COWAL GOLD OPERATIONS

2024 ANNUAL REVIEW

COWAL GOLD OPERATIONS

2024 Annual Review

Name of Operation	Cowal Gold Operations
Name of Operator	Evolution Mining (Cowal) Pty Limited
Development Consent	DA 14/98 and SSD 10367
Name of Holder of Development Consent	Evolution Mining (Cowal) Pty Limited
Mining Lease #	ML 1535
Name of Holder of Mining Lease	Evolution Mining (Cowal) Pty Limited
Mining Lease #	ML 1791
Environmental Protection Licence #	EPL11912
Name of Holder of EPL	Evolution Mining (Cowal) Pty Limited
Water Licence #	WAL 36569, WAL 31864, WAL 36615, WAL 36617, WAL 13749, WAL 14981, WAL 13748, WAL 13748, WAL 31568, WAL 31563, WAL 42993
Name of Holder of Water Licences	Evolution Mining (Cowal) Pty Limited
Annual Review Start Date	1 January 2024
Annual Review End Date	31 December 2024

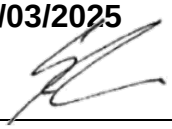
I, Joe Mammen, certify that this audit report is a true and accurate record of the compliance status of the Cowal Gold Operations for the period 1 January – 31 December 2024 and that I am authorised to make this statement on behalf of Evolution Mining (Cowal) Pty Limited.

Note.

a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (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	Joe Mammen
Title of Authorised Reporting Officer	General Manager
Signature of Authorised Reporting Officer	
Date	31/03/2025

Prepared by	
Name	**Georgia Sellings**
Title	**Environmental Advisor**
Date	**31/03/2025**
Signature	
Reviewed by	
Name	**Gregory Coase**
Title	**Sustainability Manager**
Date	**31/03/2025**
Signature	

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Issued to	**Stephen O'Donoghue – Department of Planning and Environment**
Date	**31 March 2025**

Table of Contents

List of Figures

List of Graphs

List of Plates

List of Tables

1 STATEMENT OF COMPLIANCE

The compliance status of the Cowal Gold Operations (CGO) with its relevant approval conditions at the end of the reporting period (31 December 2024) is provided in Table 1-a.

During the reporting period there was one occurrence where monitoring was not conducted in accordance with requirements of EPL11912, due to an instrumentation error. Further details are provided in section 11.

Table 1-a - Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
Development Consent DA 14/98	Yes
State Significant Development 10367	Yes
Environmental Protection Licence (EPL) 11912	No
EPBC 2017/7989	Yes
Mining Lease (ML) 1535	Yes
Mining Lease (ML) 1791	Yes

The non-compliance categories are described in Table 1-b. A summary of the non-compliance with EPL 11912 during the reporting period has been summarised in Table 1-c (below).

Table 1-b - Statement of Compliance Key

Risk Level	**Colour code**	**Description**
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless for the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: Potential for serious environmental consequences, but it 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 it 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 (e.g. submitting a report to government later than required under approval conditions)

Table 1-c - Summary of Non-Compliances

Relevant approval	Condition	Condition description	Compliance Status	Comments	Where addressed in the Annual Review
EPL Environmental Protection Licence (EPL) 11912	M2.2	Air Monitoring Requirements	Non-compliant	Instrumentation fault resulting in failed monitoring event against EPL frequency criteria.	Section 11

2 INTRODUCTION

The 2024 Annual Review (AR) has been prepared by Evolution Mining (Cowal) Pty Limited (Evolution) for the CGO in accordance with the requirements of Condition 9.1(b) of the Development Consent (DA 14/98) and condition C9 of State Significant Development 10367. This document also satisfies the requirements for Condition 26 of the Conditions of Authority for ML 1535. This AR is also consistent with the New South Wales (NSW) Government's (2015) Annual Review Guideline – Post-approval Requirements for State Significant Mining Developments.

2.1 CGO Operations

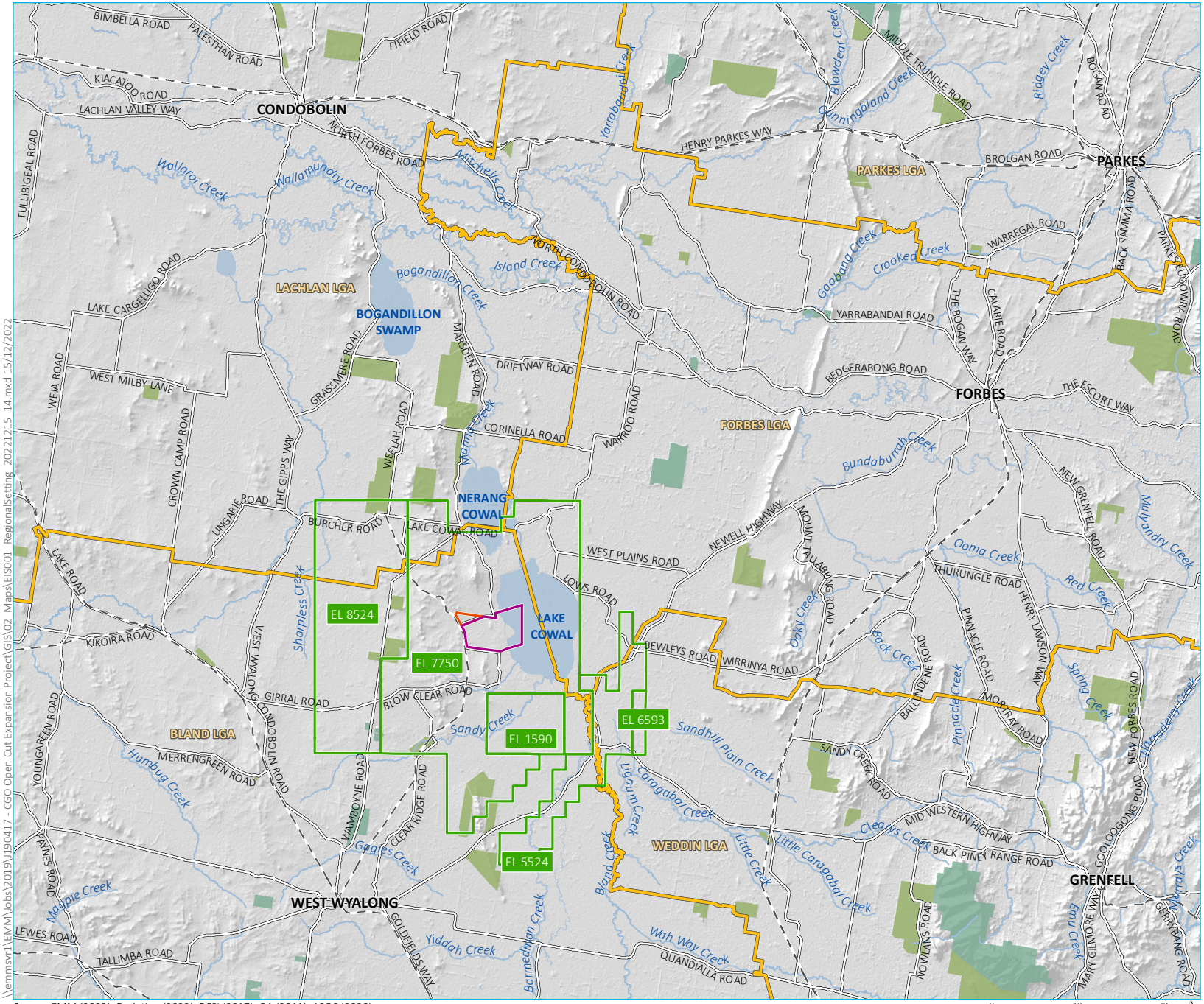
The CGO is a gold mine owned and operated by Evolution and is located approximately 38 kilometres (km) north-east of West Wyalong, NSW (Figure 2-a). The land immediately adjacent to and surrounding the CGO consists of Lake Cowal and farming land (Figure 2-b shows the land tenure of properties in the vicinity of the CGO). A satellite image of the CGO was captured in February 2025 and is presented on Figure 2-c, which shows the current operational disturbance footprint and general arrangement of the CGO components. Land preparation areas and the extent of rehabilitation during the reporting period is presented on Figure 2-d, while the offset areas are presented on Figure 6-d. Further information relating to offset areas and rehabilitation and are provided in Section 6.8 and Section 8 respectively.

North Limited (North) commenced exploration along the western side of Lake Cowal in 1981. From 1981 to 1994, exploration was concentrated on the Endeavour 42 (E42) ore body to increase the size and confidence of the resource by infill and deep drilling.

North received Development Consent for the Cowal Gold Project in February 1999. North was later acquired by Rio Tinto which subsequently sold the Cowal Gold Project to Homestake Australia Limited (Homestake). Homestake commenced advanced drilling on E42 in late 2001. In December 2001, Barrick (Cowal) Pty Ltd (Barrick) acquired Homestake and its operating subsidiary. Barrick continued the drilling program of the E42 ore body between 2001 and 2005. During 2003 and 2004, the CGO underwent a detailed design phase and construction commenced on 12 January 2004. Mining operations commenced in April 2005, followed by operation of the final stage of the open pit dewatering system in June 2005. Processing operations commenced in April 2006. Evolution acquired the CGO on 24 July 2015.

In 2020, Evolution submitted State Significant Development (SSD) application 10367 to DPHI for assessment. On 30 September 2021 the DPHI granted approval for SSD 10367 approving underground mining at the CGO. On 7 November 2022, Modification 1 (MOD 1) of SSD 10367 was approved, with minor amendments to the mine design footprint.

On 12 December 2024, Cowal Gold was granted SSD approval for the Open Pit Continuation Project (OPC). The project includes three new open pits within the vicinity of the existing E42 pit, a cutback (stage I) to the E42 open pit, extensions to the existing waste rock emplacements and integrated waste landform, the construction of a new lake protection bund, and extension of mine life to 2042. Cowal will commence this development in the 2025 reporting period.



KEY

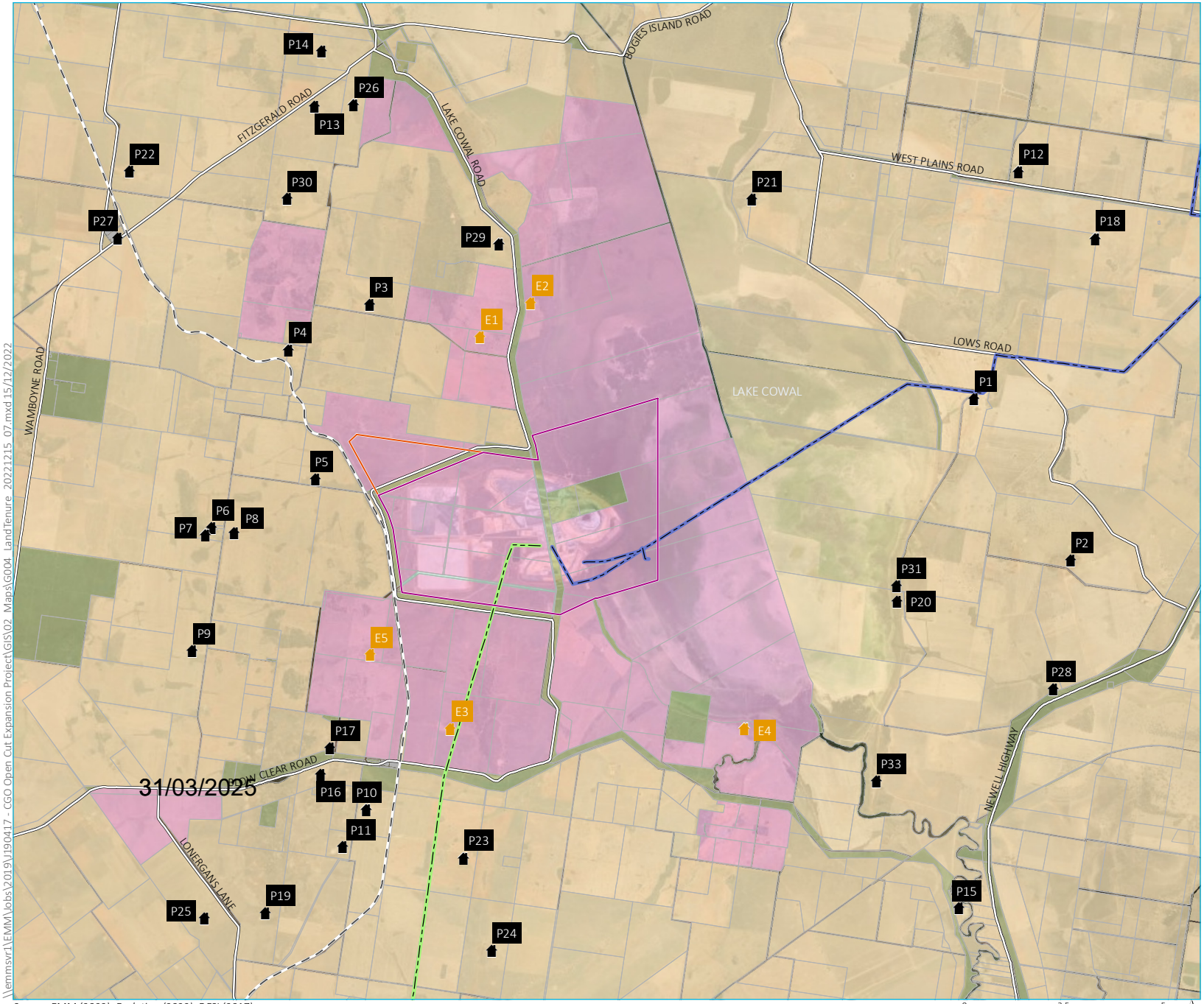
- Mining lease (ML1535)
- Mining lease (ML1791)
- Exploration licence (EL)
- Rail line
- Main road
- Named watercourse
- Named waterbody
- Local government area
- NPWS reserve
- State forest

