise monitoring criteria at CDF.
PA06_0295 Schedule 3, Condition 5	Traffic Noise	3-10.01.2023	Non-compliant	Exceedance of noise criteria at a property on Cadia Road
EPL 5590 M2.1	Air Quality	January 2023	Non-compliant	Damage to a single depositional dust gauge resulted in loss of particulate deposited matter data for the January 2023 period.
PA06_0295 Schedule 3, Condition 2 EPL 5590 L4.2	Unattended Noise Monitoring	10-17.01.2023	Non-compliant	Exceedances of unattended noise monitoring criteria at CDF.
PA06_0295 Schedule 3, Condition 34c	Groundwater Monitoring	Between January and March 2023	Non-compliant	Failure to collect routine groundwater and surface water samples per Water Management Plan.
PA06_0295 Schedule 3, Condition 2 EPL 5590 L4.1	Unattended Noise Monitoring	February 2023	Non-compliant	Exceedance of unattended, continuous noise monitoring criteria at the 'Northwest' monitoring site.
PA06_0295 Schedule 3, Condition 5	Traffic Noise	15-30.05.2023	Non-compliant	Exceedance of noise criteria at a property on Orchard Road.

Relevant Approval and Condition	Condition Description (Summary)	Date	Compliance Status	Comment
PA06_0295 Schedule 3, Condition 2 EPL 5590 L4.2	Unattended Noise Monitoring	10-31.05.2023	Non-compliant	Exceedance of unattended noise monitoring criteria at CDF.
EPL 5590 M2.2	PM10 BAM Malfunction	1.06.2023	Non-compliant	Cadia became aware the Beta Attenuation Monitor (BAM) at Triangle Flat monitoring $PM_{10}$and $PM_{2.5}$ was recording unusual readings for PM_{10} due to battery failure.
PA06_0295 Schedule 3, Condition 2 EPL 5590 L4.2	Unattended Noise Monitoring	1-7.06.2023	Non-compliant	Exceedance of unattended noise monitoring criteria at CDF.

2 INTRODUCTION

2.1 MINING OPERATIONS

Cadia Valley Operations (Cadia) is operated by Cadia Holdings Pty Limited. (CHPL), a wholly owned subsidiary of Newcrest Mining Limited. Cadia is situated in the Cadiangullong Valley, approximately 25km south of Orange in the Central Tablelands of New South Wales. The Cadia Dewatering Facility (CDF) is located approximately 24km to the east of Cadia in the town of Blayney. This Annual Review has been prepared for the 12-month reporting period of 1 July 2022 to the 30 June 2023 (herein referred to as the reporting period).

Cadia operations during the reporting period consisted of the Cadia East underground mine (Cadia East), the Molybdenum (Moly) Plant, Ore Processing Plant, the Northern Tailings Storage Facility (NTSF), the Southern Tailings Facility (STSF), the Pit Tailings Storage Facility (PTSF), the CDF as well as the concentrate pipeline from the Cadia to Blayney.

Cadia East PA (06_0295) was approved in January 2010 with Modification 14 approved in December 2021 authorising mining activities to 30 June 2031.

The Annual Review has been prepared in accordance with the following:

- Schedule 5, Condition 2 of Cadia East PA (06_0295);
- The New South Wales (NSW) Government Guideline, Annual Review Guideline (October 2015);
- Mining Leases (see Table 1-1);
- EPL 5590 (Condition R4);

This Annual Review will be submitted to the Department of Planning and Environment (DPE) for approval.

Once accepted by DPE, the report will be made available on the Cadia website in accordance with Cadia East PA (06_0295) (Schedule 5, Condition 9). Copies will also be provided to the Resources Regulator (RR), the Office of Environment and Heritage (OEH), and the Environment Protection Authority (EPA), members of local Councils and the Community Consultative Committee (CCC).

2.2 ANNUAL REVIEW REQUIREMENTS

Table 2-1 outlines the requirements for the Annual Review in accordance with Cadia East Project PA (06_0295), Schedule 5; Condition 2.

Table 2-1 Annual Review Requirements

Requirement	Report Reference
Describe the works that were carried out in the past year, and the works that are proposed to be carried out over the next year;	Whole of document
Include a comprehensive review of the monitoring results and complaints records of the project over the last year, which includes a comparison of these results against the relevant statutory requirements, limits or performance measures/criteria; requirements of any plan or program required under PA06_0295; the monitoring results of previous years; and the relevant predictions in the EA;	Sections 7-17
Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;	Section 19
Identify any trends in the monitoring data over the life of the project;	Sections 7-17
Identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and	Sections 7-17
Describe what measures will be implemented over the next year to improve the environmental performance of the project.	Section 20

2.3 MINE CONTACT DETAILS

The relevant mine contacts for Cadia are listed Table 2-2.

Table 2-2 Cadia Contact Details

Contacts	Details
General Manager	Mick Dewar
Manager - Environment and Social Performance	David Coe
Address	1460 Cadia Road ORANGE NSW 2800 AUSTRALIA
General Enquiries Phone Number	Melbourne Head Office +61 3 9522 5333
24 Hour Community Complaints Hotline	1800 063 043
General Enquires Email	cadiavalley@newcrest.com.au

3 APPROVALS

3.1 PROJECT APPROVAL

All approvals relevant to Cadia, and any changes that occurred during the reporting period are summarised in Table 3-1. Copies of the Cadia East PA (06_0295 Mod 14), EPL 5590 and Mining Leases can be found on the Newcrest Cadia website (https://www.cadiavalley.com.au/).

Table 3-1 Summary of approvals relevant to Cadia

Approval	Relevant Authority	Approval Date	Expiry Date	Last Issue Date	Changes during Reporting Period
Cadia East PA 06_0295 (Mod14)	DPE	06/01/2010	30/06/2031	13/12/2021	None
EPL 5590	EPA	16/01/2001	Not specified	21/06/2023	Changes to pollution response plan (PRP) for dust management of vents and TSF, as well as the inclusion of a Molybdenum Plant Management Plan.
ML 1405	Resources Regulator	October 1996	05/10/2038	October 1996	None
ML 1449		June 1999	05/10/2038	June 1999	None
ML 1472		October 2000	22/10/2021	October 2000	None Renewal application made – approval pending.
ML 1481		9/02/2022	7/03/2043	8/03/2022	None
ML 1689		September 2013	11/09/2034	September 2013	None
ML 1690		September 2013	11/09/2034	September 2013	None
Black Rock Range Subdivision (Development Consent No. 16/2010)	Blayney Shire Council	March 2010	-	-	As per DPE request, Cadia is working with the BCT to establish a Conservation Agreement, which will be completed in FY 2024.
General Monitoring/Archival Recording	Heritage Council of NSW	December 1997	-	-	None
Cadia Engine House- Power Poles	Heritage Council of NSW	December 2002	-	-	None
Cadia Engine House- Strengthening	Heritage Council of NSW	December 2002	-	-	None
Development Consent for a Rural Cemetery, Garden of Remembrance and Interpretive Centre	Blayney Shire Council	August 1999	-	-	None
Little Cadia Excavation Permit	Heritage Council of NSW	April 2005	-	-	None
Big Cadia Excavation Permit	Heritage Council of NSW	April 2006	-	-	None
Retention of existing strengthening of Engine House, Crusher Room and Chimney (until December 2023)	OEH	December 2018	N/A	18/11/2023	None

Approval	Relevant Authority	Approval Date	Expiry Date	Last Issue Date	Changes during Reporting Period
Enclosure Permit (No. 20364)	Department of Land and Water Conservation	August 1999	-	-	None
Resource Recovery Order and Resource Recovery Exemption- Orange treated sewage Biosolids	EPA	29/01/2021	21/08/2023	21/08/2021	Application for renewal submitted to NSW EPA August 2023
Prescribed Dam (Cadiangullong)	Dam Safety NSW	August 1996	-	-	None
Prescribed Dam (Cadia Hill Gold Mine Tailings Storage Facility)		June 1988	-	-	None
Prescribed Dam (Southern Tailings Storage Facility, (STSF))		July 2001	-	-	None
Prescribed Dam (Rodds Creek Dam)		July 2001	-	-	None
Prescribed Dam (Upper Rodds Creek Dam)		July 2001	-	-	None
Water Access License (WAL) 31062 (Works Approval 70WA610474)	Water NSW	16/01/2012	15/01/2032	-	None
WAL 31072 (Works Approval 70WA610477)		16/01/2012	11/12/2026	-	None
WAL 36229 (Works Approval 70WA614787)		16/01/2012	02/11/2025	-	None
WAL 32255 (Works Approval 70WA614353)		04/10/2012	16/05/2026	-	None
WAL 32280 (Works Approval 70WA614341)	Water NSW	04/10/2012	16/05/2026	-	None
WAL 31527 (Works Approval 80WA716140)		14/09/2012	11/09/2026	-	None
WAL 31505 (Works Approval 70WA610664)		14/09/2012	23/04/2026	-	None
70BL226628		-	Perpetuity	-	None
70BL226707		-		-	None
70BL228117		-		-	None
70BL228118		-		-	None
70BL228120		-		-	None
70BL228121		-		-	None
70BL228122		-		-	None
70BL228123		-		-	None
70BL228125		-		-	None
70BL228126		-		-	None
70BL229770		-		-	None

Approval	Relevant Authority	Approval Date	Expiry Date	Last Issue Date	Changes during Reporting Period
70BL230372		-		-	None
70BL232086		-		-	None
70BL232087		-		-	None
70BL232088		-		-	None
70BL232089		-		-	None
70BL232090		-		-	None
70BL232252		-		-	None
70BL233627		-		-	None
70BL233637		-		-	None
70BL233655		-		-	None
70BL233661		-		-	None
70BL233664		-		-	None
70BL233690		-		-	None
70BL233691		-		-	None
70BL233692		-		-	None
70BL233693		-		-	None
70BL233694		-		-	None
70BL233816		-		-	None
70BL233817		-		-	None
70BL233818		-		-	None
70BL233819		-		-	None
70BL233820		-		-	None
70BL233882	Water NSW	-	Perpetuity	-	None
70BL233883		-		-	None
70BL233662		-		-	None
70BL233663		-		-	None
70BL233821		-		-	None
70BL233939		-		-	None
70BL233942		-		-	None
70BL233945		-		-	None
70BL233946		-		-	None
70BL233947		-		-	None
70BL233948		-		-	None
70BL234015		-		-	None
70BL234016		-		-	None
70BL234017		-		-	None
70BL234036		-		-	None
70BL226564		-	Perpetuity	-	None

3.2 MINING OPERATIONS PLAN

As of 2 July 2022, following the introduction of the new standard mining lease conditions for rehabilitation introduced by the NSW Resources Regulator under the *Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021 (the Regulation*), a Mining Operation Plan (MOP) is no longer required, with MOPs no longer being in effect.

Under the new standard mining lease conditions for rehabilitation, the MOP has now been replaced with the requirement to prepare and implement a targeted *Rehabilitation Management*

Plan (RMP) for large mines. As required, CHPL has prepared and implemented a RMP (November 2022) for Cadia.

As part of the compliance with the new conditions, an *Annual Rehabilitation Report and Forward Program* (ARRFP) is to be prepared and submitted to the NSW Resources Regulator annually. As required, CHPL prepared a three year Forward Program in October 2022. CHPL has subsequently changed our reporting period to align with the financial year which was approved by the NSW Resources Regulator in March 2023. Submission of the ARRFP is now required by 30 September 2023.

4 OPERATIONS SUMMARY

4.1 MINING OPERATIONS

Details of the mining activities undertaken during the reporting period are provided in the following sections.

4.1.1 LAND PREPARATION

4.1.1.1 Vegetation Removal / Modification

Vegetation removal was undertaken at Cadia during the reporting period for:

- Native vegetation removal within the Cadia East Subsidence Zone for the construction of a preconditioning drilling pad and access route.
- Native vegetation removal within the Modification 14 of PA06_0295 disturbance region for the approved STSF and NTSF buttress footprint construction works.
- Pine tree removal within the footprint of the NTSF east haul road corridor.
- Native vegetation removal within the footprint of the NTSF east haul road corridor.
- Vegetation removal from the rehabilitated surface of an area on the western portion of the South Waste Rock Dump for the salvage of non-acid forming (NAF) materials for TSF construction works.

Topsoil (and subsoil) stripping was undertaken at Cadia during the reporting period for:

- Geotechnical information acquisition including preparation of drill site pads to aid the design preparation of the realigned STSF and NTSF embankments.
- East haul road stripping.
- NTSF western buttress foundation excavation.
- Preparation of the STSF stage 7 ch1500 sediment retention dam.
- Preparation of the STSF main buttress foundation excavation.
- Preparation for NAF rock stockpiles within the western containment bund.

The vegetation clearance protocol developed to manage the impact of clearance activities on flora and fauna continues to be followed regarding clearance works. The protocol has been summarised in previous AEMRs and is outlined in detail in the Land and Biodiversity Management Plan (LBMP) (CHPL, 2017).

4.1.1.2 Soil Movement

During the reporting period approximately:

- 24,110 m^3 of topsoil reduced from stockpile 34 to natural ground (reducing stockpile from 116,009 m^3 to 91, 899 m^3)
- 109,000 m^3 of topsoil was transferred from Stockpile 52 to Stockpile 42
- 501 m^3 of topsoil added to stockpile 101 (increasing stockpile to 6,003 m^3)
- 334 m^3 of topsoil added to stockpile 102 (increasing stockpile to 758 m^3)
- 894 m^3 of topsoil added to stockpile 103 (increasing stockpile to 8,306 m^3)

- 10,833 m^3 of topsoil added to stockpile 106 (increasing stockpile to 34,330 m^3)
- 134,552 m^3 of topsoil removed from stockpile 107 to stockpile 124 (decreasing stockpile to 466,742 m^3)
- 23,246 m^3 of topsoil added to create stockpile EHR128
- 1,404 m^3 of topsoil removed from stockpile STD 3 (now removed)
- 1,311 m^3 of topsoil removed from stockpile STD 16 (now removed)
- 2,001 m^3 of topsoil added to stockpile STD 35 (increasing stockpile to 63,121 m^3)
- 1,813 m^3 of topsoil added to stockpile STD 36 (increasing stockpile to 52,779 m^3)
- 2457 m^3 of topsoil added to stockpile STD 38 (increasing stockpile to 19,384 m^3)
- 137 m^3 of topsoil added to stockpile STD 40 (increasing stockpile to 1,732 m^3)
- 11,512 m^3 of topsoil removed from stockpile 54 (now removed)
- 6,428 m^3 of topsoil added to stockpile 112A (increasing stockpile to 12,884 m^3)
- 1,197 m^3 of topsoil removed from stockpile 121 (decreasing stockpile to 58,344 m^3)
- 124,366 m^3 of topsoil added to stockpile 124 (increasing stockpile to 311,490 m^3)
- 820 m^3 of topsoil removed from stockpile CONT 1 (decreasing stockpile to 1,012 m^3)
- 566 m^3 of topsoil added to stockpile CONT 2 (increasing stockpile to 1,782 m^3)
- 43,712 m^3 of topsoil added to stockpile CONT 3 (increasing stockpile to 45,653 m^3)
- 124,366 m^3 of topsoil added to stockpile 124 (increasing stockpile to 311,490 m^3)
- 9147 m^3 of topsoil added to stockpile CONT 4 (increasing stockpile to 20,140 m^3)
- 33,195 m^3 of topsoil added to create stockpile BLUE 5780
- 484 m^3 of topsoil removed from stockpile MOLY 1 (stockpile now removed).

The locations of the current topsoil stockpiles as at 30 June 2023 are shown on Figure 4-1 (yellow outlines on map), with the current balance of 4,281,232 m^3. All areas of topsoil are currently managed according to the LBMP (CHPL, 2017)

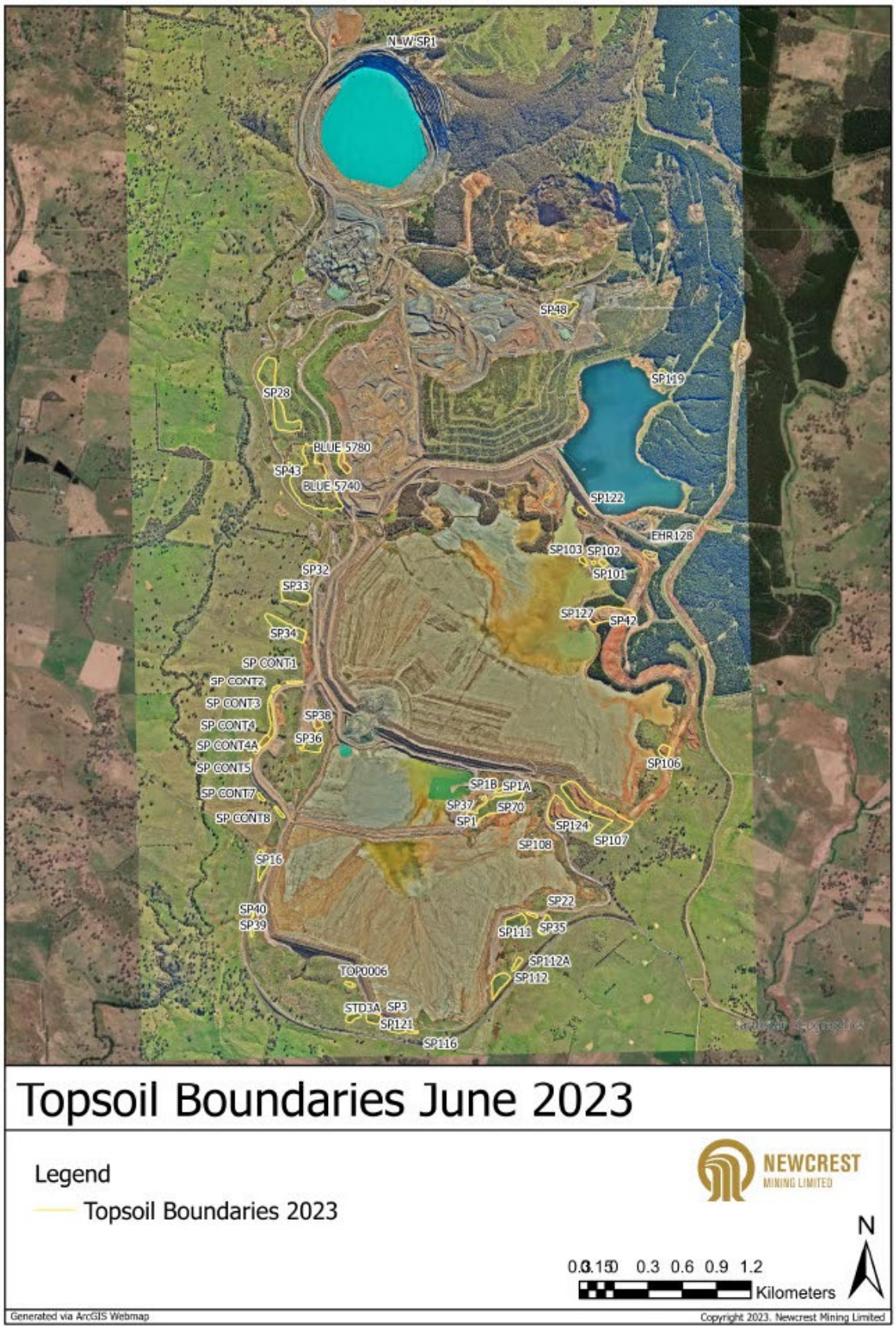

Figure 4-1 Topsoil Stockpile Boundaries as of 30 June 2023

4.1.1.3 Production summary

The following table (Table 4-1) contains a production summary for the reporting financial year.

Table 4-1 Production Comparison against MOP Predictions for Reporting Period (FY)

Material	Previous reporting period (FY2021-22) (actual)	This reporting period (FY2022-23) (actual)	Next reporting period (FY2023-24) (forecast)	Notes
Waste Rock / Overburden Generated (t)	671,000	506,038	526,000	Includes CEUG trucked to surface
Waste Rock / Overburden Transferred (t)	22,600	745,703	934,000	Includes CEUG material rehandled by Surface Ops
Ore Processed (t)*	25,861,109	29,082,463		
Tailings (Mt)	25.5	28.7	31.2	
Gold (oz)	560,702	596,879		
Copper (t)	85,383	98,191		

* Ore processing volumes based on financial year reporting period. Refer to Table 4-2 for ore processing volumes based on calendar year in accordance with PA06_0295. The modification to Project Approval (PA06_0295) approved in December 2021 to increase the permitted processing capacity from 32Mtpa to 35Mtpa is subject to conditions including CHPL commissioning an independent audit report to the satisfaction of the DPE Secretary in relation to CHPL's approach to managing and minimising the off-site air quality impacts of the project.

4.1.1.4 Surface Operations

The Cadia Surface Operations group undertakes stockpile reclaim, waste rock dump rehabilitation and small civil construction tasks. Activities were undertaken in accordance with the 2020-2022 MOP with the exceptions of:

- 31,500t of PAF material from Access point 3 road works to the PAF dump
- 4,800t of NAF BLU material was relocated to Access Point 3 road works
- 500t of PAF material was relocated from VR11 construction site to the PAF dump
- 7,600t of NAF BLU material was relocated to VR11 construction site
- 11,000t of NAF BLU material was relocated to VR51 construction site
- 1,200t of NAF BLU material relocated to culvert 10 road works
- 5,900t of NAF road base material was relocated to culvert 10 road works
- 5,400t of NAF road base material was relocated to a holding area on GRN SP for culvert 10 road works
- 13,700t of NAF road base material was relocated to PC1-2 preconditioning pad works
- 9,700t of NAF road base material was relocated to a holding area on GRN SP for PC1-2 preconditioning pad works

4.1.1.5 TSF Construction

Activities during the reporting period in relation to the TSF construction as approved included:

- Construction continued of Upper Rodds Creek Decant crossing and Haul Road 02, this will

enable material to be moved to the South East NTSF for wall remediation and Stage 7 lifts on STSF.

- Commencement of Western embankment buttressing works on NTSF.

4.1.1.6 Ridgeway

There was no production from the Ridgeway Mine during the reporting period.

4.1.1.7 Cadia East

The following table (Table 4-2) contains a production summary for Cadia during the 2022 calendar year (CY) compared against the approved limit under Modification 14 of PA06_0295.

Table 4-2 : Production Summary Compared against the Approved Limit

	Approved Limit (PA)*	Previous Reporting Period (CY2021)	This reporting period (CY2022)
Cadia East	32,000,000	27,338,000 (t)	30,043,248 (t)

* The modification to Cadia East PA (PA06_0295) approved in December 2021 to increase the permitted processing capacity from 32Mtpa to 35Mtpa is subject to conditions including CHPL commissioning an independent audit report to the satisfaction of the DPE Secretary in relation to CHPL's approach to managing and minimising the off-site air quality impacts of the project.

4.2 OTHER OPERATIONS

Details of the other operations activities undertaken during the reporting period are provided in the following sections.

4.2.1 MINERAL PROCESSING

Processing during the reporting period was carried out in accordance with the Cadia East PA (06_0295). A total of 29,082,463 tonnes were processed to produce 596,879 oz of gold and 98,191 t of copper during the financial year ended 30 June 2023.

4.2.2 CONCENTRATE TRANSPORT

During the reporting period all concentrate was transported to the CDF by pipeline.

4.2.3 MOLYBDENUM PROCESSING

The Moly Plant produced approximately 660 tonnes of molybdenum in the financial year ending 30 June 2023, with this being the plants first full year of production.

The pH of the slurry is carefully monitored onsite to avoid the production or release of hydrogen sulphide (H_2S). During this reporting period odour monitors were installed around the plant as additional H_2S monitoring and as control for Sodium Hydrosulphide (NaHS) dosing.

Newcrest has committed to the EPA that NaHS dosing on the circuit will not exceed 6000 g/tonne to assist with odour management and water quality. In addition, contractors have been engaged by the Moly Plant to assist with deodorising agents that will interact with H_2S prior to release to

the natural environment.

4.2.4 TAILINGS MANAGEMENT

4.2.4.1 Dust Management

Dust suppression activities occurred throughout the reporting period to mitigate and manage dust lift off.

Successful controls have been developed which have included:

- ground based application of hydromulch and liquid polymer dust suppressant via the Panther to the NTSF and STSF surfaces, and
- aerial hydromulch application to the surfaces of the NTSF and STSF through the use of a commercial crop-dusting aircraft.

There were 4 new operational air quality monitors introduced during the reporting period located around the TSFs to better manage operational activities.

4.2.4.2 Tailings Storage Facilities Summary

Table 4-3 provides a summary of material movements for TSF construction and overall progress during the reporting period.

Table 4-3 Cadia TSF Construction Movements Summary

Reporting Period	Waste Rock Moved (m3)	Clay Moved (m3)	Tailings Dam Completed (linear metres)
NTSF Buttress to RL5744	105,300	0	0
STSF East Dyke Buttress to RL5687.5	65,600	0	0
STSF Buttress to RL5687.5	57,100	0	0

Northern Tailings Storage Facility

During the reporting period, no tailings were deposited into the NTSF.

During the reporting period the following activities occurred:

- Haulage of rock to stockpiles for buttress placement (at a later date),
- Construction of the toe lock buttress on the NTSF Southern Wall,
- Remote dozing of material to NTSF Western Wall,
- Construction of Eastern Haul Road, and
- Crushing of materials within Blue Dump for future construction activities.

Southern Tailings Storage Facility

During the reporting period, no tailings were deposited into the STSF, with the following activities occurring:

- Vegetation clearing surrounding the STSF,

- Excavation and placement of foundation works STSF Western Wall,
- Excavation and placement of foundation works STSF Eastern Dyke,
- Placement of buttress at STSF Eastern Dyke.

Pit Tailings Storage Facility

During the reporting period, approximately 28.67 Mt of tailing deposited into the PTSF, with the following activities occurring:

- Conducted pumping and packer test through drilling of two exploratory drill holes and 8 bore holes investigating the Cadiangullong Fault.
- Undertook a geophysical survey (electrical resistivity imaging and ERI) to further assist in investigating the fault.
- Ongoing surveys of the pit to understand tailings consolidation levels and future predictions.

5 ACTIONS REQUIRED FROM 2021-22 ANNUAL REVIEW

A summary of actions required from the 2021-22 Annual Review are provided below in Table 5-1.

Table 5-1 Actions required from 2021-22 Annual Review

Commitment	Timeframe	Status as at 30 June 2023	Relevant Section
Continue application of dust suppressant on NTSF and STSF	30-Jun-23	Ongoing. The *TSF Dust Suppression Management and Monitoring Plan* was created as per EPL condition U1.1	4.2.4.1
Purchase a second noise trailer to increase the quantity of road traffic noise assessments completed each year	30-Jun-23	Complete	10
Conduct a review of surface water SSGVs in the next revision of the Water Management Plan	28-Feb-2023	As per the updated Water Management Plan (Refer to Table 20-3)	16.5
Correct minor errors in the Water Management Plan relating to screened aquifer category, initial groundwater level and trigger guideline values, as identified by AGE	28-Feb-2023	As per the updated Water Management Plan (Refer to Table 20-3)	16
Add a TARP for groundwater level guidelines into the next version of the Water Management Plan, including investigation requirements for trigger exceedance	31-Dec-2022	As per the updated Water Management Plan (Refer to Table 20-3)	16.6
Conduct a review of the groundwater monitoring program to reduce the frequency of monitoring at locations more distant form the mine where mine related impacts are not likely	31-Dec-2022	As per the updated Water Management Plan (Refer to Table 20-3)	16.6
Add biannual water samples from WRD monitoring bores MB4B, MB6B, MB7B, MB8B, MB9B, MB10B, and MB11B	28-Feb-2023	As per the updated Water Management Plan (Refer to Table 20-3)	16.6
Construct multilevel piezometers installed in the Ordovician Volcanics and overlying units to the north, east and south of Cadia East to better assess the propagation of mine induced drawdown upwards through the deeper strata and potentially into the basalt	31-Mar-23	Complete	16
Construct additional groundwater monitoring adjacent to Flyers Creek, where additional monitoring bores will allow for the better detection of potential impacts to Flyers Creek	31-Mar-23	Complete	16.6
Conduct a survey of any private landholder bores within the 2021 groundwater model drawdown prediction zone and consider monitoring these bores	30-Jun-23	Complete	16

Table 5-2 provides a summary of 'Environmental Performance' against the aspirational targets for the next period (FY23) and submitted as part of the FY22 Annual Review. The purpose of the scorecard is to track environmental and social performance improvement initiatives at Cadia.

2022 - 2023 Annual Performance - Targets and Objectives						
FY	**Aspect**	**Key Management Issue**	**Target**	**Score (%)**	**Weighting (%)**	**Overall Score**
2023	**Community**	Dust emissions	0 reportable air quality exceedances against the project approval	100	6	6.00
			>30% decrease YoY community complaint events regarding dust emissions from operations and projects.	0	6	0.00
		Stakeholder risk management	Nil grievances (as defined by Social Performance Standard)	0	5	0.00
			>90% spend on community partnership Programs	100	4	4.00
		Vibration from mining activities	0 community complaints from blasting and mining related seismicity	50	4	2.00
		Operational noise	>50% reduction in operational noise complaints (Site operations, CVO Dewatering Facility and Projects).	100	6	6.00
			0 reportable noise exceedances from site operations and projects.	0	5	0.00
		Impact on private water supplies	0 complaints regarding impact on community water availability and access (verified impact from Cadia)	100	4	4.00
		Fugitive lighting	0 fugitive lighting complaints (verified source from Cadia)	75	5	3.75
	Total by Aspect				**45%**	**25.75**
2023	**Land and Biodiversity**	Rehabilitation and Biodiversity	Implement RR Rehabilitation Reforms changes within the EMS	100	5	5.00
			Closure and rehabilitation of areas identified in the annual plan and forward works plan	100	6	6.00
			18 ha corridor program completed - Offsite corridoor program	0	5	0.00
		Conservation Offset Areas	>5ha rehabilitation complete in Conservation offset areas (eg Blackrock Range)	100	5	5.00
	Total by Aspect				**21%**	**16.00**
2023	**Resource use**	Waste management	Total waste recycling >65%	100	3	3.00
			Deliver waste awareness training packages to crews	50	3	1.50
	Total by Aspect				**6%**	**4.50**
2023	**Systems**	Environmental assurance	Scheduled site environment inspections completed	100	4	4.00
			Environmental Management System (tracking to approved schedule)	100	4	4.00
			Total by Aspect		**8%**	**8.00**
2023	**Water**	Water quality	0 reportable (to regulators) spills, leaks or discharges (or near misses) to external surface waters.	50	6	3.00
			Water monitoring completed according to Water Management Plan	75	4	3.00
			Installation of new monitoring bores as recommended in AEMR and commence monitoring	100	5	5.00
		Water management	Develop a Water Management Plan	100	5	5.00
	Total by Aspect				**20%**	**16.00**
Total by Year						**70.25**

Table 5-2 Environmental scorecard performance 2022-2023

6 ENVIRONMENTAL PERFORMANCE

The EPL 5590 Annual Return for the 16 June 2022 to 15 June 2023 reporting period was submitted to the EPA via the eConnect portal on 14/08/2023. A summary of the 2022-23 EPL 5590 non-compliances is available on the EPA website at: https://apps.epa.nsw.gov.au/prpoeoapp/.

The following sections (section 7 to 17) provide a summary of Cadia's environmental performance over the reporting period.

7 METEOROLOGICAL

Meteorology and atmospheric data are primarily used to aid in the analysis of environmental monitoring results. The Cadia East PA (06_0295), Schedule 3, Condition 21 requires that: *'During the life of the project, the Proponent shall ensure that there is a suitable meteorological station in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline'.*

EPL 5590 Condition P1.1 has identified Ridgeway Weather Station and Southern Lease Boundary (SLB) Weather Station as EPL Meteorological Monitoring Points 17 and 18, for monitoring meteorological conditions. Meteorological data recorded during the reporting period is available on the Cadia Valley Website (www.cadiavalley.com.au).

The Ridgeway (RWY) monitoring location is located to the north of site, and the Southern Lease Boundary (SLB) monitoring location is located to the south of site, as shown in Figure 8-2.

A summary of meteorological results for each location (SLB, RWY and Orange Airport AWS) is provided in Table 7-1, Table 7-2 and Table 7-3.

As shown in Figure 7-1, Cadia experienced above average monthly rainfall during the months of August, September, October, November, March, and April during the reporting period. May 2023 was the driest month in the reporting period, recording 27.8mm at RWY and 18.6mm at SLB.

Total annual rainfall for RWY and SLB in the reporting period was at 1,135 mm and 998.6 mm respectively. These values both exceed the long-term (1996-2023) total annual rainfall average of 893.7mm calculated from Orange airport, displayed in Table 7-3.

Table 7-1 Summary of Ridgeway Weather Station Meteorological Monitoring Results

Ridgeway Weather Station	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Total Monthly Rainfall (mm)	47.2	133	123.4	198	146.8	31.8	54	62.4	154	100.4	27.8	56.2
Ave Min Temperature at 2m (°C)	2.82	2.59	6.01	7.43	4.10	9.64	13.18	12.84	10.72	6.93	2.45	1.63
Ave Max Temperature at 2m (°C)	10.36	13.12	12.01	16.09	18.45	24.14	25.35	25.53	27.74	15.40	12.14	12.97
Ave Wind Direction (Deg)	164.16	217.72	168.41	152.54	189.14	162.53	144.70	168.81	181.27	155.81	218.16	204.42
Average Sigma Theta	14.52	13.97	14.83	14.24	14.83	17.04	18.00	16.76	15.23	14.27	13.01	12.83
Average Max Sigma Theta	19.06	18.05	19.42	17.9	20.10	22.22	21.91	22.81	21.41	19.07	17.05	15.16
Ave Wind Speed (m/s)	4.27	4.57	3.94	4.78	3.97	3.83	3.72	4.04	4.20	3.77	3.14	4.13
Ave Max Wind Speed (m/s)	8.20	11.82	7.91	10.93	7.93	7.43	6.3	5.97	7.76	6.09	5.85	7.35

Table 7-2 Summary of Southern Lease Boundary Meteorological Monitoring Results

SLB Weather Station	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Total Monthly Rainfall (mm)	44.8	115.2	104.2	145.4	136.6	42.4	47.2	69.6	140.6	90.8	18.6	43.2
Ave Min Temperature at 2m (°C)	3.63	3.48	7.17	8.44	5.39	10.77	14.83	13.72	11.62	8.33	3.40	2.52
Ave Max Temperature at 2m (°C)	11.71	14.61	13.45	17.40	18.89	25.53	26.48	26.52	26.945	17.12	12.05	14.39
Ave Wind Direction (Deg)	164.93	218.26	171.13	158.77	195.01	159.26	132.74	161.94	167.75	150.97	201.45	205.47
Average Sigma Theta (Deg)	12.52	12.67	12.77	13.33	13.81	16.07	16.91	16.34	14.43	13.78	12.12	12.24
Average Max Sigma Theta (Deg)	19.28	17.10	18.71	19.56	20.49	22.21	21.64	20.27	21.02	19.54	16.41	20.33
Ave Wind Speed (m/s)	3.81	4.11	3.90	4.634	4.02	4.08	4.22	4.2	4.33	3.71	2.74	3.68
Ave Max Wind Speed (m/s)	8.74	11.09	7.82	10.21	7.33	7.34	6.63	6.78	7.64	6.62	5.18	8.87

Table 7-3 Summary of Orange Airport AWS Rainfall Monitoring Results (1996-2023)

Orange Airport AWS (063303)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Average Monthly Rainfall (mm)	67.6	75.8	79.5	47.3	50.8	77.4	76.1	86.7	80.6	74.2	94.1	83.6

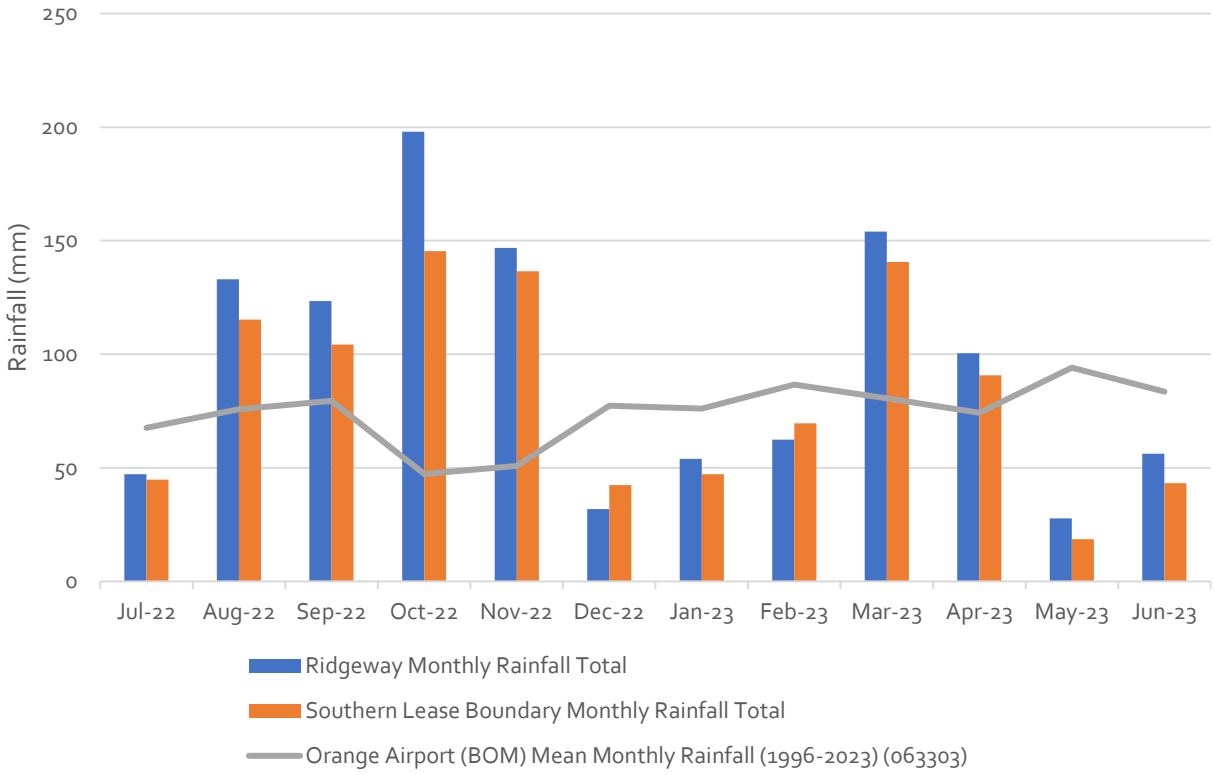

Figure 7-1 Comparison of Monthly Total Rainfall at Cadia Weather Stations and Orange Airport AWS (063303)

8 AIR QUALITY

Schedule 3, Condition 17 of Cadia East PA (06_0295) details the air quality impact assessment criteria against which Cadia air quality monitoring results are compared to.