ANNUAL REVIEW 2024

Figure 2-a
CGO Locality

Evolution MINING

\\emmsvr1\EMM\Jobs\2019\J190417 - CGO Open Cut Expansion Project\GIS\02 Maps\EIS001 RegionalSetting 20221215 14.mxd 15/12/2022



\\emmsvr1\EMM\Jobs\2019\J190417 - CGO Open Cut Expansion Project\GIS\02 Maps\G004 LandTenure 20221215 07.mxd 15/12/2022

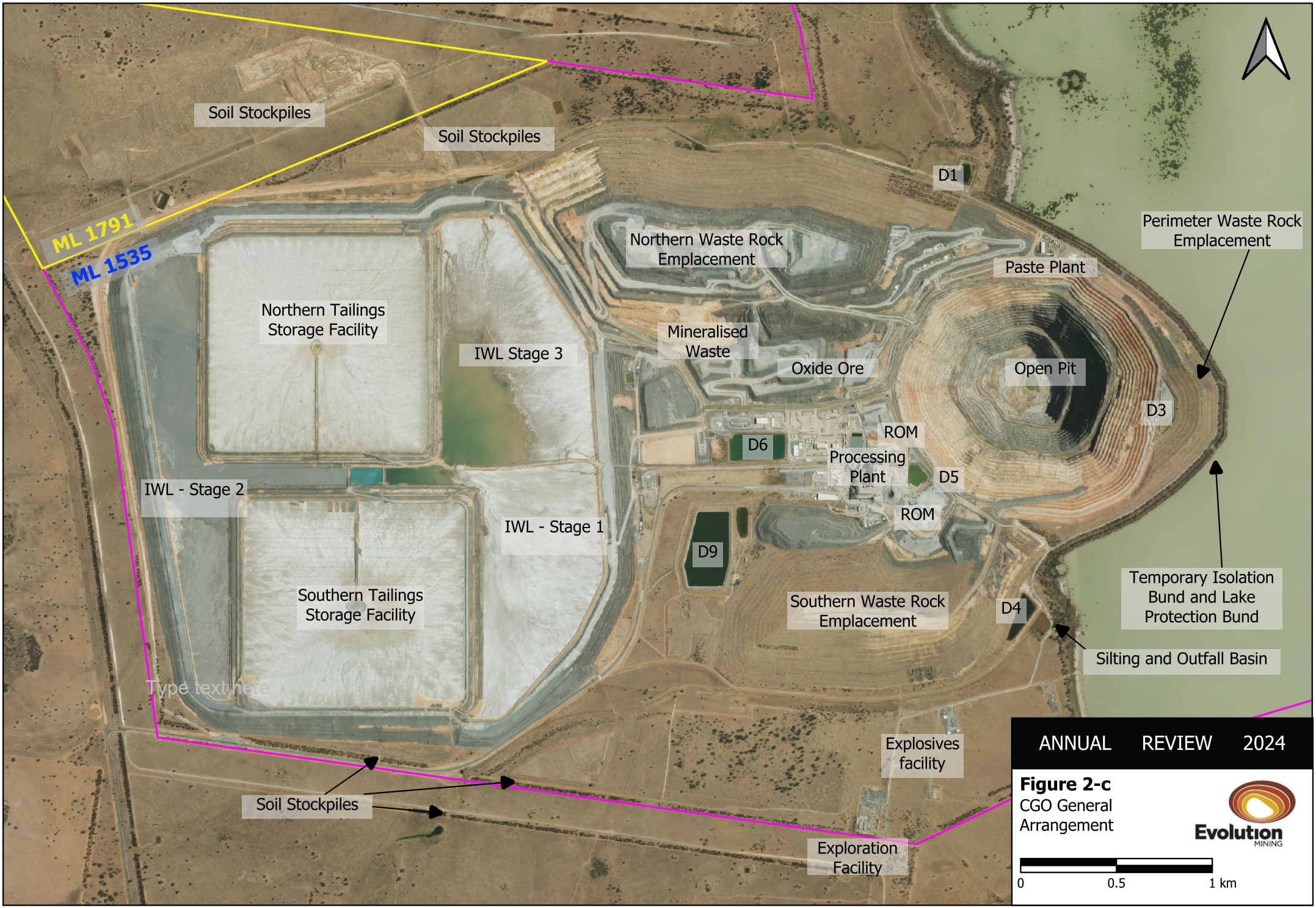
Source: EMM (2022); Evolution (2022); DFSI (2017)

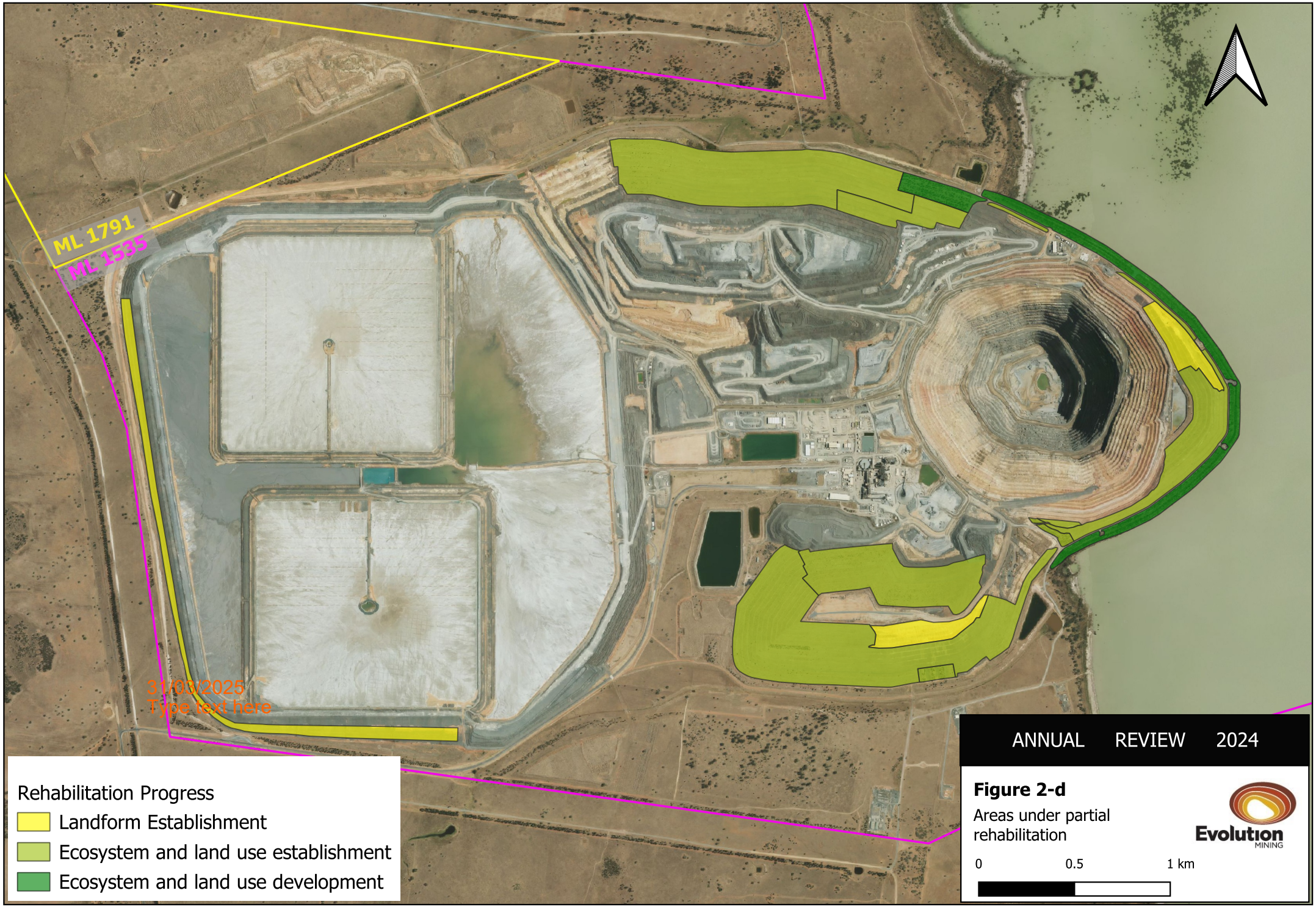
ANNUAL REVIEW 2024

Figure 2-b

Land Tenure

Evolution MINING


Soil Stockpiles
Soil Stockpiles
ML 1791
ML 1535
Northern Tailings Storage Facility
IWL Stage 3
IWL - Stage 2
IWL - Stage 1
Southern Tailings Storage Facility
Type text here
Soil Stockpiles
Northern Waste Rock Emplacement
D1
Perimeter Waste Rock Emplacement
Paste Plant
Mineralised Waste
Oxide Ore
Open Pit
D3
D6
ROM
Processing Plant
D5
ROM
D9
Southern Waste Rock Emplacement
D4
Temporary Isolation Bund and Lake Protection Bund
Silting and Outfall Basin
Explosives facility
Exploration Facility
ANNUAL REVIEW 2024
Figure 2-c
CGO General Arrangement
Evolution MINING
0
0.5
1 km


ML 1791
ML 1535
31/03/2025
Type text here
Rehabilitation Progress
Landform Establishment
Ecosystem and land use establishment
Ecosystem and land use development
ANNUAL REVIEW 2024
Figure 2-d
Areas under partial rehabilitation
Evolution MINING
0
0.5
1 km

3 APPROVALS

3.1 Current List of Consents, Leases, Licences and Permits

The key consents, leases, licences and permits under which the CGO operates (relevant to the reporting period) are presented in Table 3-a. Any applicable changes to these approvals during the reporting period are also outlined in Table 3-a.

Table 3-a - Key Consents, Leases, Licences, and Permits

Instrument	Relevant Authority	Date ofGrant	Expiry Date	Last Revision Date	Changes During AR Period
EPBC 2017/7989	DCCEEW	5/02/2019	31/12/2032	05/02/2019	Nil
Development Consent (DA 14/98)	DPHI	26/02/1999	31/12/2040	30/09/2021	Nil
State Significant Development(SSD 10367)	DPHI	30/09/2021	31/12/2040	7/11/2022	MOD 1 granted – UG Optimisation
State Significant Development (SSD 42917792)	DPHI	10/12/2024	31/12/2042	10/12/2024	Nil
Development Consent (DA2011/64) (Eastern Saline Bore field [ESB])	FSC	20/12/2010	Life of ML	2010	Nil
Mining Lease (ML 1535)	DRG	13/06/2003	12/06/2045	14/09/2023	Minor amendments
Mining Lease (ML 1791)	DRG	20/06/2019	20/06/2040	31/08/2022	Inclusion of new standard conditions on mining leases
Environment Protection License (EPL 11912)	EPA	23/12/2003	N/A	12/06/2024	Amendment to remove condition U1- Remediation works completed.
Permit #1361 under section 87(1) of the NPW Act	DCCEEW	23/05/2002	Life of ML	2002	Nil
Consent #1467 under section 90 of the NPW Act	DCCEEW	31/03/2022	31/12/2040	31/03/2022	Extension of mine life updated
Permit #1468 under section 87(1) of the NPW Act	DCCEEW	31/03/2022	31/12/2040	31/03/2022	Extension of mine life updated
Consent #1680 under section 90 of the NPW Act	DCCEEW	28/07/2003	31/12/2040	08/07/2021	Extension of mine life updated
Permit #1681 under section 87(1) of the NPW Act	DCCEEW	28/07/2003	31/12/2040	20/09/2018	Extension of mine life updated
AHIP number: C0004570	DCCEEW	27/06/2019	31/12/2032	27/06/2019	Nil
Care Agreement C0004976	DCCEEW	01/07/2019	31/12/2032	01/07/2019	Nil
Bland Creek Paleochannel (BCPC) bore field. Water Access Licence (WAL) 31864 Water supply work approval70WA614076	Water NSW	14/09/2012	13/9/2025	2015	Nil
Eastern Saline Bore field WAL 36569 Water supply work approval	Water NSW	10/06/2011	09/06/2026	20/11/2020	Nil

Instrument	Relevant Authority	Date ofGrant	Expiry Date	Last Revision Date	Changes During AR Period
70WA614933					
Saline groundwater supply bore field within ML 1535 WAL 36615 Water supply works approval70WA614090	Water NSW	21/03/2014	13/09/2025	13/09/2015	Nil
Pit dewatering WAL 36615 Water supply works approval 70WA614090	Water NSW	21/03/2014	13/09/2025	13/09/2015	Nil
Pit dewatering WAL 36617 Water supply works approval 70WA614090	Water NSW	21/03/2014	13/09/2025	13/9/2015	Nil
Monitoring and test bore licences	Water NSW	Various	Various	2015	Nil
High Security Title WAL13749	Water NSW	21/12/2006	Life of ML	21/12/2006	Nil
High Security Title WAL14981(80 Units)	Water NSW	15/09/2011	Life of ML	15/092011	Nil
General Security WAL13748	Water NSW	21/12/2006	Life of ML	21/12/2006	Nil
Lake Cowal pipeline and Temporary Isolation Bund andLake Protection Bund structures Water Supply Works Approval614805	Water NSW	12/01/2010	13/9/2025	13/9/2015	Nil

- DPHI: NSW Department of Planning, Housing and Infrastructure
- DI-Lands & Water: Department of Industry – Lands & Water.
- DRG: Division of Resources and Geoscience – within the Department of Planning and Environment
- EPA: NSW Environmental Protection Authority. FSC: Forbes Shire Council.
- NPW Act: NSW National Parks and Wildlife Act 1974.
- DCCEEW: NSW Department of Climate Change, Energy, the Environment and Water.