The Cadia East PA (06_0295) was amended for Modification 14. As required under Schedule 3, Condition 20 of PA 06_0295 (Modification 14) an Air Quality and Greenhouse Gas Management Plan (AQGGMP) has been prepared and submitted for consultation with the CCC and EPA. At the end of the reporting period, feedback has been received from the CCC and the EPA, and the DPE continues to review the AQGHGMP. Therefore, assessment of performance against air quality objectives during the reporting period has been assessed against the air quality criteria in PA 06_0295 (Modification 13).

Newcrest has committed to a 30% reduction of scope 1 and scope 2 greenhouse gas (GHG) emissions intensity per tonne of ore milled by 2030 (compared to a baseline of FY18 emissions) and a net zero scope 1 and scope 2 carbon emissions by 2050 goal. Cadia plays a significant role in achieving these targets.

8.1 MANAGEMENT PRACTICES

Air quality management practices include the following controls:

- Use of water carts on unsealed roads;
- Progressive rehabilitation of land;
- The application of dust suppression products on the NTSF and STSF including commercial polymer products and hydromulch; and
- Dust extraction systems and water sprays on crushers, conveyors, and conveyor transfer points.

Cadia's greenhouse gas emission reduction initiatives include:

- Contribution to state grid decarbonisation through engagement in power purchase agreement with Rye Park Wind Farm;
- Studies into feasibility of fleet electrification; and
- Optimising efficiency of existing and new plant and equipment.

These initiatives are captured and managed through CHESS and are reviewed periodically.

8.2 ENVIRONMENTAL PERFORMANCE

8.2.1 MONITORING

Air quality monitoring is conducted using a combination of the following monitoring equipment:

- Beta Attenuation Monitors (BAM) (continuous);
- Dust Deposition Gauges (DDG);
- High Volume Air Samplers (Hi-Vols);
- Dust Traks; and

- ANSTO $PM_{2.5}$ monitors.

Data from the continuous air quality monitoring network reports to a near-real time access to data through a dedicated website. The air quality monitoring network records the following parameters:

- 60-minute $PM_{10}$and $PM_{2.5}$ mass concentration;
- 24-hour $PM_{10}$and $PM_{2.5}$ mass concentration; and
- Wind direction, wind speed, temperature, humidity, and rainfall.

Continuous monitoring occurs at the following four locations:

- Bundarra (D1);
- Flyers Creek (D2);
- Triangle Flat (D3); and
- Meribah (D4).

The locations of the air quality monitoring sites are shown in and Figure 8-3.

In the previous reporting period, Cadia was approved under the Environment Protection Licence (EPL 5590) to replace Tapered Element Oscillating Microbalance (TEOM) dust monitors with BAMs. One TEOM has been retained at Meribah to calibrate PM_{10} data between the two continuous monitor types, displayed in Figure 8-1. Note gaps in TEOM data is due to recurring power outage issues and comms errors. On the 6th of March 2023 the Meribah TEOM had an anomaly daily average value of 47.6 µg/m³, which remains below compliance thresholds.

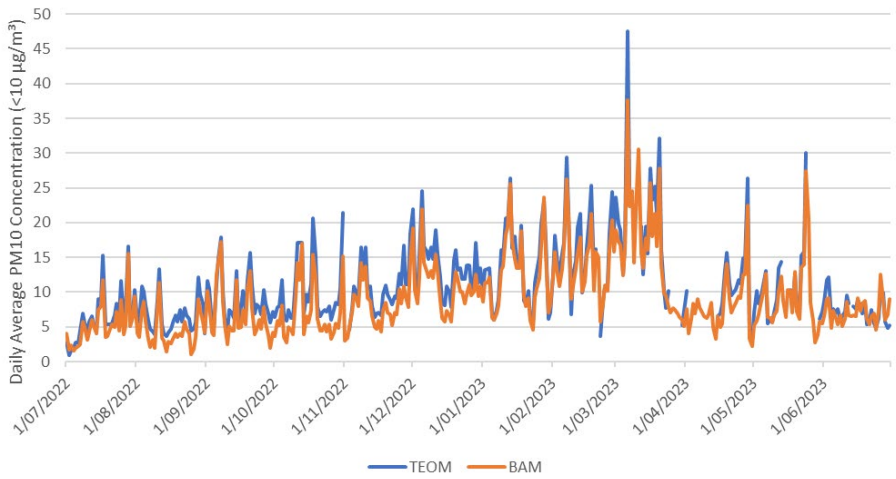

Figure 8-1 Comparison of TEOM and BAM Dust Monitoring Results at Meribah FY23

In February 2022, Cadia commissioned the Australian Nuclear Science and Technology Organisation (ANSTO) to undertake a detailed air quality monitoring study. ANSTO collected fine particle samples, $PM_{2.5,}$ from four sampling sites (Millthorpe, Mandurama, Panuara and Orange) around Cadia for a 24-hour period twice each week, during a 12-month period from February 2022 to February 2023. The samples were then characterised to determine their

composition and origin.

Dust lift off was observed on 13 and 31 October 2022, 12 November 2022, 11 December 2022, 6, 9 and 10 January 2023 and 20 March 2023. Compliance criteria was not exceeded at any of the monitoring points as a result of these dust lift off events.

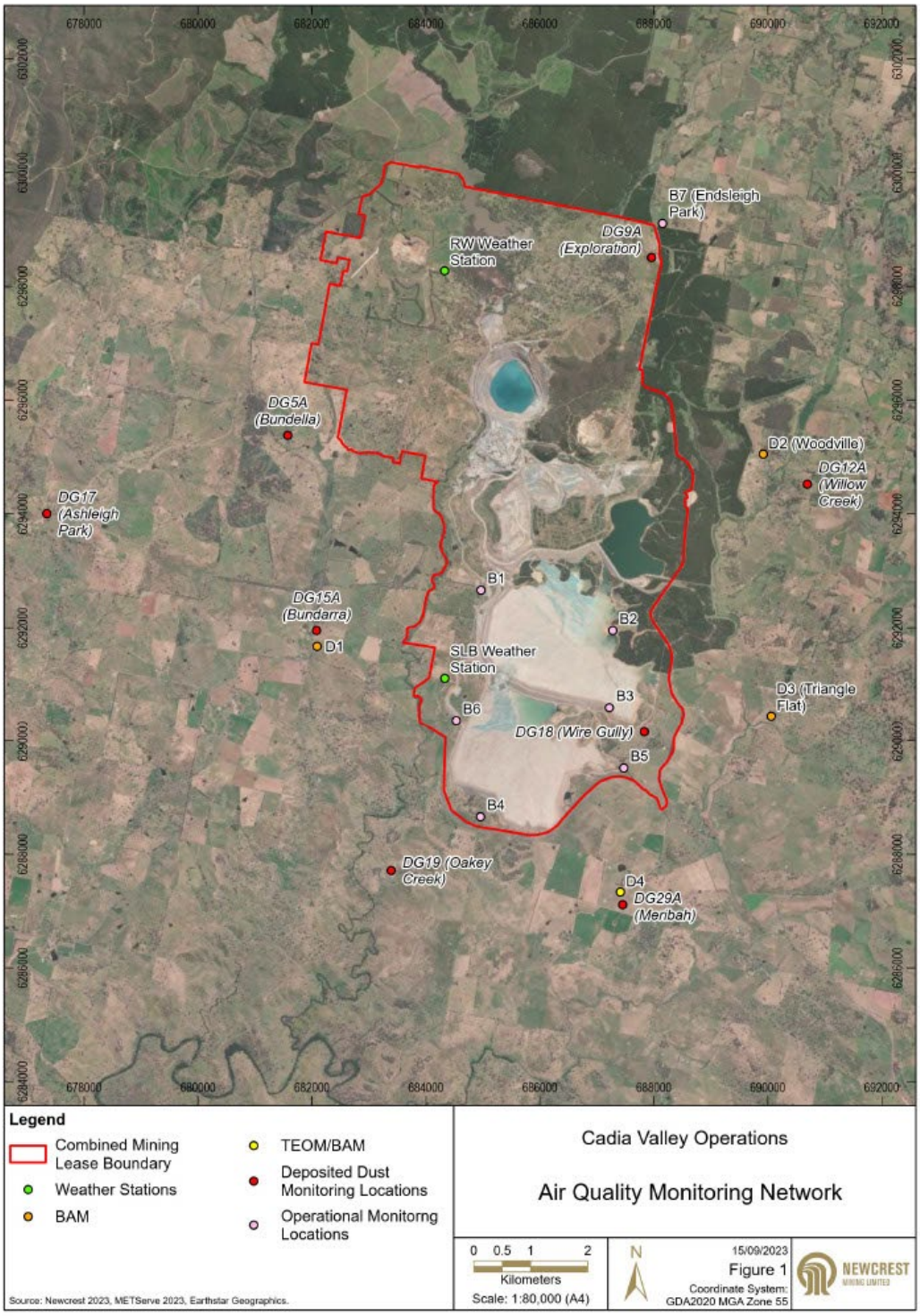

Figure 8-2 Cadia Air Quality Monitoring Locations

Figure 8-3 Cadia Dewatering Facility Air Quality Monitoring Locations

8.3 PERFORMANCE OUTCOMES

8.3.1 ANSTO STUDY

The ANSTO study found that soil was the only type of particle matter which Cadia has contributed to at three of the four sites (Panuara, Millthorpe, and Mandurama). Cadia did not contribute to any particle matter at Orange. Soil was the lowest contributor to the $PM_{2.5}$ makeup of Millthorpe and Mandurama, and the second-lowest contributor in Panuara. The soil particles are not harmful in the quantities identified. Page 10 of the ANSTO report which can be found on the Cadia Valley Operations website states that the lead, nickel, selenium and chromium detected were not associated with any $PM_{2.5}$ soil fingerprint and are not attributed to Cadia. All findings are published on the Cadia Valley Operations website (ANSTO - Stage 2 12 month Final Report Cadia Valley Operations PM2.5 Study.pdf).

8.3.2 DEPOSITED DUST

The calculated annual average results indicate all monitoring sites were below the relevant criteria of 4g/m^2/month (all sources) except for DG9A. Organic matter recorded at DG9A (November and December 2022) and DGL09 (September and October 2023) was the likely reason for elevated levels during these months and not the mining activity alone.

A detailed discussion of depositional dust monitoring results is provided in Todoroski Air Sciences (2023) (Appendix 1). A summary of the key findings from July 2022 to June 2023 is

provided below in Table 8-1 and Table 8-2.

Table 8-1 Monthly and annual average dust deposition rates (insoluble solids g/m2/month)

Month	DG5A	DG9A	DG12A	DG15A	DG17	DG18	DG19	DG29A	DGL06	DGL08	DGL09
Jul-22	0.2	6.9[e]	0.5	0.5	0.4	0.7	0.4	0.5	0.8	0.5	0.2
Aug-22	0.4	0.6	0.8	0.5	0.3	0.4	0.3	0.5	1.1	0.5	0.2
Sep-22	2.2	1.1	1.3	1.3	0.5	0.8	0.5	0.9	2	0.5	10[c]
Oct-22	1.4	3.8	1.5	1.1	1	0.8	0.8	1.3	1	0.8	42.1[d]
Nov-22	8[f]	78[a]	0.8	1.8	1.7	8.1[f]	1	2.6	2.7	1.4	3.7
Dec-22	1.9	15.4[b]	2.9	2.4	1.3	2.5	3.8	2.2	1.9	1.2	2.3
Jan-23	2	3	1.7	2	0.7	0.8	1	1.1	ND	1.3	1.8
Feb-23	1.1	1.4	2.1	2.5	1.3	4	4.2[f]	1.7	1.4	1.5	1.4
Mar-23	0.8	2	2	1.5	0.6	1.9	1	1.6	1.1	0.5	0.5
Apr-23	1.3	2	2.8	0.6	0.2	1.2	1	0.9	1	0.7	1.3
May-23	0.7	0.8	1	0.5	0.3	0.5	0.6	0.7	0.9	0.2	0.5
Jun-23	0.4	0.5	1.1	0.4	0.2	0.9	0.2	0.4	2.4	0.4	0.2
Annual Av.	1.7	2.2*	1.5	1.3	0.7	1.9	1.2	1.2	1.5	0.8	1.2*

Notes:
Long term impact assessment criteria for deposited dust has a maximum total deposited dust level of 4 g/m2 /month (PA 06_0295).
*Totals excluding contaminated/invalid samples
ND- no data
a - Organic matter in the sample is 25%. Field notes indicate bird droppings, insects and algae with a noticeable green discoloration of the water. Monitor downwind of CVO for 35% of time and unlikely that the elevated levels are due to the mining activity alone.
b - Organic matter in the sample is 65%. Field notes indicate bird droppings and insects. High organic content indicates contamination and level not representative of mining activity. Monitor downwind of CVO for 23% of time and unlikely that the elevated levels are due to the mining activity alone.
c - Organic matter in the sample is 51%. Field notes indicate bird droppings. Monitor downwind of CVO for 9% of time and unlikely that the elevated levels are due to the mining activity alone.
d - Organic matter in the sample is 44%. Field notes the water is turbid with algae and noticeably discoloured compared to other sampled. Comments indicate that stock grazing in the paddock as a potential source. Monitor downwind of CVO for 9% of time and unlikely that the elevated levels are due to the mining activity alone.
e - Cadia suggests other localised sources/factors are influencing the results at DG9A for July 22
f - Todoroski Air Science 'Review of deposited dust' shown in appendix A discusses these results.

8.3.2.1 Comparison against Project Approval Predictions

Under Modification 14 (MOD14) of the Cadia East PA (06_0295), updated modelled depositional dust predictions were published in Appendix F, the *Air Quality Impact and Greenhouse Gas Assessment* 2020. The maximum predicted deposited dust (g/m²/month) result at any privately-owned receptor for cumulative impact was determined to be 1.8 g/m²/month.

A comparison of the predicted cumulative annual average (insoluble solids) against actual measurements is provided in Table 8-2. This comparison indicates that the dust deposition during the reporting period was lower than that predicted in the Cadia East PA (06_0295)

MOD14 at all locations except for DG9A and DG18.

Table 8-2 Annual Dust Gauge Monitoring Results in Comparison to MOD14 Predictions

DDG	Insoluble solids (g/m^2/month)	Meets MOD14 Predictions of <1.8 (g/m^2/month)
DG5A	1.7	Yes
DG9A	2.2*	No
DG12A	1.5	Yes
DG15A	1.3	Yes
DG17	0.7	Yes
DG18	1.9	No
DG19	1.2	Yes
DG29A	1.2	Yes
DGL06	1.5	Yes
DGL08	0.8	Yes
DGL09	1.2*	Yes

Notes:
*Totals excluding contaminated/invalid samples

8.3.2.2 Investigation of Elevated Deposited Dust Levels

DG9A recorded significantly higher average monthly levels compared to the other monitors in the network for July, November and December 2022. As stated in the notes to Table 8-1, the levels in November and December 2022 were found to be the result of contamination with high levels of organic matter and not attributed to mining activity. For July 2022, analysis of monthly wind data show the percentage of time that wind speeds were >5.4m/s in the wind angles from Cadia to DG9A was less than 5%.

DG18 recorded significantly higher average monthly levels compared to the other monitors (except DG5A) for November 2022. Analysis of monthly wind data show the percentage of time that wind speeds were >5.4m/s in the wind angles from Cadia to DG18 was less than 5%.

The wind analysis indicates that the Cadia would generally only impact the DG9A and DG18 monitors for a low portion of time, and it is unlikely that the elevated levels are due to the mining activity alone. It is likely that other nearby sources of dust (and organic material) contributed to the elevated levels.

8.3.3 BAM (PM_{10})

The annual summary of PM_{10} data for the reporting period is presented below in Table 8-3 and Figure 8-4. During the reporting period there was one exceedance of the PM_{10}, 24-hour short term impact assessment criteria of 50 µg/m^3. On the 8th of March 2023, D2 (Woodville) recorded a 24-hour average of 59.1 µg/m^3.

Detailed analysis of this event was undertaken by third party specialists (Advitech Pty Ltd) who determined the exceedance was likely due to another dust source off-site. This conclusion came from the assessed west-southwest light winds averaging 2.9 m/s during the time of the

exceedance, as well as no visible dust lift off events and the Bundarra dust monitor upwind recording 15 µg/m^3. The detailed analysis confirmed that the contribution of dust emissions from the Cadia operation was less than 50 µg/m^3 at this time.

Table 8-3 Assessment Against Project Approval Criteria for PM10

Short and Long Term Impact Assessment Criteria for Particulate Matter (PM_{10}				
Monitor	**Property**	**Annual Average (µg/m^3) [b]**	**Compliant Against Criteria**	**Less than MOD14 Predictions**
			Annual Average (25 µg/m^3) [a]	**16.0 (µg/m^3) [c]**
BAM 1 (D1)	Bundarra	9.59	Yes	Yes
BAM 2 (D2)	Woodville	9.59	Yes	Yes
BAM 3 (D3)	Triangle Flat	7.69	Yes	Yes
BAM 4 (D4)	Meribah	9.09	Yes	Yes

Notes:

[a] Air Quality Impact Assessment Criteria in PA 06_0295 (modification 14) for PM_{10}- annual average long term impact assessment criteria (1 year) of 25 µg/m^3 and short term impact assessment criteria (24 hour) of 50 µg/m^3 .
[b] Annual average is rolling 365-day average calculated from available 24-hour average results between 1 July 2022 and 30 June 2023.
[c] 16 µg/m³ is the maximum predicted PM_{10} result derived from the modelled PM_{10} predictions published in the *Air Quality Impact and Greenhouse Gas Assessment* 2020

Table 8-4 Assessment Against Project Approval Criteria for TSP

Long Term Impact Assessment & Land Acquisition Criteria for Total Suspended Particulate Matter (TSP)				
Monitor	**Property**	**TSP Annual Average (µg/m^3) [b]**	**Compliant Against Criteria**	**Less than MOD14 Predictions**
			Annual Average (90 µg/m^3) [a]	**47.3 (µg/m^3) [c]**
BAM 1 (D1)	Bundarra	25	Yes	Yes
BAM 2 (D2)	Woodville	25	Yes	Yes
BAM 3 (D3)	Triangle Flat	20	Yes	Yes
BAM 4 (D4)	Meribah	23	Yes	Yes

Notes:

[a] Air Quality Impact Assessment Criteria is PA 06_0295 (modification 14), which has an annual average of 90 µg/m^3 for TSP.
[b] Annual average is rolling 365-day average calculated from available 24-hour average results between 1 July 2021 and 30 June 2022.
[c] 47.3 µg/m³ is the maximum predicted TSP result derived from the modelled TSP predictions published in the *Air Quality Impact and Greenhouse Gas Assessment* 2020

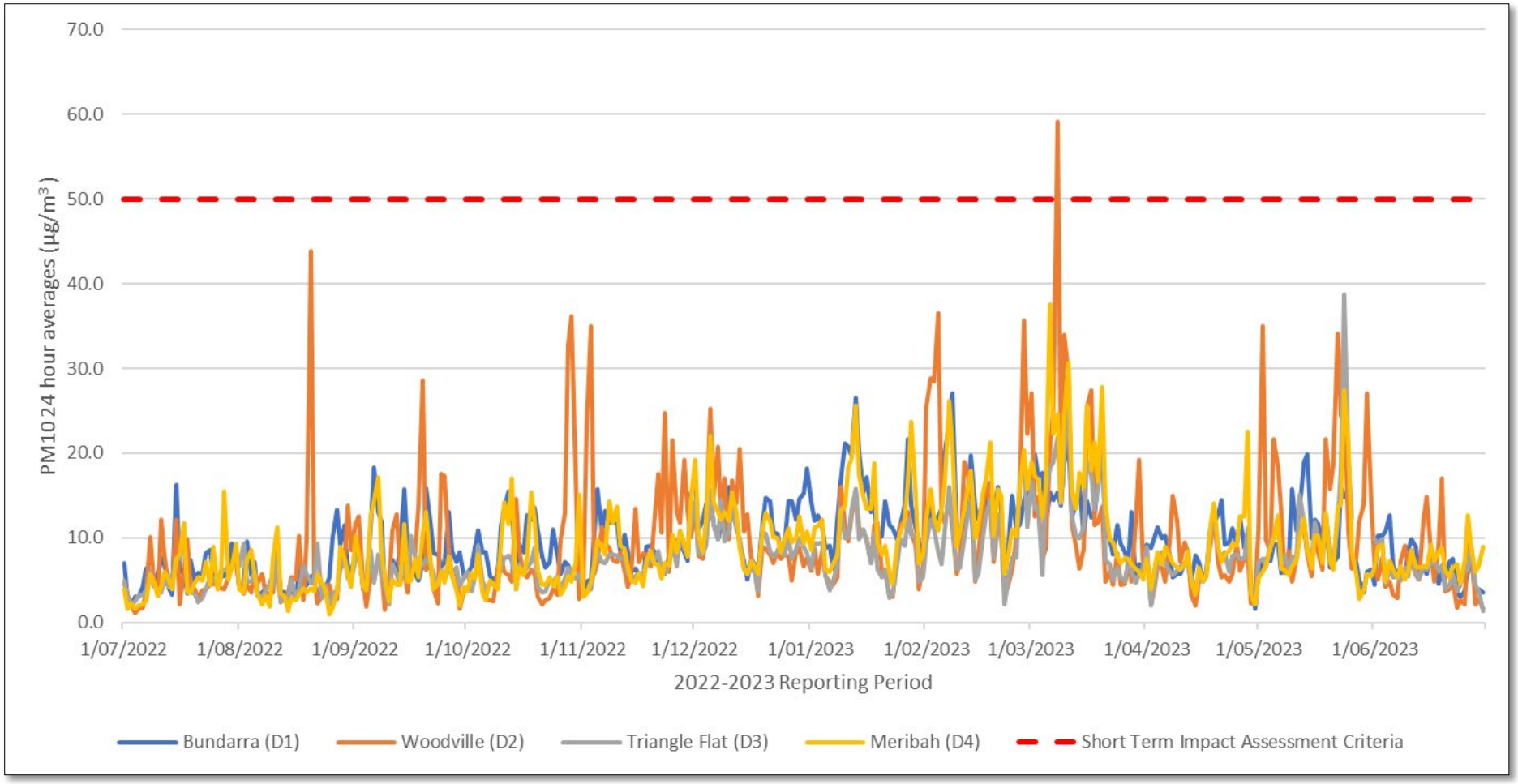

Figure 8-4 Annual Summary - PM10 24hr Average - 1 July 2022 to 30 June 2023

8.3.3.1 Comparison against historic data (PM_{10})

Annual PM_{10}concentrations between 2012 and 2023 are shown in Figure 8-5. PM_{10}results are recorded using TEOMs up until 2020-2021 and thereafter PM_{10} is measured with BAM dust monitors. Note that Modification 14 of the Cadia East PA (06_0295) resulted in a reduction of the long-term impact assessment criteria from 30 µg/m^3 to 25 µg/m^3.

Following elevated PM_{10} levels during the 2019-20 reporting period, this reporting period shows a continuation of normal annual average PM_{10} emissions. As stated in previous AEMRs elevated annual averages for the 2018-19 and 2019-20 reporting period were a result of unprecedented bushfire seasons, regional dust storms, severe drought conditions and emissions from Cadia following the cessation of deposition into the NTSF and STSF.

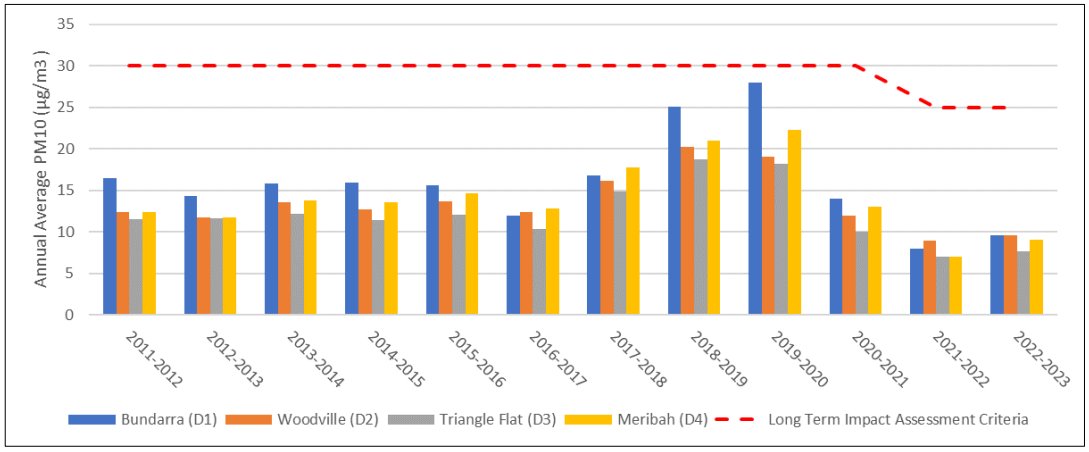

Figure 8-5 Trend of Annual PM10Values, FY2011-12 to 2022-23

8.3.4 BAM ($PM_{2.5}$)

Monitoring of dust particles with a diameter of 2.5 micrometres or less ($PM_{2.5}$) was introduced following the approval of Modification 14 of the Cadia East PA (06_0295) and amendment of the Environment Protection Licence (EPL5590).

Assessment of air quality monitoring data indicates that no exceedances of the short-term (24hr average) and long-term (annual average) impact assessment criteria for $PM_{2.5}$ were observed during the reporting period, as shown in Table 8-5 and Figure 8-6.

Table 8-5 Assessment Against Project Approval Criteria for PM2.5

Short and Long Term Impact Assessment Criteria for Particulate Matter ($PM_{2.5}$)					
	Monitor	**Property**	**Annual Average ($\mu g/m^3$)[b]**	**Compliant Against Criteria**	**Less than MOD14 Predictions**
				Annual Average (8 $\mu g/m^3$) [a]	**6.6 ($\mu g/m^3$) [c]**
$PM_{2.5}$	BAM 1	Bundarra	3.50	Yes	Yes
	BAM 2	Woodville	5.15	Yes	Yes
	BAM 3	Triangle Flat	3.40	Yes	Yes
	BAM 4	Meribah	4.15	Yes	Yes

[a] Air Quality Impact Assessment Criteria in PA 06_0295 (modification 14) for $PM_{2.5}$ - annual average long term impact assessment (1 year) criteria of 8 $\mu g/m^3$ and short term impact assessment criteria (24 hours) of 25 $\mu g/m^3$.

[b] Annual average is rolling 365-day average calculated from available 24-hour average results between 1 July 2021 and 30 June 2022.

[c] 6.6 $\mu g/m^3$ is the maximum predicted $PM_{2.5}$ result derived from the modelled $PM_{2.5}$ predictions published in the *Air Quality Impact and Greenhouse Gas Assessment* 2020

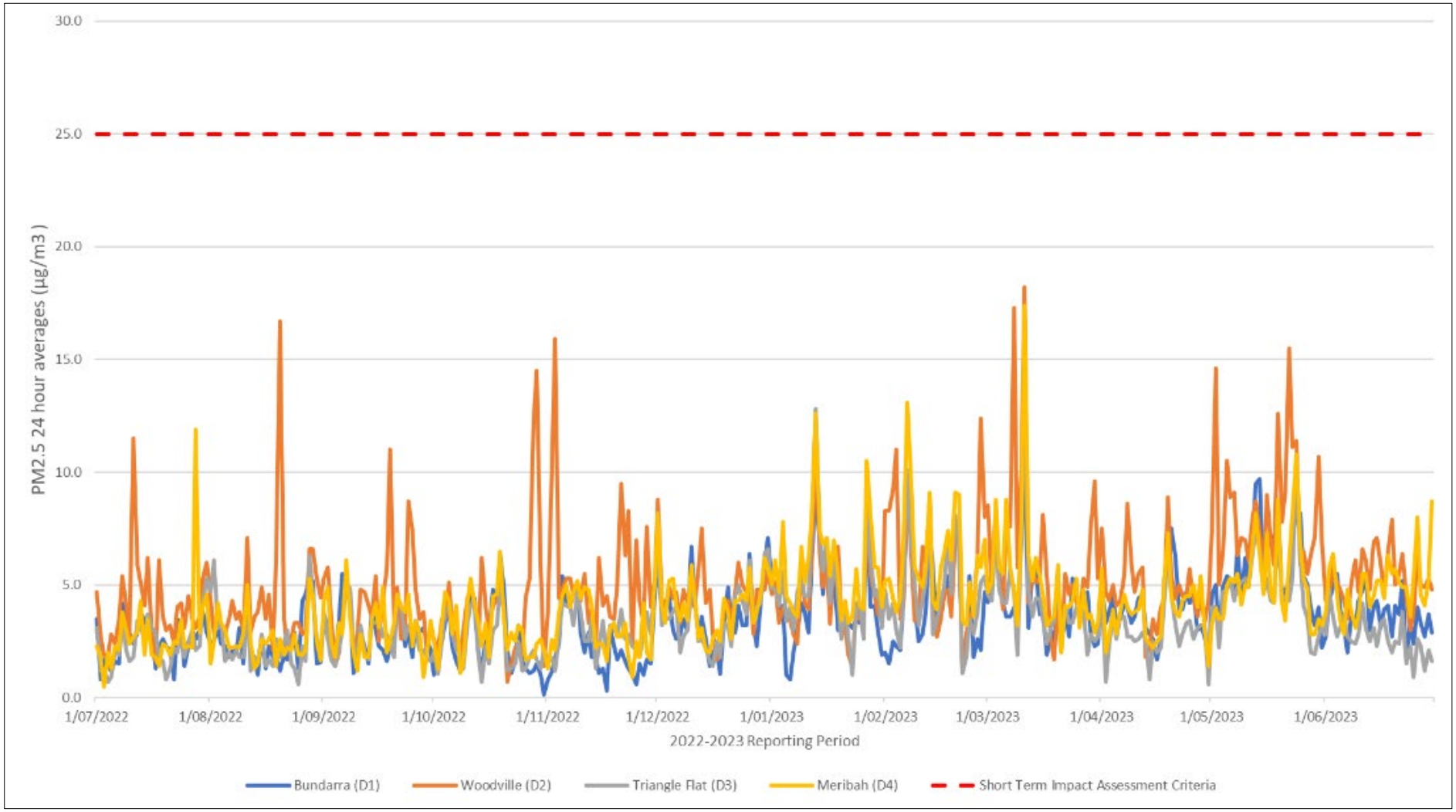

Figure 8-6 Annual Summary – PM2.524 Hour Average, 1 July 2022 to 30 June 2023

8.3.4.1 Comparison against historic data ($PM_{2.5}$)

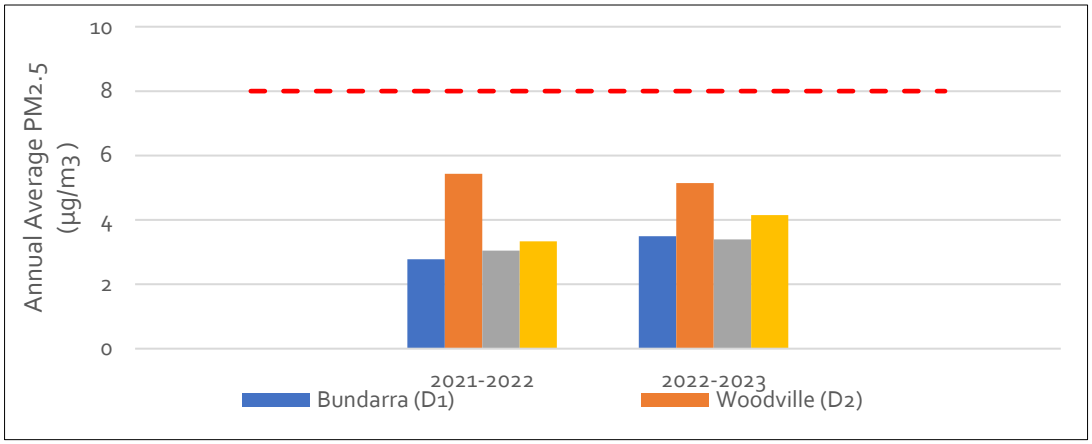

Figure 8-7 Trend of Annual PM2.5 Values - FY2021-2022 to 2022-23

$PM_{2.5}$ monitoring was introduced in the previous financial year. Figure 8-7 assesses $PM_{2.5}$ annual averages against the maximum predicted results determined in the *Air Quality Impact and Greenhouse Gas Assessment* 2020, published for Modification 14 of the Cadia East PA (06_0295). $PM_{2.5}$ levels were determined to be less than modelled values for all locations. Key Performance and/or Management Issues

Air Quality Monitoring was not conducted continuously at the four BAMs surrounding Cadia. Various reasons account for the outages, and this can include regional power outages, intermittent power and/or instrument faults. A total of 5 days of invalid or unavailable data were reported across the network (excluding routine maintenance) during the reporting period for EPL5590. Further explanation of these outages is recorded within the monthly reports available on the Cadia website.

There were 35 community complaints received from residents relating to dust during the reporting period. These complaints were received in October 2022, November 2022, January 2023, March 2023, April 2023 and May 2023. All complaints were in relation to dust generation allegedly from Cadia operations.

8.4 FURTHER IMPROVEMENTS

In accordance with the Cadia East PA (06_0295), Cadia has continued to use the air quality improvement initiatives reported in previous years to dust generation. These initiatives will continue to be implemented and refined as required to further improve the air quality performance of the operations. These improvements are outlined in Table 8-6 below.

Table 8-6 Air Quality Improvement Initiatives

Dust Source	Ongoing Air Quality Improvement Initiatives	New Air Quality Improvement Initiatives
Tailings Storage Facility	Surface application of hydromulch will continue until the TSFs return to normal operation. Aerial application of polymer will continue until the TSFs return to normal operation. A monitoring system is installed on the NTSF to provide early detection of any dust lift-off. The early identification will result in inspection and re-application of dust suppressant as required.	Cadia continues the best practice for efficient application of hydromulch, ground-based and aerial-based dust suppression. A TSF Dust Suppression Management and Monitoring Plan was published in June 2023 outlining best practices to be implemented moving forward.
Mine Vent Emissions	Cadia has a number of initiatives to reduce emissions from the underground mine vents, including: • the installation of sprays on conveyor transfer points and crusher points; • the installation of engineering controls on VR12 exhaust to increasing dust drop out potential; and Draw point spray optimisation.	Newcrest has engaged Ektimo to monitor emissions from VR8 and is doing ongoing work to minimise dust from vent rises. Cadia has installed five dust extraction units in underground PC2-East and PC2-West since early May 2023 Cadia installed underground dust monitors that inform an Emissions Dust Trigger Action Response Plan (TARP) that controls crushing activities underground to stay complaint with vent emissions.
Ore Processing Surface Operations TSF Construction Project	Cadia is currently progressing a new dust monitoring system to provide real time feedback to operations on performance against air quality criteria.	To improve air quality, the TSF project is in the process of installing two permanent standpipes and stockpiles are set to be hydro mulched.
All	Ongoing monitoring of both PM_{10} and $PM_{2.5}$ dust sized particles.	During the reporting period, an Air Quality and Greenhouse Gas Management Plan (AQGGMP) was developed by Cadia. This management plan is currently awaiting approval by DPE. As part of the AQGGMP, Cadia developed a Dust TARP which will be implemented to provide certain responses to levels of dust (called triggers).

9 BLASTING AND VIBRATION

Blast and vibration monitoring at Cadia is managed in accordance with the Blast and Vibration Monitoring Program (CHPL, 2020).

The Cadia East PA (06_0295) requires the monitoring and assessment of blast-induced seismicity. In addition, Cadia has received a request from DPE to also include cave-induced seismic events which has been incorporated into the approved Blast and Vibration Monitoring Program (Revision 4 approved 04/08/2020, (CHPL, 2020)).

9.1 MANAGEMENT PRACTICES

Management strategies used during this reporting period will continue to be implemented next year. These include:

- Managing the magnitude of blast events and pre-conditioning of the ore body;
- Controlling the timing of blasts to minimise potential disturbance of residents;
- Ongoing monitoring and publishing of results;
- Ongoing reporting to the community; and ongoing reporting and liaising with blast planning engineers regarding elevated results.

9.2 ENVIRONMENTAL PERFORMANCE

9.2.1 MONITORING

Figure 9-1 shows locations of Cadia blast monitoring sites. Monitoring of vibration and overpressure from blasting activities and ground vibration from seismic events was undertaken using SM6-4.5Hz tri-axial geophone (L, V, T parameters) and an ACO Pacific 7052 microphone (5mV/Pa sensor) at all sites. Ecotech Pty Ltd is engaged to undertake the assessment and reporting of blasting (ground vibration and overpressure) results. Monthly Blast Monitoring Network Reports are available on the Cadia Website Blast and vibration | Cadia Valley Operations | Newcrest

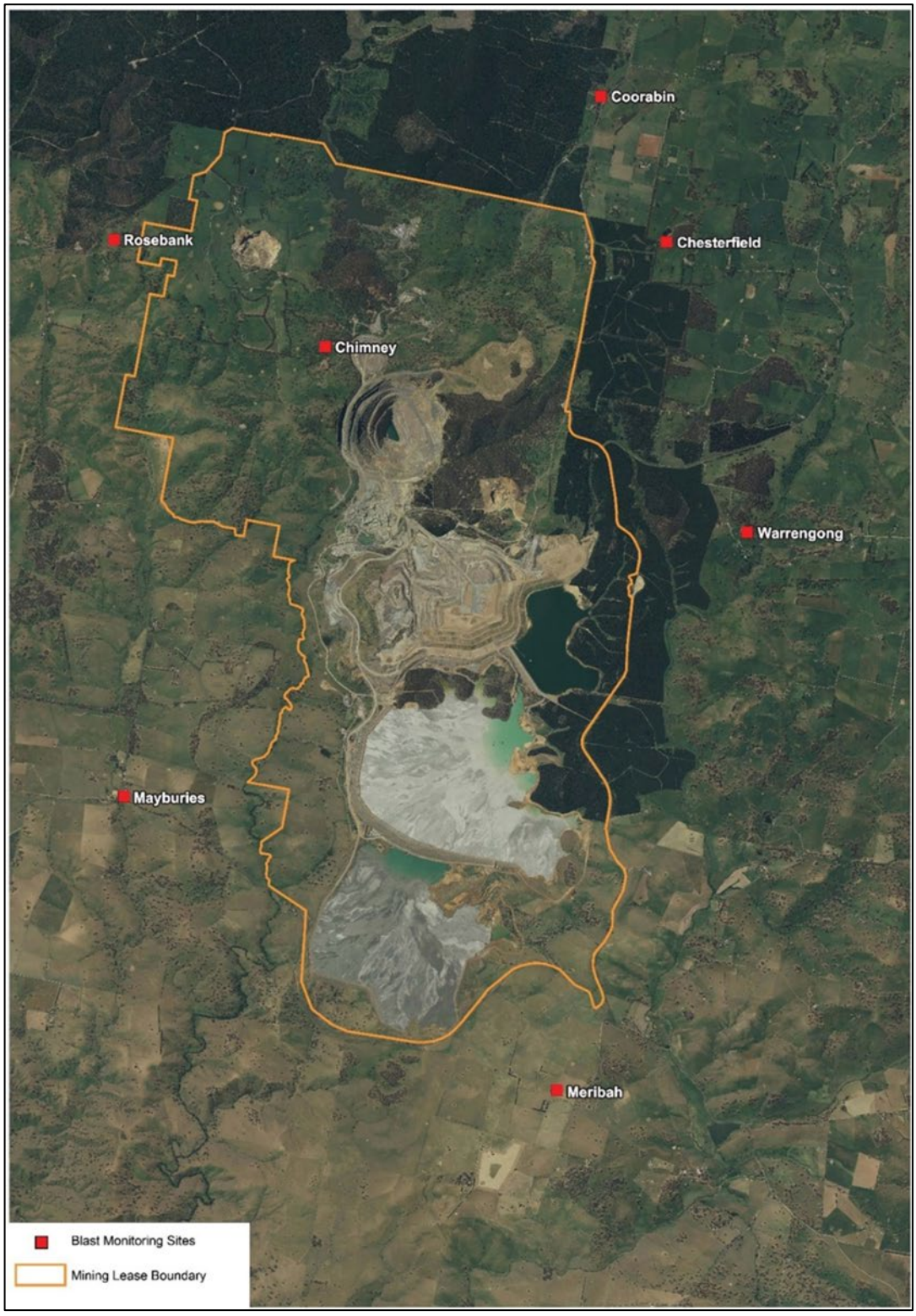

Figure 9-1 Blast and Vibration Monitoring Locations

9.2.2 BLAST AND VIBRATION ASSESSMENT CRITERIA

Table 9-1 provides a summary of blast impact assessment criteria as contained in the Cadia East PA (06_0295) and EPL5590.