3.2 Status of Environmental Management Plans Review

CGO currently has multiple Environmental Management Plans (EMPs) approved by DPHI under the Consent conditions of DA 14/98 and SSD 10367, and are updated as required to meet changes of the operation and conditions of consent. These plans guide environmental management, compliance and operational strategies for the continued development of CGO.

4 OPERATIONS SUMMARY

During the reporting period, mining operations continued from the E42 open pit and underground stoping operation as per relevant approvals outlined in Section 3.1. The processing plant also operated as per all relevant approvals. A summary of key production statistics for the reporting period are provided in

Table 4-a below.

Table 4-a - Production Summary

Material	Approved Limit	Previous Reporting Period (2023)	Current Reporting Period (2024)	Next Reporting Period (2025)
Ore (t)	N/A	15,676,947	7,771,496	~9,200,000
Mineralised Waste (t)	N/A	881,521	711,593	~900,000
Waste Rock (t)	N/A	5,024,790	2,203,304	~3,800,000
Northern Waste Rock Emplacement (NWRE) (m AHD)	308[1]	308	308	308
Southern Waste Rock Emplacement (SWRE) (m AHD)	283[1]	283	283	283
Perimeter Waste Rock Emplacement (PWRE) (m AHD)	233	223	283	283
Waste rock for use as gravel road base (t per year)	150,000	64,452	60,685	~65,000
Northern TSF (NTSF) (m AHD)	240.5	240.5	240.5	240.5
Southern TSF (STSF) (m AHD)	272.[1]	243.7	243.7	243.7
Integrated Waste Landform (IWL) (m AHD)	246	235	235	~243
Mill Throughput (Mtpa)	7.52	8.44	9.43	~7.17
Saleable Product (oz)	N/A	289,268	366,522	~315,000 – 335,000

[1] Development Consent Condition 1.2(c). Following approval of MOD16 on 30 September 2021

[t] – tonne; m AHD – metres Australian Height Datum; Mtpa – million tonnes per annum; Oz – ounce.

4.1 Mining

Mining of the open pit during 2024 occurred in Stage H exclusively. Mining in Stage H occurred from -183AHD to -232AHD, representing a vertical advance of 49 metres.

Vertical dewatering systems were maintained throughout the reporting period. Horizontal holes were drilled as mining progressed through Stage H to de-pressurise specific areas from January to December 2024.

Waste rock mined from the open pit where appropriate was sent to the IWL, any remaining waste was stockpiled on the North Waste Rock Emplacement or used on outer slope rehabilitation.

No material was mined from the Southeast Oxides in 2024.

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4.2 Exploration

Exploration activities within ML 1535 undertaken during the reporting period included exploration and resource development drilling within and surrounding the main E42 open pit and proximal deposits, including Endeavour 46, Galway/Regal and Endeavour 41 deposits.

Approximately 191,322m of drilling was completed within ML1535 during the reporting period including:

- A total of 1,218 holes for 36,346m in-pit RC drilling
- A total of 903 holes for 154,976m diamond drilling

Except for the in-pit RC drilling, all holes were progressively rehabilitated using techniques such as cement grouting. Land disturbance within ML 1535 was minimal as a result of progressive rehabilitation of drilling and exploration areas post program completion.

4.3 Processing

During the reporting period the Paste Plant continued normal operations, with roughly a 10% portion of the process plant treated tailings stream redirected and combined with binders to meet the paste requirements.

IWL stage 3 tailings deposition continued from December 2023 through to November 2024. Tailings deposition switched over to stage 2 immediately thereafter, continuing for the remainder of the reporting period. Rock placement for the 239AHD augmentation, scheduled to commence at the beginning of FY26, continued during the reporting period.

In accordance with Development Consent Condition 5.3(a), cyanide levels in the aqueous component of the tailings slurry stream did not exceed 20 mg cyanide weak acid dissociable per litre (CN_{WAD}/L) (90 percentile over six months), and 30mg CN_{WAD}/L (maximum permissible limit at any time at the process plant) during the reporting period.

4.4 Next Reporting Period

4.4.1 Mining

During the next reporting period the following Open Pit activities are scheduled to be carried out:

- Mining of primary material from approximately -196AHD to -259AHD.
- Standard open-pit operational activities including, but not limited to, the installation of temporary sumps, dewatering activities, installation of water management infrastructure and ground support.
- Haulage rates of material from the E42 pit and underground will be in the range of approximately 8-13Mt.

During the next monitoring period the following Underground activities are scheduled to be carried out:

- Development of decline tunnels to access the lateral extent of the orebody.
    - The Southern decline will progressively be deepened to an expected depth of approximately -430AHD. The Northern decline will progressively be deepened to an expected depth of approximately -250AHD.
- Commencement of second decline from surface to provide additional underground access and ventilation to a depth of approximately 120AHD.
- Extension of primary ventilation system including horizontal and vertical development.
- Further development of tunnels for ore access, haulage, underground services, and emergency egress.
- Production activities in the South of the orebody progressing in a generally top-down manner and haulage will be of both waste and ore materials.
- Installation of underground services to support the operation.

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4.4.2 Exploration

Exploration and resource definition activities proposed to occur within ML1535 throughout the next monitoring period include:

- A total of ~20,045m of in pit RC drilling
- A total of ~168,320m of diamond drilling

The main focus of resource definition activities for the next monitoring period are on the underground orebodies. This drilling is planned to be undertaken from drill sites in the underground mine.

4.4.3 Processing

Throughout the next reporting period an upgrade to the elution circuit is scheduled. This upgrade will feature the installation of an additional Carbon Regeneration Kiln and two Electrowinning cells in the Goldroom. The new Carbon Regeneration Kiln will be larger than the current unit, offering enhanced performance in terms of increased carbon activity and throughput. The inclusion of two additional Electrowinning cells is expected to improve elution cycle times and boost gold recovery rates, further optimising the efficiency of the circuit.

Next reporting period the planned IWL augmentation up to 239AHD will commence in the second half of the reporting period. By June 2025, IWL stage 2 is expected to reach capacity at 234.5AHD, shifting deposition back to IWL stage 3, with timing aligned to clay placement. The tailings deposition ring main pipeline and booster pump installation at the IWL hardstand area are set for completion September 2025. Additionally, rock placement for further augmentation to 243AHD will continue throughout the period.

Actions from Previous Annual Review	Works Undertaken	Action Addressed
NSW Planning considers it to be deficient in detail surrounding Cyanide found in the groundwater, as identified in 7.3.2.2 on page 97 of the 2023 Annual Review. Provide raw data and information for the “11 cyanide detections across three areas in the groundwater monitoring network” for April 2023. Update and load the revised Annual Review 2024 in the Major Projects Portal.	Section 7.3.2.2 of the revised 2023 Annual Review was updated to provide additional details regarding the reported cyanide detections in groundwater. The update clarifies that the laboratory applied a higher-than-usual Limit of Reporting (LOR) of 0.016 mg/L for the 11 groundwater in April 2023. All sampling results for these bores were reported as below the LOR (<0.016 mg/L), meaning there were no confirmed cyanide detections during the 2023 monitoring period. The increase in the LOR was due to analytical constraints rather than an actual change in groundwater quality.	Addressed in the Revised 2023 Annual Review.

5 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

Table 5-a - Actions Required from the 2023 Annual Review (Requested by the Department)

5.1 Actions From 2023 Annual Review

Actions requested by relevant government agencies to be undertaken at Cowal Gold Operations based on the previous 2023 Annual Review. These actions were requested for completion in 2023 through a revision process and are detailed in Table 5-a.

6 ENVIRONMENTAL PERFORMANCE

Environmental management at the CGO during this reporting period has been conducted in accordance with EMPs prepared by CGO, required under the Development Consent.

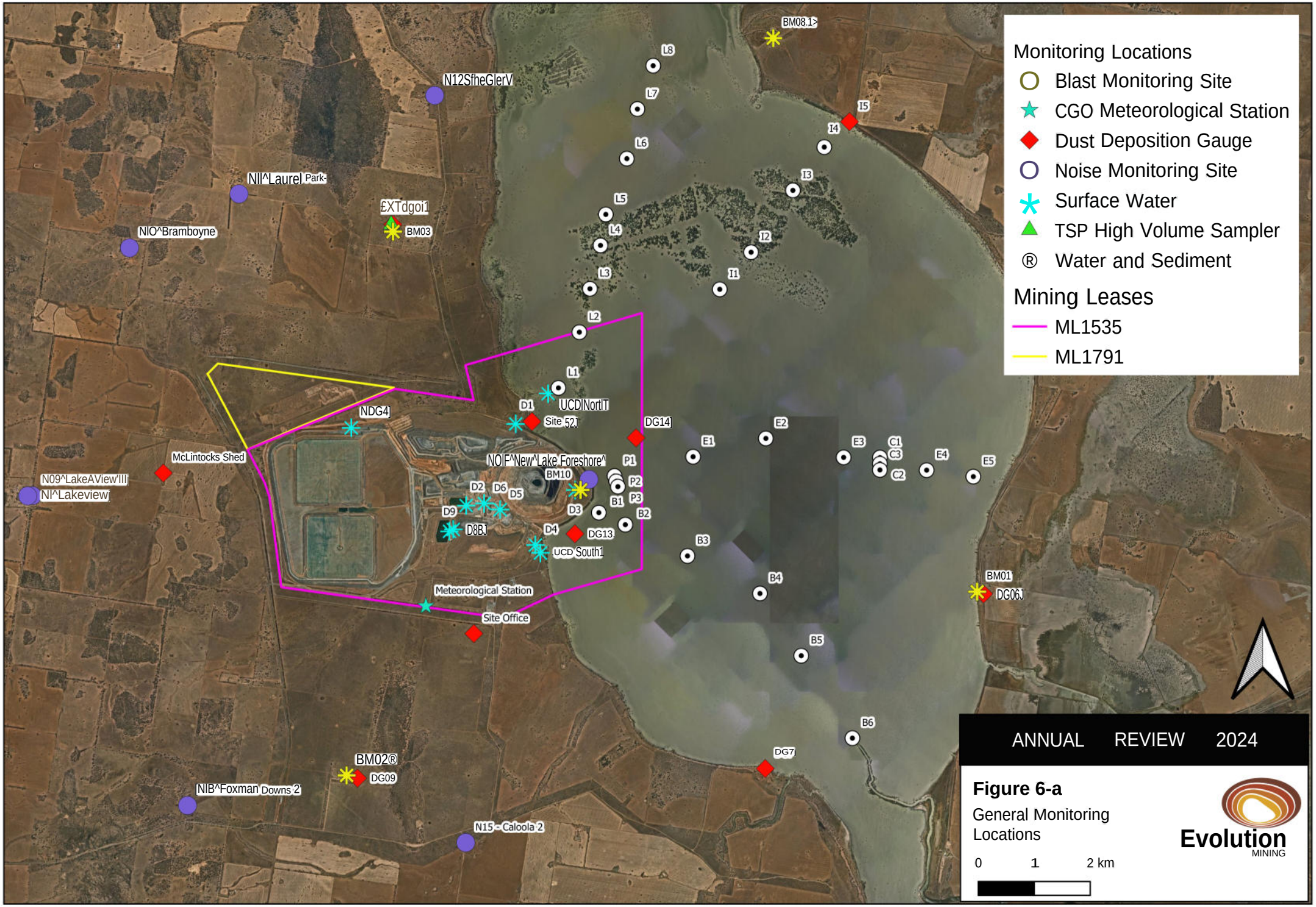
Evolution has fully complied in this reporting period with commitments in Resources Regulator (formerly DRG/DRE) approved and updated planning documents.

Non-compliances during the 2024 reporting period are discussed further in Section 11.

The EPL 11912 Annual Return for the 23 December 2023 to 22 December 2024 reporting period was submitted to the EPA via the portal on 20 February 2024. Historical returns and any associated non-compliances can be found on the EPA website at: http://www.epa.nsw.gov.au/prpoeoapp/.

During the reporting period CGO maintained the EMS to the ISO14001:2015 standard. A recertification audit was undertaken in June with no non-conformances identified.

Overall, due to Evolution's substantial compliance with EMPs, environmental management for CGO during the reporting period is considered highly effective.