Table 9-1 Project Approval and EPL Blast Impact Assessment Criteria

Station	Time	Overpressure (dBL)	Vibration (mm/s)	Exceedance Level
Residence on privately owned land	Any time	120	10	0%
	Day (7AM-6PM)	115	5	5% of total number of blasts over a 12-month period
	Evening (6PM-10PM)	105	2	
	Night (10PM-7AM), and all day on Sundays and Public holidays	95	1	
Heritage sites, including Cadia Engine House and Surround	Any Time	-	15	0%

9.3 PERFORMANCE OUTCOMES

During the reporting period, there was vibration at Warrengong and Chesterfield on 25/04/2023 at 6:31am that was above the night-time criteria, however, the vibration levels were within the allowable exceedance criteria over the 12 month period.

The annual percentage of blasts above the allowable exceedance criteria was 0% from July 2022 to March 2023, and 0.1% from April 2023 to June 2023. Table 9-2 shows the annual percentage of blasts above the allowable exceedance criteria, recorded for July 2022 to June 2023. The annual percentage of blasts did not trigger the 5% threshold, based on Section 2.4.1 of the approved Blast and Vibration Monitoring Program and the criteria outlined in the PA.

There were two community complaints due to blasting during the reporting period. One complaint was on the 23 July 2022 and one on the 30 April 2023. Cadia implemented the protocol under Schedule 2; Condition 15 of the Cadia East PA (06_0295), providing the residents with blasting data from the closest blast monitor. Cadia offered to install a temporary blast monitor at the property to understand the levels they may be experiencing as well as offering to conduct a structural audit to ensure an appropriate baseline.

During the reporting period, there were no blast related events to exceed the maximum allowable criteria set in the EPL 5590 and Cadia East PA (06_0295).

Table 9-2 Annual Percentage of Blasts above the Allowable Exceedance Criteria, Recorded for July 2022 to June 2023

Month	Total Number of Blasts	Number of Triggered Blasts and Seismic Events	Blasts Above Criteria	Seismic Related Exceedances	Percentage (%) Blasts Over Allowable Exceedance Criteria
Jul-22	52	0	0	0	0.0
Aug-22	40	1	0	0	0.0
Sep-22	81	1	0	0	0.0
Oct-22	88	1	0	0	0.0
Nov-22	87	1	0	0	0.0
Dec-22	76	0	0	0	0.0
Jan-23	75	0	0	0	0.0
Feb-23	76	1	0	0	0.0
Mar-23	86	0	0	0	0.0
Apr-23	87	1	1	0	0.1
May-23	103	0	0	0	0.1
Jun-23	69	16	0	0	0.1

9.3.1 COMPARISON AGAINST HISTORIC DATA

Figure 9-2 provides a summary of blast results for the previous 12 reporting periods. Investigations completed by Cadia personnel following previous exceedance events led to the modification of firing procedures in previous reporting periods. Following the implementation of the revised procedures, blast monitoring results have remained below the maximum criteria and below the 5% criteria since 2011/12.

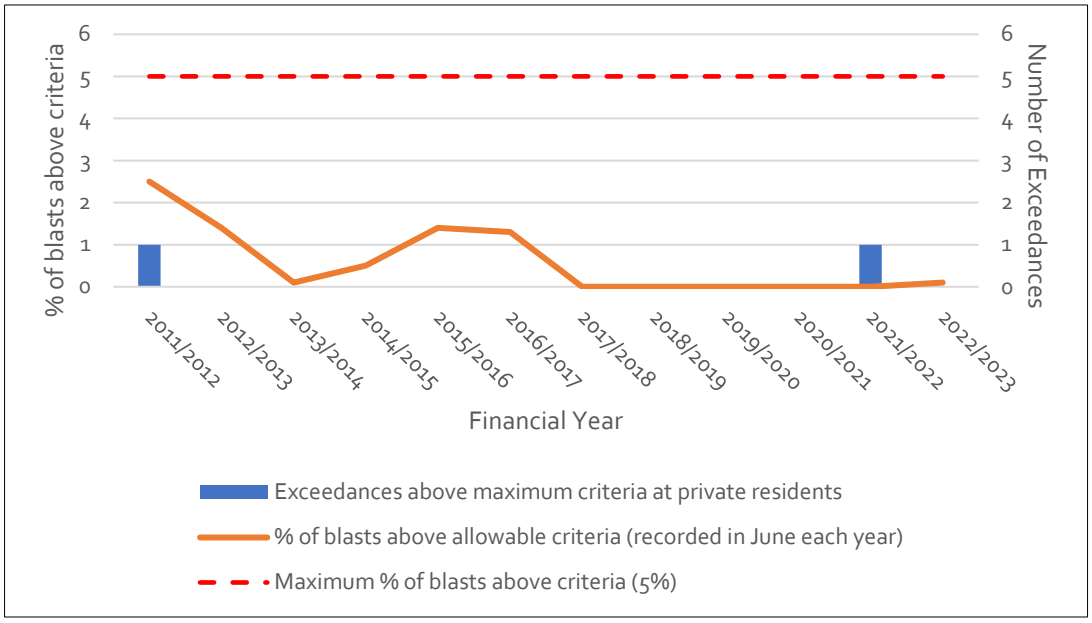

Figure 9-2 Long Term Blast Performance

Vibration limits at the Cadia Engine House and Chimney are set by the NSW Heritage Council under Section 60 of the *NSW Heritage Act 1977* which applies while approved

strengthening works are in place. The criteria are 25mm/s (5% allowable exceedance), 30mm/s (1% allowable exceedance) and 55mm/s (0% allowable exceedance) over any one calendar month. As part of routine monthly inspection and reporting requirements, compliance with vibration limits is analysed and reported. All monthly blasting percentiles were found to be within limits specified for the reporting year. Cadia protocols require that should a ground vibration reading at the Cadia Engine House and Chimney exceed 15mm/s, an additional inspection (additional to routine monthly inspections) must be undertaken.

9.3.2 COMPARISON AGAINST CADIA EAST PREDICTIONS

The Cadia East EA predicted that no private properties would experience blast vibration levels above the maximum vibration criteria. Blasting monitoring results for the past reporting period are in line with the Cadia East EA predictions. The EA predicted that several properties to the east of the operations (in the vicinity of Carbine Road) may experience blast vibrations levels up to 3.8 mm/s. It also predicted that exceedances above the 95th percentile are likely to occur if blasting was taking place during evening periods, night-time periods or on Sundays or public holidays. The results from this reporting period were lower than these predictions (see Figure 9-2).

9.4 FURTHER IMPROVEMENTS

Monthly blast monitoring reports are uploaded to the Cadia Valley Operations website.

Ongoing focus on the following aspects will continue into FY24:

- Variation and assessment of blasting times to ensure maximum levels are not exceeded, particularly during night-time periods; and weekends and public holidays;
- Periodic assessment of monitoring locations will continue throughout FY24 to confirm that the network remains representative of potentially affected stakeholders; and
- Geotechnical assessment of blast designs ongoing to ensure seismic events are not created as a result of firings.

10 NOISE

This section addresses operational noise as required by the Cadia East PA (06_0295) and EPL. Traffic noise is also included as required specifically by the Cadia East PA (06_0295).

Cadia operated in accordance with the revised Cadia Noise Monitoring Program (CHPL, 2018) during the reporting period. Cadia submitted a revised Noise Management Plan to DPE in March 2022 after a period of consultation with other regulators and agencies. This plan remains under review. To meet the requirements of the PA and EPL criteria, noise monitoring consists of unattended, attended and road traffic noise assessments conducted by Advitech Pty Ltd and provided on the Cadia website (https://www.cadiavalley.com.au/newcrest/cvo/environmental-management/monitoring).

10.1 MANAGEMENT PRACTICES

Noise investigations undertaken during the reporting period were used to guide the planning and implementation of noise mitigation measures, including:

- Acoustic assessment and noise mitigation of road traffic noise impact on surrounding properties, targeted as dwellings that may experience noise exceedances due to traffic;
- Refinements to the tailings dam dust mitigation program to limit the requirement for aerial spraying to that which is necessary to effectively control dust lift off from the tailings dam surface;
- Ensuring all operations during the night-time period are restricted to meet noise criteria through a more targeted approach with the relevant departments;
- Commissioning of a new noise monitoring system to provide real time feedback to operations on performance against noise criteria (implementation is scheduled to be complete in the next reporting period); and
- Ensuring any exceedance events are robustly investigated with actions implemented to prevent re-occurrence.

10.2 ENVIRONMENTAL PERFORMANCE

10.2.1 MONITORING

The Cadia noise monitoring locations are illustrated on Figure 10-1 and Cadia Dewatering Facility (CDF) noise monitoring locations on Figure 10-2.

Unattended real time noise monitoring data is the primary means of determining noise impacts on the Cadia community and is conducted using a mobile QuattroSound® directional noise monitor (Plate 10-1). The QuattroSound® monitor allows constant directional noise monitoring with the capability of audio recording and retrieval and is also used to monitor compliance with traffic noise criteria. Assessment of noise data is undertaken against PA and EPL criteria.

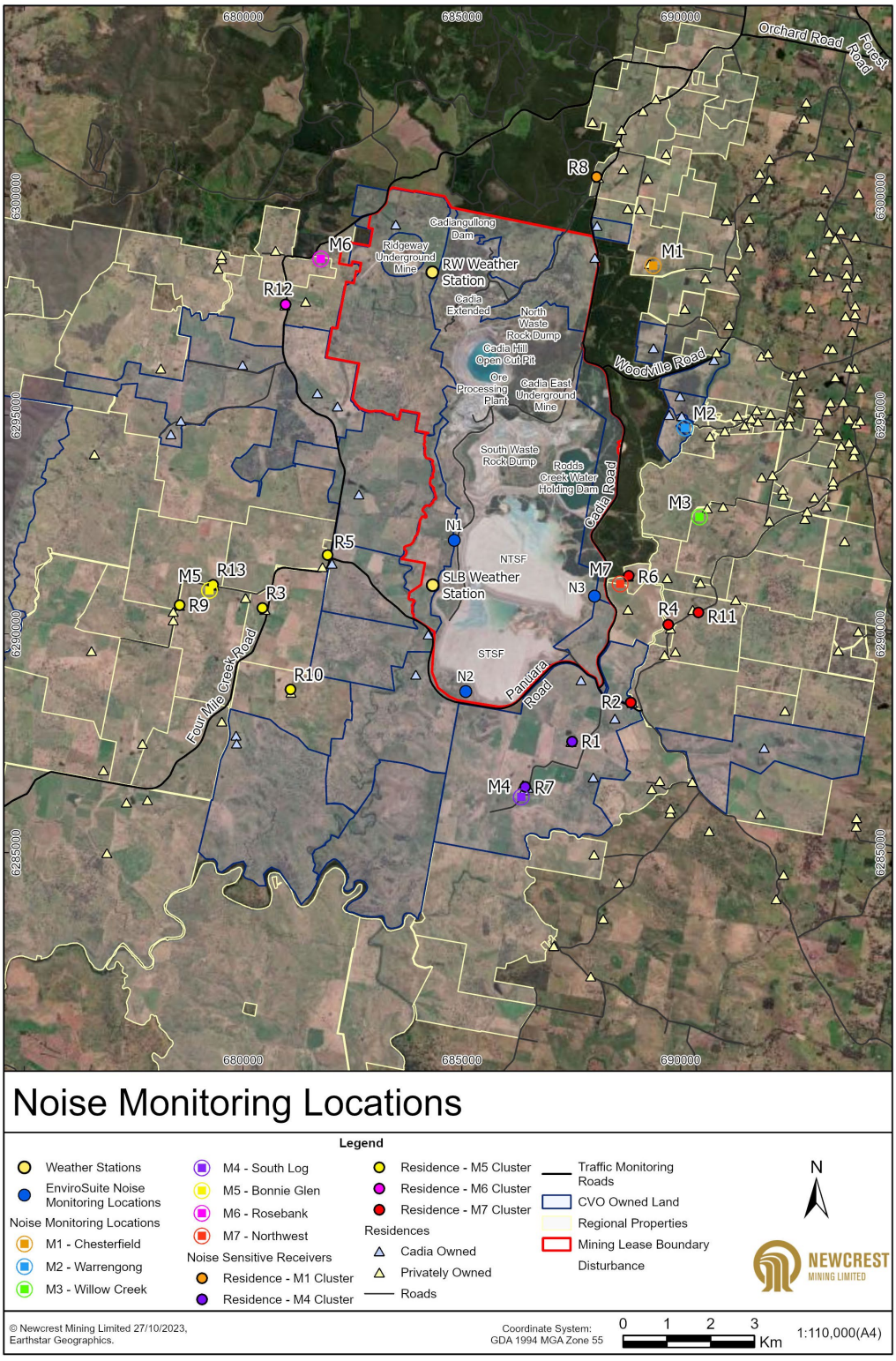

Figure 10-1 Cadia Mine Noise Monitoring Locations

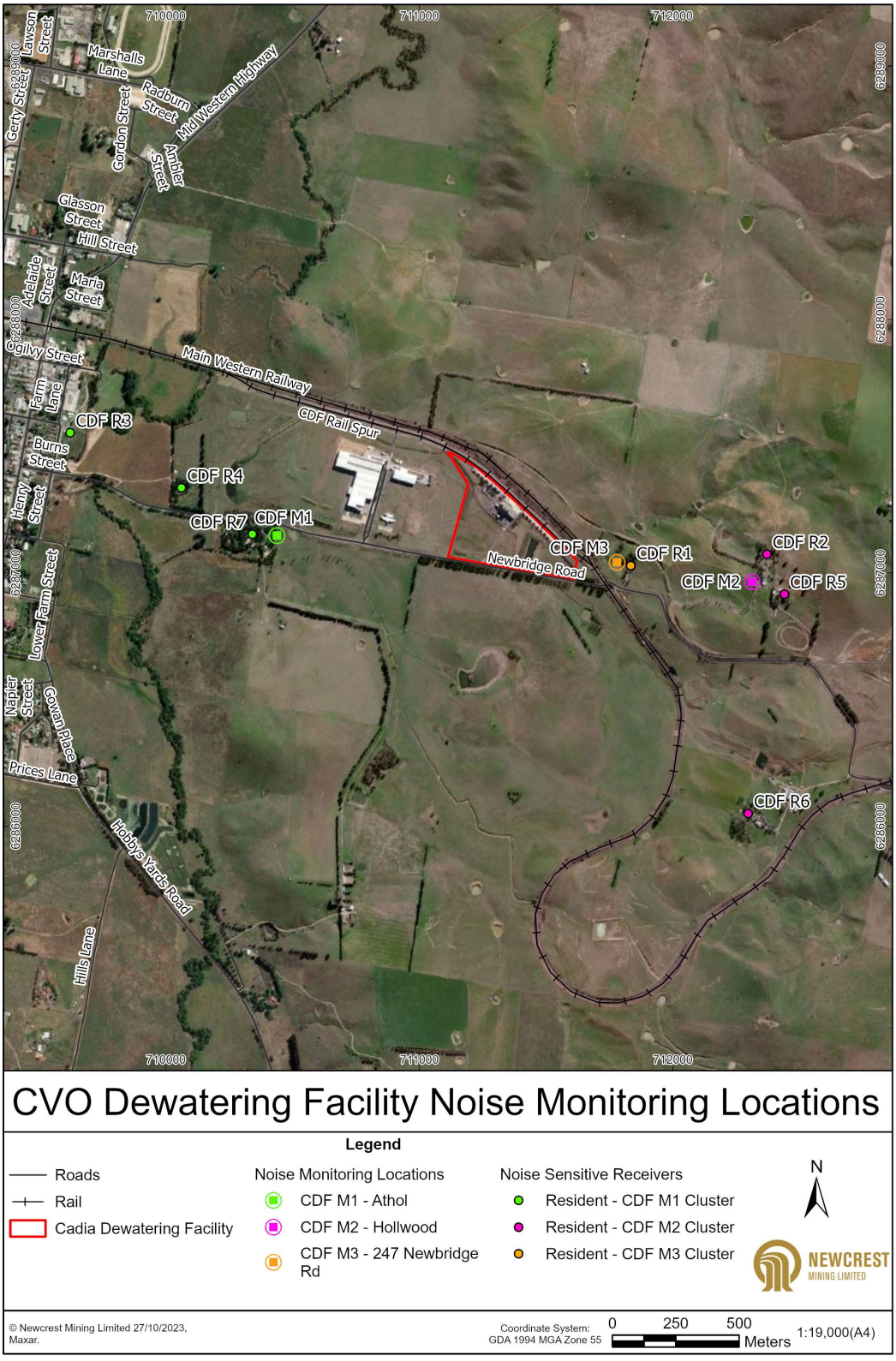

Figure 10-2 Cadia Dewatering Facility Noise Monitoring Locations

During the reporting period, Advitech Pty Ltd were engaged to undertake attended noise monitoring and assessment against compliance criteria. Attended noise monitoring is required quarterly and includes all monitoring sites as listed in the approved noise monitoring program. Monthly reports are available on the Cadia Website (www.cadiavalley.com.au). A summary of attended, unattended, and land acquisition criteria are provided below.

Plate 10-1: Quattrosound Directional Noise Monitor

10.2.2 NOISE ASSESSMENT CRITERIA

Table 10-1 details the noise impact assessment criteria as required under PA Schedule 3, Condition 2 and Table 10-2 details the traffic noise impact assessment criteria as listed under Schedule 3, Condition 5.

Table 10-1 : Noise Impact Assessment Criteria dB(A) LAeq (15min)

Location	Day	Evening	Night	Night ($L_{A1\ (1\ min)}$)
Mining Operations				
41-CW Knox ('Meribah'), 43-CJ Healey ('Triangle Park'), 138-AC & A Bailey ('Mayburies'), 45-CC Colman ('Mirrabooka'), 246-CK Channell and KP & DV Donlan ('Eastburn'), 209-JI McLennan ('Northwest'), 171-GA Knox ('South Log')	43	38	38	45
1-GT & JA Christou ('Coorabin'), 137-MP & LA Ellis ('Argyle'), 169-RL & SL Chamberlain ('Weemalla')	43	38	37	45
44-AR Colman ('Triangle Flat'), 105-KA Hughes ('Barton Park'), 133-LC & LR Baker ('Bonnie Glen')	43	38	36	45
Other privately owned land	43	38	35	45

Location	Day	Evening	Night	Night ($L_{A1\ (1\ min)}$)
Cadia Dewatering Facility				
MC & PA Ewens	50	42	42	45
GP Nixon & Sons	43	35	35	45
D Palmer	40	39	35	45
H Tetlaw	40	36	35	45
ML Gardner	40	35	35	45
GJ Keen	39	35	35	45
D Somervaille	38	38	35	45

Table 10-2 Traffic noise impact assessment criteria dB(A)

Road	Day/Evening	Night
Forest Road, Orange Road, Cadia Road	60 $L_{Aeq\ (15\ hours)}$	55 $L_{Aeq\ (9\ hours)}$
Orchard Road, Four Mile Creek Road, Woodville Road, Panuara Road	55 $L_{Aeq\ (1\ hour)}$	50 $L_{Aeq\ (1\ hour)}$

10.3 PERFORMANCE OUTCOMES

A summary of noise exceedances during the reporting period is provided below in Table 10-3.

Table 10-3 Noise Exceedances 2022-23

Date / Report	Noise Criteria	Attended / Unattended	Noise Emission Source	Location of Assessment
Aug-2022	LAeq (15 minutes)	Unattended	Contributions from mobile plant engine noise within the Cadia Mine. This resulted in 7x exceedances of the 15-minute NIAC, on three separate nights. The nights of the 6 and 13 August 2022 are part of the VR14-1 incident response. As these dates are covered by Negotiated Agreements for VR14-1 they are not deemed as reportable i.e., the 2 exceedances on 1 August 2022 are the only reportable exceedances.	2x Warrengong
Dec-2022	LAeq (15 minutes)	Unattended	Contributions from train movements at the CDF were observed at levels up to 2dBA above the NIAC during 2x15-minute samples	2x Hollwood
Jan-2023	LAeq (15 minutes) Sleep Disturbance Criteria	Unattended	Train movements associated with the CDF generated noise levels that were non-compliant with the NIAC on 3x-15-minute occasions. 2x Exceedances of the Sleep Disturbance criteria	5x 247 Newbridge Rd, Blayney

Date / Report	Noise Criteria	Attended / Unattended	Noise Emission Source	Location of Assessment
Feb-2023	LAeq (15 minutes)	Unattended	Noise from light aircraft involved in aerial dust suppression on the TSF were observed to exceed the day period NIAC by more than 5dBA during 10x 15-minute samples.	10x Northwest
May-2023	LAeq,period LA1, 1minute	Unattended	Contributions from transportation sources (road and rail traffic). 4x Sleep Disturbance 17x 15-min NIAC	1x Athol 7x Hollwood 13x 247 Newbridge Road
Jun-2023	LAMax (Sleep Disturbance Criteria)	Unattended	LAMax results associated with train arrivals were above the Sleep Disturbance noise criteria level on 3 nights.	3x Athol

Table 10-4 Summary of Attended, Unattended and Land Acquisition Criteria

Monitoring	Location	Compliant with Impact Assessment Criteria		
		Attended	Unattended	Land Acquisition
Mining Operations	Warrengong	YES	NO	YES
Mining Operations	Willow Creek	YES	YES	YES
	South Log	YES	YES	YES
	Bonnie Glen	YES	YES	YES
	Rosebank	YES	YES	YES
	Northwest	YES	NO	YES
	Chesterfield	YES	YES	YES
Cadia Dewatering Facility	247 Newbridge Road	YES	NO	YES
	Hollwood	YES	NO	YES
	Athol	YES	NO	YES
Road Traffic Noise	216 Long Swamp Road	NA	NO	NA
	121 Long Swamp Road	NA	NO	NA

10.3.1 ATTENDED NOISE MONITORING

Attended noise monitoring was undertaken in September and October 2022 and January and May 2023. Observed noise levels did not exceed the cumulative criteria at any of the noise monitors during the assessments within the reporting period.

10.3.1.1 Comparison against historic data

Table 10-5 presents the long-term noise monitoring performance over time. Details of previous attended noise assessments can be found of the Cadia Valley website (http://www.cadiavalley.com.au).

Table 10-5 Attended Noise Monitoring Long Term Performance

Reporting Period	Compliant Against Criteria	
	Attended Noise Monitoring (Round 1)	Attended Noise Monitoring (Round 2)
2014-15	YES	YES
2015-16	YES	YES
2016-17	YES	YES
2017-18	YES	YES
2018-19	YES	NO
2019-20	YES	YES
2020-21	YES	YES

Reporting Period	Compliant Against Criteria	
	Attended Noise Monitoring (Round 1)	Attended Noise Monitoring (Round 2)
2021-22	NO	NO
2022-23	YES	YES

10.3.2 UNATTENDED NOISE MONITORING

The Warrengong location had non-compliant exceedances during August 2022 (7x 15 minute) caused by mobile plant engine noise within the Cadia operations.

During December 2022, unattended noise monitoring found 2 non-compliant exceedances at the Hollwood location near the CDF. Assessment of the short-term high-level noise events associated with train movements at the CDF indicates exceedance of Sleep Disturbance criteria established in the PA.

During January 2023, noise from CDF generated train movements were observed to exceed the relevant Noise Impact Assessment Criteria (NIAC) on 3 occasions at the Newbridge Road monitoring location. Exceedances of the Sleep Disturbance criteria were also observed on 2 occasions at this receiver.

Unattended monitoring conducted at the Northwest location throughout February resulted in a non-compliance due to noise exceedances triggered by aerial dust suppression. On 10 x 15 minute occasions the light aircraft generated noise levels which exceeded the NIAC by more than 5dB. These results are non-compliant with limit conditions established in Condition 2 (Schedule 3) of the Cadia East PA (06_0295).

During the May unattended monitoring, non-compliant exceedances occurred at both the Newbridge Road Blayney location as well as the Hollwood location, both located near the CDF due to train arrivals and movements. Prolonged idling of a locomotive prior to its departure also contributed levels above the evening period Cumulative Noise Criteria on 1 occasion at this receiver.

During the June unattended monitoring, non-compliant exceedances of the sleep disturbance criteria occurred at the Athol monitoring location located near the CDF due to train movements.

10.3.2.1 Comparison against historic data

Figure 10-3 below provides a summary of long-term operational noise performance since 2011-2012. There were 53 total noise exceedances (individual 15-minute exceedance periods) during the current reporting period.

Noise exceedances during the reporting period were attributed to operations at Cadia (31) and operations at the CDF (22).

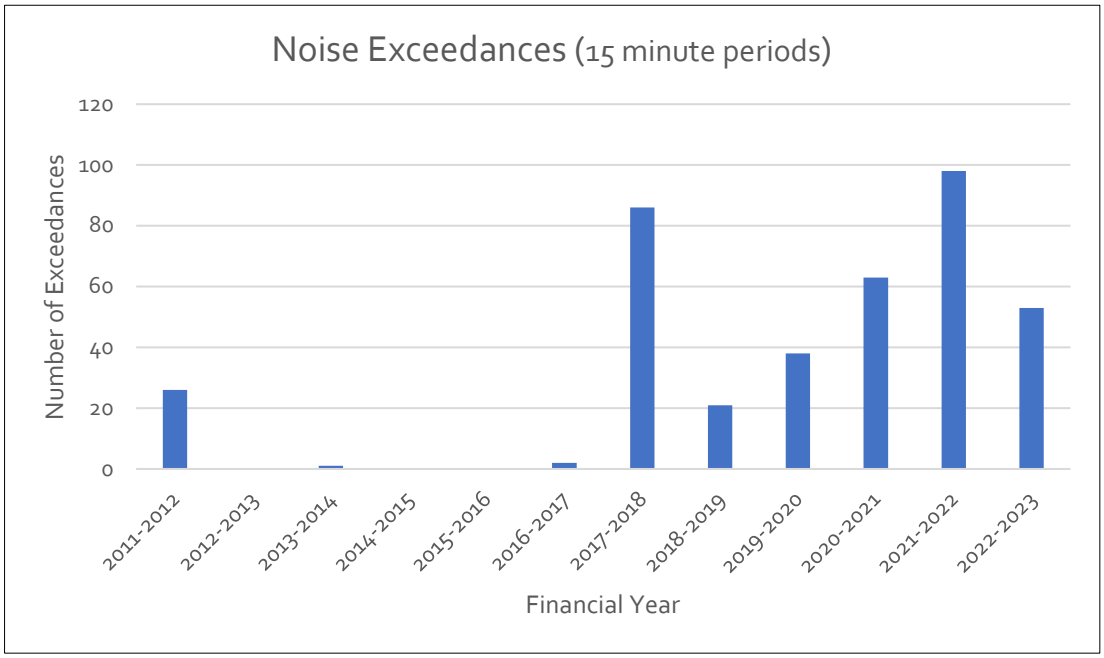

Figure 10-3 Long Term Operational Noise Exceedances

10.3.2.2 Comparison against EA predictions

Noise assessment for the project was undertaken by Wilkinson Murray (Report No:18427-B, Version A, 19/11/20) and is contained within the MOD 14 Application. Table 10-6 presents a summary of operational noise monitoring results against EA predictions.

Table 10-6 Operational Noise Monitoring against EA Predictions

EA Prediction	Monitoring Results	Discussion
Mod 14 Operational noise predictions associated with the proposed upgrades indicate that noise levels comply with the impact assessment criteria at all identified privately-owned receivers	Operational exceedances were recorded during FY22/23 reporting period	Exceedances are related to CDF train movements, engine noise from mobile plant within Cadia mining operations, and low flying aircraft which are inconsistent with EA predictions.

10.3.3 TRAFFIC NOISE MONITORING

Traffic noise monitoring was undertaken at six residences during the reporting period. Residences were located on Orchard Road and Cadia Road.

Mitigation assessments have been completed for 3 residences that experienced traffic noise exceedances, with mitigation options being implemented as agreed with the landowner.

Mitigation assessments are pending for the remaining 2 residents that experienced exceedances. 1 residence identified no exceedances therefore no mitigation was required.

10.3.3.1 Comparison against EA Predictions

The traffic noise assessment was prepared in accordance with the NSW Environmental Criteria for Road Traffic Noise.

Table 10-7 Traffic Noise Monitoring against EA Predictions

Cadia East EA Prediction	Monitoring Results	Discussion
Traffic noise predicted to be compliant with criteria on Cadia Road for the life of the project (except for Cadia Road south of Woodville Road)	Exceedances of the road traffic noise impact assessment criteria were identified at 5 of the 6 monitoring locations during the reporting period.	It Is likely that the inconsistency between EA predicted traffic noise exceedances and actual exceedances is due to differing assessment methods. Rather than undertaking detailed noise modelling of the road networks around Cadia, Wilkinson Murray used the methodology outlined in the NSW Environmental Criteria for Road Traffic Noise (EPA 1999) which assesses whether there would be a significant increase (> 2dB(A)) during assessment periods. This methodology does not consider the pre-existing traffic conditions associated with Cadia operations, and, as such, may exclude some roads where traffic noise has previously been identified as an issue (i.e., Cadia Rd where a 1 dB (A) increase was predicted and as such was not further assessed). Future exceedances are likely based on the above assessment method.
The re-aligned Cadia Rd (south of Woodville Rd) would exceed the allowable 2 dB (A) increase from year 7.	NA	Future monitoring will assess the accuracy of this prediction

10.4 KEY PERFORMANCE AND/OR MANAGEMENT ISSUES

There were three community complaints received from residents relating to noise during the reporting period. These complaints were received in August, October, and November of 2022. All complaints were in relation to operational noise from the mining operations. During the reporting period, no complaints were received by Cadia regarding operational noise caused by operations at the CDF.

This compares with nine community complaints received in the 2021/22 reporting period, two complaints received in the 2020/21 reporting period, and no noise complaints received in the 2019/20 reporting period.

A long-term trend analysis of community complaints regarding noise is shown on Figure 10-4.

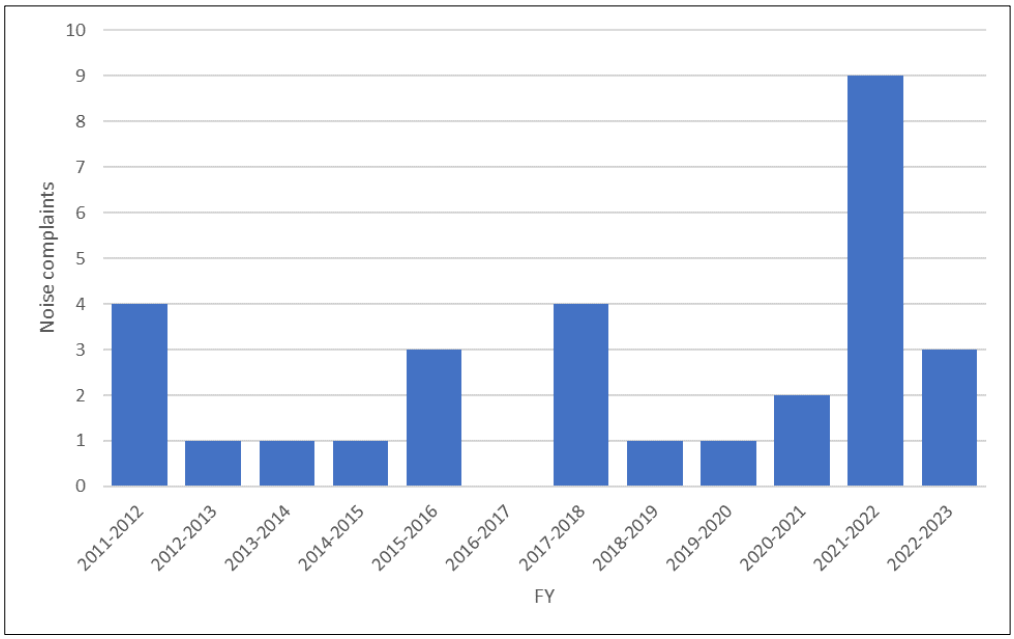

Figure 10-4 Annual Noise Complaints FY12-23

10.5 FURTHER IMPROVEMENTS

In accordance with the Cadia East PA (06_0295), Cadia has continued to use the noise improvement initiatives reported in previous years to reduce traffic and operational noise. These initiatives will continue to be implemented and refined as required to further improve the noise performance of the operations. These improvements are outlined in Table 10-8.

Table 10-8 Noise Improvement Strategies

Noise Source	Ongoing Noise Improvement Initiatives	New Noise Improvement Initiatives
Traffic Noise	During normal operations (outside of COVID-19 restrictions) Carpooling incentives and reminders for employees (particularly during shutdown periods). Commitment to increase the use of buses for Cadia Expansion Project (CXP) crews and shutdown workers.	Cadia has purchased a second noise trailer to increase the quantity of road traffic noise assessments completed each year. Monitoring locations increased from 4 to 6 locations. Permanent daily buses have been implemented for the majority of employees and contractors. These buses travel from Orange, Bathurst, Blayney and Millthorpe.
Operational Noise	Use of Quattro sound audio recording to further identify contributing noise sources.	Cadia is currently commissioning a new noise monitoring system to provide real time feedback to operations on performance against noise criteria (implementation is scheduled to be complete in the next reporting period).
CDF	Assessment of CDF operated train movements. Noise mitigation options provided to individual landholders of impacted properties.	Cadia will continue to consult with individual landholders regarding opportunities for mitigation.

11 VISUAL

The Cadia East PA (06_0295) (DPE, 2010), Schedule 3 Condition 48, requires Cadia to implement additional visual impact mitigation measures if they receive a request from a privately-owned landholder who has significant direct views from a residence towards the mining operations. This is to be conducted in consultation with the landholder and to the satisfaction of DPE.

No requests from members of the community were made during the reporting period. Considerable vegetation screening has previously been undertaken in the vicinity of Cadia and is being established adjacent to the Cadia Dewatering Facility (CDF).

Cadia is also required, under Condition 49, to implement all reasonable and feasible measures to mitigate visual and off-site lighting impacts of the project and ensure that all external lighting complies with Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting.

11.1 MANAGEMENT PRACTICES

Cadia identifies potential fugitive lighting sources, mitigation measures and responsibilities for implementing the mitigation controls. Using internal management systems, actions are assigned for the robust implementation of these agreed mitigation measures.

The performance targets are:

- To have zero complaints regarding fugitive lighting from nearby residences; and
- For all employees and contractors to be fully aware of lighting issues, suitable placement of lights and directional positioning to minimise impacts on the surrounding community.

11.2 PERFORMANCE OUTCOMES

11.2.1 MINE OPERATIONS

During the reporting period, 1 complaint for fugitive lighting was received on the 22 October 2022 at 8:30pm. The complaint was received via text overnight and followed up in the morning. The Surface Operations supervisor inspected and redirected any lighting plants that may have caused the fugitive lighting and sent a crew the following evening to ensure it had been rectified.

11.2.1.1 Comparison against historic data

Long term trends for fugitive lighting complaints are presented in Figure 11-1.

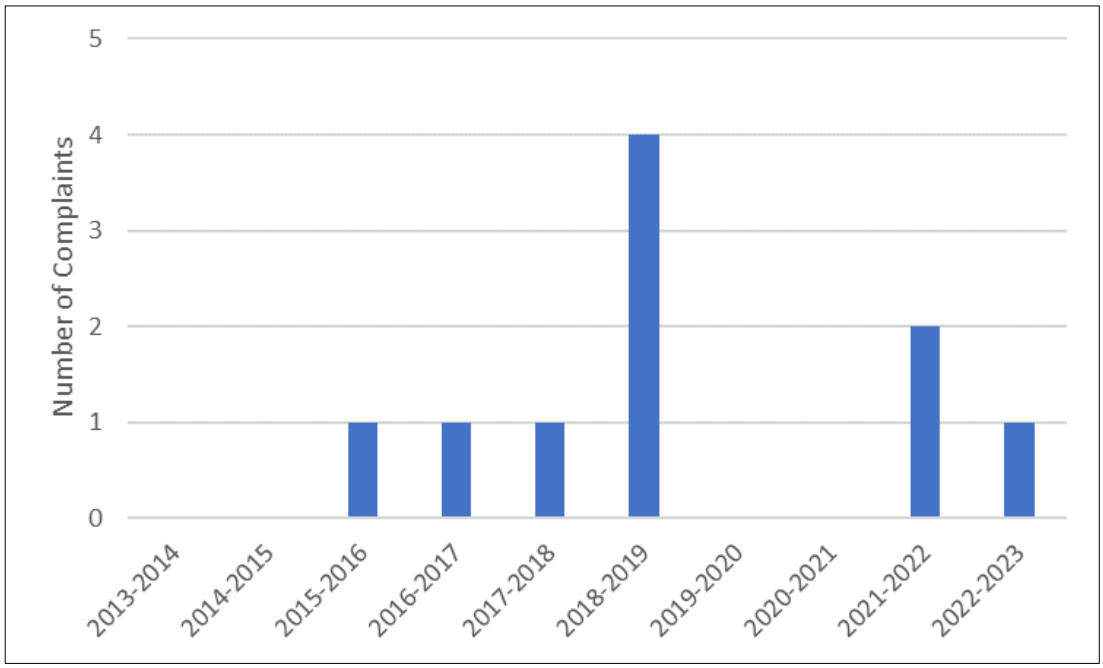

Figure 11-1 Fugitive Lighting Complaints (2013 – 2023)

11.2.2 CADIA DEWATERING FACILITY

No complaints in relation to lighting were received from residents in the vicinity of the CDF during the reporting period. Key Performance and/or Management Issues

One fugitive lighting community complaint was received during the reporting period in relation to light shining towards Panuara/Four Mile Creek, which was resolved in consultation with the resident. All lighting plants in the area were inspected and redirected if required and inspected the following evening to ensure fugitive lighting was minimised.