Monitoring Locations
Blast Monitoring Site
CGO Meteorological Station
Dust Deposition Gauge
Noise Monitoring Site
Surface Water
TSP High Volume Sampler
Water and Sediment
Mining Leases
ML1535
ML1791
BM08.1>
L8
N12SfheGlerV
L7
I5
I4
L6
NII^Laurel Park-
I3
£XTdgoi1
L5
BM03
NIO^Bramboyne
L4
I2
L3
I1
L2
L1
D1
UCDlNortlT
NDG4
Site 52J
DG14
E1
E2
E3
C1
C3
C2
E4
E5
McLintocks Shed
NO|F^New^Lake Foreshore^
P1
BM10
N09^LakeAView'III
NI^Lakeview
P2
P3
D2
D6
D5
B1
D3
B2
D9
D8BJ
D4
DG13
B3
UCD South1
B4
BM01
DG06J
Meteorological Station
Site Office
B5
B6
DG7i
BM02®
DG09
NIB^Foxman Downs 2
N15 - Caloola 2
ANNUAL REVIEW 2024
Figure 6-a
General Monitoring Locations
0 1 2 km
Evolution MINING

6.1 Meteorological

6.1.1 Meteorological Monitoring

CGO's Automatic Weather Station (AWS) meteorological station, located near the southern ML 1535 boundary, collected meteorological data throughout the reporting period. The station measures real-time wind speed and direction, standard deviation of wind direction, temperature (2 m, 10 m), barometric pressure, humidity, solar radiation and rainfall. The CGO AWS is supported by quarterly independent maintenance and calibration and provides daily summary reports and automatic alerts.

Monthly total rainfall measured at CGO AWS is shown in Table 6-a The total annual rainfall was 505 mm, with the highest totals falling in January (76mm) and November (89mm).

Other parameters recorded by CGO AWS meteorological station during the reporting period are presented in Table 6-b and Figure 6-b. The maximum temperature measured at 10 m over a 1-hour period was 39.8ºC on 4th February, with a minimum of 0.9ºC recorded on 30th July. Annual and seasonal wind roses from CGO AWS are presented in Figure 6-c and Figure 6-d.

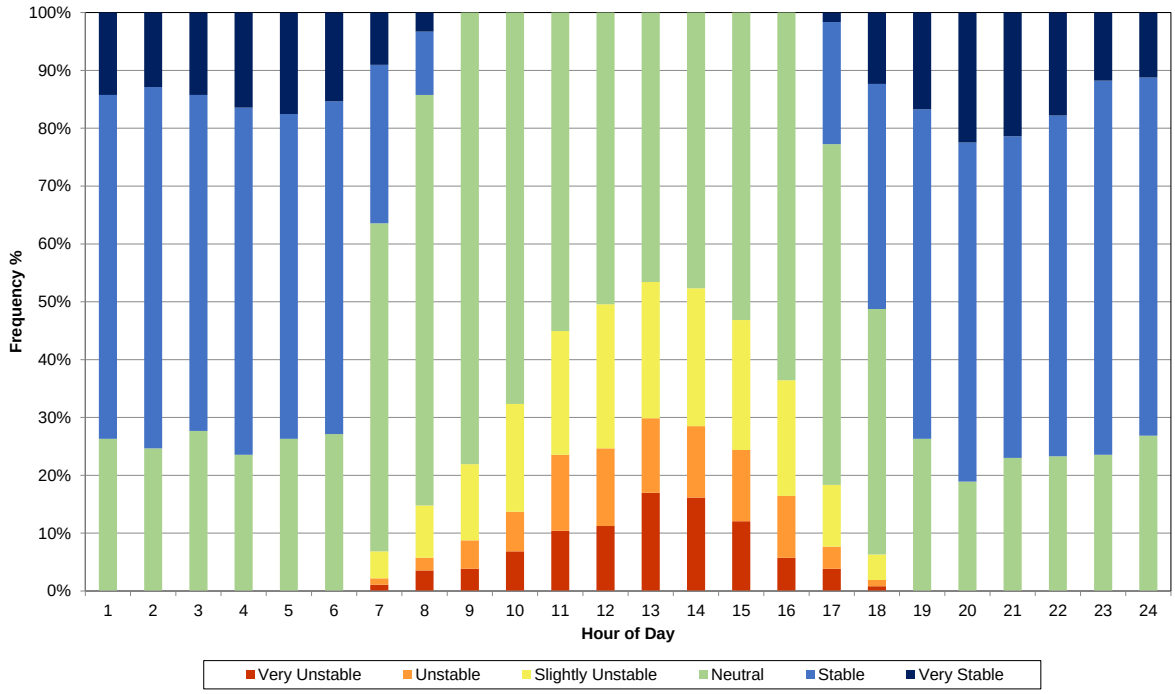
Atmospheric stability refers to the degree of turbulence or mixing that occurs within the atmosphere and is a controlling factor in the rate of atmospheric dispersion of dust from mining operations. Highly stable conditions lead to poor dispersion while unstable conditions enable more effective dispersion of pollutants. Atmospheric stability for 2024 has been calculated using the AWS meteorological data collected, and Graph 6- presents the diurnal variation in atmospheric stability at CGO. The profile shows that atmospheric instability increases during the daylight hours as the sun generated convective energy increases, whereas stable atmospheric conditions prevail during the night-time. This profile indicates that potential for effective atmospheric dispersion of emissions would be greatest during day-time hours and lowest during evening through to early morning hours.

Table 6-a - Monthly Rainfall Measured at CGO AWS 2020 – 2024

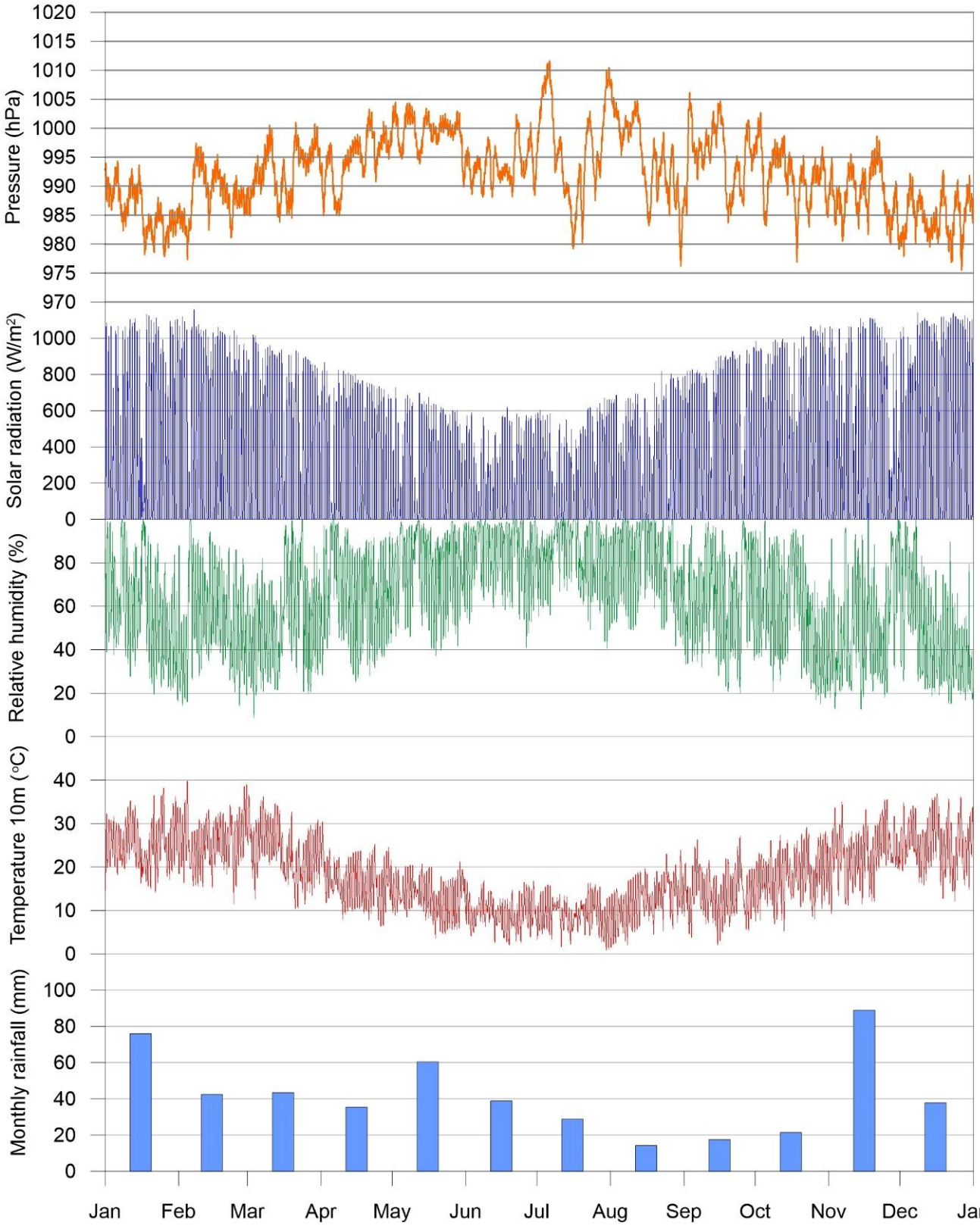
Month	2020 (mm)	2021 (mm)	2022 (mm)	2023 (mm)	2024 (mm)
January	18.8	57.2	141	81.6	76.8
February	61.0	54.4	0.6	15	42.4
March	56.4	127.6	23.4	72.6	43.4
April	126.8	0	89.2	14.6	36
May	15.2	28	77.6	8.2	50.6
June	34.2	112.8	21	42.2	45.6
July	41.6	45.4	43,6	22	32.6
August	52.0	19.2	66.4	21	14.2
September	29.0	44.2	76.2	3.2	17.4
October	51.4	26.2	146.8	28.8	21.6
November	33.2	153	37.8	50	40
December	44.8	30.4	22.0	18	89.2
TOTAL	564.4	698.4	745.6	377.2	509.8

Table 6-b - Monthly Average Meteorological Data (2024)

Aspect	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mean Humidity (%)	59.27	54.28	53.09	65.92	78.33	84.89	83.74	80.60	66.77	56.73	50.13	46.49
Mean Pressure(mbar)	985.9	988.6	992.7	994.6	999.4	993.5	996.5	994.9	995.2	991.8	988.8	984.7
2m Temp Min (ºC)	18.3	17.5	14.5	8.4	6.0	2.8	3.1	4.1	4.9	8.6	14.5	16.2
2m Temp Max (ºC)	34.2	33.8	31.9	23.4	19.6	14.7	14.4	18.8	21.1	21.6	31.1	33.2



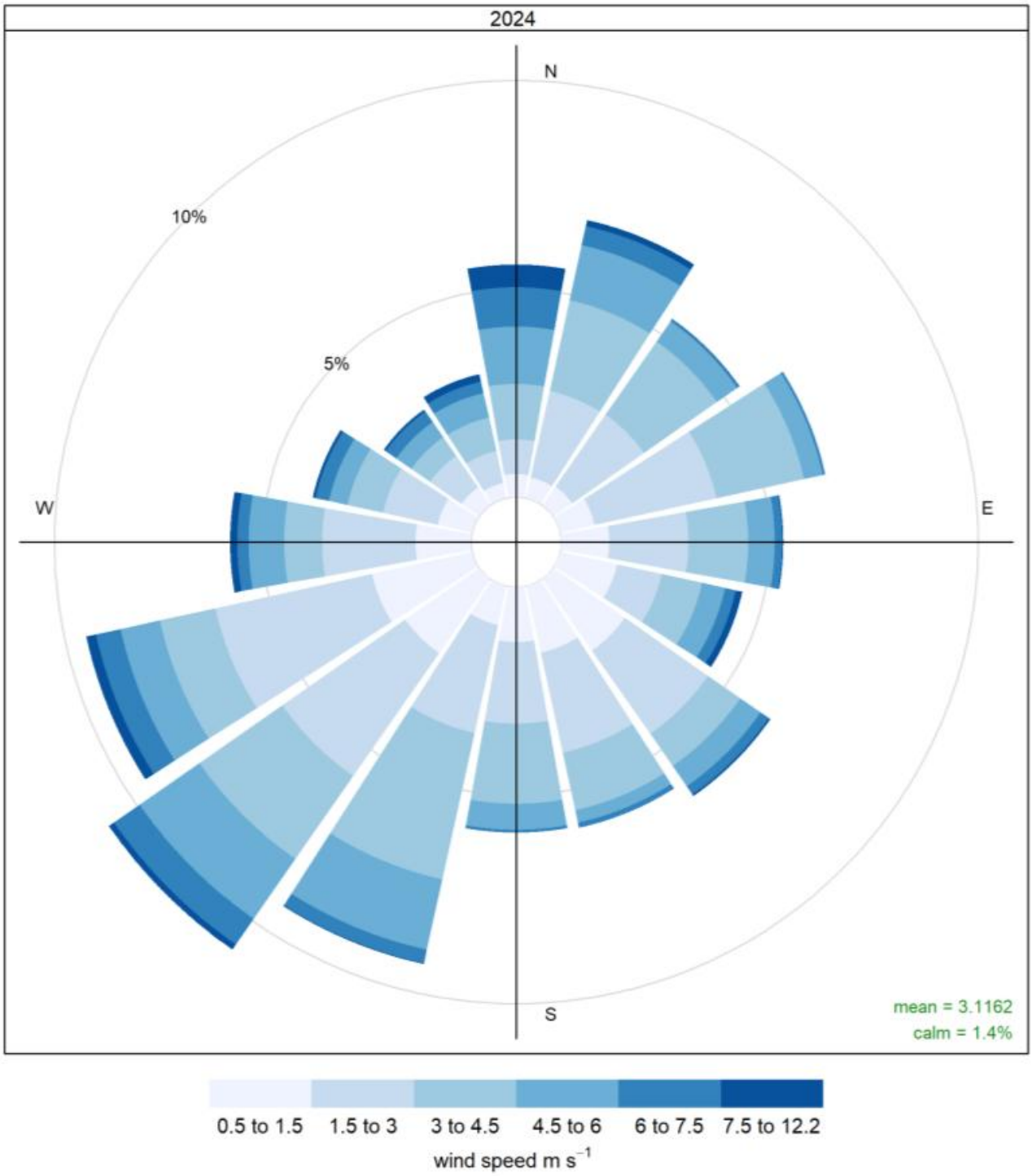
Graph 6-a - Diurnal variation in stability for CGO during 2024