11.3 FURTHER IMPROVEMENTS

As part of the site's Environment Management System, fugitive lighting and impact controls will be included in upcoming training and awareness packages. Additional improvements related to fugitive lighting include:

- Complete planting (and replacement planting as required) to fully implement the approved Landscape Management Plan at the Cadia Dewatering Facility;
- Restriction of night work particularly on Tailings Dam construction activities; and
- Fugitive lighting awareness incorporated into daily checks by all relevant departments.

12 BIODIVERSITY

12.1 ENVIRONMENTAL PERFORMANCE

12.1.1 THREATENED FLORA

Any impacts on threatened species were assessed using the vegetation clearance protocol, Threatened Species Management Protocol , and Threatened Species Management Strategy (Superb Parrot and Squirrel Glider) as per the LBMP (CHPL, 2017).

No threatened flora was identified prior to disturbance activities during the reporting period.

12.1.2 THREATENED FAUNA

Fauna management strategies used on site have been discussed in the previous AEMRs and are outlined in detail in the LBMP (CHPL, 2017). These strategies were implemented for the reporting period and will continue over the next 12-months. Strategies include the Vegetation Clearance Protocol, which requires inspection of vegetated areas where animal habitat is likely prior to any site clearance work.

12.1.3 WEEDS

Where weeds are declared noxious, Cadia has implemented control measures as per the respective control requirements (*Biosecurity Act 2015* or local control authority management plan) for that weed. Environmental and other problem plants have been managed and controlled to minimise spread, reduce impacts on neighbouring properties, reduce seed sources and progressively reduce the size of populations.

Problem areas are identified through regular inspections by environmental staff and contractors. A contract works program is in place for the control of noxious and environmental weeds.

During the reporting period, weed control across Cadia focused mainly on Blackberry, St John's Wort, Patterson's Curse, Serrated Tussock, Scotch thistle, Bathurst Burr, Sweet Briar, and Sticky Nightshade. General knockdown applications were made around infrastructure including pipelines, substations, buildings, tanks etc. to reduce the accumulation of grass / litter.

12.1.4 PEST ANIMAL CONTROL

Cadia monitors the incidence of cats, foxes, feral pigs, deer, kangaroos, rabbits and rodents on site. The existing vertebrate pest control program has been continued and is summarised in Table 12-1

During the 2022/2023 financial year a kangaroo reduction program was undertaken on farming areas, with 1026 Eastern Grey Kangaroos commercially harvested under the

Kangaroo Management Program administered by the Department of Planning and Environment. During the reporting period, 28 deer were harvested.

Table 12-1 Vertebrate Pest Control Program

Animal	Control Measures
Rabbits	No control programs were conducted during the reporting period.
Feral Cats	Trapping and destruction conducted as required based on observations and reports.
Rodents	Pest control company engaged for on-going pest management services. Conducted at Cadia, Ridgeway and surrounding areas. Conducted on all Cadia owned residences. Complies with National Parks and Wildlife Service Regulations.
Kangaroos	1026 kangaroos had been commercially harvested under the *Biodiversity Conservation Act* 2016.
Feral Pigs	A targeted trapping program was conducted on Cadia farms during the reporting period, with approximately 50 pigs destroyed. Ongoing monitoring of feral pigs continued throughout the reporting period.
Deer	28 deer were commercially harvested through a targeted shooting program.

12.1.5 BUSHFIRE MANAGEMENT

The Bushfire Management Plan (CHPL, 2014) remains current and describes a program of works to reduce the impact of bushfires on Cadia assets and to reduce the likelihood of bushfires escaping Cadia managed land onto neighbouring properties.

A bushfire management plan remains current for the Black Rock Range Conservation Offset Area. The plan incorporates cool burning practices (season dependent) into the management of hazard reduction with a primary focus on biodiversity outcomes.

A Farmland Bushfire Fuel Management Plan (CHPL, 2015) for Cadia's farming areas has been completed and guides the management and reduction of bushfire fuels in the lead up to the bushfire season. The priority is to reduce fuel loads around infrastructure and houses, predominantly using targeted grazing techniques.

12.2 FURTHER IMPROVEMENTS

Due to the performance of the Cadia biodiversity management program in FY22 (no reportable exceedances and no community complaints) no further improvements have been identified during the reporting period.

13 HERITAGE

The Cadia Aboriginal Cultural Heritage Management Plan (ACHMP) was reviewed and updated following the Modification 14 determination during the FY22 reporting period and this was approved by DPE on 4 July 2022. The Cadia Historical Heritage Management Plan (HHMP) for Cadia was reviewed and updated following the Modification 14 determination during the FY22 reporting period and this was approved by DPE on 30June 2022.

13.1 MANAGEMENT PRACTICES

The following management practices were implemented during the reporting period:

- Continue vibration monitoring and monthly inspections as per conditions of consent;
- Continue annual Cadia Engine House and Chimney inspection;
- Monitor condition of stonework at split embedded timber at top of internal wall;
- Monitor termite baiting stations;
- Particularly monitor the small free-standing wall northwest of the engine house for mortar deterioration;
- Particularly monitor cracking in the east wall and the crusher house north wall.

13.2 ENVIRONMENTAL PERFORMANCE

13.2.1 MONITORING

Monthly inspections continued to be undertaken throughout the reporting period by an authorised person and by an annual inspection by an engineer under Section 60, Application No. 02/s60/143. Monthly reports are sent to the NSW Department of Planning and Environment: Office of Environment and Heritage, consultant archaeologist, heritage engineer and internally to Cadia management.

13.3 PERFORMANCE OUTCOMES

13.3.1 CADIA ENGINE HOUSE AND CHIMNEY

Monthly inspections did not indicate any significant damage over the reporting period.

In December 2012, Cadia applied to extend the life of the strengthening works on the chimney, engine house and crusher room for a further five years. This was a means of providing ongoing protection to the structures while mining (and potential ground vibration) continued at Ridgeway Deeps and Cadia East. In November 2018, the OEH (Heritage Division) (letter dated 19 November 2018) endorsed a further extension until 31 December 2023. As per recommendations within the HHMP, Cadia will seek to extend the approval to retain the strengthening infrastructure for a further five years.

As part of the ongoing monitoring of the engine house and chimney, AC Been Consulting Engineers Pty Ltd undertook the annual inspection to assess the condition of the heritage

buildings and strengthening structures. The 2023 inspection was undertaken on 16 May 2023.The following is a summary of main findings:

- There has been no significant damage since the last inspection of October 2022, or since photographic recordings of 2003/2004. However as noted previously there is evidence of ongoing deterioration.
- The main steel structure on top of the Engine House is supported on sand/cement bags on the top of the walls. Most of the bearings were adequate. These bags should be checked again at the next annual inspection.
- The freestanding remnant wall between the chimney and the engine house is currently stable. Geofabric and tarpaulins over the remnant wall have been replaced to reduce further weathering.
- External pavement and retaining walls were inspected. Sandbags and rendered geofabric have been installed along the pavement edge. Aerial (drone) mapping of the current boundary of the paving is recommended.
- The steel Crusher House window bracing is in good condition.

13.3.1.1 Update to Conservation Management Plan for SHR779

The conservation management plan (CMP) received full endorsement by Heritage NSW in September 2021. A site visit was conducted in May 2022 with representatives from ICS and Mott MacDonald to provide a detailed engineering inspection and design for remedial works and to plan and implement recommendations arising from the CMP.

13.4 KEY PERFORMANCE AND/OR MANAGEMENT ISSUES

No performance and/or management issues occurred during the reporting period.

13.5 FURTHER IMPROVEMENTS

The following actions have been identified in the annual report:

- Monitor condition of stonework at split embedded timber at top of internal wall and dimensions of vertical cracks in internal east and west walls;
- Particularly monitor the small free-standing wall north-west of the engine house for mortar deterioration (unless covered in geofabric and tarpaulins);
- Particularly monitor cracking in the engine house east wall and the crusher house north wall;
- Monitor Denso wrap to projecting anchor cables at Chimney and bracing structures and replace when deteriorated;
- Replace or repair sandbags at the gable top;
- Install new sandbags at window openings on north and east walls of the Engine House;
- Mortar pack around loose stone on internal face of west and north walls of Engine House;
- Detailed engineering inspection and design for remedial works.

14 WASTE MANAGEMENT

Waste is managed in accordance with EPL5590. Waste is not permitted to be received at the premises, except for General solid waste (non-putrescible), wood waste, waste tyres, drilling muds and muddy waters, biosolids (categorised as unrestricted use or as restricted use 1, 2 or 3).

14.1 MANAGEMENT PRACTICES

Cadia currently implements a Total Waste Management Contract (TWMC) where the following principles are implemented regarding waste disposal:

- All waste materials are to be disposed of off-site except for heavy vehicle tyres and inert materials such as timber, broken concrete, and geological samples;
- Waste materials, which cannot be either re-used or recycled, are to be sent to a licenced landfill that can accept that category of waste; and
- Only transporters that are appropriately licenced by the relevant regulator will be contracted to remove waste from site.

14.2 PERFORMANCE OUTCOMES

Cadia records waste volumes of transported waste in accordance with the TWMC. Table 14-1 states the waste volumes, by type, produced in the last reporting period.

Table 14-1 FY23 Waste Volumes

Type	Volume	Unit
Recycled Material	7440	tonnes (t)
Waste to Landfill (Licenced)	1651	tonnes (t)
HV Tyres	392	tonnes (t)
Liquid Waste Recycled (Oil, Grease, Coolant)	614	tonnes (t)

14.2.1 COMPARISON AGAINST HISTORIC DATA

Figure 14-1 presents the historical volumes of general waste sent to landfill since FY07. The primary increase in waste was due to the commencement of construction works on site, including the PC2-3 development and the Molybdenum Plant construction from 2020 onwards. Further, expansion activities throughout 2020 to 2023, surface construction and underground development resulted in higher volumes of waste generated.

A changeover in TWMC owners occurred in January 2023. Waste segregation initiatives have resulted in a reduced volume being directed to landfill in FY23.

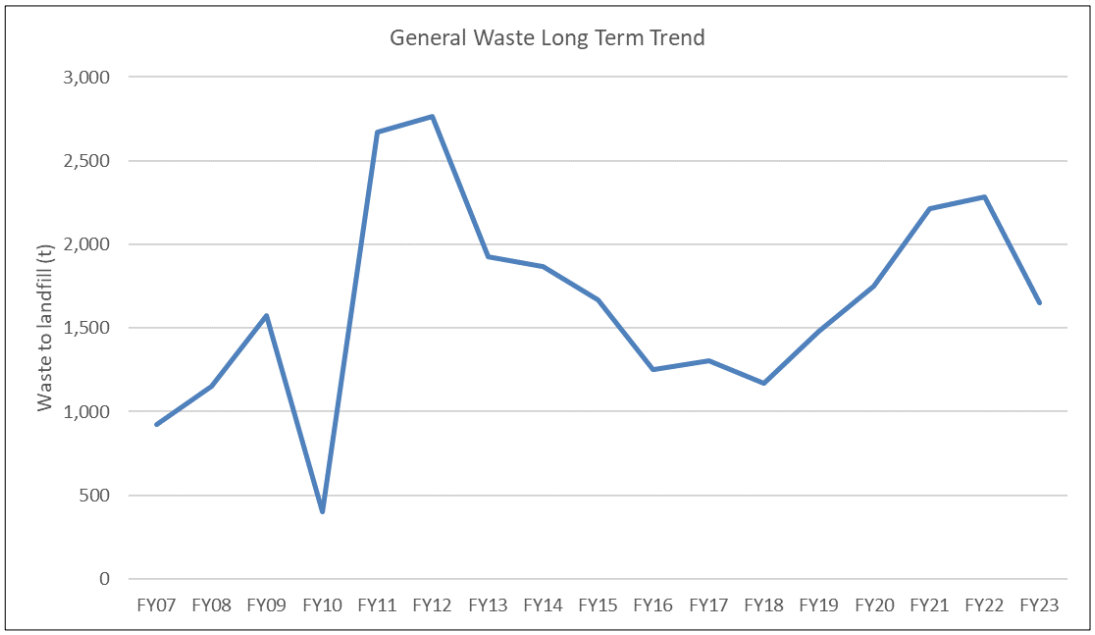

Figure 14-1 Long Term General Waste Volumes

Cadia aims to recycle at least 65% of total waste volumes treated offsite (by weight). Figure 14-2 shows the rolling annual average volumes of waste (by percent) recycled or reused.

Due to improved recycling efforts on-site and retrieval of recyclable materials from general waste, total volume of waste recycled increased in FY23. Initiatives positively impacting recycling volumes include:

- Improved on-site segregation of recyclable materials; and
- Recovery of reusable items from general waste through frequent auditing of waste facilities

Factors including construction, development and shutdowns can impacts the amount of recyclable material on-site.

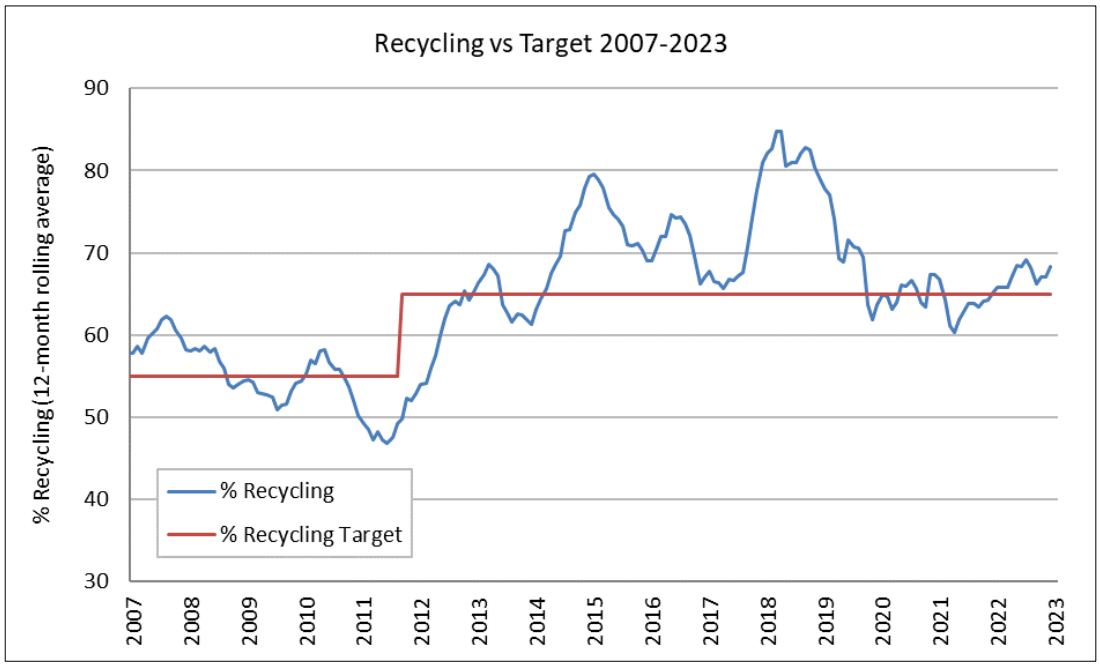

Figure 14-2 Annual Average Recycling FY 2007-2023

14.2.2 COMPARISON AGAINST EA PREDICTIONS

Figure 14-3 compares the Cadia East EA predicted waste volumes to the FY23 reporting period actual waste volumes.

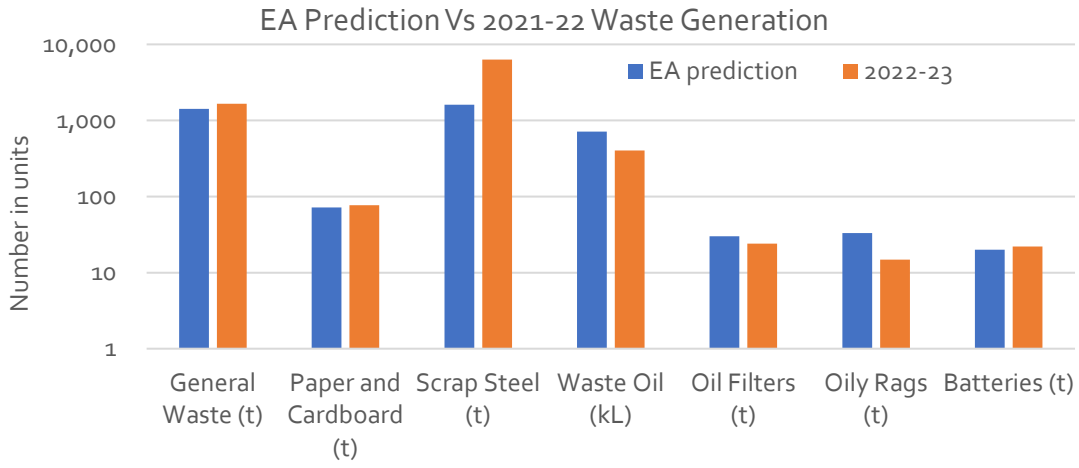

Figure 14-3 Cadia East EA Waste Predictions vs FY23 Actual Volumes

14.3 KEY PERFORMANCE AND/OR MANAGEMENT ISSUES

Factors including construction, development and shutdowns can impact the amount of general waste generated each year. An increase in general waste disposed in landfill since 2018 has been identified and is being actively addressed as outlined in Section 14.1.4.

14.4 FURTHER IMPROVEMENTS

Improvements proposed for the next reporting period are to:

- Drive culture of waste minimisation at the source (involving suppliers of goods and on-site services)
- Continue to investigate further waste recycling opportunities
- Investigate rubber recycling programs specifically targeting conveyor and ancillary rubber waste
- Identify repurpose opportunities for inert timber and concrete waste

15 CHEMICAL AND HYDROCARBON MANAGEMENT

In accordance with the Hydrocarbon & Chemical Management Plan (CHPL, 2019), all storage facilities for chemical and hydrocarbon (packaged and bulk) products (including waste products) shall meet, at a minimum, Australian Standards AS1940:2004 "*Storage and Handling of Combustible and Flammable Liquids*" and the requirements set by Work Cover NSW – *Dangerous Goods Notification NDG:032801*.

These conditions are assessed during routine site based environmental inspections and if any non-compliances are identified (mostly relating to temporary bunding or bunding of packaged goods) they are addressed using the on-site incident management system, Community, Health, Environment, Safety and Security System (CHESS).

15.1 MANAGEMENT PRACTICES

As a means of reducing potential soil and water contamination, Cadia is committed to the assessment, control, containment, clean-up and reporting of spills across site. Spills with the potential to cause environmental harm are reported as per EPL 5590. Where there is a potential threat to human health or serious environmental harm the incident is reported in accordance with the Cadia Incident Response Management Plan (PIRMP). During the reporting period, no chemical or hydrocarbon spills were required to be reported as per EPL 5590.

15.2 ENVIRONMENTAL PERFORMANCE

Internal and external inspections will continue to verify that the procedures in place for the management of hydrocarbons and chemicals are appropriately implemented and are effective. Education remains a key improvement for a continued effectiveness of hydrocarbon and chemical management at Cadia, particularly regarding labelling and segregation.

In FY23, the hydrocarbon waste storage yard was upgraded to improve bunding, drainage and segregation practices. Ongoing communication and education campaigns across site aim to increase awareness of responsible chemical and hydrocarbon disposal. Key gaps in the management of the yard were addressed:

- Safety data sheets of hazardous substances updated and made accessible at the yard.
- Spill kits provided and registered on planned maintenance schedule.
- Improved drainage through yard layout and piping upgrades.
- Provision of hydrocarbon labels to drive improved segregation and disposal management.

Plate 15-1: Hydrocarbon Waste Storage Yard following upgrades

16 WATER MANAGEMENT

The Water Management Plan (WMP) (CHPL, November 2019) details all aspects of Water Management at Cadia. The plan is part of the overall EMS and specifically aims to:

- Reduce risk regarding water use, accidental releases and potential pollution sources;
- Demonstrate continuous improvement; and
- Meet legal and other requirements.

16.1.1 WATER BALANCE SUMMARY

The site water accounting is undertaken in accordance with the Minerals Council of Australia (MCA) Water Accounting Framework (WAF) (Minerals Council of Australia, 2022) and the International Council on Mining & Metals (ICMM) Water Reporting Good Practice Guide (ICMM, 2021). It is noted that the ICMM reporting metrics apply the same basic accounting approach based on the WAF metrics, however the ICMM metrics are simplified to describe water dependency and performance. The site water balance and WAF interface are regularly updated to reflect changes made to the MCA and ICMM guidance documentation.

The operational water balance is used to effectively quantify flows and water movements within the Cadia site operations boundary. The water balance enables Cadia to develop the statement of operational efficiencies (SOE) which is used to drive feasible measures to minimise water use as per condition 31 (B) of Cadia East PA (06_0295).

Site water transfers are conceptualised in Figure 16-1 which has been developed in accordance with the MCA framework representation. The operational boundary has been defined according to the water resources that are directly managed by the operation. Water quality categories are defined in Table 16-1 . Table 16-2, Table 16-4 and Table 16-5 provide a summary of water sources, consumption, reuse and recycling, change in water storage and losses across the site during the reporting.

The site water balance comprised the input of metered and measured data into a calibrated GoldSim water balance model to estimate unmetered inflows and transfers. The model data were reconciled to match observed storage levels and to develop the reporting dataset.

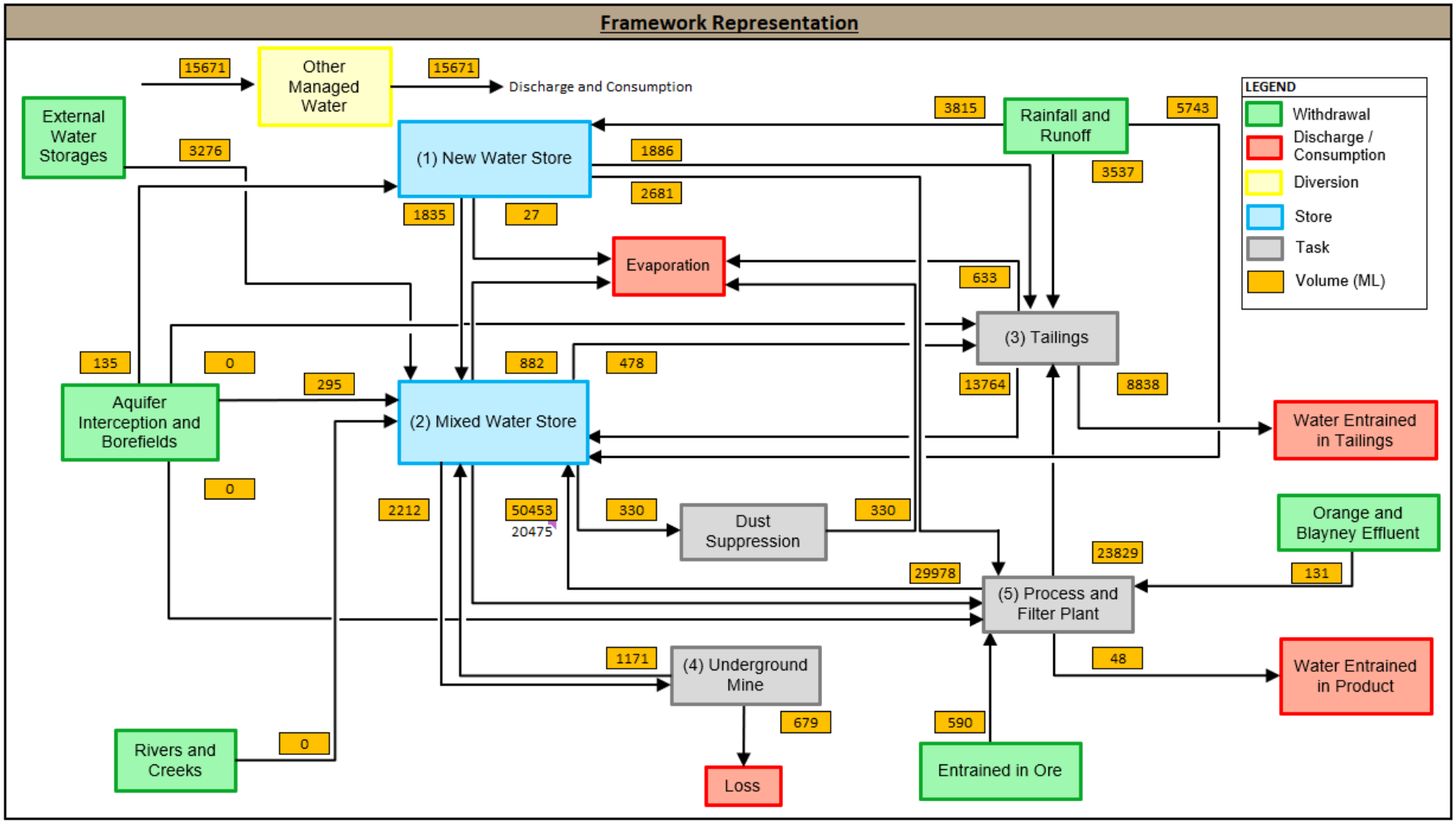

Figure 16-1 Cadia Water System MCA Water Accounting Framework Representation

Table 16-1 Water Quality Categories

Consistent reporting: water quality categories	MCA WAF water quality categories
High quality	Category 1: high quality water which may require minimal and inexpensive treatment to raise quality to appropriate drinking water standard (e.g. near potable water quality).
	Category 2: medium quality water which would require a moderate level of treatment to meet appropriate drinking water standards (e.g. agricultural use).
Low quality	Category 3: low quality water which would require significant treatment to raise quality to appropriate drinking water standards (e.g. industrial and wastewater)

Source: ICMM (2021)

Table 16-2 Operational and Other Managed Water Withdrawal

Inputs	ML	Quality	Notes
Operational Water Withdrawal			
Surface Water			
Precipitation and runoff	2600	Category 1	1
	10495	Category 2	2
External surface water storages	3276	Category 1	3
Rivers and creeks	-	Category 1	-
Groundwater			
Aquifer interception	429	Category 2	4
Bore fields	-	-	-
Entrainment	590	Category 3	
Sea Water			
Estuary	-	-	-
Sea-ocean	-	-	-
Third party water			
Town effluent	131	Category 3	5
Temporary allocation assignments	-	-	-
Total Inputs	17,521		

Inputs	ML	Quality	Notes
Other Managed Water			
Withdrawal			
Surface water	15,671	Category 1	
Groundwater	-	-	
Total Diversion Inputs	15,671		
Notes: 1 – Includes Cadia Creek, Copper Gully, Hoares Creek & Rodds Creek 2 – Includes SWRD, TSF, NLD, SLD & SRP 3 – Cadiangullong Dam 4 – Combined estimate of groundwater inflow to the Cadia East and Ridgeway underground mines 5 – Municipal effluent from Orange City Council			

Table 16-3 Operational Water Discharge and Consumption

Outputs	ML	Quality	Notes
Operational Water Discharge			
Surface Water			
Discharge	-	-	-
Environmental flows	-	-	-
Groundwater			
Seepage	-	-	-
Re-injection	-	-	-
Sea Water			
Discharge to sea	-	-	-
Discharge to estuary	-	-	-
Third Party Water			
Entitlement transfer	-	-	-
Total Discharge	-	-	-
Operational Water Consumption			
Evaporation	1,872	Category 2	-
Entrainment	8,886	Category 3	-
Other	679	Category 3	-
Total Consumption	11,437		

Outputs	ML	Quality	Notes
Other Managed Water			
Discharge/Consumption			
Surface water discharge	15,357	Category 1	1
Groundwater reinjection	-	-	-
Evaporation	315	Category 1	-
Total Diversion Outputs	15,671		
Notes: 1 – Environmental flow release to Cadiangullong Creek and overflow from Cadiangullong Dam spillway			

Table 16-4 Water Balance Input Output Statement

Operational Efficiencies	ML	Notes
Total inputs	17,521	1
Total outputs	11,437	2
Inputs minus outputs	6,085	-
Measured change in storage	6,310	2
Imbalance percentage	%	3
Does Inputs minus Output equal Change in Storage?	Yes	4
Notes: 1 – Modelled using calibrated GoldSim water balance model 2 – Includes storage in dams, decant ponds and estimates for minor storages 3 – Proportion of imbalance relative to total throughput 4 – Within acceptable limit of 10%		

Table 16-5 Water Balance Accuracy

Types of Flows	Percent of all flows	Confidence		
		High	Medium	Low
Measured	9.7%	9.7%	0%	0%
Estimated	1.8%	0%	1.8%	0%
Simulated	88.5%	0%	88%	0.5%
Total	100%	9.7%	89.8%	0.5%

16.1.2 REVIEW OF WATER TAKE

During the reporting period, direct and indirect water take was extracted in accordance with the Water Access Licences (WAL) and conditions, with the exception of WAL 31527 which is discussed further below. Total water take recorded during the water year 1 July 2022 to 30 June 2023 has been summarised in Table 16-6.

Table 16-6 Water Take (2022/2023)

Water Access Licence	Water Sharing Plan, Source & Management zone (as applicable)		AWD Share/ Entitlement	Water Take (ML)
Surface Water				
32280	Belubula Regulated and Alluvial Water Sources- Belubula Regulated River Water Source	Regulated River (General Security)	4,080	0
32255	Belubula Regulated and Alluvial Water Sources- Belubula Regulated River Water Source	Supplementary Water	3,125	0
31527	Lachlan Unregulated and Alluvial Water Sources- Belubula Tributaries Below Carcoar Dam Water Source	Unregulated River	3,865	3,937
Groundwater				
31062	Orange Basalt Groundwater Source	-	286	45
31702	NSW Murray Darling Basin Fractured Rock Groundwater Sources	Lachlan Fold Belt MDB Groundwater Source	371	103
36229	NSW Murray Darling Basin Fractured Rock Groundwater Sources	Lachlan Fold Belt MDB Groundwater Source	931	458(1)
Total				7,403
Notes: Estimated based on the 2021 updated regional groundwater model.				

Under WAL 31527 direct and indirect water take occurs at five extraction points of which two are measured by modelling runoff from rainfall. As a result, water ‘take’ is dependent on rainfall and cannot be controlled (i.e.. turned off).

During the reporting period a reconcile of water take under all licenses was performed on 10 February 2023. Following above average rainfall in the preceding period (refer to Section 7) it was considered that further rainfall may result in an over extraction under WAL 31527. As a result, Cadia stopped all active take of water from all extraction points under this licence. The subsequent annual reconciliation for the reporting period discovered an over-extraction of 1.9% (72.4 ML) for WAL 31527.

16.1.3 WATER STORAGE

As of 30 June 2023, the estimated total water stored at Cadia was 39,183 ML (Table 16-7. Water storage has increased by an estimated 11,125 ML over the reporting period, as shown on Figure 16-2.

Table 16-7 Stored Water (ML)

Water Type	Storage	Start of Reporting Period	End of Reporting Period	Storage Capacity	Note
Clean Water	Cadiangullong Dam	4,222	3,882	4,200	-
Site Captured Water	Hoares Creek	0	0	56	2
	Copper Gully Dam	-	-	45	-
	Combined EPA point 1	<5	<5	103	2, 4
	Cadia Extended Pit	893	1,151	1,000 (estimate)	-
Mixed Water (4)	Cadia Hill Pit (decant water volume)	19,830 (estimate)	23,841 (estimate)	>25,000	1
	Rodds Creek Dam	9,540	9,966	14,500	-
	NTSF Decant Pond	128	139	1,883	5
	STSF Decant Pond	218	196	2,068	5
	Combined EPA point 3	<50	<50	217	3, 4
Total		34,634	39,175	-	

Notes:
1 – Deposition of tailings into the Cadia Hill Pit commenced 4/5/2018. Volume of decant water is estimated.
2 – Nominal dewatered volume.
3 – Stored water volume maintained below operating volumes as per Water Management Plan (2019).
4–- Mixed water contains raw water and water for reuse.
5 – Volume estimated. Capacity refers to the TARP level specified in the Water Management Plan (2019).

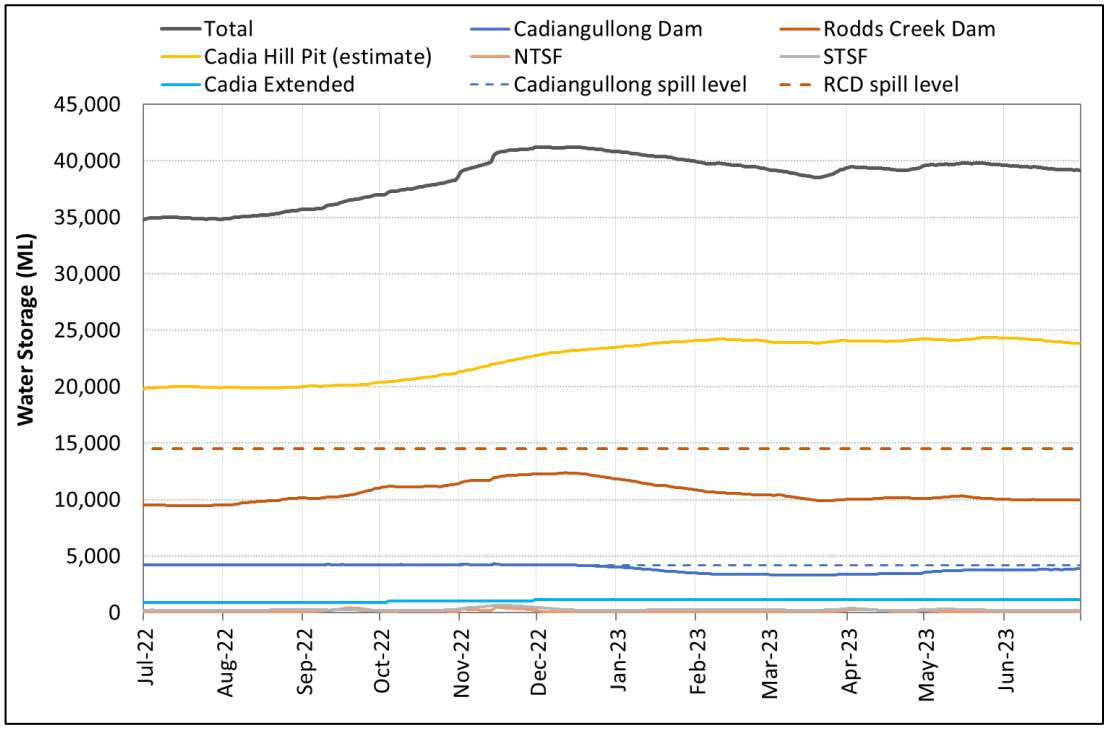

Figure 16-2 Cadia Total Water Storage

16.1.4 WATER CONSUMPTION AND EFFICIENCY

Water consumption and operational efficiencies were derived for the reporting period in accordance with MCA (2022). Table 16-8 provides a SOE for the reporting period.

Table 16-8 Statement of Operational Efficiencies

Operational Efficiencies	ML	Notes
Total water into tasks	86,127	1
Volume of worked water into tasks (water reused)	64,289	1
Reuse efficiency (%)	75%	1
Consumptive use	11,437	2
Use per tonne milled (litres/tonne)	394	3

1 – Calculated based on task aggregation according to MCA (2022).
2 – Represents the sum of all system losses including tailings entrainment, evaporation, and other minor losses.
3 – Litres of water consumed divided by tonnes of ore milled.

16.1.5 STREAM HEALTH MONITORING

The Cadia environmental monitoring program includes an Aquatic Ecosystem Monitoring Project (AEMP – Appendix 2) implemented biannually since spring 2006. The AEMP focusses on the assessment of macroinvertebrates, fish, and aquatic habitat condition potentially impacted by mine operations, within and surrounding the Cadia mine lease area (MLA). This report presents data collected during the spring 2022 and autumn 2023

monitoring periods and includes additional eDNA monitoring for platypus.

Major findings in this report are:

- There was no evidence to suggest mining activities have impacted on water quality of Cadiangullong Creek or Rodd's Creek.
- High flow events occurred throughout the 12-month period between July 2022 and May 2023 in response to high rainfall and a La Niña event, particularly prior to the spring 2022 monitoring.
- Discharge in Cadiangullong Creek and the other waterways monitored reflected the pattern in rainfall with an increase in flow following increased rainfall in spring 2022. There was little flow at all waterways during autumn 2023.
- Broader scale land-use are likely to be impacting on aquatic ecosystem health independent of mining activities in the catchment. These include elevated salinity or nutrient levels, agricultural pollution, disturbance to riparian zone vegetation and the downstream impacts of dams.
- As found in previous monitoring periods, there was evidence of increased copper in the sediments of Cadiangullong Creek downstream of the mine at sites CC2. Due to the geomorphology of CC2, the pool at this site appears to act as a deposition site for sediments containing elevated copper concentrations.
- Sediment transport from CC2 and CC3 with copper bound to it may occur during higher flow events and appears to be dependent on a) the connectivity between CC2 and downstream reaches, b) the frequency and size of the high flow events, and c) the size of the sediment particles.
- Despite elevated concentrations at CC2 and CC3, copper concentration was lower further downstream at CC4, although remained higher than copper concentrations upstream of the mine.
- The concentration of copper in sediments at site CC4 further downstream is below the upper ANZG (2018) guideline, which indicates lower potential ecological risks.
- There was no evidence that mining operations impacts macroinvertebrate health. It is likely habitat conditions are more influential on macroinvertebrate community health than water or sediment quality.
- Sediment analytes were not found to be a major factor impacting the macroinvertebrate community. This includes the relatively high copper concentrations at CC2.
- A relatively healthy fish community dominated by the native Mountain Galaxias (Galaxias olidus) remains distributed throughout Cadiangullong Creek, along with Flyers Creek and Swallow Creek. Spring recruitment of juveniles indicates a self-sustaining population with adequate recruitment.
- eDNA monitoring for platypus suggest they remain distributed throughout Cadiangullong Creek.

16.2 STREAM FLOW MONITORING

The following sections present streamflow gauging data for Cadiangullong Creek, Flyers Creek, Rodds Creek and the Belubula River, and compare these flows against the relevant Cadia East PA Conditions (06_0295), the EPL (5590) and to Cadia East EA predictions.

Monitoring of surface water flow was completed as described in the Water Management Plan (CHPL, 2019). Monitoring locations are shown in Figure 16-3 and Figure 16-9.

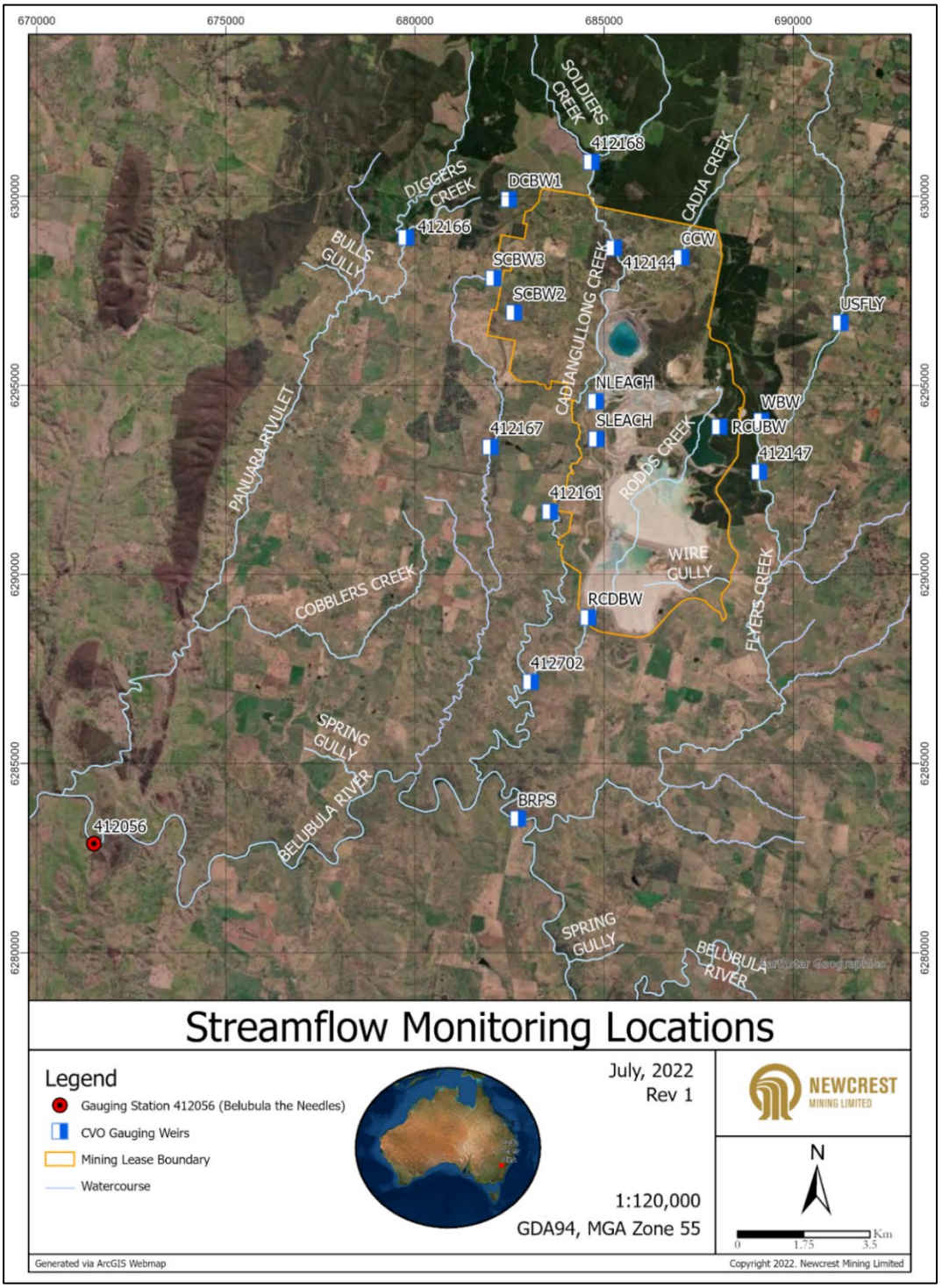

Figure 16-3 Streamflow Monitoring Locations

In summary, above average rainfall during the reporting period has resulted in increased average flow rates at all locations (refer to Section 7 for a summary of the rainfall and climate

conditions). Flow duration curves show higher streamflow relative to the previous reporting periods for most streams.

16.2.1.1 Cadiangullong Creek

The Cadiangullong Creek hydrograph for the reporting period is shown on Figure 16+4, and long-term trends in streamflow are shown on Figure 16-5.

During the reporting period, a median daily flow rate of 13.9 ML/day was recorded at the Oaky Creek gauging station on Cadiangullong Creek (GS412702).

Inflows into Cadiangullong Dam, measured at GS412168, had median daily flow rates of 9.0 ML/day for the reporting period.

The flow duration curve downstream of Cadiangullong Dam at GS412144 is shown in Figure 16-6. This shows that flows for this reporting period were above those predicted in the Cadia East Environmental Assessment. Flows during the reporting period were among the highest seen in the past 10 years.

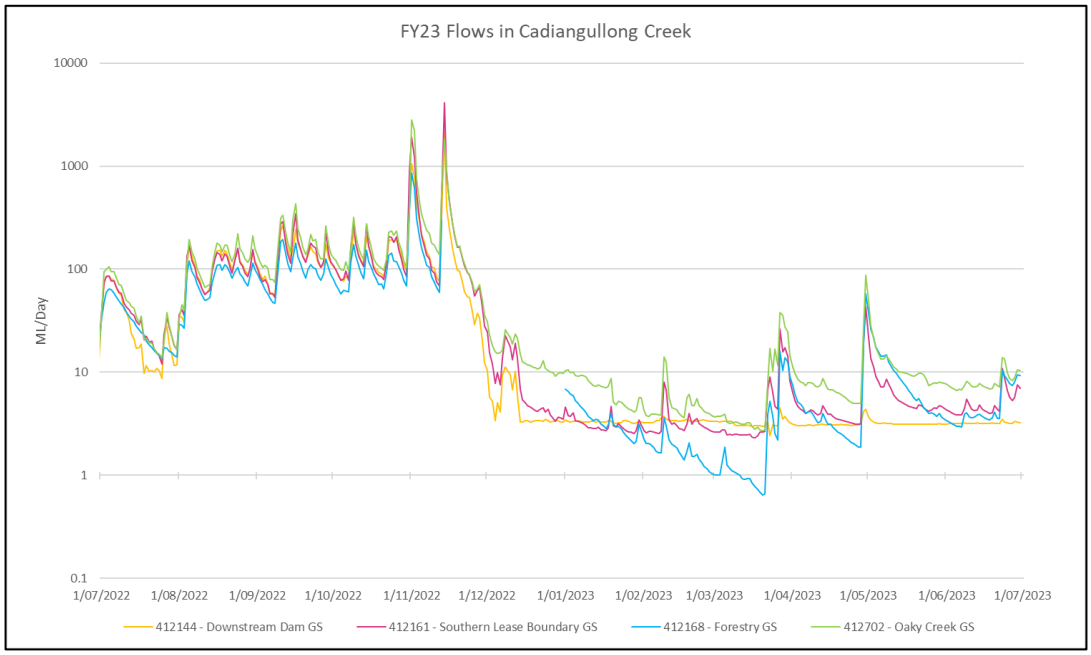

Figure 16-4 Cadiangullong Creek Flows

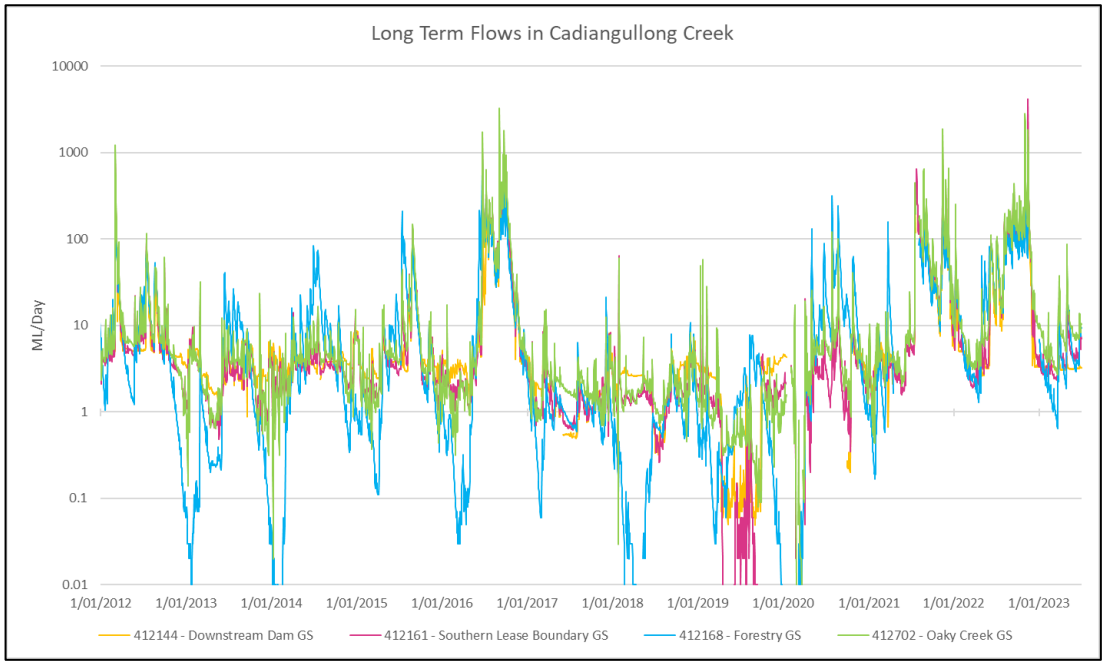

Figure 16-5 Long Term Cadiangullong Creek Flows

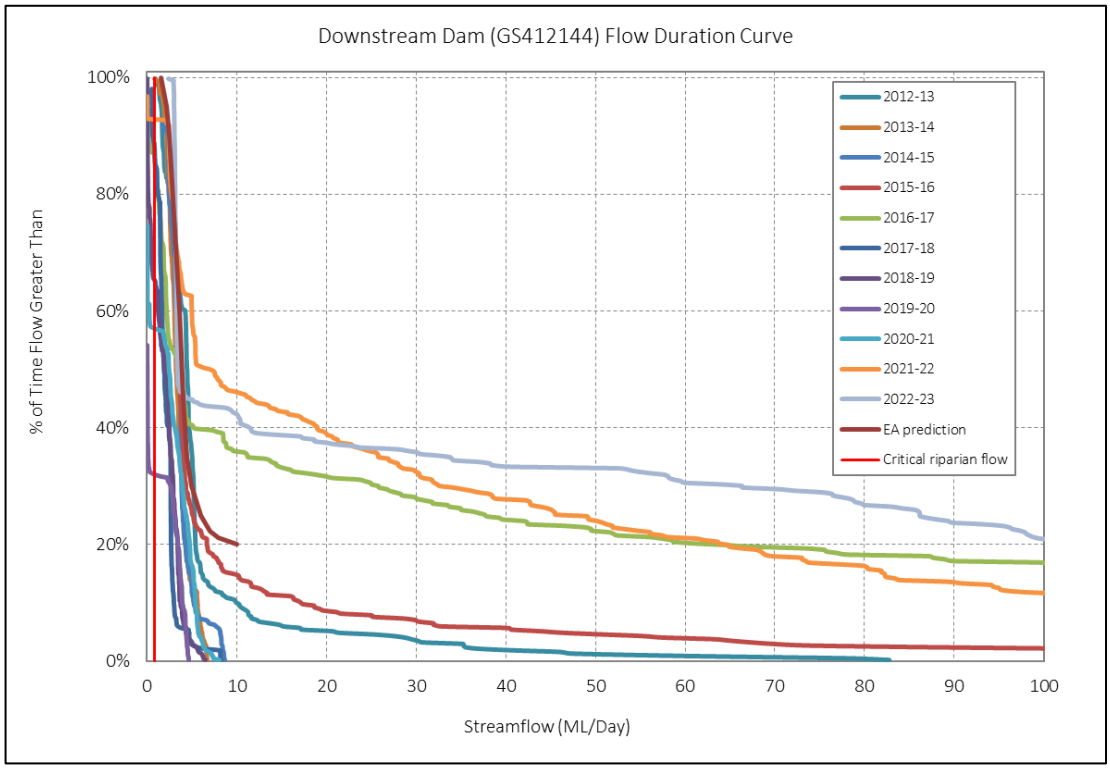

Figure 16-6 Cadiangullong Creek Downstream of Cadiangullong Dam Flow Duration Curve

Figure 16-7 shows the flow duration curve history for Oaky Creek GS412702 and shows the extreme annual variability in flow regime that can occur in Cadiangullong Creek.

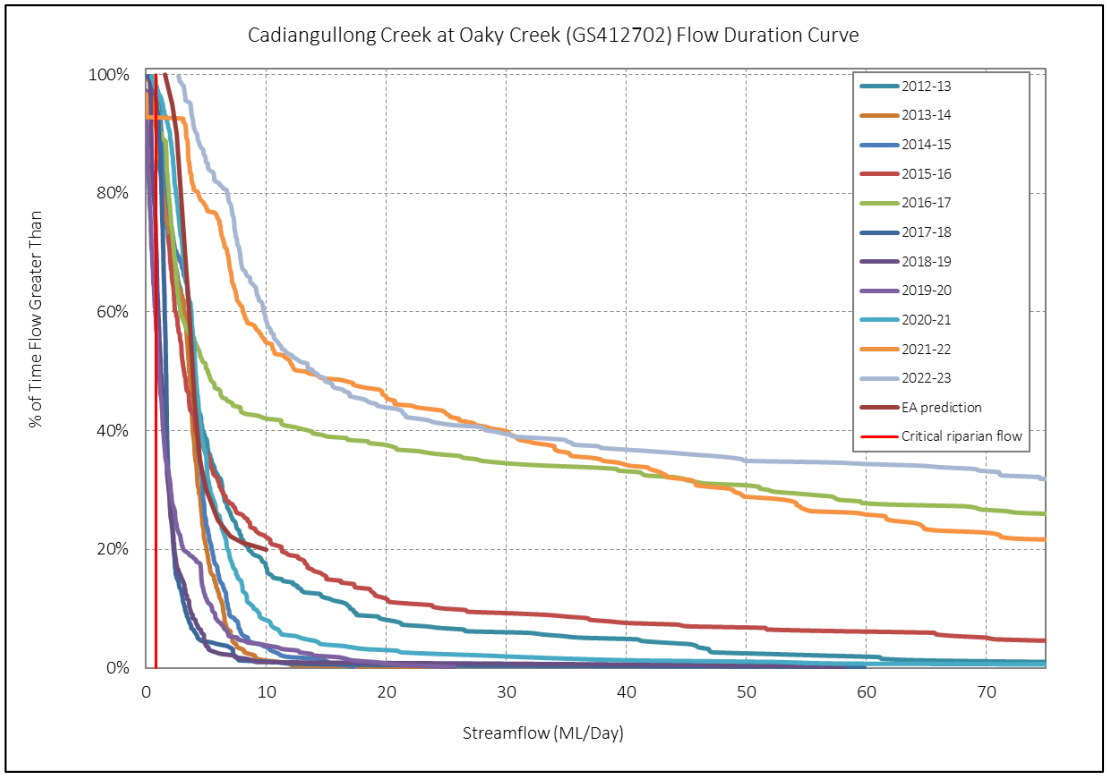

Figure 16-7 Cadiangullong Creek at Oaky Creek (GS412702) Flow Duration Curve

16.2.1.2 Riparian Release

Environmental flows were released from Cadiangullong Dam in accordance with the Cadia PA (06_0295, Condition 27) during the entirety of the reporting period. The Cadiangullong Creek 7-day rolling average flow at Oaky Creek (GS412702) is plotted against the riparian release flow criteria on Figure 16-8. The median daily flow at GS412702 was 13.9 ML/day for the reporting period.

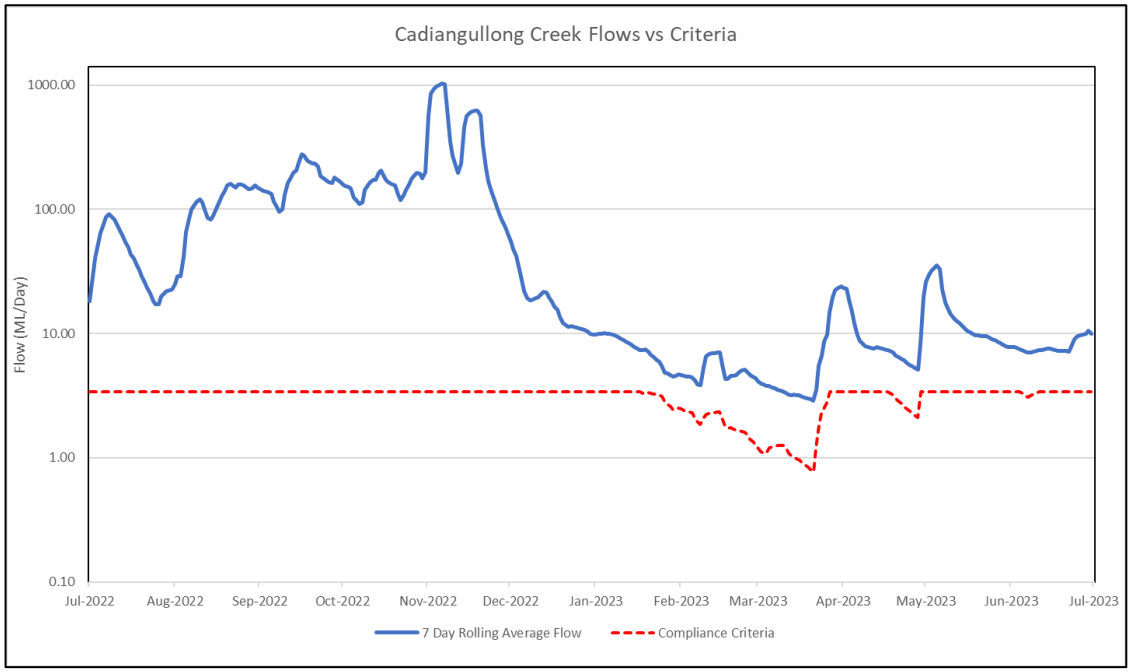

Figure 16-8 Cadiangullong Creek Flows vs Criteria

16.2.1.3 Medium Flow Requirement

Flows were above 12 ML/day for 193 days in the reporting period. Several medium flow events were observed over the reporting period. Cadia East PA (06_0295) Condition 27(b) defines these as *events in the order of 12-15 ML/day for 1-3 days* and requires up to four per year. Examples of medium flow events during the reporting period include 169 consecutive days between the 1 July and 16 December 2022.

16.2.1.4 Flyers Creek

The hydrograph for Flyers Creek for the reporting period is shown in Figure 16-9 and the flow duration curve is shown in Figure 16-10. The median daily flow rate in Flyers Creek during the reporting period was 20.1 ML/day.

Above average rainfall over the reporting period for the Flyers Creek catchment has resulted in higher sustained flows than in previous years.

No water was extracted from Flyers Creek Weir during the reporting period.

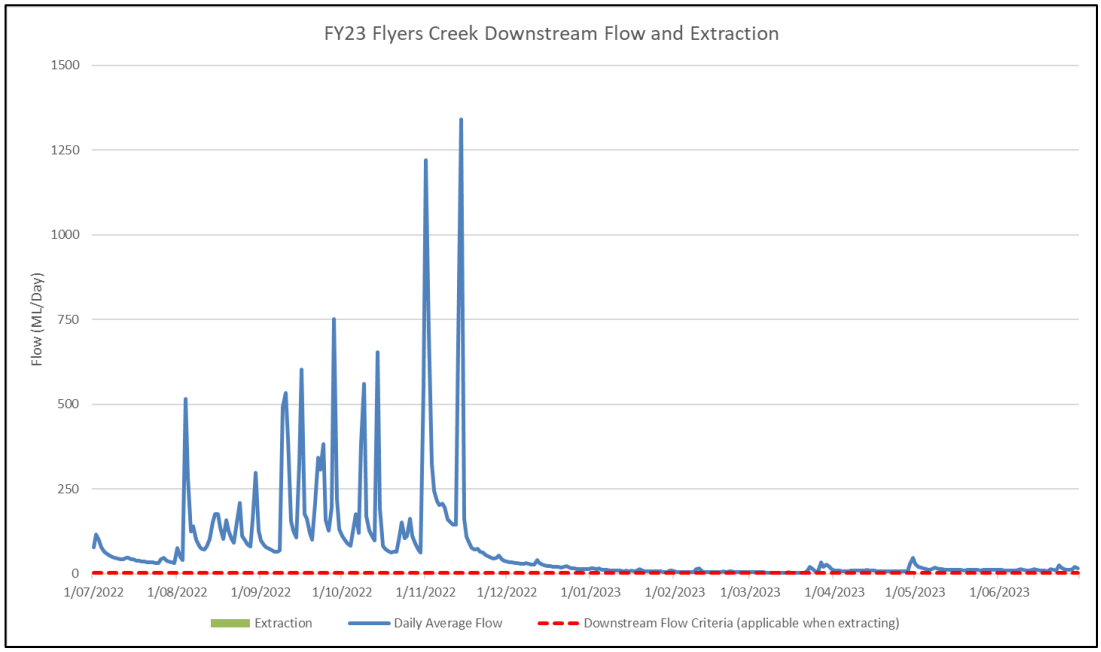

Figure 16-9 Flyers Creek Downstream Flow and Extraction

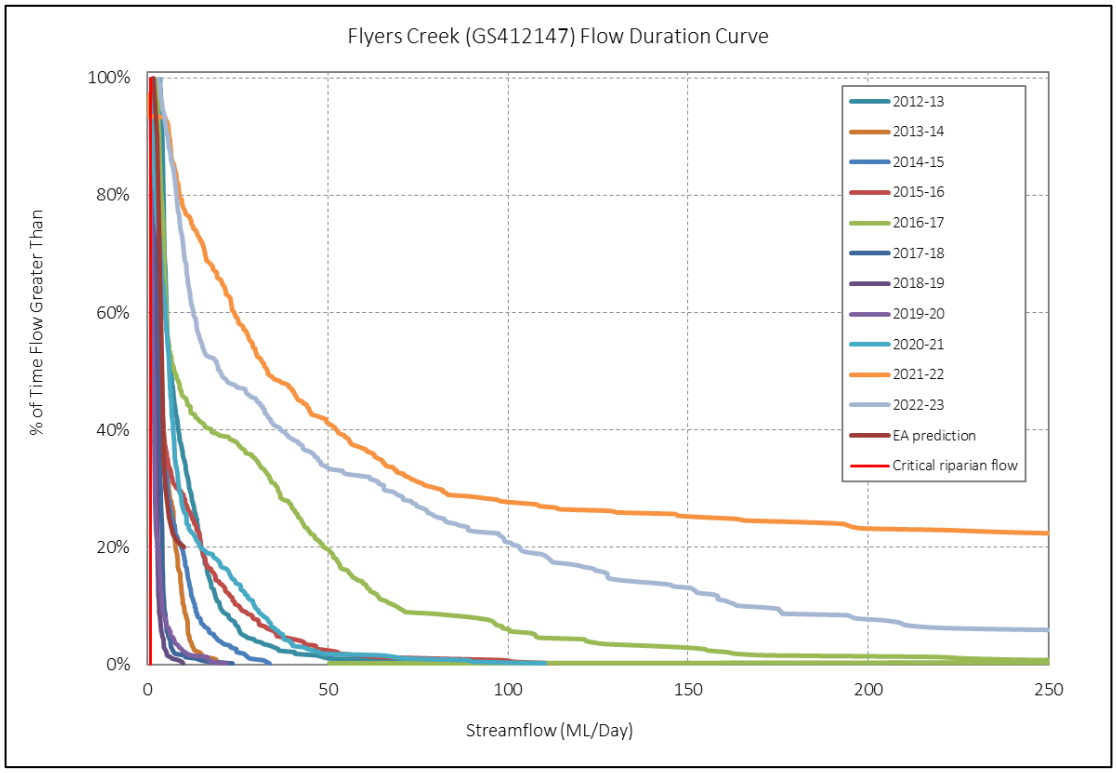

Figure 16-10 Flyers Creek Flow Duration Curve

16.2.1.5 Rodds Creek

Discharge at Rodds Creek is measured in two locations: upstream from Rodds Creek Dam (RCUBW), and downstream of the STSF seepage collection pond (RCDBW, EPL 5590 Discharge Point 19). These locations are shown in Figure 16-3.

Flow upstream of Rodds Creek Dam during the reporting period was characterised by short

periods of increased flow following rainfall events (Figure 16-11). It is noted that sensor failure resulted in a loss of data between December 2022 and June 2023.

The flow downstream from the STSF is spring fed, resulting in higher flow rates throughout the reporting period, although the flow is still influenced by rainfall, as shown in Figure 16-12.

The average daily flow at RCUBW was 0.10 ML/day and at RCDBW 0.25 ML/day was observed. Note that the rainfall values in the below charts are an average of RWY and SLB AWS data.

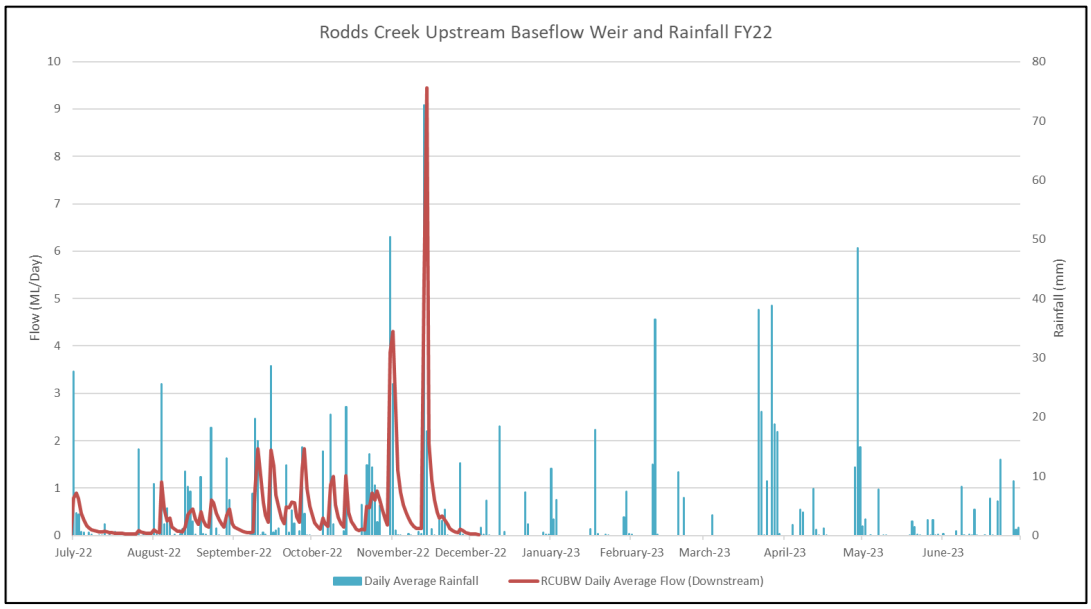

Figure 16-11 Rodds Creek Upper Baseflow Weir flow rates and rainfall for FY23

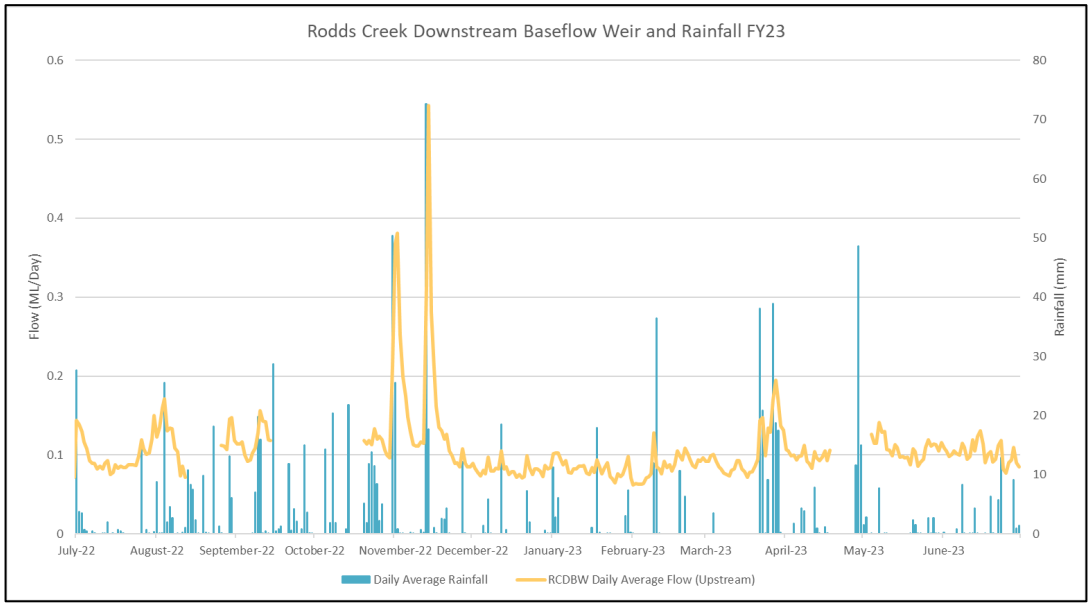

Figure 16-12 Rodds Creek Downstream Baseflow Weir flow rate and rainfall for FY23

16.2.1.6 Belubula River

Data from GS412056 Belubula at The Needles is available from the Water NSW website

(WaterNSW 2022). The flow in the Belubula River is regulated and represents a combination of rainfall runoff and any controlled releases from Carcoar Dam. The median flow during the reporting period was 294.1 ML/day.

The flow duration curve at GS412056 Belubula at The Needles is shown in Figure 16-13, and indicates that flows were the highest of the last 10 years.

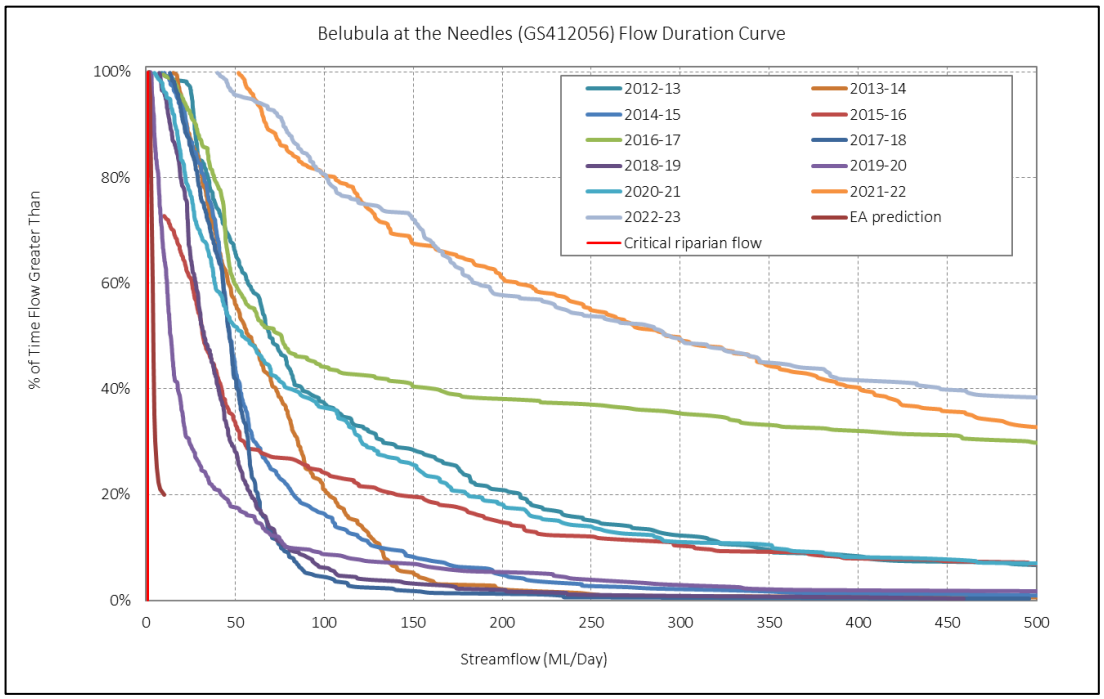

Figure 16-13 Belubula River at the Needles (412056) Flow Duration Curve

16.3 BASE FLOW MONITORING

Cadia assesses baseflow contribution to streamflow using recorded stream flow data, with the baseflow separated from runoff using a Filter Separation Method (HYBASE – WithinKernel Filter). This is based on the Lyn and Hollick algorithm and a function of the Hydstra database which records all hydrographic information from across the site.

The baseflow and total flow were summed on a 12-month rolling basis and the baseflow Index (BFI) was calculated as the proportion of baseflow relative to total flow (expressed as a percentage). The BFI values were compared with BFI predictions for streams near the Ridgeway Mine (Swallow & Diggers Creeks) and Cadia East Mine (Flyers Creek). BFI is the ratio of baseflow to total flow and can vary significantly due to rainfall runoff conditions.

Baseflow for the catchments is shown in the figures below with the predicted changes from the Ridgeway Environmental Impact Statement (EIS) and Cadia East EA. While there appears to be variation in baseflow through the recorded period, baseflow is at or above pre-mining levels. The updated groundwater model flow rate reduction predicted for Flyers Creek and Cadiangullong Creek is very limited as the creeks fall outside the zone of

depressurisation.

16.3.1.1 Swallow Creek

Figure 16-14 and Figure 16-15 present the estimated BFI, the average pre-mining BFI and the predicted post mining BFI for streamflow monitoring sites in Swallow Creek (SCBW2 and 412167 respectively). Note that the SCBW2 gauging weir was damaged in January 2019 following a storm event and, as such, no data was recorded from January to June 2019.

During the reporting period, the median streamflow recorded at SCBW2 was 0.34 ML/day and the estimated BFI ranged from 44 to 54% (refer Figure 16-14). The median streamflow recorded at 412167 was 5.0 ML/day and the estimated BFI ranged from 45 to 54% (refer Figure 16-15).

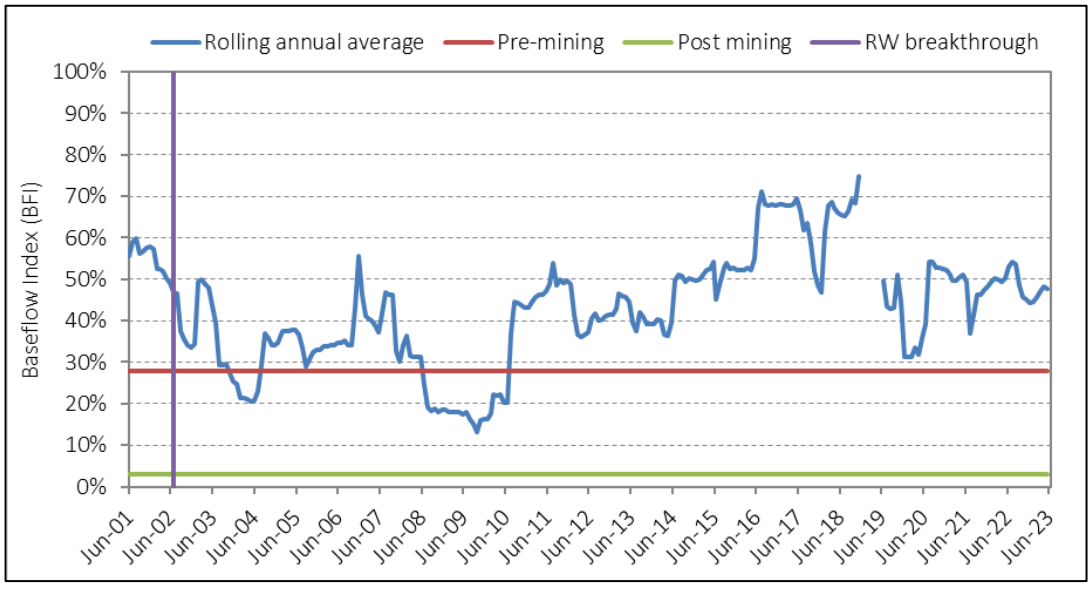

Figure 16-14 Swallow Creek (SCBW2) BFI

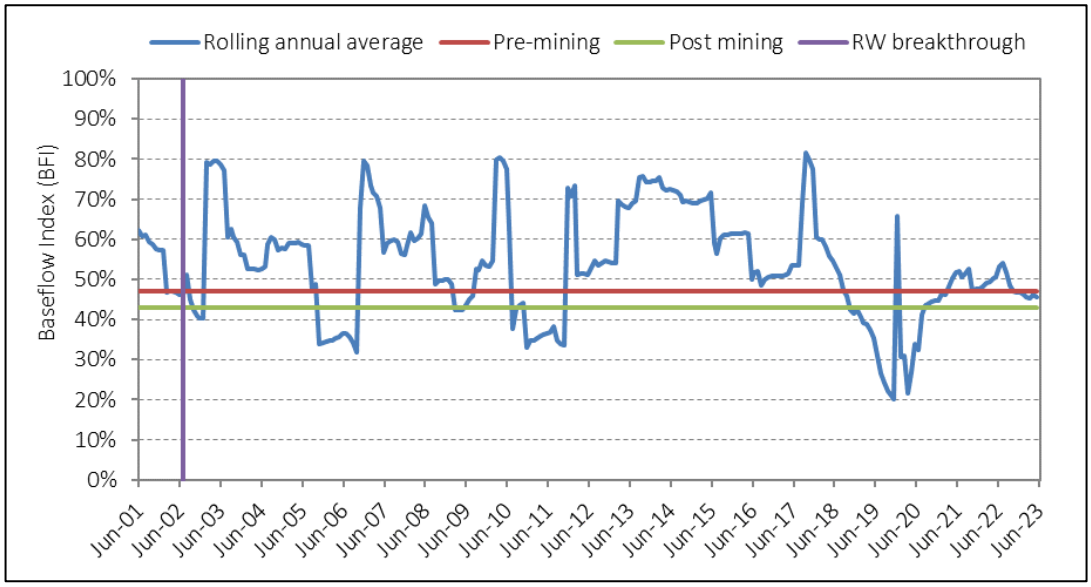

Figure 16-15 Swallow Creek Downstream (412167) BFI

16.3.1.2 Diggers Creek

Over the reporting period, the median streamflow recorded at Diggers Creek Baseflow Weir (DCBW1) was 0.3 ML/day and the estimated BFI ranged from 64 to 76% (Figure 16-16). The median streamflow recorded at 412166 on Diggers Creek was 1.2 ML/day and the estimated BFI ranged from 51 to 54% (Figure 16-17). The estimated BFI for both DCBW1 and 412166 remained above the average pre-mining BFI for the duration of the reporting period.