Source: Zephyr Environmental (2025)

Annual Review 2024

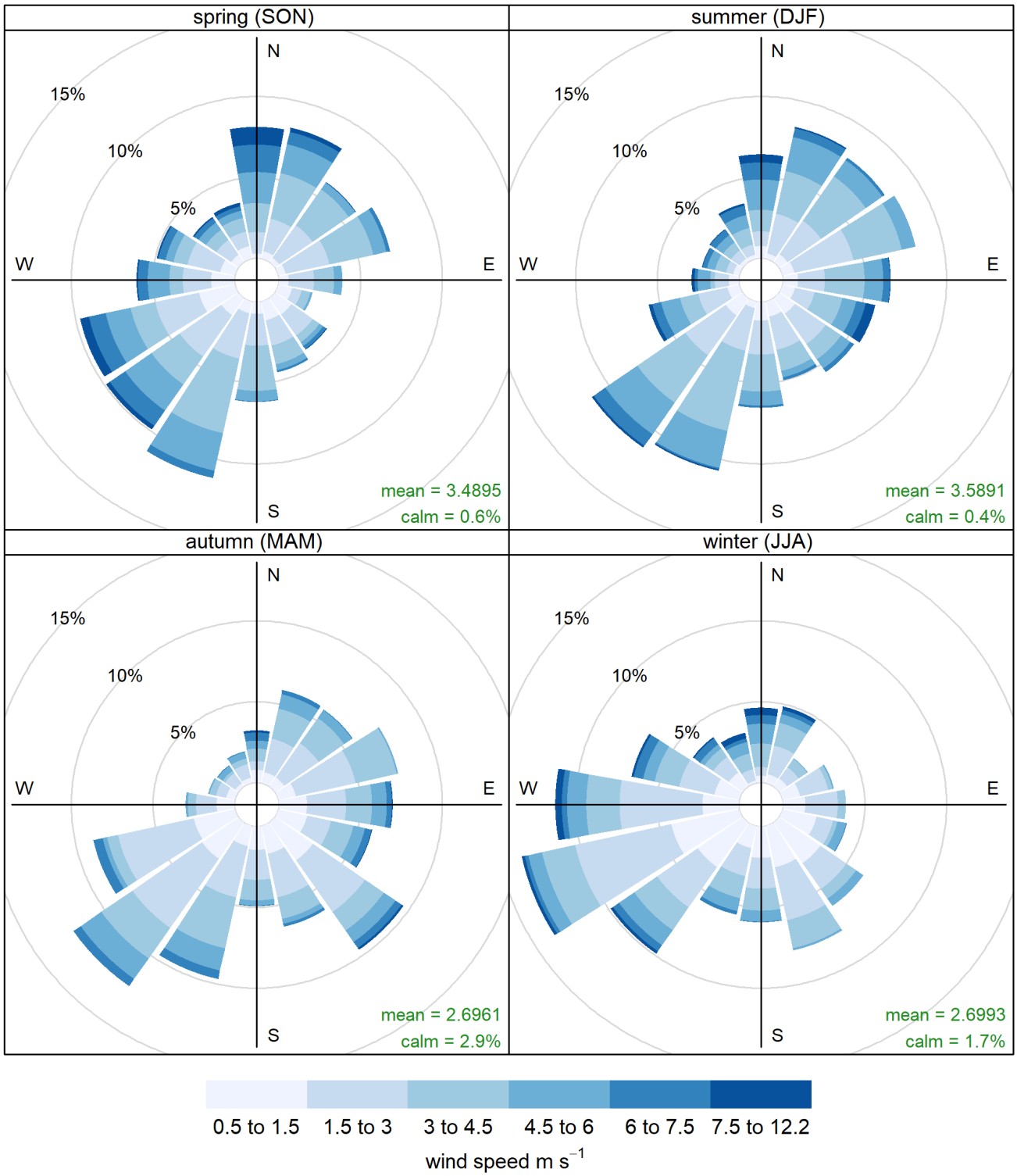
FIGURE 6-b
Annual Meteorological Summary for 2024



Source: Zephyr Environmental (2025)

Annual Review 2024

FIGURE 6-C
Annual Wind Rose 2024



Source: Zephyr Environmental (2025)

Annual Review 2024

FIGURE 6-d
Seasonal Wind Roses for 2024

6.2 Air Quality

6.2.1 Environmental Management

Development Consent Condition 6.1(a) details air quality impact assessment criteria against which air quality monitoring results are compared for CGO. As required Development Consent Condition 6.1(c) the CGO Air Quality Management Plan (AQMP) has been prepared, submitted and approved by DPE (6 December 2023).

Monitoring and management of air quality and meteorology during this reporting period was undertaken in accordance with relevant Development Consent conditions, the approved AQMP and EPL 11912. A missed monitoring event as a result of a motor drive instrumentation error was identified, rectified and unit returned to service in October 2024. A notification of failure to meet the frequency criteria, as required under EPL11912, was undertaking during this reporting period.

Air quality safeguards and control strategies were implemented at CGO during the reporting period to minimise dust emissions from the mining activities and exposed areas in accordance with Development Consent conditions, the approved AQMP and EPL 11912. During the 2024 reporting period, strategies included, but were not limited to, the following:

- Major works scheduled to undergo a risk assessment prior to commencing work.
- Environmental inductions and training to ensure workforce awareness.
- Maintaining plant and machinery in good working order.
- Maintaining haul roads in good condition.
- Use of water carts on disturbed surfaces.
- Access roads watered and regularly maintained.
- Dust suppressant chemical applied to unsealed roads around the general administration and processing plant area to reduce dust generation.
- Site access routes are clearly marked, and workplace inductions specify routes.
- Speed of vehicles travelling on unsealed surfaces is restricted.
- Soil stripping limited to areas required for future mining operations.
- Dust suppressant chemical polymer applied to the inactive cells within the IWL.
- Hay Bales placed on top of inactive cells within IWL.
- Ripping of exposed areas on inactive STSF cell.

CGO implements an air quality monitoring program to measure concentrations of particulate matter in the vicinity of the operation. Two high-volume air samplers (HVAS) obtain measurements of suspended solids approximately every 7 days alongside a network of static depositional dust gauges (Figure 6-a). Results from monitoring are discussed in section 6.2.2.

6.2.2 Environmental Monitoring Results

During the reporting period, dust monitoring was carried out in accordance with the AQMP utilising depositional (static or gravimetric) and high-volume Total Suspended Particulate (TSP) sampling equipment. All dust samples are collected by trained personnel and analysed by NATA certified laboratories and National Measurement Institute.

Air Quality Monitoring was undertaken at CGO with the use of two high-volume air samplers (HVAS) throughout 2024 to obtain measurements of suspended solids approximately every 7 days. The HVAS monitors collect suspended particles with diameters less than approximately 50µm. This enables determination of dust concentrations in units of mass per cubic metre (µg/m³). The HVAS monitors are located at a company owned residence near CGO (Coniston). The TSP criteria adopted by the EPA were recommended by the National Health and Medical Research Council of Australia as the maximum permissible level of TSP in air to protect public health in residential environments.

PM10 assessments are based on values inferred from TSP measurements, which is consistent with the approach utilised in historical Annual Reviews. PM2.5 monitoring requirements were also introduced during 2021, with the approval of MOD 16 (DA 14/98). In March 2023 CGO installed a PM2.5 HVAS alongside the TSP HVAS prior to CGO commencing underground production.

A network of static dust deposition gauges was used throughout 2024 to collect monthly dust samples. The dust gauges are located at varying distances and directions from the CGO open pit (Figure 6-a). A number of gauges are situated near homesteads of properties that adjoin the mine site, and a number are near areas of ecological importance (i.e. Lake Cowal). Two duplicate dust gauges are installed near pre-existing dust gauges (DG1 and DG13), with dust samples collected and analysed quarterly for metal concentrations. There was also duplicate sampling carried out at two gauges, DG1 Test and DG13 duplicate, which are co-located with DG1 and DG13, to understand the variability between samples taken at the same location. Results from monitoring are discussed in Section 6.2.2.1.

6.2.2.1 Results from the Reporting Period

Table 6-c to Table 6-d detail the long–term and short-term impact assessment criteria for TSP, particulate matter less than (<) 10 µm (PM_{10}) and <2.5 µm ($PM_{2.5}$) for any residence on privately-owned land as required under Development Consent Condition 6.1(a).

Table 6-c - Long-term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion [1]
Total suspended particulate (TSP) matter	Annual	90 µg/m³ [2]
Particulate matter < 10 µm (PM_{10})	Annual	25 µg/m³ [2]
Particulate matter < 2.5 µm ($PM_{2.5}$)	Annual	8 µg/m³ [2]

1 - Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.
2 - Cumulative impact (i.e. incremental increase in concentrations due to Cowal Gold Operations plus background concentrations due to all other sources

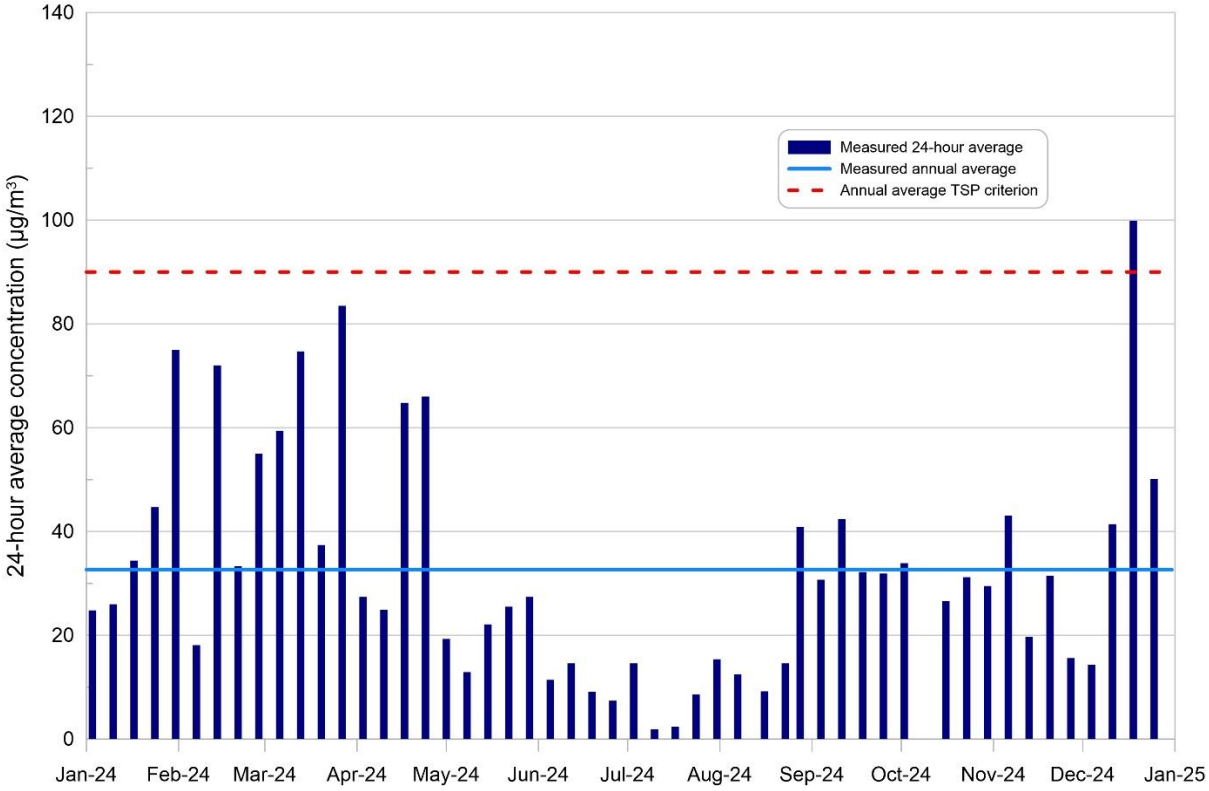
Table 6-d - Short-term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion [1]
Particulate matter < 10 µm (PM_{10})	24 hours	50 µg/m³ [2]
Particulate matter < 2.5 µm ($PM_{2.5}$)	24 hours	25 µg/m³ [3]