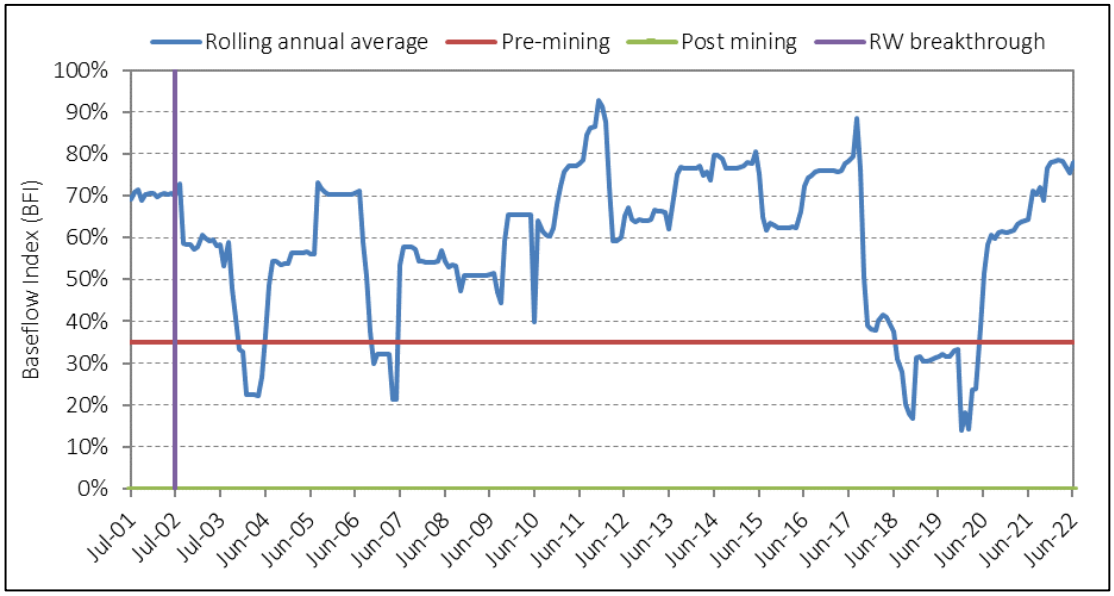

Figure 16-16 Diggers Creek (DCBW1) BFI

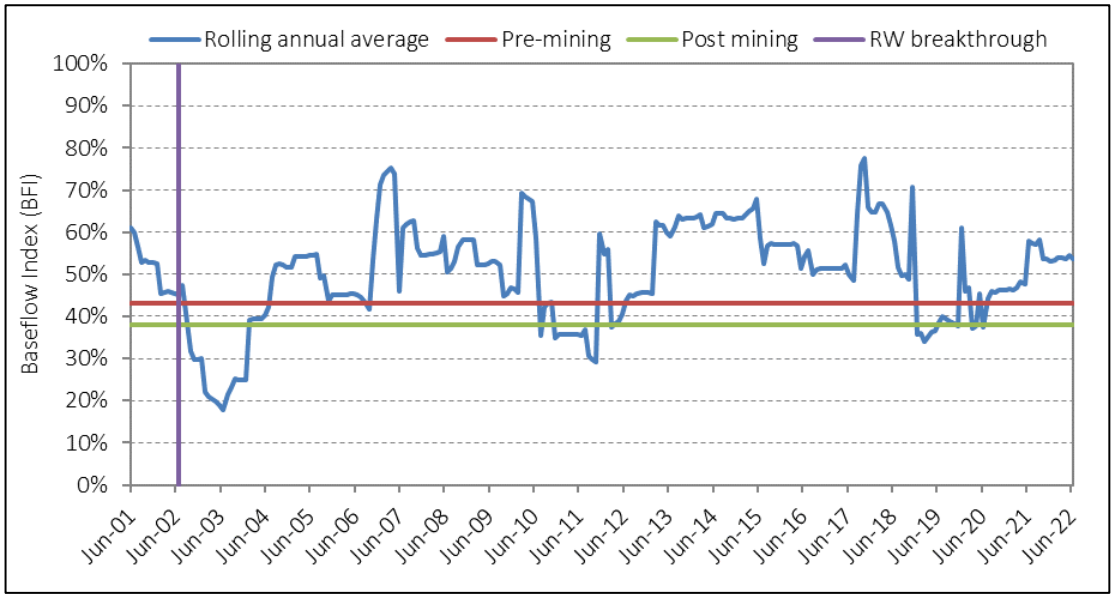

Figure 16-17 Diggers Creek (412166) BFI

16.3.1.3 Flyers Creek

The Cadia East EA predicted that the zone of groundwater depressurisation associated with Cadia East would extend to Flyers Creek, with a maximum predicted baseflow reduction of 0.5 ML/day from Flyers Creek. The updated groundwater model (AGE, 2021), which incorporates all groundwater monitoring data recorded to date, predicted significantly lower baseflow reduction rates for Flyers Creek (less than 0.01 ML/day).

Figure 16-18 presents the estimated BFI for Flyers Creek at gauging station 412147. Over the reporting period, the median streamflow recorded at 412147 was 19.9 ML/day. The estimated BFI ranged from 57 to 71%.

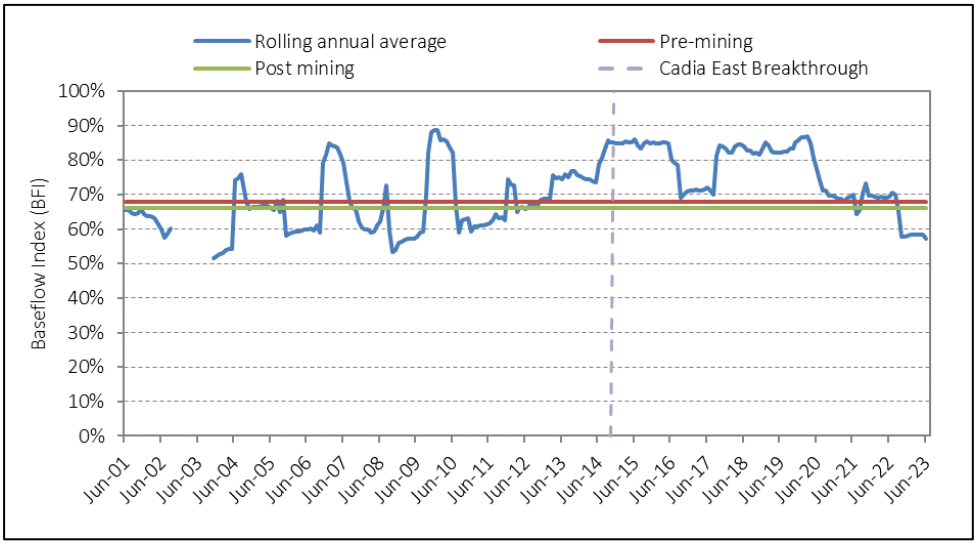

Figure 16-18 Flyers Creek (412147) BFI

16.4 SPRING MONITORING

The Cadia East EA predicted that there would be no impact on the springs within the original (2009) Cadia East 1 m groundwater drawdown zone. Notwithstanding this, a spring monitoring program was established to determine if the springs are connected to the basalt aquifer, and if the predicted changes to the aquifer will impact the quality and quantity of spring water.

The spring monitoring program was established on four Cadia District properties. Decommissioning of three of the four springs was approved as part of the revised Cadia Water Management Plan (CHPL, 2019). Spring Number 3 (SPR03) continues to be monitored as the primary spring monitoring location because it is not affected by local groundwater extraction or dam storage. The flow at SPR03 is shown below in Figure 16-19. Daily median daily flow was 0.02 ML/day over the reporting period.

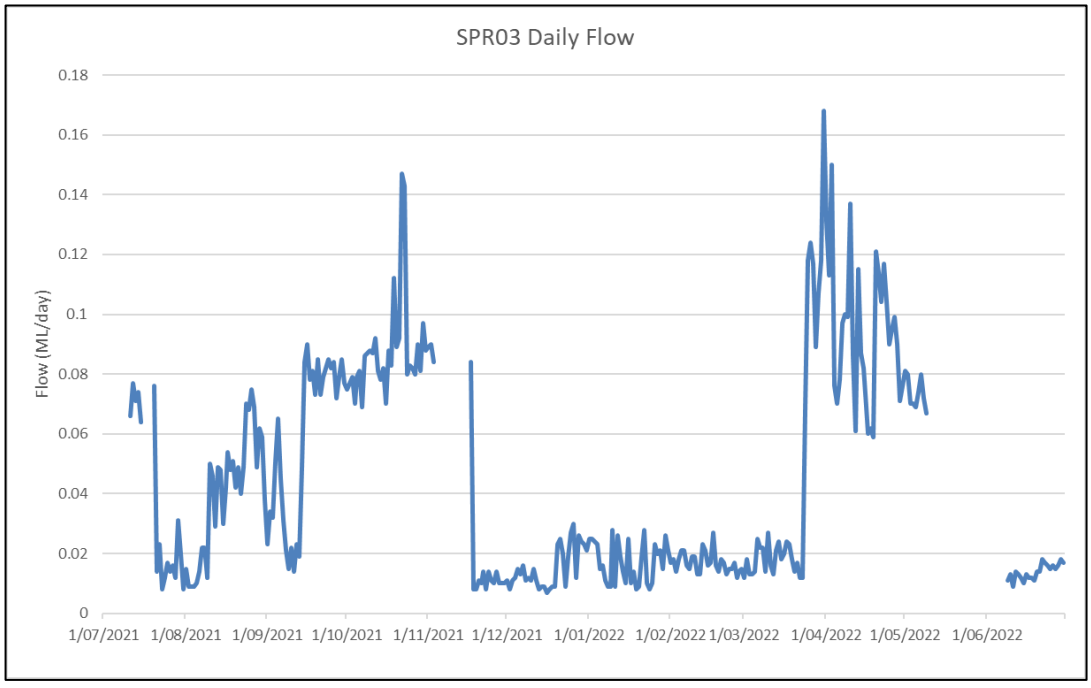

Figure 16-19 Spring Monitoring at SPR03, Daily Flow

Long-term monitoring data is shown in Figure 16-20 and Figure 16-21. These figures show the flow at SPR03 alongside the groundwater level in the nearby shallow bore MB55 and Cumulative Rainfall Deficit (CRD) respectively. The water level in MB55 and spring flow have been consistent with CRD.

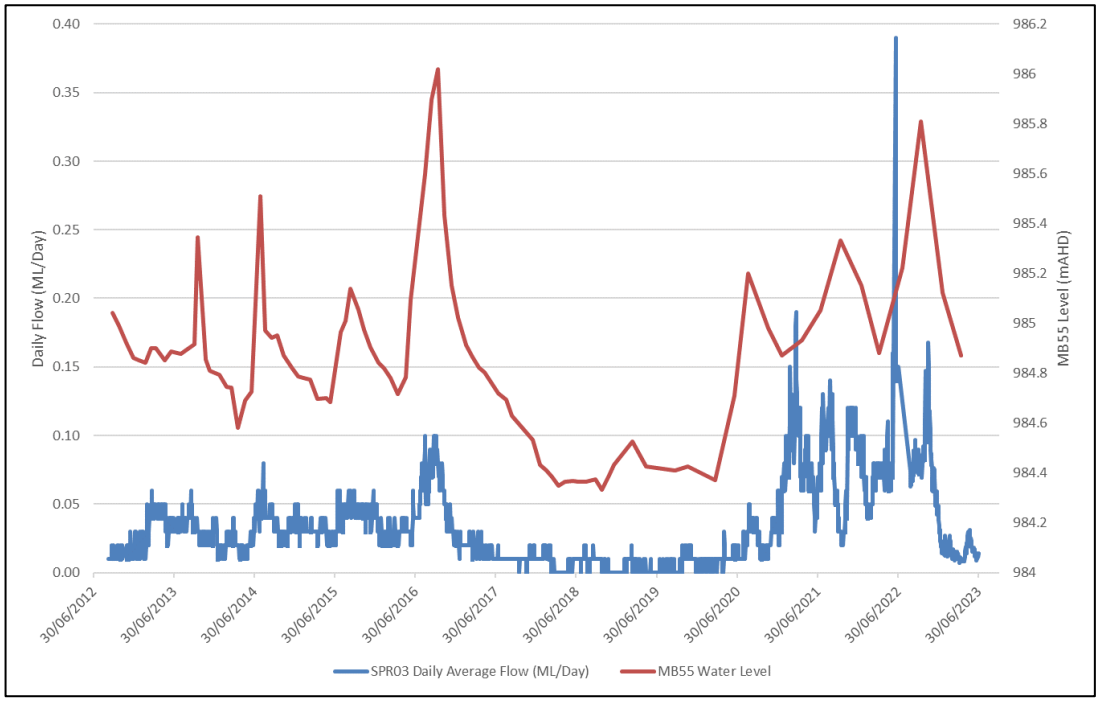

Figure 16-20 Long-term SPR03 Daily Flow and MB55 Water Level

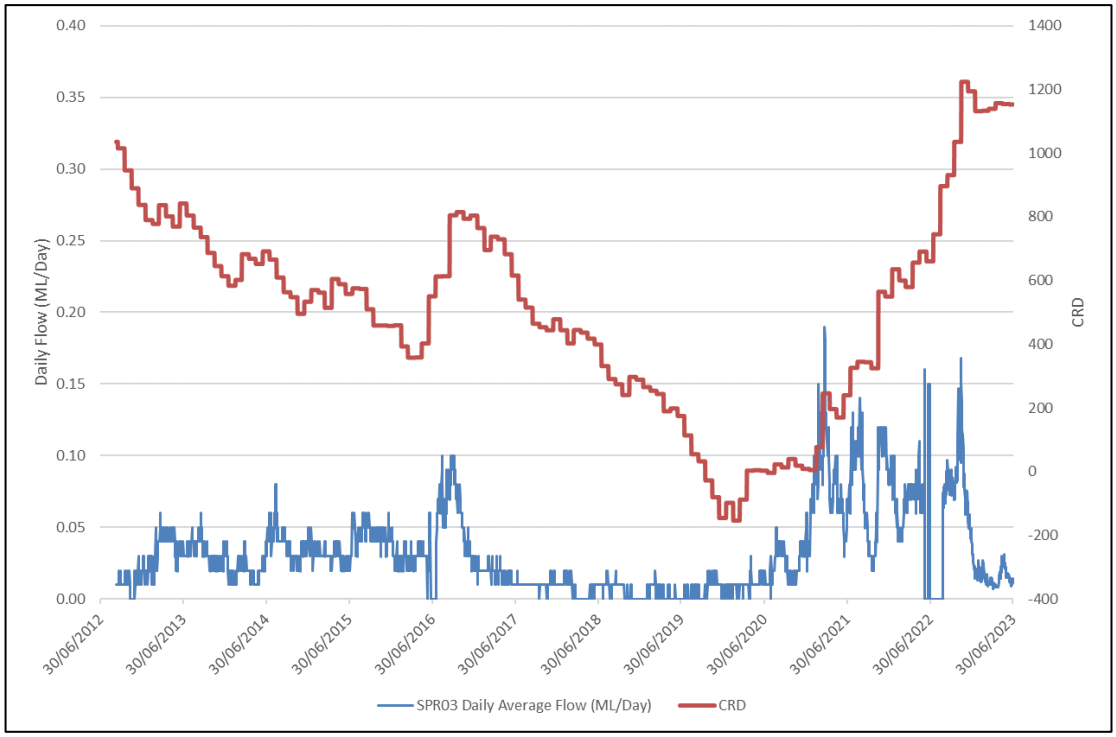

Figure 16-21 Long-term SPR03 Daily Flow and CRD

16.5 SURFACE WATER

A surface water assessment was completed for the reporting period by GHD (2023), and the report is provided in Appendix 3. The executive summary from the GHD report is provided

below.

Surface water quality for the reporting period as well as historical data have been assessed based on key zones at the Cadia site. The findings of these assessments are summarised below.

16.5.1 ENVIRONMENTAL PERFORMANCE

The review of surface water monitoring results for the reporting period identified the following key performance/management issues:

- The WRDs and the TSFs appear to have localised influences of mine related chemistry on surface water quality. However, based on results from the reporting period there is no evidence of water quality impact to receiving environments in these zones.
- Copper concentrations previously observed downstream of the BDF continued to decrease during the 2022-2023 reporting period.
- No exceedances identified during the SSGV assessment were attributed to Cadia.

16.5.1.1 Upper Cadiangullong Creek

The water quality results for Upper Cadiangullong Creek indicate a potential impact of historical mining in the catchment. The influence of the historical mine adit seepage at CAWS3 is evident in the results from the 2022-2023 reporting period, with this site exhibiting higher EC and water hardness than other monitoring sites and a distinct ionic composition. The location of CAWS3 can be seen in Figure 16-22. Water at CAWS3 also contained elevated concentrations of cadmium, cobalt, copper, manganese, molybdenum, nickel and zinc, with the majority of these metals observed in concentrations in excess of the relevant ANZG (2018) DGVs. The monitoring data indicate that, with the exception of copper, and to a lesser extent, zinc, these elevated metal concentrations are spatially confined to site CAWS3, with no impact observed at the nearest downstream Cadiangullong Creek monitoring site (CAWS79).

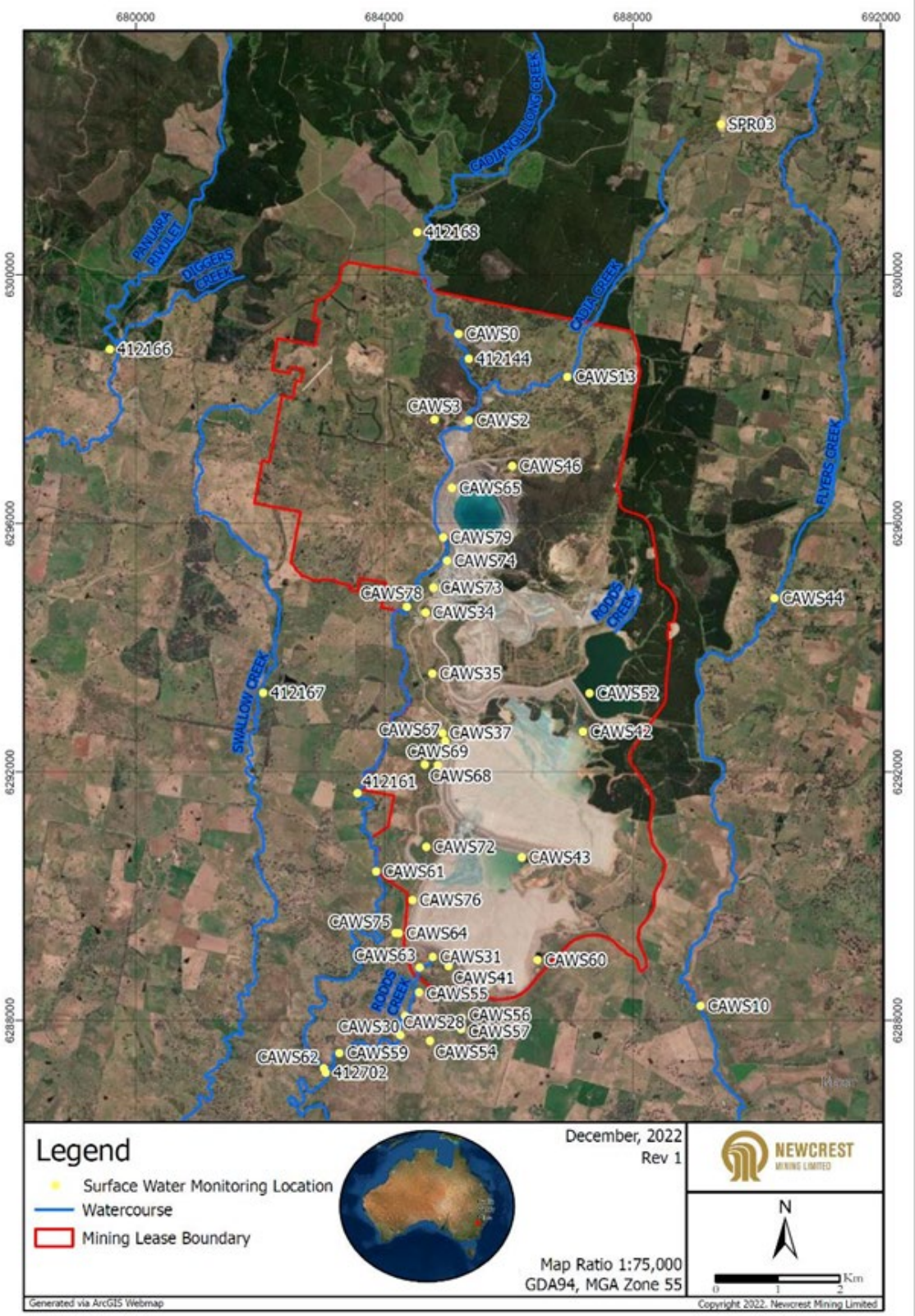

Figure 16-22 Surface Water Monitoring Locations

16.5.1.2 Cadia Hill Pit

Water quality at CAWS65 in the reporting period is reflective of tailings decant water. Water

quality was relatively stable over the reporting period, with the exception of an increasing trend observed in molybdenum concentrations. Molybdenum concentrations, however, remained low at CAWS79, the site immediately downstream in Cadiangullong Creek (see Section 3.4.4). Therefore, there was no observable impact from tailings deposition in Cadia Hill pit on surface water quality downstream in Cadiangullong Creek.

16.5.1.3 Ore Processing area

Concentrations of all water quality parameters were similar between the sites upstream (CAWS79) and downstream (CAWS78) of the Ore Processing Area, except for a slight increase in EC at the downstream site and higher concentrations of copper and zinc at the upstream site. This indicates a minimal impact to downstream water quality from the Ore Processing Area. During the reporting period, CAWS73 (the SROP) showed elevated EC and concentrations of nutrients, most major ions and molybdenum, compared to other Ore Processing Area sites. These results are expected given the impounded nature of this site, compared to stream sites CAWS78 and CAWS79.

16.5.1.4 Waste rock dumps

Downstream monitoring results at 412161 show little influence of waste rock leachate on Cadiangullong Creek water quality. Although copper concentrations were consistently elevated above the DGV at 412161 during the reporting period, this may not indicate influence from the WRD leachate dams. Copper concentrations at 412161 were similar to or lower than those observed at upstream Cadiangullong Creek site CAWS78 during each sampling event of the reporting period.

16.5.1.5 TSF Eastern Zone

Comparison of the major ion compositions of the TSF Eastern Zone sites indicated that there is no clear influence of the decant ponds on surface water in the dyke pond (CAWS60), although it is possible that increasing concentrations of molybdenum observed during the reporting period at CAWS60 may be attributable to seepage from the TSF and/or increases in groundwater levels. However, the dyke pond is part of Cadia's internal water system and cannot discharge off site due to its location, and as such, there is no impact from these water sources on the downstream environment in Cadiangullong Creek.

16.5.1.6 TSF Western Zone

Surface water quality at sites CAWS67, CAWS68, CAWS69, CAWS72 and CAWS76 is characterised by an elevated and distinct ionic composition, dominated by the sulfate ion. These sites, excluding CAWS72, also showed elevated concentrations of molybdenum compared to other sites within the TSF Western Zone, suggesting potential influence of the TSF and waste rock embankments on the surface water storages. However, there is no

indication of elevated molybdenum concentrations at CAWS61 on Cadiangullong Creek which is the nearest downstream receptor for any potential water quality impact from the Western Zone of the TSFs.

Overall, while it appears that there is an influence of waste rock runoff/drainage from TSF embankments at a seepage monitoring location and two dams to the west of the TSFs, this influence appears to be limited spatially, and to be fully contained in surface water bodies from which water is recovered for re-use. Therefore, the TSFs are not impacting on the water quality of the receiving watercourse in the Western TSF Zone.

16.5.1.7 TSF Southern Zone

The surface water monitoring sites CAWS31 and CAWS41, which represent a mix of background groundwater and seepage from the STSF, showed elevated molybdenum concentrations over the reporting period, although these concentrations were within historical levels. As mentioned above, all but one molybdenum concentration recorded during the 2022-2023 reporting period at TSF Southern sites was below the ANZG (2018) DGV of 0.034 mg/L. Water at these sites is fully contained and returned to the processing plant for reuse, therefore does not currently pose a risk to downstream receiving waters. There are no other concerning results at other surface water monitoring locations within the TSF Southern Zone.

No impact of seepage from the STSF on water quality was evident in the receiving environment at site 412702, based on the monitoring records for key parameters associated with the TSF decant water, including nitrogen oxides, molybdenum and major ion composition.

16.5.1.8 Blayney Dewatering Facility

Water quality at the BDF monitoring locations has been generally stable, with few temporal trends observed. While historically there were some spatial trends apparent, these are no longer evident, with similar variability in water quality parameters generally observed at both monitoring locations indicating consistent, stable conditions.

16.5.1.9 Cadia Dewatering Facility

The potential influence of the CDF on water quality had previously been observed at CDW02, based on elevated concentrations of copper and molybdenum. However, the water quality at CDW05 generally shows an improvement compared to that at historical sites CDW01 and CDW02, with low concentrations of most metals. Similarly, water quality at downstream Belubula River site (CDW04) has generally improved following drainage improvement works at the CDF in 2020, compared to that at upstream site CDW03, indicating no observable impact on the water quality of the receiving environment from the CDF.

16.5.1.10 Site Specific Guideline Value (SSGV) Assessment

The Cadia Water Management Plan specifies SSGVs for five surface water monitoring sites (412702, CAWS63, CAWS10, 412166, 412167). Results for the reporting period are summarised below with further information provided in the Surface Water Assessment (Appendix 3).

- SSGV exceedances occurred at 412702 during the reporting period, although none were attributed to Cadia. Exceedances of aluminium, copper, iron and nutrients were also observed upstream of the mine area and are likely to be the result of agricultural land uses and/or the lithology of the catchment.
- SSGV exceedances occurred at CAWS63 during the reporting period, although these appear to have been isolated incidents and are not likely to be attributable to influences from mining.
- SSGV exceedances occurred at CAWS10, although there are no clear pathways for mine derived pollutants to impact on this creek system. Aluminium and nitrogen concentrations are also elevated upstream in the catchment.
- SSGV exceedances occurred at 412166 and 412167, although are considered to be outside of the area of impact of the mine. The observed exceedances are attributed to either runoff from agricultural lands or increased sedimentation from above average rainfall.

Overall, SSGV exceedances did not pose a risk to downstream water users with respect to aquatic ecosystems, livestock, and short-term irrigation beneficial uses.

16.5.2 FURTHER IMPROVEMENTS

During the next reporting period, the SSGV will be reviewed as part of the next version of the water management plan.

16.6 GROUNDWATER ASSESSMENT

A groundwater assessment was completed for the reporting period by AGE (2023) and is provided as Appendix 4. The following sections provide a summary from the AGE report.

The groundwater assessment has been undertaken for each operational area, including:

- Cadia Hill Pit, which is currently used for tailings disposal;
- Ridgeway Mine, which has been in care and maintenance since March 2016;
- Cadia East Mine, where works are still ongoing and are approved to extract approximately 450 million tonnes (Mt) of ore over a period of 21 years;
- northern and southern tailings storage facilities (NTSF and STSF, respectively);
- southern waste rock dump (SWRD); and
- other areas, which include the ore processing area and regional monitoring bores.

Appendix 4 provides a regional hydrogeology map and corresponding conceptual hydrogeological cross-sections.

16.6.1 CADIA HILL PIT

Increased groundwater levels that can likely be attributed to tailings deposition were identified in two decommissioned Ordovician bores, MB94 and MB95. Increases in arsenic concentrations and a decrease in the sulfate-chloride mass ratio, were observed in these bores, which further supports localised interaction between the tailings decant water and groundwater. MB94 and MB95 are now decommissioned. The risk of this groundwater migrating away from the pit is minimal, given that monitoring data and numerical modelling both show and predict an inwards hydraulic gradient, which means at a wider scale groundwater flow is towards the pit.

The potential for the offsite migration of impacted groundwater is adequately monitored, with a large number of groundwater monitoring bores installed at various depths. These bores are largely located to the west and southwest of the pit in the direction of Cadiangullong Creek, which is the nearest environmental receptor.

16.6.2 RIDGEWAY MINE

Groundwater level declines after the 2002 surface breakthrough were observed in many monitoring bores, and in general the levels have since stabilised. There are a large number of active monitoring bores that delineate the extent of drawdown associated with the mine, particularly to the west. It is considered unlikely that there is any mining related effect on groundwater-surface water interactions (if present) at nearby sections of Cadiangullong Creek/Swallow Creek. Groundwater monitoring data collected around the Ridgeway mine confirms the zone of drawdown is limited.

16.6.3 CADIA EAST VR14-1 INCIDENT

In July 2022 through to August 2022, there was instability identified in a ventilation rise causing groundwater flow into the new VR14-1 vent shaft during drilling at Cadia East from the underground mine to the surface (referred to as the VR14-1 incident). Groundwater ingress into the shaft was predominantly from the Tertiary basalt aquifer and level changes as a result of the VR14-1 incident have only been detected in basalt monitoring bore MB88 located approximately 860 m north–- northwest of the shaft.

To remediate groundwater inflow into the shaft a grout curtain was installed into the basalt and the top part of underlying Silurian sediments by grout injection in an array of boreholes around the shaft from 10 to 23 September 2022. Following remediation, groundwater level in MB88 displayed a recovering trend.

There are no apparent remaining groundwater impacts associated with the VR14-1 incident except in the vicinity of monitoring bore MB88 which shows residual changes associated with groundwater level and quality following remediation works.

16.6.4 CADIA EAST MINE

Observed groundwater level declines are generally consistent with modelled predictions. Groundwater level declines have not been observed in Silurian sediment bores MB47A and MB47B, which are the nearest monitoring points to Flyers Creek. The potential for climate related groundwater level declines cannot be ruled out, particularly due to the severity of the 2017 to 2019 drought. Observed groundwater declines at Tertiary basalt bore MB49 were predicted by modelling but the declines may not solely be attributable to mining.

Several private supply bores are located within the predicted zone of depressurisation for the Ordovician volcanics, and as such the screened intervals of these bores should be verified. The existing monitoring network will become more robust as there is planned additional monitoring bores and multilevel vibrating wire piezometers to be installed in Silurian and Ordovician units between Cadia East and Flyers Creek in 2023.

These bores/piezometers will provide greater spatial coverage to detect potential impacts towards Flyers Creek and propagation of mine induced drawdown and will assist in calibration and verification of numerical modelling predictions.

There are no adverse changes to Flyers Creek baseflow contribution from the VR14-1 incident as provided in the Phase 2 groundwater investigation report (AGE, 2023). There are also no apparent remaining groundwater impacts associated with the VR14-1 incident except in the vicinity of monitoring bore MB88 which shows residual changes associated with groundwater level and quality following remediation works (AGE, 2023).

Given that the potential impacts from mining at the Cadia East Mine are drawdown of the surrounding groundwater systems, any water quality variations that can be attributed to mining are expected to be linked to a changed flow regime.

16.6.5 NTSF/STSF

Around the NTSF and the STSF groundwater level increases have been observed in bores that are directly adjacent to the TSFs, likely due to the mass of emplaced tailings compressing the underlying groundwater system. The extent of these pressure induced groundwater level increases is not laterally extensive. Direct seepage from the TSF is conceptualised and modelled to be relatively minor, and although there may be some indicators of seepage effecting groundwater chemistry, the potentially impacted groundwater is still of good enough quality that it is unlikely to represent a risk to the surrounding environment. The extent of potential impacts are well constrained and monitored in the direction of down gradient receptors, Cadiangullong Creek and Rodds Creek.

16.6.6 SOUTHERN WASTE ROCK DUMP

Groundwater levels in bores that are hydraulically down gradient of the SWRD are consistent

with climatic conditions, and no increases associated with the SWRD are apparent. There is some evidence of SWRD leachate influencing the groundwater quality of down gradient monitoring bores, namely increasing concentrations of sulfate and elevated concentrations of nitrogen oxides. However, impacts to the nearby Cadiangullong Creek appear are not evident, with waste rock dump leachate being ionically dissimilar to the water in Cadiangullong Creek

16.6.7 OTHER AREAS

No major changes in groundwater quality were observed within monitoring network for the ore processing area over the 2022/2023 water year. Regional monitoring bores, which are located at least 2 km away from operational activities, show no influence of operational activities on water levels. These bores show trends similar to climatic variations, or water level variations associated with pumping from surrounding landholder bores. Increasing concentrations of nitrogen oxides are seen in some bores and are most likely associated with agricultural activities. A downward pH trend is becoming more prominent in monitoring bores MB72 and MB74 located northeast of Flyers Creek, over 6 km from CVO.

16.6.8 FURTHER IMPROVEMENTS

The following improvement activities were identified during the review:

- Correct minor errors in the WMP.
- Add a TARP for groundwater level guidelines into the WMP, including investigation requirements for trigger exceedance.
- Conduct a review of the groundwater monitoring program to reduce the frequency of monitoring at locations more distant from the mine where mine related impacts are not likely.
- Consider inclusion of mercury in the water quality sampling suite for monitoring bores down gradient of the NTSF and STSF.
- Add biannual water samples from Waste Rock Dump (WRD) monitoring bores MB4B, MB6B, MB7B, MB8B, MB9B, MB10B, and MB11B.
- Consider the installation of automated loggers in key bores located east, north and south of the Cadia East mine to monitor water levels at a high frequency (daily) to assist in interpretation of potential mine related impacts in this region.
- Begin routinely monitoring and sampling the new standpipe bores that were installed between Cadia East mine and Flyers Creek in 2022 and 2023.
- Install additional deep monitoring bores/multilevel piezometers around the Ridgway Mine subsidence zone to better assess and model drawdown impacts.
- Install additional deep monitoring bores/multilevel piezometers around the Ridgway Mine subsidence zone to better assess and model drawdown impacts.

16.7 EROSION AND SEDIMENT CONTROL

The management and maintenance of sediment control structures during the reporting

period has been undertaken in accordance with the Water Management Plan (CHPL, November 2019) and specific requirements as detailed in EPL 5590 (Operating condition O4) presented in Table 16-9.

Monthly summaries are reported in the EPL Report on the Cadia Valley website.

Table 16-9 EPL Operating Conditions

	Operating Condition	Statement of compliance
O4.1	The stormwater control structures (sediment basins) identified at EPA identification point 1 must be drained or pumped out as necessary to maintain each basin's design storage capacity within 5 days following rainfall.	Sediment dam capacity was restored in all required sediment dams within 5 days of rainfall.
O4.2*	The water discharged to comply with condition O4.1 may only be discharged to waters from those stormwater control structures (sediment basins) identified at EPA identification point 1 where: • the discharged water complies with the pH and turbidity limits stipulated at condition L2.1/L2.4 during in-situ field testing, • a sample of the water discharge is taken for testing and analysis in accordance with condition M2.3, and • the EPA is advised of any results above the licence limits within 3 working days of the receipt of the monitoring results as required above.	25 uncontrolled discharges from sediment control structures occurred during the reporting period. During this period 2 water quality exceedances occurred.
O4.3	The dams identified at EPA identification point 3 must be drained or pumped out as necessary to maintain each days design storage capacity within 14 days following rainfall.	Sediment dam capacity was restored in all required sediment dams within 14 days of rainfall.
O4.4	There must be no discharge to Cadiangullong and/or Rodds Creek from the process water dams, seepage collection dams and leachate collection dams as identified at EPA identification point 3 except where rainfall at the premises exceeds the 1:100 design criteria for those basins being greater than 158 mm of rainfall recorded over a 72-hour period.	No discharges occurred from leachate, seepage, and process water collection basins identified as EPA identification licence discharge point 3.
O4.5	The licensee must undertake maintenance as necessary to desilt any storage basin identified at EPA identification points 1 and 3 in order to retain each storage basins design storage capacity.	North leachate dam and sediment basin CS were desilted during the reporting period.
Note: * the concentration limits stipulated by condition L2.1/L2.4 for EPA identification point 1 is deemed not to apply when the discharge from the stormwater control structures (sediment basins) occurs solely as a result of rainfall measured at the premises which exceeds a total of 44 mm of rainfall over any consecutive 5 day period.		

16.7.1 ENVIRONMENTAL PERFORMANCE

In total, 345 mm of rainfall was recorded on site between October and November 2022 (refer to Table 7-1). Furthermore, the 24-hour cumulative rainfall total of 110 mm recorded on 14 November 2022 was analysed to be between the 2% and 5% AEP event. As a result of the climatic and catchment conditions, 25 discharges in total from sediment control dams T6,

AR4-5 and CP4 during the reporting period.

During the reporting period inspections were carried out for all rainfall events greater than 10 mm. The location of sediment control structures is presented in Figure 16-23 and a summary of sediment dam capacity compliance is shown in Table 16-10. Overall, the placement, inspection and maintenance of the sediment dam network at Cadia continues to provide a robust means of preventing the release of contaminated waters to the wider environment.

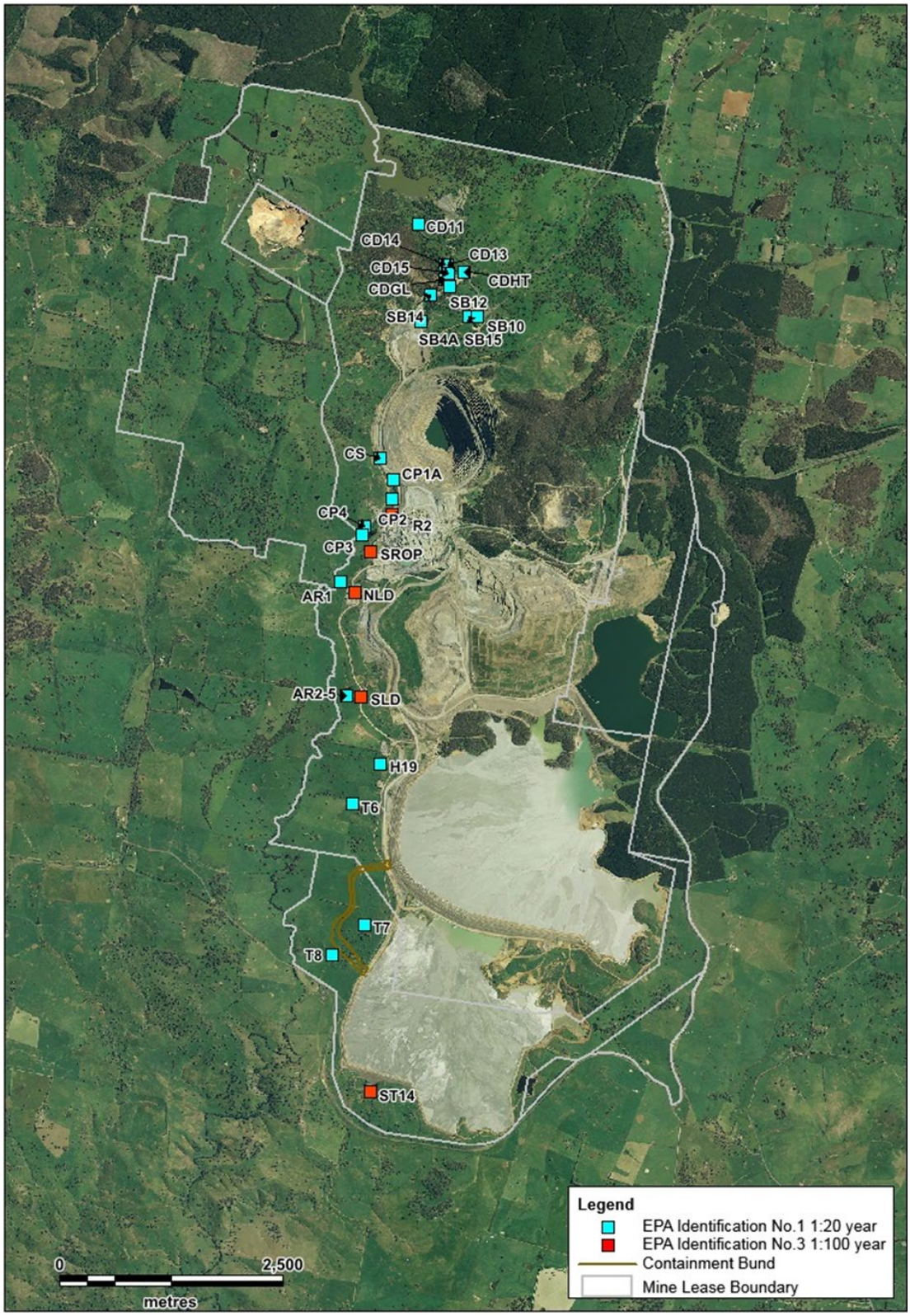

Figure 16-23 Sediment Control Structure Locations

Table 16-10 Sediment Dam Status June 2023

Catchment	Containment requirement (ML)	Current Storage Capacity (ML)	Last survey	Comments
1:100 ARI 72-hour Sediment Dam (158 mm)				
SROP	57.64	72.5	Sep 20	Storage capacity includes installed diesel pumping capacity.
Northern leachate (NLD)	57.3	50.7 (77.6 ML with pumping capacity)	Mar 13	Permanent pump installed with 10 ML/day capacity. Pond capacity with pumping 77.6 ML.
Southern leachate (SLD)	49.6	105.0 (124.5 ML with pumping capacity)	Jun 07	Permanent pump installed with 10 ML/day capacity. Pond capacity with pumping 124.5 ML.
ST14	20.9	22.8 (29.5 ML with pumping capacity)	Nov 11	Permanent pump installed with 4 ML/day capacity. Pond capacity with pumping 29.5 ML.
R2	4.8	4.69 (9.6 ML with pumping capacity)	Jun 07	Pump installed with 13.5 ML/day capacity. Pond capacity with pumping 9.6 ML.
1:20 year Sediment Dam (44 mm over 5 days)				
Pit and concentrator area				
CS	4.24	4.67	Jan 12	-
AR1	1.43	1.89	Feb 15	-
AR4-5 combined	3.44	3.47	Dec 14	-
Ridgeway area				
CD GL	0.10	0.58	Feb 15	-
CD HT	0.38	0.30	Oct 15	-
SB4A	1.36	1.79	Dec 16	-
SB10	0.43	1.00	Dec 14	-
SB12	0.66	0.82	Jun 07	-
SB14	0.25	0.36	Apr 16	-
SB15	0.31	0.47	Oct 15	-
CD15	0.43	0.49	Dec 14	-
Ridgeway South Portal area				
CP1A	0.31	0.42	Sep 15	-
CP2	0.22	0.75	Dec 16	-
CP3	0.85	0.92	Feb 15	-
CP4	0.24	0.73	Feb 15	-
Cadiangullong Dam area				

Catchment	Containment requirement (ML)	Current Storage Capacity (ML)	Last survey	Comments
CD11	0.17	0.39	Dec 16	-
CD13	0.09	0.29	Dec 16	-
CD14	0.05	0.11	Dec 16	-
Molybdenum Plant Area	-	-	-	Area drains to NTSF and RCD.
RCD	-	-	-	Clean catchment stormwater diverted to Rodds Creek Dam
TSF / Containment Bund area				
H18-H19 combined	20	50.0	Jul 10	-
T6	7	22.05	-	-
T7-T8 combined Temporary arrangement while containment bund is in place (not in EPL5590)	15.6	14.8	Sep18	Pump available with 10 ML/day capacity. Pond capacity with pumping 25 ML.

16.7.2 FURTHER IMPROVEMENTS

The performance of the Cadia erosion and sediment control program during FY23 was considered to be satisfactory given the consecutive months of above average rainfall (refer to Section 7) and high intensity rainfall events that occurred during the reporting period. As such, no further improvements have been identified during the reporting period.

17 REHABILITATION

As per the approved Rehabilitation Strategy (CHPL 2020) and LBMP (CHPL, 2022), the overall goal regarding rehabilitation is to 'generate enduring land value, including both ecological value (e.g., biological diversity and other environmental values) and agricultural value (i.e. the ability to produce agricultural goods)'.

The rehabilitation aim at Cadia is to generate safe, stable, non-polluting and self-sustainable landforms at the mine site and on Cadia owned lands.

17.1 POST REHABILITATION LAND USE

The overall goal of the post mining land use for Cadia is derived from the Cadia East EA (CHPL, 2013) Cadia LBMP (CHPL, 2022) and the Rehabilitation Management Plan (2022). This is broadly based on the pre-existing land uses within the Cadiangullong Creek Valley being predominately grazing agricultural land. Undulating hills will be replicated through rehabilitated landforms with the aim of blending in with the surrounding topography.

The specific post mining land use as stated in the RMP is to include:

- High quality grazing area, where deemed to be sustainable,
- Native Ecosystem (Woodland conservation),
- Retaining key infrastructure as determined in the mine closure plan (CHPL, 2014)

The rehabilitation program aims to develop the following vegetation communities:

- Replacing/replicating Critically Endangered Ecological Communities where applicable, namely the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland.
- Pasture and scattered paddock trees; and
- Conservative grazing areas;

In addition to these vegetation communities the following features will also form part of the post mining landscape:

- Final voids (subsidence zones, PTSF and Cadia Extended Highwall),
- Heritage Sites,
- Infrastructure (power lines and Cadia Dewatering Facility)
- Water management areas (including constructed wetlands), and
- Water storage areas (water storage dams).

17.2 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD

17.2.1 ON SITE REHABILITATION WORKS

On site rehabilitation works were conducted during the reporting period in accordance with the approved RMP (2022). Weed management was undertaken as part of the site weed management program.

Table 17-1 provides an overview of disturbed areas as of 30 June 2023 and corresponding rehabilitated areas while Figure 17-1 provides a summary of the rehabilitation status at Cadia.

Table 17-1 Cadia Mine Rehabilitation Summary

Mine Area Type	Previous Reporting Period (Actual) 2021/2022	This Reporting Period (Actual) 2022/2023	Next Reporting Period (Forecast) 2023/2024
Total mine footprint (ha)	2,077[2]	2424.5[2]	2,713.3
Total active disturbance (ha)	1567[2]	2,163.5[2]	2,316.3
Land being prepared for rehabilitation (ha)	1.6	0	0
Land under active rehabilitation (ha)	333.7[4]	261 [3,4]	0
Offsite Rehabilitation (ha)	0	0	15
Biodiversity Offset Areas (ha)	5	14.5	20
Completed rehabilitation (ha)[1]	0	0	0

Notes:

[1] Denotes land that has been signed off by RR as completed rehabilitation

[2] Significant variations from 2021/2022 associated with updated spatial mapping and calculations used, including the addition of the NTSF containment bund, Upper Rodds Creek Dam and Cadiangullong Dam, as well as new disturbance during the reporting period.

[3] Approximately 10.5 Hectares 'de-habilitated' during the reporting period.

[4] Approximately 30.8 hectares previously identified as Rehabilitation has now been removed from rehabilitation calculations.

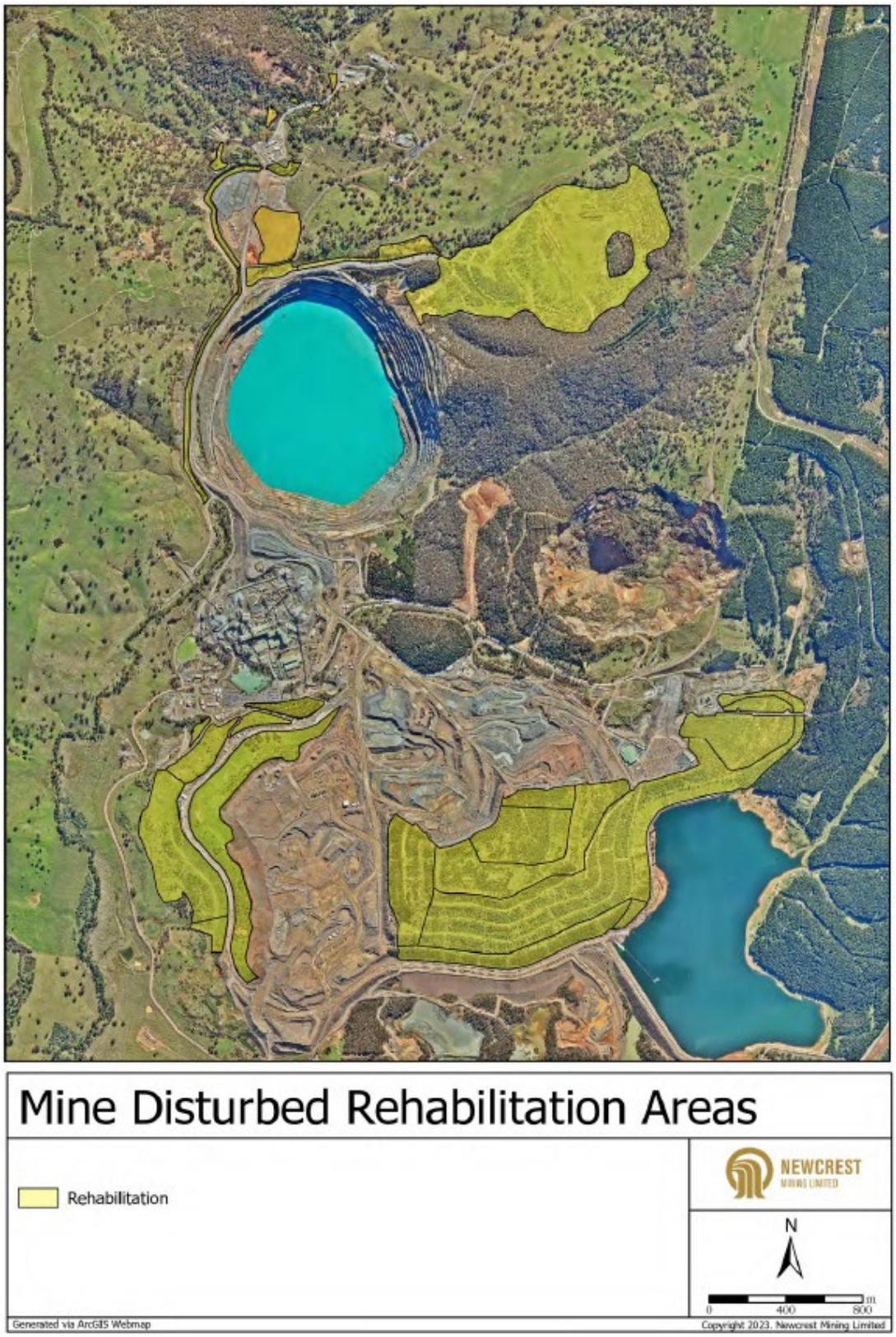

Figure 17-1 Mine Disturbed Rehabilitation Areas

17.2.2 OFF SITE REHABILITATION PROGRAMS

The Cadia LBMP was approved by the New South Wales Department of Planning and Environment on 13 October 2022 and provides for the implementation of a vegetation corridor program as per the Cadia East EA.

Cadia owns significant areas of agricultural land that have been extensively cleared for grazing. A major commitment is to undertake a program of corridor enhancement that will ultimately provide a network of regional vegetation corridors (Figure 17-2). The aim of these corridors is to:

- Conserve remnant vegetation,
- Link significant areas of remnant vegetation,
- Provide habitat for native flora and fauna, and
- Increase the sustainability and biodiversity of Cadia farms.

Table 17-2 provides a summary of progress in the implementation of the plan.

Data obtained from rehabilitation monitoring indicates that the average tree / shrub density is 1,300 trees / shrubs per hectare. Based on this figure, the ongoing rehabilitation program has resulted in approximately 1,219,410 trees being planted / sown on Cadia owned land (30 June 2023).

Table 17-2 Status of Vegetation Corridor Program

Type	Completed	Planned 2022/2023	Completed 2022/2023	Planned 2023/2024	Long – term proposal
General corridors	616 ha	5 ha	0 ha	10 ha	2,028 ha
Riparian corridors	311 ha	0 ha	0 ha	5 ha	607 ha
TOTAL	*927 ha	5 ha	0 ha	15 ha	*2,635 ha
* Approximate figures only as at July 2023					

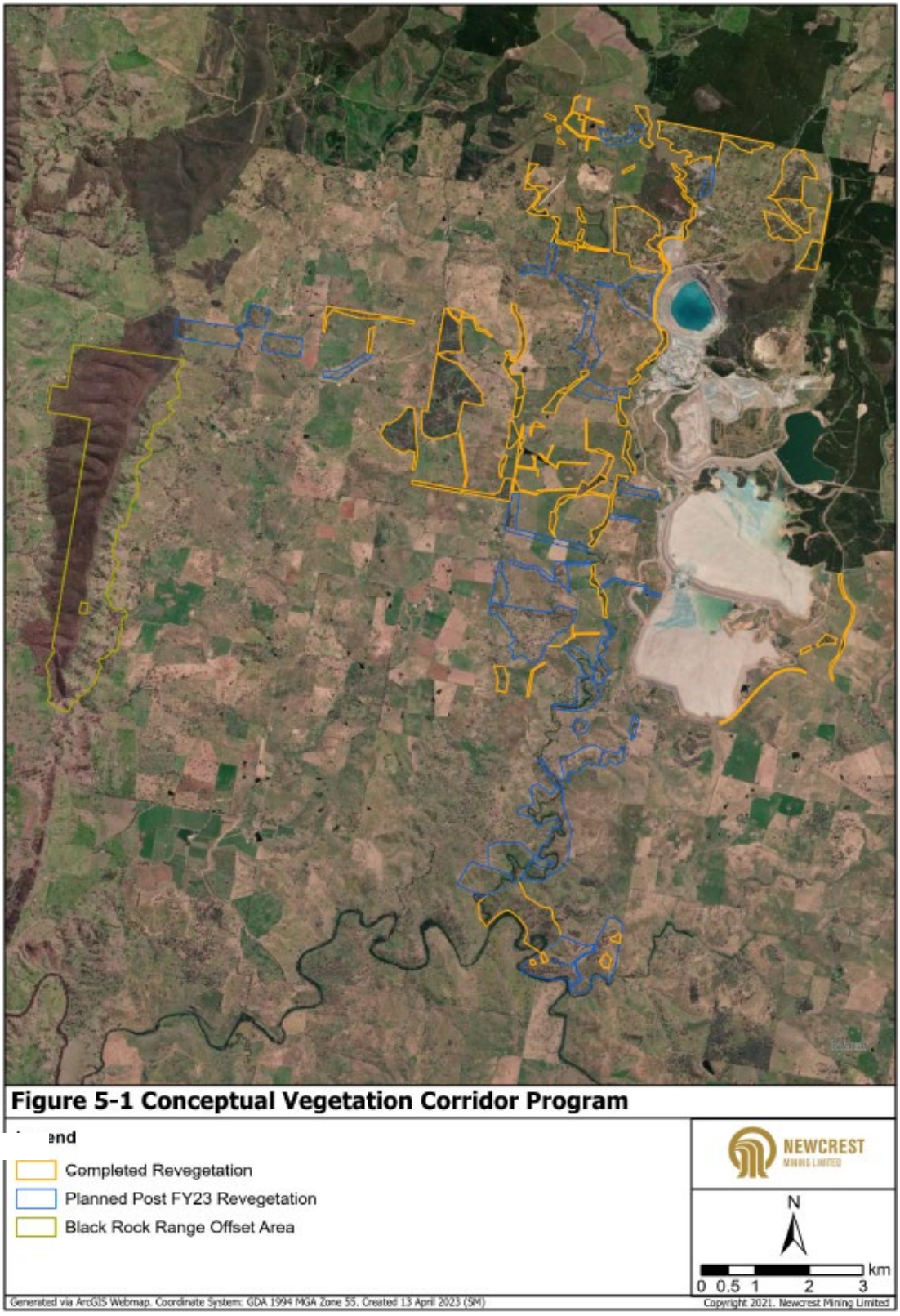

Figure 17-2 Vegetation Corridor Program

17.2.2.1 Black Rock Range (Conservation Offset Area)

Fire trail maintenance was conducted during December 2022, and January and February 2023 and included trimming of the pavement, maintenance of drainage structures, spraying of woody and herbaceous weeds, clearing of fallen trees and some minor trimming of overhanging branches. Other maintenance activities undertaken include repairs to flood-damaged fencing and replacement or installation of signage.

Noxious weed control was conducted between November 2023 and April 2023, targeting Cape Weed, Serrated Tussock, Bathurst Burr, Blackberry and Sweet Briar. Sticky nightshade (a local weed of significance) was also extensively targeted during weed control works as part of Cadia Valley's Sticky Nightshade Control Program.

Cadia is progressing conservation agreements with Biodiversity Conservation Trust (BCT) to ensure the long-term security of the offset sites including Black Rock Range. BCT inspected Black Rock Range during March 2023 and are expected to finalize management advice and conservation agreements with Cadia by the end of 2023.

Aquatic ecosystem monitoring was conducted on the Panuara Rivulet in Spring 2022 and Autumn 2023. Revegetation works are yet to be conducted in the riparian zone of Black Rock Range, as such the above is considered baseline condition, representing the previous land use of grazing (predominantly with sheep).

During May and June 2023, ecological restoration of approximately 14.5 Hectares of Black Rock Range was conducted, which included ground preparation works, weed control and the planting of native tube stock. Preparation for direct seeding of appropriate species to commence in spring 2023. Native seed collection was undertaken in late June 2023 from Black Rock Range. Flyers Creek Offset Area and Stratton Vale Offset Areas

No further rehabilitation works had been completed on this area during the reporting period.

Maintenance activities conducted during the reporting year include:

- Noxious weed control, targeting Blackberry, Bathurst Burr and St John's Wort.
- Sticky Nightshade targeted weed control, program
- Fence inspections and maintenance as required.

BCT attended the Stratton Vale and Flyers Creek Offset Areas in February 2023 to begin progressing conservation agreements with Cadia to ensure in-perpetuity security of these conservation areas. The agreements and management advice for the Stratton Vale and Flyers Creek Offsets Areas are expected to be finalized by the end of the 2023 calendar year.

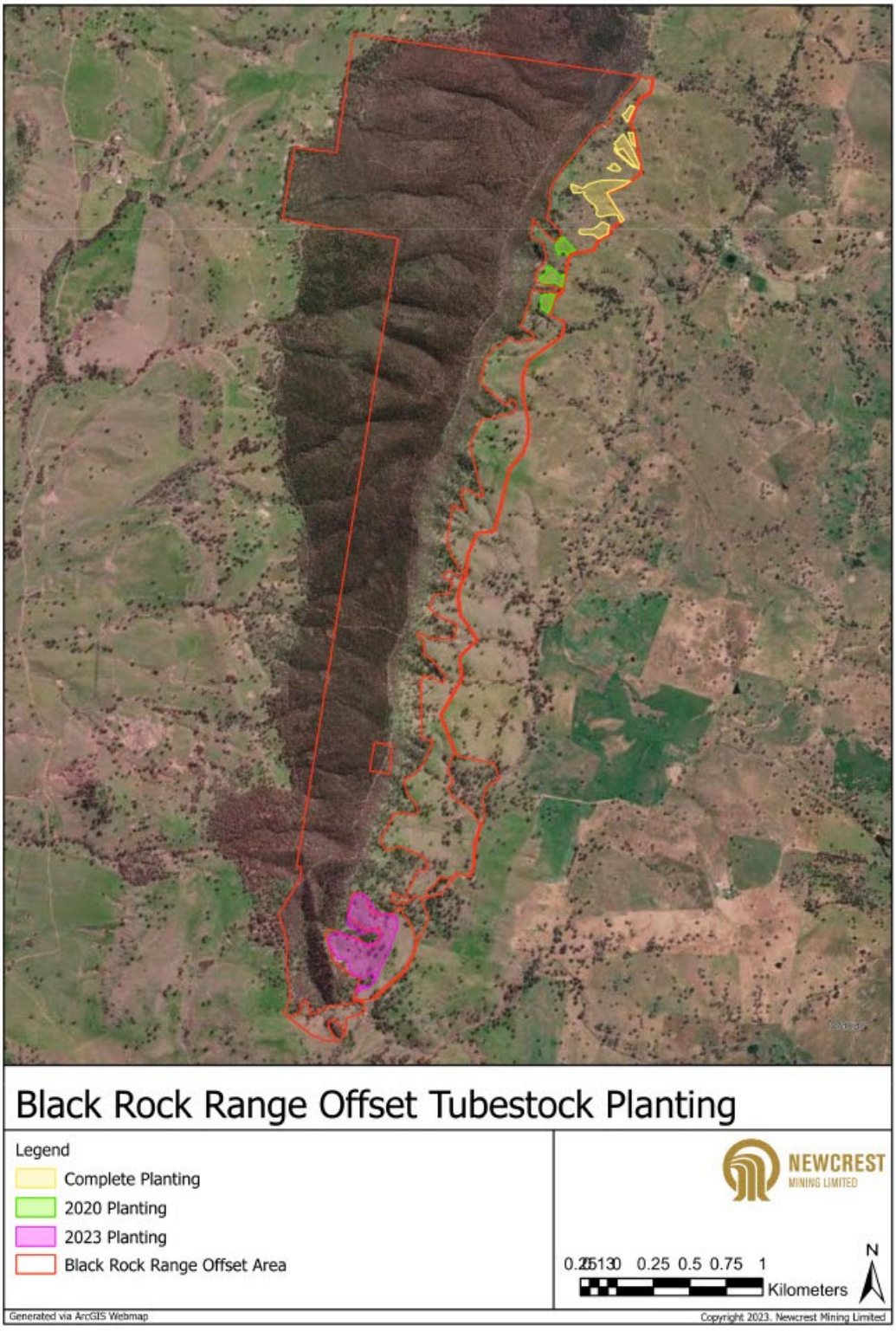

Figure 17-3 General Location of Tubestock Planting

17.3 COMPARISON WITH FORWARD PLAN PREDICTIONS

17.3.1 REHABILITATION AREA TARGETS

During the reporting period, Cadia generally operated in accordance with the Forward Plan. A comparison of the predicated rehabilitation works and actual works completed are provided in Table 17-3.

Table 17-3 Summary of Rehabilitation Against End of Mine Life Targets

Predicted/Actual	Total Disturbance Area (ha)	Actual total Area Rehabilitated (ha)	Cumulative Rehabilitation Area (End of Reporting Period)	Remaining Rehabilitation to be completed
Reporting Period Data	1,567	1.6	336	N/A
Predictions for End of Mine Life	2,494	9.0	334	2,162

The materials inventory summary as shown in Table 17-4 highlights sufficient stocks of topsoil and benign rock for future rehabilitation and tailings construction.

Table 17-4 Materials Inventory Summary

Material	Currently stored as at June 2023 (m^3)	Proposed stripped from June 2023 to June 2024 (m^3)	Projected Total Volume by 2031 (m^3)	Total Required until June 2031 (m^3)	Surplus (+) or Deficit (-) (m^3)
Topsoil*	4,281,232	152,100	4,567,774	4,058,000	+509,774
Clay**	n/a	n/a	n/a	n/a	n/a
Benign Rock (NAF)***	65,065,053	8,500,000	n/a	53,000,000	15,000,000

* Topsoil required for 0.2 m Coverage of disturbed areas (2029 ha).

** Clay harvested from in-situ during stripping. HDPE liner available as alternate impermeable barrier for PAF cell.

***NAF required for 2 m layer of PAF cell 2,000,000m^3. TSF decant cover 1,000,000 m^3 and material for Tailings dam wall construction and buttressing 50,000,000m^3.

17.3.2 REHABILITATION COMPLETION PERFORMANCE INDICTORS

The Cadia Rehabilitation monitoring program conducted by DnA Environmental (Appendix 5) was aimed to establish clearly defined, repeatable and consistent methodologies for monitoring changes in various aspects of ecosystem function, succession, and long-term sustainability. The monitoring methodology includes:

- Establishing a range of relevant reference sites to compare and track the progress

and inherent ecosystem function of rehabilitation areas;

- Selecting a range of suitable reference sites that reflect the desired final land use, biodiversity targets, historical disturbances and local community expectations; and
- Undertaking a monitoring program that provides simple but informative and reliable information that indicates positive recovery trends or rapid detection of rehabilitation failure.

DnA Environmental findings were that whilst no rehabilitation site currently meets all primary completion criteria, many sites experienced a significant increase in ecological function as well as ground cover diversity and abundance owing to improved seasonal conditions following the 2017-2019 drought. Woodland rehabilitation sites are characterised by dense stands of acacias with limited occurrence of eucalyptus. There was a high variability in the density of trees and shrubs and a significant decline in the abundance of mature acacias.

Exotic annual plants have established on large areas of rehabilitation, however many of these were previously naturalised in the local area and some of the annual groundcovers were clovers and medics which can be useful pasture species. Exotic annual plants have proven beneficial by increasing ecological development, function and stability of rehabilitation sites.

When compared to reference woodland sites, some rehabilitation sites had low stability and all rehabilitation sites had low infiltration and nutrient cycling capacity. All sites, except South Dump 10, had a similar native cover abundance and diversity to the woodland reference site RFWood02.

Further actions for rehabilitation sites should focus on:

- addressing plant community composition through a program of infill planting with tube stock or re-seeding.
- surveillance and control of priority weeds and WONS.
- feral pest management.
- increasing placement of habitat features such as trees, rockpiles and logs within rehabilitation areas.
- testing of waste rock materials and topsoils to ensure material suitability for use prior to application to rehabilitation areas.

17.4 REMOVAL OF BUILDINGS

No buildings had been removed during the reporting period.

17.5 RR SIGN OFF ON REHABILITATION

During the reporting period no areas of rehabilitation received formal sign-off from RR stating that land use criteria and completion criteria had been met.

17.6 REHABILITATION MONITORING, TRIALS AND RESEARCH

Rehabilitation progress is assessed through the combination of several environmental monitoring programs, including:

- Ecological monitoring on rehabilitation and background sites;
- Waste Rock Dump cover performance monitoring.
- Vegetation trials through infill planting of eucalypt species was undertaken in May and June 2023 on the North Waste Rock Dump (NWRD) to analyse the effectiveness of various tree guards and eucalypt species performance. The infill planting focussed on areas of the NWRD that required planting of eucalypt species to achieve a trajectory towards the final post mining land use of an open grassy woodland. With the trial ongoing, the results will be reported in the next iteration of the Annual Review.
- During the reporting period, a consultant (AECOM) was engaged to conduct a pre-feasibility study into using constructed wetlands to manage water runoff from the Tailing Storage Facilities (TSF). The study focussed on the NTSF. The study identified that a constructed wetland would be most effective to treat captured leachate from the TSFs, as well as captured surface water flows from the TSF surface.

These monitoring programs also take into consideration related monitoring data such as meteorology and water monitoring programs.

17.6.1 WASTE ROCK DUMP COVER PERFORMANCE MONITORING

Monitoring has been established on the North and South Waste Rock Dumps by O'Kane Consulting to determine the success of the cover systems implemented for these final landforms. The monitoring is being conducted to verify the specific design objectives of the North and South Waste Rock Dumps including:

- Limit water infiltration to prevent the production of contaminated leachate;
- Provide a safe and stable landform; and
- Provide a suitable growth medium for sustainable vegetation (to assist with achieving stable land surfaces and aesthetic characteristics as defined in the RMP).

Data collected for this monitoring program includes:

- Meteorological data;
- In situ volumetric water content;
- Matric suction;
- Pore-water pressure;
- Interflow; and
- Temperature of the cover and upper waste rock materials.

O'Kane Consultants conducted modelling in 2008 regarding net percolation rates under varying weather conditions. Monitoring undertaken during 2023 (Appendix 6) indicated that higher than average rainfall was experienced during the monitoring period, which translated primarily into increased runoff and water storage followed by stabilization during drier months as evapotranspiration became the primary means of water removal. The majority of stations

remained within the optimal Plant Available Water Zone, however NWRD stations Primary 5, 6 and the natural station consistently exhibited values above the Field Capacity. Elevated water storage implies a risk of Net Percolation and potential water logging conditions. The conceptual model for the Cadia NWRD and SWRD cover systems remains unchanged (Appendix 6) from that developed during the numerical modelling program, based on performance over the nine monitoring years.

From examination of data collected since the onset of monitoring, performance of the cover system (based on NP rates) is comparable to the predicted results from numerical modelling analysis (Okane, 2023). NP values may change in future monitoring years as the cover system continues to evolve, and as plant densities, leaf areas, and sizes continue increasing upon continued maturation of the vegetation community.

17.6.2 RECOMMENDATIONS FOR COVER SYSTEMS BASED ON MONITORING RESULTS

Continued monitoring is required to capture long term abiotic and biotic temporal and spatial variability. This includes:

- Completion of monthly data collection and equipment inspections
- Maintenance and upgrades of cover system monitoring equipment
- Monitoring over years with varying weather conditions;
- Vegetation monitoring to be included in the annual calibration and inspection, to further partition the water balance by separating evapotranspiration and evaporation;
- Information from the monitoring program includes annual inspections of the equipment including calibration of the interflow, rain gauge tipping buckets and the in-situ permeability testing;
- Regular inspections will be conducted to identify and monitor erosion sites.

17.7 FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN AND CLOSURE CRITERIA

The reviewed Biodiversity Management Plan which details the closure criteria and methodology was submitted to DPE for approval on the 11 May 2022. The most recent RMP (2022) was finalised 30 November 2022.

Closure criteria will be continually reviewed and refined based on:

- The performance of reference sites;
- Information obtained from environmental monitoring programs, inspection and reporting;
- Learnings from other relevant industry rehabilitation programs; and
- Changes to regulatory requirements.

The criteria will continue to evolve throughout the mine life; however, consultation with relevant regulatory authorities would be conducted prior to implementing any changes to the

criteria; this will be conducted through the review and submission of management plans, through the RMP and Annual Reviews.

Following the expiry of the current MOP, Cadia began the process of transitioning to the new compliance reporting requirements for rehabilitation as set out by the RR, which has included the development of an RMP.

17.8 KEY ISSUES AFFECTING REHABILITATION

Rehabilitation monitoring has indicated the following potential issues which impact on rehabilitation success:

- Animal grazing,
- Active erosion,
- Function of the water management structures on the NWRD and SWRD;
- Changes to soil chemical and physical properties;
- Declining shrub densities,
- Low abundance of eucalypt within rehabilitation areas; and
- Weed presence.

Grazing pressure from mammals has resulted in exposure of small bare patches at some locations on the SWRD. Instances of minor rilling have declined with increasing levels of ground cover. Further improvements to surface water management are currently being investigated and should further reduce erosion. Habitat features will continue to be introduced to the rehabilitation areas as they become available. Plant community structure within rehabilitation areas is being addressed through infill planting.

In July 2021, the Resources Regulator issued a notice under Section 240 of the *Mining Act 1992* (Section 240 Notice) regarding the long-term stability (including erosion) of the NWRD & SWRD, and design and quality assurance of constructed surface water management structures over the NWRD and SWRD. Further, in March 2022, the Resources Regulator issued a Section 240 Notice regarding the failure of rehabilitation (vegetation) over the NWRD & SWRD, which will result in the rehabilitation not developing toward the nominated vegetation community.

Updated notices have subsequently been issued in December 2022 and June 2023 as directions within the Section 240 notices were addressed, and a request for a time extension made (and approved).

Cadia are currently in the process of addressing the directions of the Section notices issued, which included a detailed ecological survey being conducted (July 2022). Actions to be completed to address the Section 240 Notices are discussed in Section 17.9 below.

17.9 ACTIONS FOR THE NEXT REPORTING PERIOD

Maintenance of current rehabilitation will be conducted consistent with the Cadia Rehabilitation Strategy (CHPL, 2021), Cadia LBMP and the Cadia East Environmental Assessment. This will primarily include weed management and erosion control as required.

Cadia will continue to address the stability and surface water management concerns as required by the Section 240 notice. Cadia has advanced a study of the surface water management of the waste rock dumps and is anticipating a detailed design for remedial works to be developed during early FY24.

Further vegetation management is planned for the NWRD and SWRD to address concerns in the Section 240 notice. Vegetation management activities will include further weed control, thinning, ground preparation, tube stock planting and direct seeding.

Mine rehabilitation commitments will be contained in the Rehabilitation Forward Program, which was submitted to the Resources Regulator in November 2022.Vegetation corridor and Conservation offset area rehabilitation will be conducted as per the approved LBMP, and as depicted earlier in this section.

18 COMMUNITY

18.1 COMMUNITY CONSULTATION/ENGAGEMENT

Cadia continues to be an active member of the local community and has conducted numerous community consultation and relationship building activities with community and stakeholders over the reporting period. Consultative activities undertaken during FY23 are outlined in Table 18-1.

Table 18-1 Summary of Community Engagement in FY23

Engagement activity	Date	Summary
Modification 15 consultation activities	Individual landholder meetings – w/c 3 and 10 October 2022 December 2022–- Information Sheet #1 distributed February 2023 – information sheet # 2 distributed Regular updates in all external communication (operational updates and Cadia Newsletter) Regular updates in all community meetings (CCC, Cadia District Resident's Meetings)	Announcement of Mod 15, progress updates
CCOP consultation activities	Regular updates in CCC, Cadia District Resident's meetings, various landholder meetings relating to CCOP updates, photo montages, and environmental studies. April and May 2023 – Cadia District Resident's Meeting focussing on CCOP project July 2022 – Information Sheets #5 and #6	Ongoing updates relating to the CCOP project.
Local Council CEO and GM Meetings	Monthly	Operational and Project Updates on Cadia.
Cadia newsletter	September 2022 December 2022	Quarterly newsletter with expansive communication on the operations.
Cadia Community Consultative Committee (CCC)	15 Aug 2022 22 Nov 2022 27 Feb 2023 15 May 2023	Local stakeholder and Council updates of operational and project updates on Cadia.
Fortnightly smart communications	Fortnightly	A fortnight smart communication is a regular part of our communications strategy to provide consistent and transparent information. The email communication is sent out every two weeks and includes links to all updated Website content/reports, and long with other general information relevant to the community.
Operational Updates	August 2023 January 2023 March 2023	Operational updates are distributed to the Cadia District community, with a summary of operations, environment, social performance and

Engagement activity	Date	Summary
		tailing, including dust mitigation updates. Operational updates are part of a full suite of communications designed to provide consistent and transparent information to the community.
Cadia District Enhancement Project (CDEP)	8 September 2022 (AGM) 17 November 2022 2 March 2023 1 June 2023	The CDEP program works with community members to deliver on environmental and community benefits for the Cadia district, with the aim of making it a more desirable place to live and work and enhancing the value of the area as an agricultural, mining, and lifestyle choice.
Cadia District Resident's Meeting	2 August 2022 25 October 2022 1 March 2023 23 May 2023	Cadia District stakeholder and landholder meeting to provide operational and project updates to the community.
Cadia District Consultation Meetings	9 and 12 May 2023 (CCOP) 8 March, 15 March, 22 March, 29 March, 19 April. 17 May, 28 June 2023–- Community drinking water updates Feb – Jun 2023–- Various communications updates, fact sheet distributions relating to the community drinking water program Various communications updates between September – December 2022 relating to VR14-1	Consultation meetings with local community members focussing on specific projects or approvals. A series of meetings and community briefings relating to the VR14 issue, Cadia Road closure and community drinking water / air quality concerns.
Cadia District Resident's Christmas Party	16 December 2022	Annual Cadia District Resident's Christmas party for the local community. This is an informal opportunity for Cadia to engage with members of the local community.
Indigenous Relations Several meetings held with Registered Aboriginal Parties as part of the CCOP project and modification 15 field works.	6 September 2022–- morning training session and HR presentation and onsite tour with Clontarf Foundation. 17 November 2022–- participation in annual awards nights. October 2022 – Welcome to Country and official morning team celebration for NAIDOC Week. 22 March 2023–- Delroy Clontarf Site Visit.6June 2023–- Morning training session and careers presentations. Bi monthly meetings held with Orange Local Aboriginal Lands Council and Orange Aboriginal Medical Centre, including a meet and greet with representatives from the Tahltan community (in Canada) in December 2022.	Ongoing consultation and engagement activities with the local Indigenous community
Local Elected Officials	Various written communications	Ongoing consultation and engagement activities

Engagement activity	Date	Summary
	Several face-to-face and written communications relating to VR14, Cadia Road closure, ongoing floods in the central west, and concerned raised by the community relating to community drinking water throughout 2022 and 2023.	Monthly Government Update distributed
General stakeholder meetings and correspondence	Belubula Landholders Association Orange Local Aboriginal Lands Council Orange Aboriginal Medical Centre Ronald McDonald House Orange Housing Plus Orange360 ECCO – Environmental Concerned Citizens of Orange NSW Health Central Tablelands Local Land Services NSW Farmers Association Department of Primary Industries Central NSW Business HQ Orange Business Chamber Millthorpe Village Committee	Ongoing consultation and engagement activities Monthly stakeholder updates distributed

18.2 CADIA COMMUNITY INITIATIVES AND CONTRIBUTIONS

Table 18-2 provides a summary of Cadia contributions to community initiatives during the reporting period.

Table 18-2 Summary of Contributions, FY23

Initiative	Cadia Contribution
Community Partnership Program	$1,198,738.55
Newcrest Sustainability Fund	$2,800,527.00
Community Contributions	$36,835.41
Cadia District Enhancement Project	$250,241.72
Scholarships and Tertiary Support	$72,000.00

18.2.1 COMMUNITY PARTNERSHIP PROGRAM

Cadia's Community Partnership Program supports educational, charitable and community projects within the local government areas of Orange, Blayney and Cabonne.

Our Community Partnership Program offers two funding opportunities – Cadia Cares and the Cadia Legacy Fund. Cadia Cares provides funding to community groups and organisations to help support the economic development of the community. The Cadia Legacy Fund partners with community representatives to develop and deliver strategic projects that will leave a legacy in the local region. In FY23, a total of $1,198,738 was contributed.

Major donations for the financial year are described in the following sections.

18.2.1.1 Agriculture

$7,000 for Central Tablelands Local Land Services towards an information project to gain better control of sticky nightshade in the area.

$5,000 to the Centre for Invasive Species Solutions Trust towards including Sticky Nightshade on the WeedScan App. The WeedScan App will be Australia's first real-time weed identification app to help farmers and community groups act earlier on invasive weeds.

18.2.1.2 Tourism

$257,127 to go towards the Newcrest Orange360 Regional Tourism Event Fund. Established in 2022, the fund builds on the success of the region's festivals and events, stimulates the visitor economy, and diversifies events across the calendar to position Orange as a leading tourist destination. The funding includes the extension of the program to run through to the end of 2024.

18.2.1.3 Health

$250,000 towards constructing a Hydrotherapy Pool through Orange Aboriginal Medical Service (OAMS). The project will enhance patient care for many vulnerable people in the region and make hydrotherapy services available to everyone.

18.2.1.4 Indigenous

$100,000 donation to support the Canobolas Clontarf Academy. The Clontarf Foundation develops the values, skills and abilities to assist young Aboriginal and Torres Strait Islander men into meaningful employment and achieve better life outcomes.

$20,000 to the Orange Local Aboriginal Land Council to support the purchase of an ATV to diversify the services offered through the land management program.

$10,668 towards the Ngurang-gu Yalbilinya for the purchase of treadmills. The Ngurang-gu Yalbilinya Program provides a positive educational setting for disengaged Aboriginal youth. The Department of Education delivers a tailored learning program involving literacy and numeracy to students.

18.2.1.5 Disadvantaged

$15,000 towards the Bowen Community Technology Centre, providing computer and internet access and homework assistance to disadvantaged members of the Orange community.

$7,500 towards installing a Share the Dignity machine, which dispenses free feminine hygiene products to those in need.