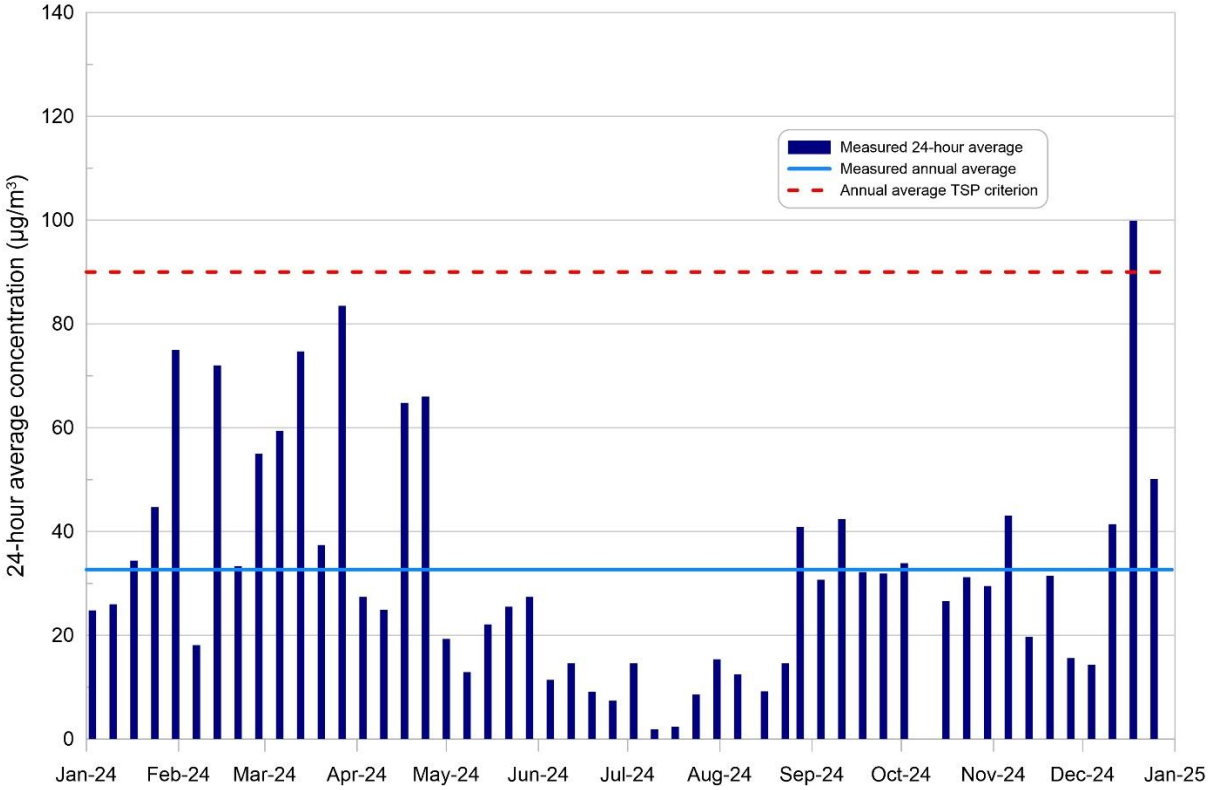
1 - Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.
2 - Cumulative impact (i.e. incremental increase in concentrations due to Cowal Gold Operations plus background concentrations due to all other sources).
3 - Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

Total Suspended Particulates

Measurements of TSP, taken by the HVAS on a (generally) seven-day cycle, are shown below in



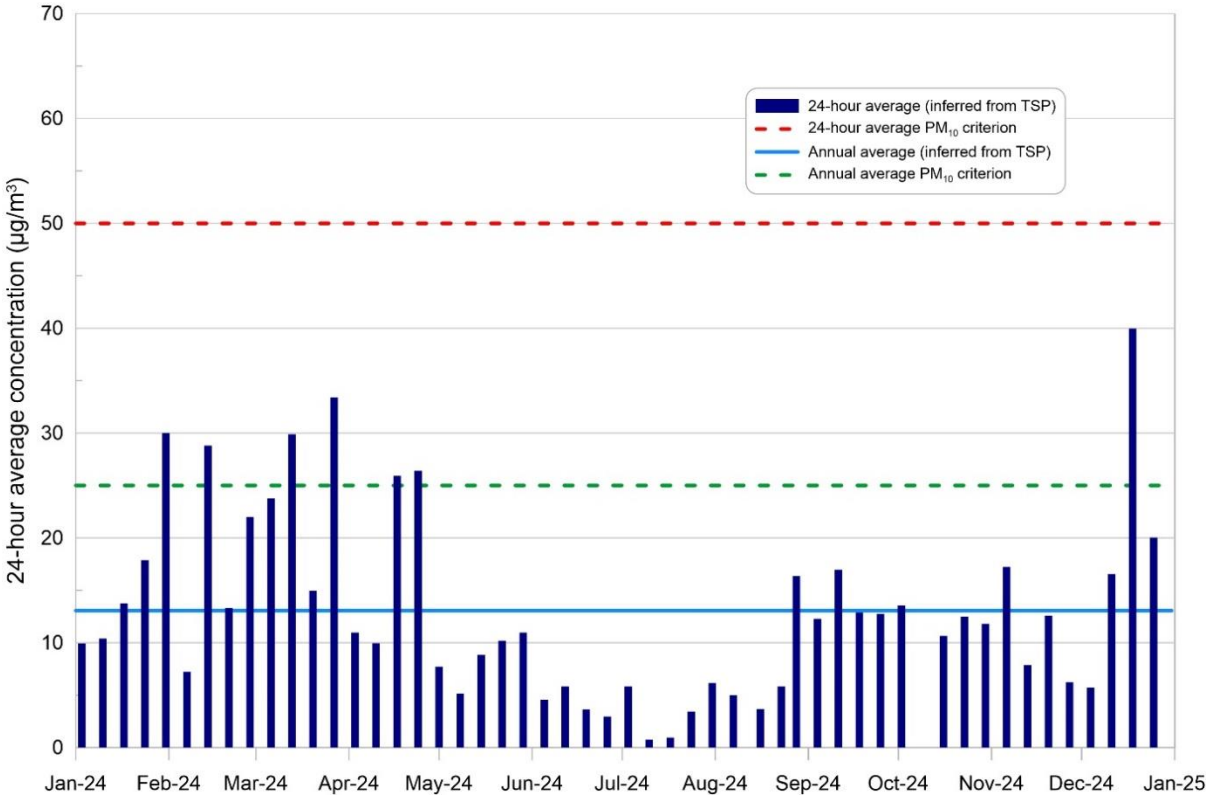
Graph **6-**. While there are individual elevated concentrations, the annual average (32.7 µg/m^3) was well below annual average TSP criterion of 90 µg/m^3.



Graph 6-b - TSP-masses measured during 2024

Particulate matter < 10 µm (PM_{10})

PM_{10} is not directly measured but is inferred from TSP, based on the assumption that approximately 40% of TSP in a mining environment falls within the PM_{10} size fraction. This approach aligns with the AQMP and is consistent with the methodology used in previous Annual Reviews and air quality assessments for all recent modifications. All 'inferred' average PM_{10} concentrations remain below the 24-hour average criterion (Graph 6-c). Additionally, the annual average for 2024 of 13.1 µg/m^3 remained well below the annual criterion of 25 µg/m^3.



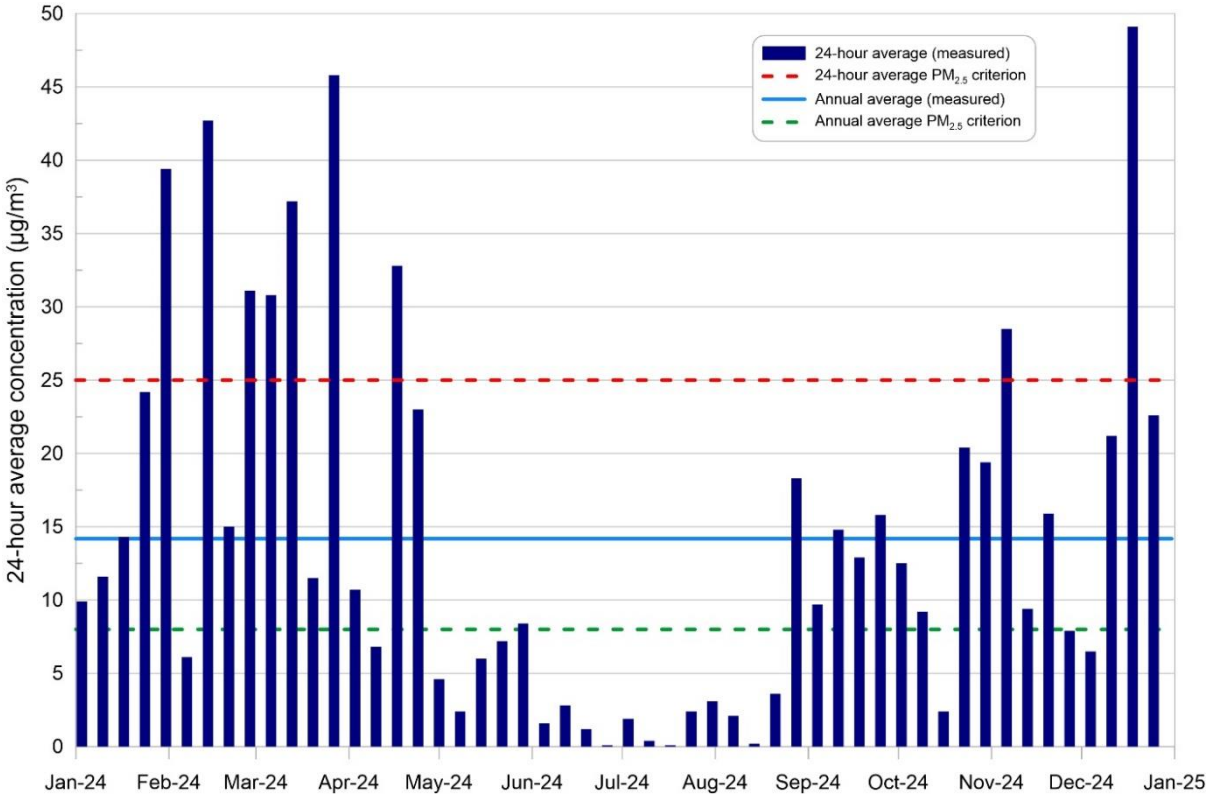
Graph 6-c - PM_{10} data inferred from TSP measurements – 2024

Particulate matter < 2.5 µm ($PM_{2.5}$)

A HVAS with a $PM_{2.5}$ head was co-located with the TSP HVAS in March 2023 to carry out direct measurements of $PM_{2.5}$. Graph 6- shows $PM_{2.5}$ 24-hour data collected from the monitor. The annual average in 2024 of 14.2 µg/m^3 exceeds the annual criterion of 8 µg/m^3. The majority of $PM_{2.5}$ concentrations remain below the 24-hour average criterion of 25 µg/m^3, but nine measured concentrations exceed this value. These were 39.4 µg/m^3 on 31 January, 42.7 µg/m^3 on 14 February, 31.3 µg/m^3 on 28 February, 30.8 µg/m^3 on 6 March, 37.2 µg/m^3 on 13 March, 45.8 µg/m^3 on 27 March, 32.8 µg/m^3 on 17 April, 28.5 µg/m^3 on 6 November and 49.1 µg/m^3 on 18 December.

Winds on the 31 Jan, 14 Feb, 27 Mar, 17 Apr, and 18 Dec were predominantly from the southeastern/ southwestern quadrant. While highest wind speeds were generally from the north and northeast of the operation, on 28 Feb, 6 Mar and 6 Nov, results indicated that the mine is unlikely to be the source. An analysis of wind speed and direction on each day indicated that mining operations were unlikely to be the cause of these exceedances.

Strong wind speeds on the 18 December were not generally from the direction of the mine and the strongest winds were from the east, indicating that the mine is unlikely the source the elevated result.



Graph 6-d - Annual average measured $PM_{2.5}$ data – 2024

Deposited Dust

Table 6-e details long-term impact assessment criteria for deposited dust for any residence on privately-owned land, as required by Development Consent Condition 6.1(a).

Table 6-e - Long-term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level
Deposited dust[1]	Annual	2 g/m²/month[2]	4 g/m²/month[3]

1 - Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.
2 - Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
3 - Cumulative impact (i.e. incremental increase in concentrations due to Cowal Gold Operations plus background concentrations due to all other sources).

A detailed discussion of depositional dust monitoring results is provided in the Annual Air Quality Review 2024 (Zephyr Environmental, 2025). A summary of key findings is provided below and in Table 6-f.

Two sites (DG13 and DG14) only had five and six valid readings, respectively, for the year due to the presence of foreign matter contaminants which is not sufficient to determine an annual average. All other sites, except for McLintocks shed and Site Office, recorded annual averages less than the criteria of 4 g/m²/month. McLintocks shed recorded an annual average of 4.2 g/m²/month while Site Office recorded an annual average of 4.4 g/m²/month, both slightly above the 4 g/m²/month criteria.