18.2.1.6 Education

$12,000 towards projects at 12 local schools in the Blayney, Cabonne and Orange local government areas.

18.2.1.7 Community

$20,000 to Cycling Without Age for purchasing a trishaw and a trailer to establish a branch in Orange. Cycling Without Age provides free bike rides to elderly and less mobile citizens through the use of a purpose-built trishaw.

$20,000 to the Rotary Club of Blayney towards purchasing a rock-climbing wall in Blayney.

18.2.1.8 Dollar for Dollar (4)

$78,919.65 towards local causes and national charities through Cadia's 4 program, which encourages Newcrest employees to raise funds for charities and causes by matching the donations they raise from their colleagues at Cadia.

18.2.1.9 Good Onya

$15,000 to a range of local community groups. Cadia's Good Onya program recognises the contribution that employees and their spouses make in the community by donating $250 to the community organisation where they volunteered their time. In 2022, 60 Good Onya grants were awarded, with over 5,500 volunteer hours being contributed to local community groups and organisations across the region.

18.2.1.10 Sustainability, Technology and Innovation

$185,000 to the Canobolas Zone Rural Fire Service (RFS) towards a state-of-the-art Hot Fire Training Facility. The facility will provide specialist training to RFS volunteers, external agencies, and private enterprises using the most advanced technology available for firefighting techniques.

$50,000 towards the Orange Regional Conservatorium for world-class audio equipment in the new Recital Hall.

18.2.2 NEWCREST SUSTAINABILITY FUND

$1,345,527 towards the Charles Sturt University Foundation for the establishment of the Newcrest Rural Health Simulation Centre. The centre will help rural medical students conveniently access facilities to immerse themselves in a simulated emergency situation for the most real-life experience possible.

$1,155,000 towards a Cadia District Community Sticky Nightshade project. The project combines all weed management elements in a multi-tiered approach to reduce the noxious weed, delivered over multiple years. The Department of Primary Industries will lead a

research project focusing on identifying a biological control, while Bullseye Ag will focus on a management program.

$150,000 to Rural Aid and $150,000 to the Foundation for Rural and Regional Renewal (FRRR) to deliver on-the-ground relief to Central West communities impacted by flooding in November 2022.

18.2.3 COMMUNITY CONTRIBUTIONS

$26,847 towards supporting recovery efforts for the Central West flooding. Cadia sent teams of volunteers to Eugowra, Cudal and Manildra through our workforce engagement program to assist with clean-up and recovery efforts.

$3,951 towards a Spring Hill Activities Group project through the workforce engagement program. Team members from Cadia assisted at the Spring Hill Recreation Ground, memorial in Spring Hill Park and planted out drums and planter boxes around town and the railway siding area.

$952 towards a National Tree Planting Day conducted with Cadia and Cabonne Council staff, where 100 yellow box trees were planted near Cudal.

18.2.4 CADIA DISTRICT ENHANCEMENT PROJECT

The Cadia District Enhancement Project (CDEP) works with the local community to create environmental and community benefits to enhance the value of the area as an agricultural, mining, and lifestyle choice.

During the FY23 financial year, CDEP provided over $250,000 in programs to benefit eligible community members living in the Cadia District. Details about each of the programs are outlined below:

18.2.4.1 Grants

14 Cadia District Educational Grants were awarded, totalling $20,000. The educational grants supported students studying undergraduate degrees and short courses. The Educational Grants provide financial support towards educational study or professional development.

Community members who volunteered more than 15 hours to assist a community organisation during 2022 received a $250 Good Onya grant for the organisation that they volunteered for. Eighteen Good Onya grants were awarded, providing $4,500 to local community groups.

18.2.4.2 Training

11 local residents gained their first aid qualifications through attending a first aid courses for CDEP members in May 2023.

Chemical User Accreditation training (initial and re-accreditation) was held in May 2023 with 12 community members participating in the training.

Two community members participated in non-accredited chainsaw training in March 2023.

18.2.4.3 Free farm trees

2,000 native seedlings and tree guards were provided to 48 local CDEP members as part of the annual Free Farm Tree Program to enhance local vegetation.

18.2.4.4 Jewels of Errowanbang

CDEP supported the development and publishing of "Jewels of Errowanbang," a compilation of several works previously published by a committee of Errowanbang School P&C members. Jewels of Errowanbang was updated and included additional information to enhance the social history of the area. A book launch was held in February 2023 to celebrate the publication of the book, with a copy provided to each CDEP household.

18.2.4.5 Subsidised defibrillators

25 Automated External Defibrillators were purchased and offered to CDEP members at a significantly subsidised rate. Defibrillators are devices that send an electric pulse or shock to the heart to restore a normal heartbeat.

18.2.4.6 Coordinated weed and pest management program

Distribution of a 2023 Weed and Pest Management Calendar with seasonal weed targeting information.

The annual fox baiting program was run across three rounds in April and May 2023, distributing 1,223 baits across the district to 10 landholders.

60 drums, totalling 1,200L of Ken-Zon herbicide was purchased and distributed to support 15 CDEP members in their efforts to target Sticky Nightshade infestation on their properties.

18.2.4.7 agronomy program

13 landholders participated in CDEP's subsidised agronomy program. The FY23 program enabled participants to select their preferred Central West agronomist and the program utilised services by Graminus Consulting, PY Agronomy, The Rural Centre, Silmac Rural Supplies and Frontier Agronomy.

18.2.4.8 Waste collection service

A subsidised monthly roadside rubbish collection service continues to be offered to the community, with 80 CDEP members utilising the general waste and recycle program.

In FY23 CDEP introduced a skip bin subsidy for CDEP members unable to utilise the

roadside rubbish collection service. One CDEP member utilised the subsidised skip bin service.

18.2.4.9 Innovation and technology

Through the CDEP Solar Program, 13 CDEP members received $3,000 subsidies towards solar panels, batteries or hot water for their residence. The program also researched and recommended two local solar providers, although CDEP members could utilise any Central West solar provider of their choice.

18.2.4.10 Tree connectivity

Tree Connectivity concept plans were developed for 11 properties. The project aims to facilitate and establish tree corridors within the Cadia District through a coordinated approach.

18.2.4.11 Fitness Passport

Ongoing participation of CDEP members in the Fitness Passport program offered through Cadia.

18.2.5 SCHOLARSHIPS AND STUDENT SUPPORT

Cadia supported eight university students from the local region with scholarships of $9,000 per year for the duration of their degree.

Cadia offers work experience placements to local high school students.

Cadia's 2022 Apprenticeship Program welcomed eight new apprentices to site in the areas of Auto-Electrical, Boilermaking, Diesel/Heavy Plant Mechanics, Electrical and Fitter Machinist, bringing the total number of apprentices on site to 31.

Cadia representatives attended seven careers promotion events across the central west.

18.3 COMMUNITY COMPLAINTS

Cadia operates a 24-hour Community Complaints Hotline to enable the community to register complaints and enquire about site operations. The Community Complaints Hotline Number is 1800 063 043.

Complaints received by Cadia during the reporting period detailed in Table 18-3 are and compared against the 5 year and 10 year average for each area of concern in Figure 18-1. Complaints received in the reporting period were mainly in relation to dust (35 of 56) including from vent shafts. During FY23 underground dust scrubbers were installed underground to capture dust before exiting via the vent shafts, further initiatives are detailed in Table 8-4. Five dust extraction units have been installed in underground PC2-East and PC2-West since early May 2023.

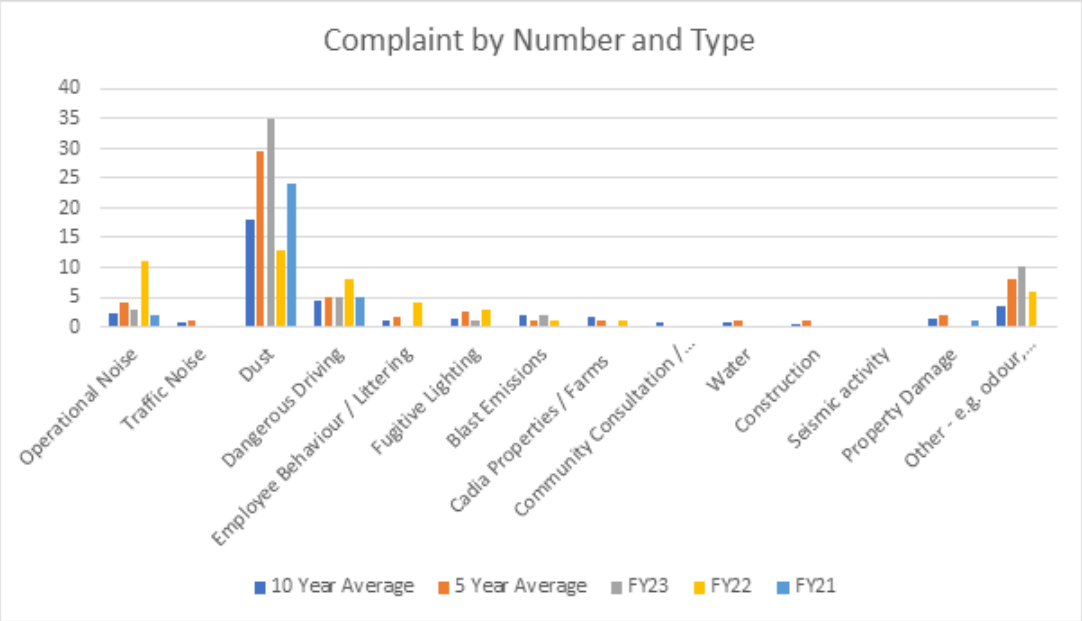

Figure 18-1 Complaints Received–- FY23 comparison between FY22 and the 5 Year Average

Table 18-3 Complaints Received by Cadia between July 2022 and June 2023

JULY 2022 – JUNE 2023									
Date	**Time**	**Location**	**Complaint type**	**Description of complaint**	**Climatic Condition Summary**	**Actions**	**No. of Complaints**	**Type Count**	**Total Count**
June 2023									
Nil									
May 2023									
23/05/23	12pm	Errowanbang	Dust / vent emissions	Several local residents reported excessive dust coming from one of the vent shafts		A summary of the cause was provided at the resident's meeting. A drive had become clocked underground and released additional dust when cleared.	3	35	56
22/05/23	2:30pm 3:45pm	Errowanbang	Dust / vent emissions	Two local residents reported visual impacts from dust from the vent rises		A response was provided to both landholders advising of the outcomes of the environmental monitoring data, which recorded within compliance during that day.	2	32	53
April 2023									
30/04/23	6:50pm	Forest Reefs	Blast	A local resident reported hearing a loud bang	n/a	The days correlated with underground blasts; however all blasts were extremely low and did not record vibration at the blast monitors nearby. A response was provided with an offer to install a temporary blast monitor and conduct a structural audit to ensure an appropriate baseline.	1	1	51
28/04/23	6:50pm	Panuara	Dust – tailings	A local resident reported lift-off of dust from the TSF	Wind from the west	At the time of the complaint, all water carts and dust suppression equipment (Panther) were working.	1	30	50
March 2023									

JULY 2022 – JUNE 2023									
Date	**Time**	**Location**	**Complaint type**	**Description of complaint**	**Climatic Condition Summary**	**Actions**	**No. of Complaints**	**Type Count**	**Total Count**
20/03/23	6:50pm	Panuara	Dust – tailings	A local resident reported lift-off of dust from the TSF	Wind from the west	At the time of the complaint, all water carts and dust suppression equipment (Panther) were working.	5	29	49
12/03/23	9am	Panuara	Dust – tailings	A local resident reported lift-off of dust from the TSF	Wind from the west	At the time of the complaint, all water carts and dust suppression equipment (Panther) were working.	1	24	44
5/03/23	9am	Panuara	Dust – tailings	A local resident reported lift-off of dust from the TSF	Wind from the west	At the time of the complaint, all water carts and dust suppression equipment (Panther) were working.	1	23	43
February 2023									
26/02/23	5.30pm	Cadia	Driver Behaviour	A resident reported personnel driving more than the speed limit through road works on Cadia Road, causing significant dust issues.	N/A	It was acknowledged that Cadia has no control over road works, and the Social Performance team offered to pass feedback onto the Council.	1	5	42
January 2023									
31/01/23	5.30pm	Forest Reefs	Driver Behaviour	A resident reported personnel driving more than the sign posted speed limit	N/A	No details on the vehicle were provided and therefore it was not able to be determined if it was a Cadia worker. A sitewide communication was issued reminding employees and contractors of their Work Journey Driver Behaviour obligations.	1	4	41
12/01/23	9am	Panuara	Dust – tailings	A local resident reported lift-off of dust from the southern tailings facility	Wind from the west	A formal response was provided advising of the dust mitigation efforts in the week leading up to the concern, and the direct actions taken.	1	22	40

JULY 2022 – JUNE 2023									
Date	**Time**	**Location**	**Complaint type**	**Description of complaint**	**Climatic Condition Summary**	**Actions**	**No. of Complaints**	**Type Count**	**Total Count**
11/01/23	7:30pm 8pm	Errowanbang Panuara	Dust – tailings	Two local residents reported lift off of dust from the southern tailings facility	Wind from the west	Complaints were acknowledged, and a formal response was provided advising of the dust mitigation efforts in the week leading up to the concern, and the direct actions taken.	2	21	39
6/01/23	1:45pm	Errowanbang	Dust – tailings	Two residents reported visible dust from the TSF	Wind from the west	Complaints were acknowledged, and a formal response was provided advising of the dust mitigation efforts in the week leading up to the concern, and the direct actions taken.	2	19	37
December 2022									
nil									
November 2022									
29/11/22	4.20am	Forest Reefs	Noise	A resident raised concerns over ongoing noise overnight.	Increased wind	The source of the noise was investigated and found that noise levels were within compliance at all receivers off site, including the closest receivers to the property. The landholder was offered independent noise monitoring at the property; however, this was not accepted.	1	3	35
12/11/22	4:50pm	Errowanbang	Dust – tailings	Three complaints were received via text message from residents in the Errowanbang area relating to dust from the TSF before major rain.	Northern winds Just before rains	Dust was being actively managed during this time at site and the increased wind was at the front of a storm. Rain then developed about 30 minutes later and there was no further dust.	3	17	34
6/11/22	7pm	Errowanbang	Dust / Vent emissions	An email was received from a local Errowanbang resident highlighting	Inversion layer present	Cadia acknowledged the visual concern and a review of environmental data showed that there were no elevated dust readings of PM10 or PM2.5at the time of the reported dust.	1	14	31

JULY 2022 – JUNE 2023									
Date	**Time**	**Location**	**Complaint type**	**Description of complaint**	**Climatic Condition Summary**	**Actions**	**No. of Complaints**	**Type Count**	**Total Count**
				dust coming from vent rises.					
5/11/22	7pm	Forest Reefs	Dust / Vent emissions	A resident from Forest Reefs, via phone, reported a dust complaint (2 days after the event). The resident stated he has seen dust and then subsequently saw video footage the following day.	Inversion layer present	As the complaint was recorded after the fact, a visual assessment could not be completed. A review of environmental data showed that there were no elevated dust readings of PM10 or PM2.5 at the time of the reported dust.	1	13	30
2/11/22	4pm	Errowanbang	Dust / Vent emissions	A resident from Errowanbang provided images, via text, of dust from vent rises		Assessment of environmental monitoring sites outside the lease did not record any elevated dust readings of PM10 or PM2.5.	1	12	29
October 2022									
31/10/22	6.30-7.30am	Errowanbang	Dust – tailings	Several complaints from residents in the Errowanbang area relating to visible dust seen from the tailings dams.	Northern winds Just before rains	Assessment of environmental monitoring sites outside the lease did not record any elevated dust readings of PM10 or PM2.5.	5	11	28
31/10/22	9am	Errowanbang	Road Closure	A local resident raised concerns over the condition of Forest Road as a consequence of Cadia Road closure, and ongoing truck usage of the road.	N/A	The representative advised that Cadia has re-directed its trucks via Blayney so only light vehicles would be using the road and informed the resident of the road repair plan.	1	10	23
31/10/22	8am	Cadia	Noise	A local resident reported elevated	N/A	There was a noise monitor at a nearby monitoring location, which did not record any exceedances.	1	2	22

JULY 2022 – JUNE 2023									
Date	**Time**	**Location**	**Complaint type**	**Description of complaint**	**Climatic Condition Summary**	**Actions**	**No. of Complaints**	**Type Count**	**Total Count**
				noise overnight at their property.		The landholder was offered attended noise monitoring at the property.			
25/10/22	10am	Cadia Road	Road Closure	A local resident called regarding the number of truck movements carrying aggregate for the repair of Cadia Road and the speed at which the trucks were travelling.	N/A	Changes were made with re-directed trucks via Blayney. All truck operators were provided the feedback by the contractor.	1	9	21
22/10/22	8.30pm	Panuara	Fugitive lighting	A resident reported a fugitive light shining toward Panuara/Four Mile Creek	N/A	The lighting source was re-directed.	1	1	20
20/10/22	9am	Forest Road	Dangerous Driving	A resident reported that a vehicle travelling towards Cadia had not given way for them to merge and had overtaken on double lines at speed.	N/A	The contractor was counselled on their obligations as part of Cadia's Work Journey Driving Behaviour Policy.	1	3	19
13/10/22	6.50pm	Errowanbang/Panuara	Dust – tailings	Six residents contacted Cadia regarding dust lifting from the TSFs.	Northern winds Just before rains	A formal response was provided on the steps undertaken to mitigate dust lift off, including deploying all available water carts, and recommissioning the panther following a break down.	6	6	18
10/10/22	various	Four Mile Creek	Road Closure	Several community members raised concerns over the time it is taking to re-open Cadia Road, citing prolonged business and personal impact, now exacerbated by the Four Mile Creek Road closure.	N/A	Ongoing communication was provided to the community on the project timeline.	6	8	12

JULY 2022 – JUNE 2023									
Date	**Time**	**Location**	**Complaint type**	**Description of complaint**	**Climatic Condition Summary**	**Actions**	**No. of Complaints**	**Type Count**	**Total Count**
September 2022									
26/09/22	10am	Burnt Yards	Road Closure	A local resident raised concerns over the full closure of Cadia Road and its impact when taking a longer route around Errowanbang Road.	N/A	The resident's concerns were understood and Cadia explained that the road repairs were being undertaken as quickly as possible to safely reopen the road.	1	2	6
1/09/22	8am	McNamara Lane	Dangerous Driving	A local business reported that a worker at the McNamara Lane office was parking in their nominated business car parks	N/A	Cadia located the car and individual who contacted the business owner and all employees in the office were informed of correct parking areas.	1	2	5
August 2022									
17/08/22	9am	Cadia Road	Noise	A local resident raised concerns over increased noise overnight	N/A	Cadia made contact with the landholder and explained the VR14 works and shared the daily results from the attended and unattended noise monitoring. Cadia offered noise monitoring at the property, however it was declined.	1	1	4
1/08/22	9am	Errowanbang	Road Closure	A local resident raised concerns over the full closure of Cadia Road and its impact when taking a longer route around Errowanbang Road.	N/A	A. A representative from Cadia made contact and apologised for the situation and provided an update on the Project.	1	1	3
July 2022									
26/07/22	5:30pm	Cadia	Dangerous driving	A local resident was involved in a near miss car accident when they indicated to turn into their driveway..	N/A	Access control was able to identify the car based on the timing of entering the site and the individual was counselled in line with the site HR Policy.	1	1	2

JULY 2022 – JUNE 2023									
Date	**Time**	**Location**	**Complaint type**	**Description of complaint**	**Climatic Condition Summary**	**Actions**	**No. of Complaints**	**Type Count**	**Total Count**
23/07/22	3pm	Errowanbang	Blasting	A local landowner reported hearing a blast and the whole house shook.	Nothing to note	There was no scheduled blast on this day. Data from the closest blast monitor to the house which showed no vibration recorded at the time period, or at any time during that day. The unattended noise monitor was also in close proximity to the landowner, and nothing was recorded on this monitoring equipment.	1	1	1

18.4 CASE STUDIES

18.4.1 NEWCREST DIGS DEEP FOR FLOOD-AFFECTED COMMUNITIES

Cadia recognised the widespread and ongoing impact of the November 2022 flooding across Central West communities.

In support, Newcrest donated $150,000 through the Newcrest Sustainability Fund to Rural Aid and a further $150,000 to the Foundation for Rural & Regional Renewal (FRRR) to deliver on-the-ground relief to affected local communities. Cadia worked closely with Rural Aid and FRRR to ensure the funds went to the most appropriate disaster relief and recovery efforts.

Rural Aid used the funding for debit cards with loaded limits for eligible primary producers, as well as for the provision of clean drinking water and livestock fodder.

The FRRR directed Newcrest's donation to their *Prepare and Recover Program,* which supports not-for-profit organisations such as men's sheds, neighbourhood centres, hall committees, and school P&Cs.

In addition to this financial assistance, volunteers from Cadia's workforce travelled to Eugowra, Cudal and Manildra to assist with the clean-up of private residences, businesses and community facilities.

Cadia's fixed plant electrical team assisted with re-wiring the Eugowra Newsagency and Supermarket (Plate 18-1), while two crews helped re-paint the Cenotaph in Memorial Park in Eugowra in preparation for ANZAC Day (Plate 18-2).

Plate 18-1: Cadia's Fixed Plant electrical team

Plate 18-2: Volunteers from Cadia, repainted the Cenotaph in Eugowra

Plate 18-3: A team of volunteers re-fresh the garden beds at the Cudal Recreational Ground

Plate 18-4: Cadia team members assisted with the flood clean-up in Eugowra, Cudal and Manildra.

18.4.2 JEWELS OF ERROWANBANG BOOK ENRICHES SOCIAL HISTORY

The social history of the Cadia District has been enhanced through the development and publishing of *Jewels of Errowanbang,* an initiative of the Cadia District Enhancement Project (CDEP). *Jewels of Errowanbang* is a compilation of several works already published by a committee of Errowanbang School P&C members, starting in 1978 and concluding in 2003. *Jewels of Errowanbang* was updated to include additional information over the past 20 years and reflections from Errowanbang families.

The title reflects something precious and of great value, and hence the demographics of the people who have lived, worked and loved the Errowanbang area.

The book shares the changing settlement, from large pastoral holdings to the post-war years as the Errowanbang property was broken into leases and then by Government decree, provided as soldier settlement blocks, which were made available by ballot to those returning from World War II. The book represents the third in a series of publications about the Cadia District: *Treasures of Cadia, Gems of the Valley* and *Jewels of Errowanbang.*

More than 50 current and former community members and Cadia staff attended the book launch in February 2023 to celebrate the publication of the book. A copy of *Jewels of Errowanbang* was provided to each CDEP household and is available for sale at Collins Booksellers in Orange.

Plate 18-5: Cadia's Mick Dewar (left) and Nick Fryer (right) with Jewels of Errowanbang Committee Member, Kim Masters at the book launch

Plate 18-6: Cadia's David Coe with Jewels of Errowanbang Committee Member, Graham Brown, at the book launch.

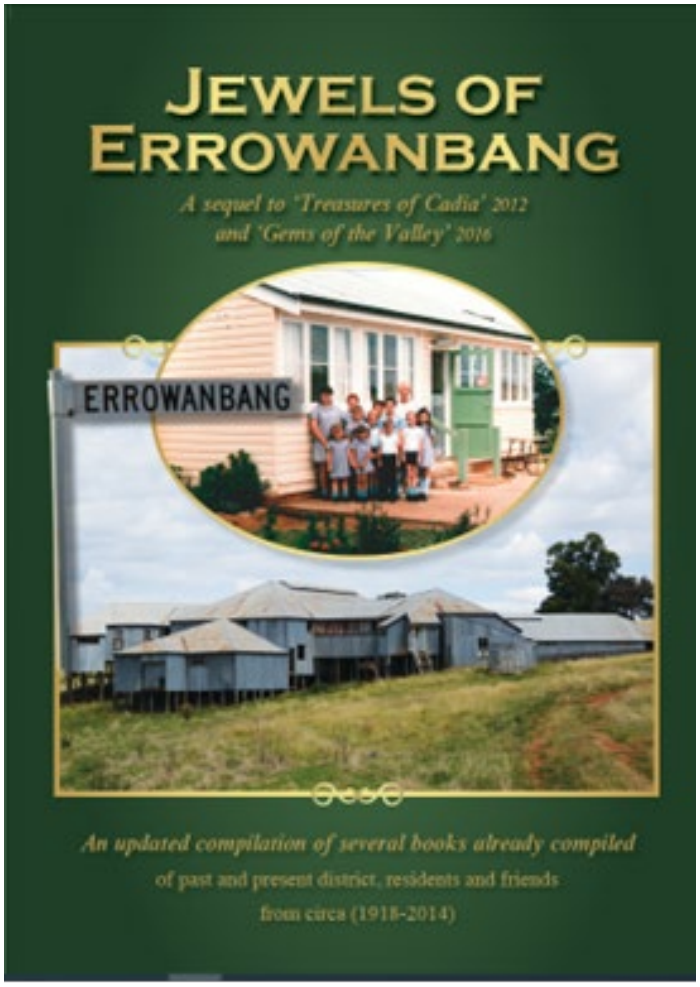

Plate 18-7: Jewels of Errowanbang front cover

19 INDEPENDENT AUDIT

19.1 INDEPENDENT COMPLIANCE AUDIT

The Cadia East PA (06_0295) (DPE, 2010) (Schedule 5, Conditions 7 and 8) requires that an independent compliance audit is conducted on a three-yearly basis. There was no independent audit during this reporting period, however one will be conducted within the calendar year of 2023.

20 INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

20.1 INCIDENTS FINANCIAL YEAR ENDING 2023

Table 20-1 Reported Incidents during the Reporting Period

Incident	Date Location	Cause	Action Plan	Status
VR14	21 July 2022 Vent Rise 14 located along Cadia Road, within the East side of the Mining Lease Boundary	A remote loader that was being used to clear material from the bottom of VR14-1 rise lost communications whilst operating. Material came down from the rise, engulfing the sides of the loader and causing the brow to close at the base of the rise.	Create an Environmental Management Plan for the incident response outlining the direct actions taken and the preferred option to prevent further risk of groundwater. Conduct a 3-month long program dipping surrounding landowner bores to assess groundwater levels.	Complete
Potential Discharge Event	20 September 2022 Blayney Dewatering Return Line	Due to significant rainfall, a limited quantity (~30L) of return water spilled from the Blayney dewatering return water line via an air valve into a contained drain alongside Cadia road.	The return water line was isolated until repairs were finished and water sampling was taken.	Complete
Stormwater Overflow	14 November 2022 Cadia Dewatering Facility Stormwater Collection Pond	Due to heavy rainfall, a significant volume of surface water runoff from overland flows adjacent to the CDF catchment entered the CDF stormwater management system. Subsequently, the CDF stormwater collection pond overflowed to an adjacent unnamed watercourse.	Take water samples for analysis. Cadia intends to review the design capacity of the CDF water management system and identify corrective actions for managing future potential overflow events.	Ongoing
Dissolved Copper Discharge Event	December 2022 Historical mine adit	Highly concentrated copper groundwater discharged from historical mine adit following period of high rainfall.	Dewater historical farm dam 200m downstream from the adit discharge. Create bund to contain water and pump/transfer groundwater to site process water system. Remove contaminated soil. Weekly samples taken.	Complete
Discharge water quality exceedance EPL5590 M2.3	December 2022 CAWS63	A potential interaction from a highly saturated catchment resulted in an exceedance for Manganese and Phosphorus	Review of monitoring results pre and post exceedance. All other results are below criteria with the yearly average of less than half of criteria value. Ongoing monitoring with increased review of analytical results.	Complete

Incident	Date Location	Cause	Action Plan	Status
BAM Monitor battery failure causing unusual readings	May/June 2023 Triangle Flat	The root cause was failure in a small lithium battery in the BAM's circuit board. This resulted in PM10 levels stuck at 10 ug/m3 from 27 May 2023 until 1 June 2023 undetected as an unusual reading.	The battery was replaced by the technician, resolving the data collection issues immediately. Cadia has monitored the machine thoroughly and noted no further issues. As a precautionary measure, Cadia will replace all similar batteries in the other BAMs across the site monitoring network in the next maintenance schedule.	Complete

20.2 NON-COMPLIANCES FINANCIAL YEAR ENDING 2023

Table 20-2 Non-compliances and Actions during the Reporting Period

Relevant Approval	Date	Non-compliance	Action Plan	Status
Cadia East PA (06_0295) Schedule 3, Condition 2 EPL 5590 L4.1	1 August 2022	Exceedance was caused by Cadia's incident response to the failure of the VR14-1 ventilation rise whereby night-time activities were being conducted to monitor and manage the event. Cadia was in the process of preparing negotiated noise agreements with nearby landowners to allow Cadia to exceed the noise impact assessment criteria in order to respond to the VR14-1 event. Those agreements were in place by 8 August 2022.	Provide 3-month review report prepared by third party noise specialist to any potentially affected landholders. Continue monitoring at the Warrengong location from October 2022-December 2022.	Complete
EPL5590 L4.1 and PA06_0295 Schedule 3 Condition 2	23 September 2022	Exceedance of night-time limit by 2db due to pump and potential heavy vehicles	Negotiated agreements were put in place with residents. Monitoring continued at Warrengong for an additional three months without any exceedances recorded.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 5	October 2022	Exceedance of unattended traffic noise monitoring criteria on Orchard Road at one property and Cadia Road at two properties	Notify the three landowners and undertake noise mitigation works upon request. Further assessment be carried out to identify opportunities to mitigate or otherwise manage the potential impact.	Complete

Relevant Approval	Date	Non-compliance	Action Plan	Status
EPL 5590 L 2.1	November 2022	1 exceedance for TSS, 1 exceedance for Turbidity due to the highly saturated water catchment, high rainfall intensity and volume.	The immediate response was monitoring at the location followed by a review of actions taken to prevent sediment dam overflows.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 2 EPL 5590 L4.2	December 2022	Exceedances of unattended noise monitoring criteria at Hollwood	Arrange discussions regarding mitigation options with the landholder.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 5	January 2023	Exceedance of routine traffic noise monitoring criteria on Cadia Road	Further assessment be carried out to identify opportunities to mitigate or otherwise manage the potential impact.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 20	January 2023	Damage to a dust gauge resulted in loss of data for the January 2023 period.	The dust gauge was reinstated and had inspections to ensure the device remained in service.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 2 EPL 5590 L4.2	January 2023	Exceedances of unattended noise monitoring criteria at 247 Newbridge Rd, Blayney	Arrange discussions regarding mitigation options with the landholder.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 2 EPL 5590 L4.1	February 2023	Exceedance of unattended, continuous noise monitoring criteria at the 'Northwest' monitoring site	The monitoring identified that the exceedances were attributed from aerial dust spraying activities on the TSF. The current updated draft Noise Management Plan is with the Department for approval and acknowledges this activity as an exemption to noise criteria. All aerial dust suppression activities are notified to community members and conducted during daylight hours.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 34c	Between January and March 2023	Failure to collect routine groundwater and surface water samples per Water Management Plan	Earthworks to drain water away from affected monitoring bore and re-establish vehicle access to monitoring location.	Undergoing

Relevant Approval	Date	Non-compliance	Action Plan	Status
Cadia East PA (06_0295) Schedule 3, Condition 2 EPL 5590 L4.2	May 2023	Exceedance of unattended noise monitoring criteria at CDF locations	Notify landowners and undertake noise mitigation works upon request.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 5	May 2023	Exceedance of routine traffic noise monitoring criteria on Orchard Road	Further assessment be carried out to identify opportunities to mitigate or otherwise manage the potential impact.	Complete
Cadia East PA (06_0295) Schedule 3, Condition 2 EPL 5590 L4.2	June 2023	Exceedance of unattended noise monitoring criteria at CDF locations	Notify landowners and undertake noise mitigation works upon request.	Complete

20.3 REGULATORY ACTIONS FINANCIAL YEAR ENDING 2023

Table 19-3 provides a list of regulatory notices and actions received during the reporting period.

Table 20-3 Regulatory Notices and Actions during the Reporting Period

Regulatory Action	Detail	Cadia response
Prevention Notice	29/05/2023 – Prevention Notice with four directions to undertake monitoring at vent rise 8, review high volume (Hi-Vol) sampling network and complete a review of the dust monitoring network.	Cadia completed the actions and provided reports to EPA.
Warning Letters	09/01/2023 – Warning letter issued by NSW DPE regarding noise exceedances on 1 August 2023 and 23-24 September 2023 at Warrengong.	Negotiated agreements were put in place with residents. Monitoring continued at Warrengong for an additional three months without any exceedances recorded.
Penalty Notices	25/10/2022- Resources Regulator- Failure to comply with Direction 2 of Notice NTCE0008574 in breach of Section 240C of the Mining Act	Cadia is undertaking detailed studies to comply with the notices. Further detail is provided in Section 17.8
	25/10/2022- Resources Regulator- Fail to comply with Direction 3(f) of Notice NTCE0008574 in breach of Section 240C of the Mining Act	
	04/08/2022 – EPA- Failing to maintain the dust suppression cover for the entire Tailings Storage Facility EPL Condition U1.1	Dust mitigation works were actively undertaken. Cadia updated the site Dust Trigger Action Response Plan and provided to EPA for approval.
Other Regulatory Action		

21 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

Table 21-1 is a summary of commitments arising from the FY23 Annual Review. Table 21-2 provides the actions and targets that will be achieved in the next reporting period to improve environmental performance at Cadia.

Table 21-1 Summary of FY23 Annual Review Commitments and Target

Commitment	Timeframe
Review traffic noise management program and create a traffic noise heatmap to identify areas for future monitoring and potential mitigation.	December 2023
Undertake a monitoring program of the stormwater capture at CDF and determine viability for a discharge point from the stormwater pond.	January 2024
Investigate real time monitoring options for vent stack emissions.	December 2023
Review the TSF dust options study and further investigate identified options to improve feasibility.	June 2024
Update the Rehabilitation Management Plan.	November 2023
Conduct vegetation thinning and infill planting of a minimum 20 Ha on the NWRD.	June 2024
Increase wildlife habitat by relocating additional habitat features (logs, fallen trees and rocks) to both the NWRD and SWRD.	June 2024
Conduct revegetation works to a minimum 10 Ha on Black Rock Range.	June 2024
Implement automated groundwater level loggers.	November 2023
Implement the updated Community Consultative Committee guidelines into Cadia's Terms of Reference.	December 2023

Table 21-2 2023-2024 Annual Performance Scorecard

2023 - 2024 Annual Performance - Targets and Objectives					
FY	Aspect	Key Management Issue	Target	Accountability	Weighting (%)
2024	Community	Dust emissions	0 reportable air quality exceedances against the project approval	Mining Operations / Ore Processing	6
			Decrease in community complaint events regarding dust emissions from operations and projects from FY23	Mining Operations / Ore Processing	6
		Stakeholder risk management	Nil grievances (as defined by Social Performance Standard)	Social Performance	5
			>90% spend on community partnership Programs	Social Performance	4
		Vibration from mining activities	Decrease in community complaints from blasting and mining related seismicity from FY23	Mining Development	4
		Operational noise	Reduction in operational noise complaints (Site operations, CVO Dewatering Facility and Projects) from FY23	Mining Operations, Ore Processing, Group and Cadia Projects	4
			0 reportable noise exceedances from site operations and projects.	Mining Operations, Ore Processing, Group and Cadia Projects	4
		Impact on private water supplies	0 complaints regarding impact on community water availability and access (verified impact from Cadia)	ALL	4
	Total by Aspect				37%
2024	Land and Biodiversity	Rehabilitation and Biodiversity	Implement RR Rehabilitation Reforms changes within the EMS	Environment	5
			Closure and rehabilitation of areas identified in the annual plan and forward works plan	Mining Operations	5
			10 ha corridor program completed - Offsite corridor program	Technical Planning	4
		Conservation Offset Areas	>10ha rehabilitation complete in Conservation offset areas (e.g. Blackrock Range)	Environment	3
	Total by Aspect				17%
2024	Resource use	Waste management	Total waste recycling >65%	Engineering / Projects	3
			Deliver waste awareness training packages to crews	Maintenance	3
	Total by Aspect				6%
2024	Systems	Environmental assurance	100% of scheduled site environment inspections completed	Environment	4
			Monitoring requirements met	Environment	5
			Total by Aspect		9%
2024	Water	Water quality	No ongoing environmental issues from any reportable spills	ALL	6
			Water monitoring completed according to Water Management Plan	Mining Operations, Ore Processing	4
		Water management	Update a Water Management Plan	Environment	5
	Total by Aspect				15%
Total by Year					100%

21.1 REVIEW OF MONITORING PROGRAMS, STRATEGY AND ENVIRONMENTAL MANAGEMENT PLANS

In accordance with Schedule 5, Condition 3 of the Cadia East PA (06_0295), to ensure the strategies, plans and programs are kept up to date, a review is undertaken as part of the Annual Review process. Where required, documents will be amended and forwarded to the DPE for approval. Table 21-3 provides a summary of proposed changes in each document following completion of the FY23 Annual Review process.

Table 21-3 Summary of Changes Proposed to Strategy, Plans and Programs

Document	Approved Revision Number	Approved Revision Date	Changes Proposed Following 2022/2023 Annual Review
Environmental Management Strategy	4	18/06/2021	Review and update Environmental Management Strategy.
Air Quality Monitoring Program (AQMP)	4	11/06/2018	The AQMP is currently undertaking an extensive review process and will be superseded by the Air Quality and Greenhouse Gas Management Plan (AQGGMP) as required under Determination of Modification 14.
Noise Monitoring Program	5	2/09/2021	The Noise Monitoring Program is currently undertaking an extensive review process and will be superseded by the Noise Management Plan (NMP) as required under Determination of Modification 14.
Blast Monitoring Program	4	4/08/2020	The Program was reviewed, and no updates were identified as being required during the FY23 Reporting Period.
Water Management Plan	7	26/11/2019	The updated Water Management Plan was submitted in December 2022 for regulatory approval. The plan is currently with the DPE for approval as per consent conditions.
Aboriginal Cultural Heritage Management Plan	2	4/07/2022	New revision approved by DPE.
Historical Heritage Management Plan	2	30/06/2022	New revision approved by DPE.
Rehabilitation Strategy	3	25/06/2020	The Rehabilitation Strategy has been revised and updated. Currently reviewing feedback from a stakeholder consultation.

Document	Approved Revision Number	Approved Revision Date	Changes Proposed Following 2022/2023 Annual Review
Land and Biodiversity Management Plan (LBMP)	5	13/10/2022	New revision approved by DPE.
Offsite Traffic Management Plan	NA	NA	During FY22, a Draft was submitted for consultation and approval by DPE. Cadia is updating the Offsite Traffic Management Plan (OTMP) based on DPE Comments.
Waste (Non-mineralised) Management Plan	2	9/05/2019	No proposed changes following FY23 Annual Review Process.
Fugitive Lighting Management Plan	1	16/08/2021	No proposed changes following FY23 Annual Review Process.
Hydrocarbon and Chemical Management Plan	1	23/01/2019	No proposed changes following FY23 Annual Review Process.

22 REFERENCES

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