Of the ten samples collected at McLintock's shed, five exceeded 4 g/m²/month. Although this site is located directly west of the IWL, there is no consistent pattern of high deposition levels aligning with months of dominant easterly winds. In fact, elevated deposition rates were more commonly observed during months with stronger westerly and northerly winds. Therefore, it is unlikely that the elevated levels were caused by activities at CGO.

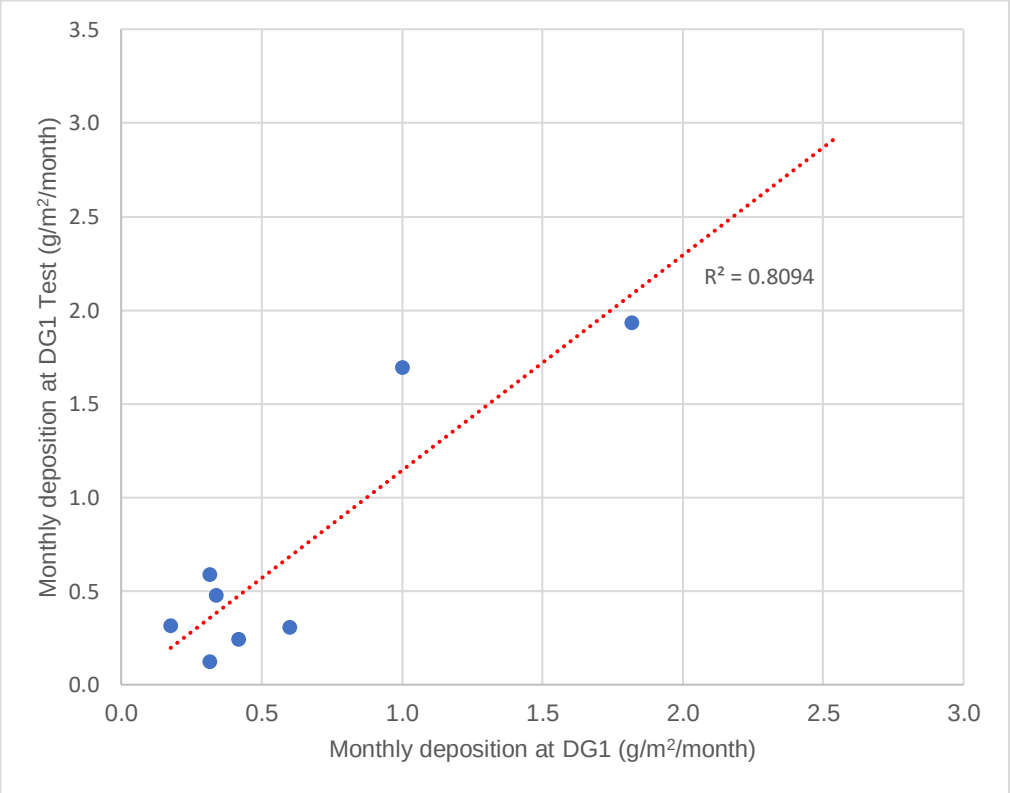
At the Site Office peak measurements occurred in April and October, reaching twice the annual criterion. However, wind analysis indicated that during these months the winds were rarely from the north or northwest, indicating that mining operations were unlikely to be the cause of these elevated results.

Table 6-f - Monthly and annual average dust deposition rates (insoluble solids) for 2024

Month	DG1	DG6	DG7	DG9	DG13	DG14	DG I5	McLintocks Shed	Site 52	Site Office
January	1.0	2.3	5.6	1.6	1.5	*	2.6	7.9	3.0	6.2
February	2.6	1.4	4.2	1.5	1.7	6.2	4.3	4.9	4.0	6.3
March	0.7	0.4	1.7	0.3	*	*	1.0	1.8	0.4	1.8
April	1.2	0.9	6.8	5.4	*	*	4.0	*	4.8	8.2
May	0.3	0.6	2.4	1.2	*	^	0.9	*	2.4	2.7
June	0.3	0.4	1.3	1.7	*	*	1.0	6.2	1.8	4.0
July	0.3	0.3	0.4	0.4	*	*	1.0	2.4	0.4	3.4
August	0.2	0.3	0.3	0.2	*	*	0.6	7.1	1.0	4.1
September	0.6	0.4	0.4	0.9	2.2	0.6	1.0	3.4	0.1	4.4
October	0.4	0.8	2.4	1.1	1.6	6.1	6.1	4.4	2.9	7.9
November	1.5	2.1	1.5	0.6	0.5	2.3	4.5	1.6	3.1	1.9
December	1.8	1.4	3.3	0.5	1.2	7.7	6.2	2.8	2.0	1.5
Average	**0.9**	**0.9**	**2.5**	**1.3**	**	**	**2.8**	**4.2**	**2.2**	**4.4**

^ Samples not collected as the site could not be accessed due to high water levels
* Contaminated and not included in the annual average
** Not sufficient data captured in the year to calculate an annual average

Additional sampling was also carried out at DG01 Test throughout 2024, which is co-located with DG1 to understand variability between samples taken at the same location. Graph 6-h summarises these results, displaying there is variation in the monthly results, even though the gauges measured similar annual averages. Deposition gauges are relatively antiquated and not a particularly useful method of measuring air quality (Zephyr Environmental, 2025).



Graph 6-e - Correlation between monthly deposition levels at DG1 and DG1 Test

6.2.2.2 Comparison with EIS Predictions

Pacific Environment Limited (PEL) (2013) modelling predicted the Coniston residence (i.e. the location of the HVAS [hv1]) as the receiver with highest predictions for 24-hour average PM_{10}, annual average PM_{10}, TSP and depositional dust. Table 6-g summarises 2024 monitoring results for 24-hour average PM_{10}, annual average PM_{10}, TSP and depositional dust and predicted results at Coniston in comparison with relevant Development Consent air quality impact assessment criteria for 24 hour and annual average PM_{10}, TSP and depositional dust. Results presented are for total impact which includes concentrations due to the development plus background concentrations to all other sources.

2024 monitoring results for maximum 24-hour average PM_{10}, annual average PM_{10} and annual average TSP were higher than the predicted Coniston results, one reason for this is that the predicted results show the incremental impact from CGO, whereas the monitoring results are cumulative from all sources.

Table 6-g - Summary of Predicted PM_{10}, TSP and Dust Deposition at HV1

Emission Parameter	2024 Monitoring Results	Predicted Result at Coniston[a d]	Development Consent Air Quality Impact Assessment Criteria[b]
Maximum 24-Hour Average PM_{10}	40.0 µg/m^3	28.8 µg/m^3	[c] 50 µg/m³
Annual Average PM_{10}	13.1 µg/m^3	3.7 µg/m^3	[c] 25 µg/m³
Annual Average TSP	32.7 µg/m^3	3.9 µg/m^3	[c] 90 µg/m³
Annual Average Depositional Dust	2.4 g/m^2/month	0.16 g/m^2/month	[c] 4 g/m^2/month

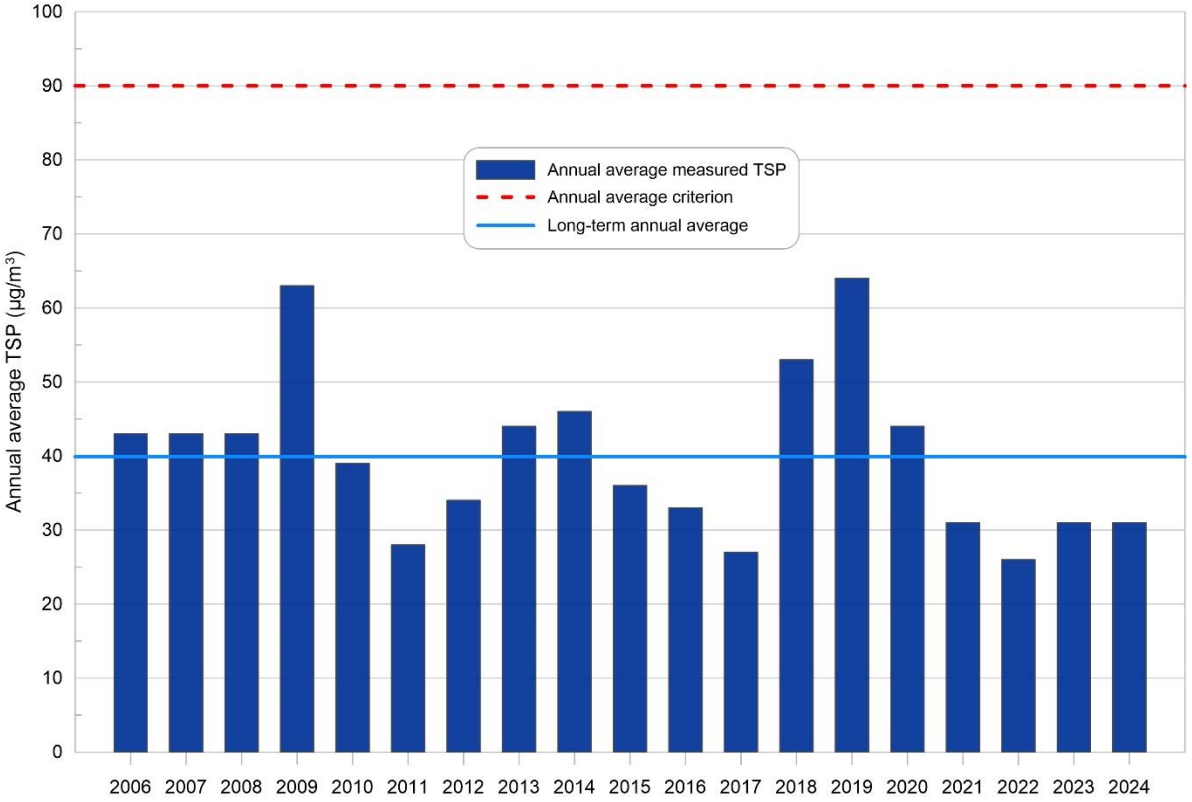
a - Source: PEL (2013).
b - Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.

c - Cumulative impact (i.e. incremental increase in concentrations due to Cowal Gold Operations plus background concentrations due to all other sources).
d - Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

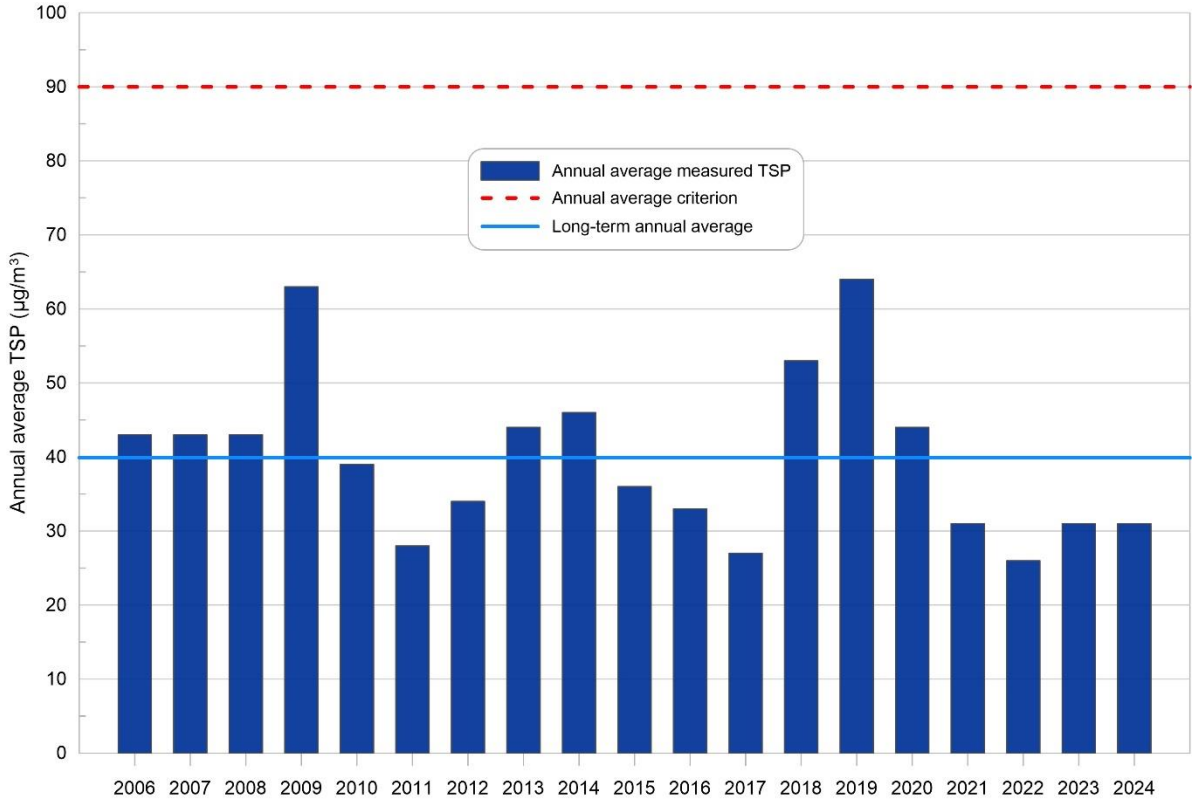
6.2.2.3 Long Term Trend Analysis

Total Suspended Particulates

Historical annual average TSP measurements from 2006 to 2024 are presented below (



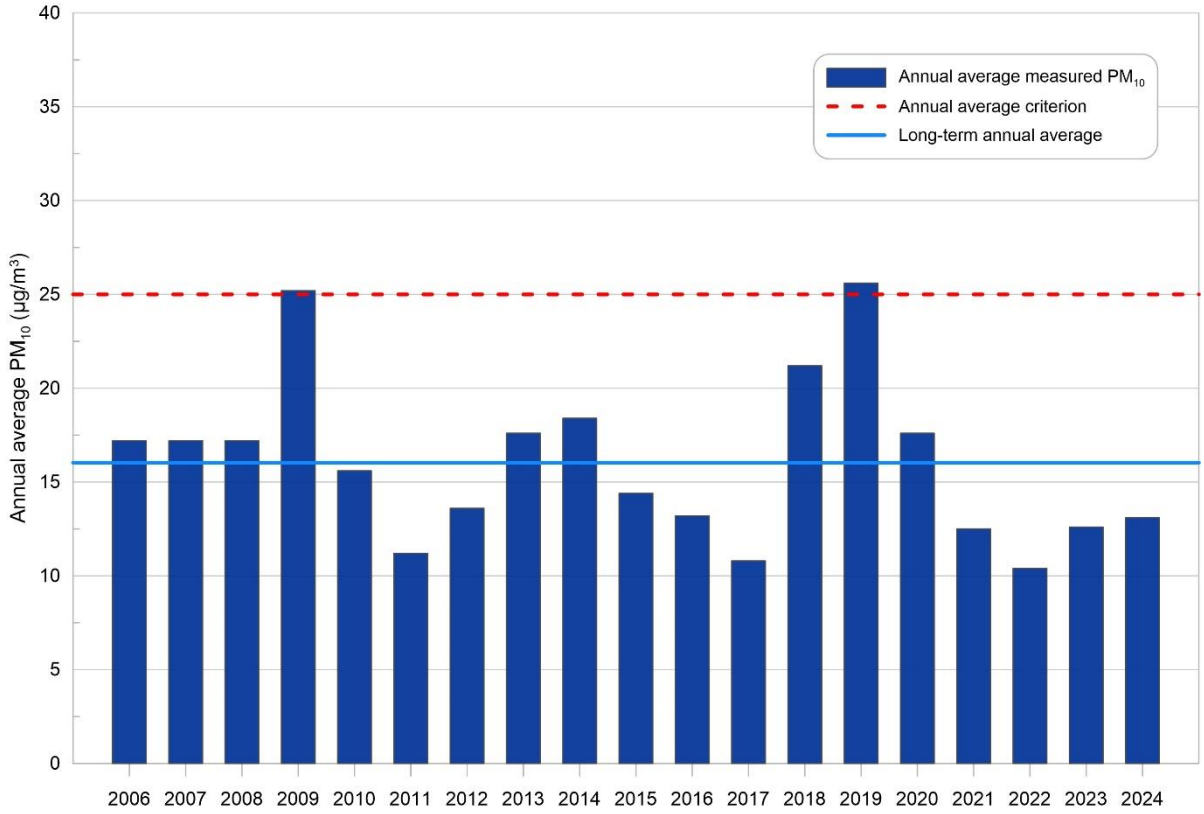
Graph **6-a**). It is shown that the annual average TSP concentrations for 2024 are not only below the criteria, but also well below the long-term average for the site of 40 µg/m^3. This indicates that concentrations are influenced by external factors such as drought, with high annual averages in years following significant drought (2009 and 2019), and much lower concentrations in wetter years, particularly 2022.



Graph 6-a - Annual average TSP concentrations - 2006 to 2024

Particulate matter < 10 µm (PM_{10})

The 'inferred' annual average PM_{10} concentration in 2024 was well below the long-term average of 16. µg/m³, as shown below in Graph 6-b.



Graph 6-b - Annual average PM_{10} inferred from TSP measurements – 2006 to 2024

6.2.3 Key Performance and Management Issues

During this reporting period, Zephyr Environmental conducted the air quality report and compliance investigation on behalf of CGO.

According to the CGO Air Quality Report by Zephyr Environmental (2025), all exceedances were determined to be not attributed to the operations of CGO.

As a result, there were no reportable incidents during this reporting period.

6.2.4 Proposed Improvements

CGO will undertake a review of the air quality monitoring program to ensure its efficacy in monitoring for mining related impacts, whilst considering the Open Pit Continuation project, and undertaken in accordance with the conditions of Consent.

6.3 Blasting And Vibration

6.3.1 Environmental Management

Development Consent Condition 6.3(a) details blast impact assessment criteria relevant to CGO. As required by Development Consent condition 6.3(e), a Blast Management Plan (BLMP) has been prepared and endorsed by DPHI.

Monitoring and management of blasting during the reporting period was undertaken in accordance with relevant Development Consent conditions, the approved BLMP and the EPL 11912.

Implementation of the BLMP executes a range of mitigative measures to minimise impact in accordance with Development Consent condition 6.3. Blast operations also have specific management requirements regarding:

- Air blast overpressure and ground vibration levels
- Blast hours
- Blast frequency
- Property investigations
- Reporting of exceedances and complaints

In accordance with Development Consent Condition 6.3, BLMP and EPL 11912 Conditions L5 and M7, four blast monitors have been installed at designated locations around CGO to record ground vibration and air blast overpressure (Figure 6-a). In addition, a ‘control’ monitor is installed at BM10, located on the eastern edge of the open pit.

6.3.2 Environmental Monitoring Results

Blast operations occurred in the open pit and underground over the course of 2024 reporting period. Underground blasting activities have been included in compliance reporting since October 2021, following the approval of MOD 16 (DA 14/98).

Monitoring locations BM01 (Gumbelah) and BM08.1 (Cowal North) are categorised as ‘residence on privately owned land’ and required to comply with compliance limits specified in Condition 6.3 of Development Consent (Table 6-h). Monitoring was also undertaken at locations BM02 (Hillgrove Residence), and BM03 (Coniston Residence), located on company owned land (Figure 6-a). The overpressure and vibration approval criteria outlined within Condition 6.3(a) are listed below in Table 6-h.

Table 6-h - Blasting Impact Assessment Criteria

Location and Time	Air blast Overpressure(dB [Lin Peak])	Ground Vibration(mm/s)	Allowable Exceedance
Residence on privately-owned land - Anytime	120	10	0%
Residence on privately-owned land - Monday to Saturday during day	115	5	5% of the total number of blasts over a period of12 months
Residence on privately-owned land - Monday to Saturday during Evening	105	2	
Residence on privately-owned land - Monday to Saturday at Night, Sundaysand Public holidays	95	1	

Notes: mm/s – millimetres per second; dB – decibel.

During the 12-month monitoring period there were two instances where a unit was offline for more than 24 hours to conduct maintenance and repairs, as follows for monitoring units:

- BM02 (Hillgrove Residence) was offline on the 25th August 2024 – 26th August 2024.
- BM02 (Hillgrove Residence) was offline on the 5th September 2024 – 16th September 2024.

Ground vibration and air blast overpressure monitoring was conducted with the use of Instantel (Series III and Micromates) blast monitors. All blast monitoring equipment underwent annual calibration, in accordance with Australian Standard specifications. Additional to the monitor and sensor calibrations, all batteries were replaced, and routine maintenance was carried out on all units.

6.3.2.1 Results from Reporting Period

Ground Vibration

A total of 886 blasts were fired during the 2024 reporting period, including 196 Open Pit and 690 Underground blasts. Based on monitoring data and blasting information available, recorded levels of ground vibration induced by blasting activities conducted at CGO were compliant with respect to relevant ground vibration limits for both operations (Table6-j).

Peak vibration level for Open Pit Blasting was 0.26mm/s at BM02 – Hillgrove residence on 9th January 2024.

Peak vibration level for underground blasting was 0.39mm/s at BM03 – Coniston Residence on the 18th September 2024.

Air Blast Overpressure

A detailed examination of monitoring data and blasting information was undertaken to ascertain overpressure levels recorded around blasting. No Open Pit or Underground blast-related events exceeded the maximum compliance level of 120dB(L).

However, a total of 7 Open Pit blasting events were identified as potentially having a peak overpressure level exceeding compliance limits lower than the maximum 120 dB(L), such as the 115 dB(L) daytime limit or the stricter thresholds of 105 dB(L) for evening and 95 dB(L) for nighttime periods, during 2024 (Table 6-h). These events were investigated to determine the likely source/s of overpressure. From the 7 events that exceeded compliance levels, one (1) of these were assessed to be most likely related to blasting practices (Table 6-i) with the remaining being attributed to localised environmental factors, such as wind (Saros, 2025).

Table 6-i - Open Pit Overpressure Events most likely related to blasting practices (2024)

Monitoring Location	Date	Time	Level		*Compliance Limit*	Comments
			PPV mm/s	O'Press dB(L)		
BM02-Hillgrove	*23/06/2024*	*13:22:00*	*0.15*	*95.9*	*95dB(L)-Sundays' and Public Holidays*	*Likely blast related*

A total of 58 Underground blast events were identified as having a peak overpressure level exceeding the relevant compliance criteria during 2024 (Table 6-h). These events were investigated to determine the likely source of overpressure, finding causal factors at all 58 events was attributed to localised environmental factors, such as wind (Saros, 2025).

The exceedances identified at blast times was in relation to the Sundays' and Public Holidays' compliance limit of 95dB(L). This is to be anticipated given the Sundays' and Public Holiday's overpressure level of 95dB(L) is a significant reduction to the normal weekday and Saturday limit of 115dB(L). It is important to note that this 20dB(L) reduction is equivalent to reducing the weekday and Saturday limit by 90% for Sunday and Public Holiday blasting.

6.3.2.2 Comparison with EIS Predictions

Blasting monitoring results during the reporting period are consistent with previous years and with the predictions detailed in the Cowal Gold Operations Mine Life Extension Modification Environmental Assessment (Evolution, 2016) and MOD 16:

- No exceedance of air blast overpressure level of 120 dB(L) or ground vibration level of 10 mm/s at any residence on privately-owned land at any time.
- Not more than 5% of total number of blasts at any residence on privately-owned land exceeding air blast overpressure levels or ground vibration levels Monday to Saturday during the day, evening, night or on Sundays and public holidays (Table 6-j)
- 100% of ground vibration levels compliant with license conditions.
- Following a detailed review of overpressure results for events that were above the compliance levels,
  - Open Pit – One (1) was identified as being most likely related to blasting practices. This is 0.5% of total surface blasts for the monitoring period.
  - Underground – Zero (0) were identified as being most likely related to blasting practices. This is 0.0% of total underground blasts for the monitoring period; and
  - All other peak levels above compliance limitations were affected by localised environmental factors and were not distinguishable above background levels.
- The one (1) open pit blast related overpressure result exceeding the nominated compliance criteria, occurred on a Sunday, during which a conservative 95 dB(L) limit applies.
- Blast induced overpressure impacts were compliant within licence conditions, with a total of 0.1% of the combined blasts exceeding relevant compliance limits.

Table 6-j - Compliance percentages for previous 12 months (2024)

Type of Exceedance	Total Number of Blasts (12 months)	No. of Exceedances (12 Months)			
		Daily Operation	Evening Operation	Night, Sunday and Public Holiday	Total % Exceedance
Open Pit					
Vibration	196	0	0	0	0.0%
Overpressure	196	0	0	1	0.5%
Underground					
Vibration	690	0	0	0	0.0%
Overpressure	690	0	0	0	0.0%
Combined					
Vibration	886	0	0	0	0.0%
Overpressure	886	0	0	1	0.1%

6.3.3 Key Performance and Management Issues

There were no performance or management issues in relation to blasting during the reporting period.

6.3.4 Proposed Improvements

CGO will undertake a review of the blast monitoring program to ensure its efficacy in monitoring for blast relates impacts, whilst considering the Open Pit Continuation project, and undertaken in accordance with the conditions of Consent.

6.4 Noise

6.4.1 Environmental Management

Development Consent Condition 6.4(c) details noise impact assessment criteria relevant to CGO. As required by Development Consent Condition 6.4(e), a Noise Management Plan (NMP) has been established and is in place at CGO.

Monitoring and management of noise during this reporting period was undertaken in accordance with relevant Development Consent conditions, approved NMP and EPL 11912. The NMP covers all operational activities with the potential to generate noise at CGO. Three main strategies used to identify reasonable and feasible noise control/mitigation at CGO are:

- Controlling noise at the source
- Controlling noise in transmission
- Controlling noise at the receiver

Operational Control measures include:

- A Lake Protection Bund and isolation system, including the perimeter waste rock emplacement, providing noise shielding, thereby reducing noise levels that can propagate from the open pit across Lake Cowal.
- Where appropriate or possible, locate mobile noise generating equipment behind structures that act as barriers, or at a greatest distance from any noise sensitive areas or orienting the equipment so that noise emissions are directed away from any sensitive areas where practicable or possible.
- Where there are several noisy pieces of equipment, scheduling operations so they are used separately rather than concurrently.
- Keeping equipment well maintained.
- Operating equipment in line with manufactures operating protocols.
- Educating staff on effects of noise and use of quiet work practices.
- A program of quarterly noise monitoring of site operations to ensure operations are undertaken in accordance with noise impact assessment criteria as per Development Consent Condition 6.4(c).

Control measures implemented during the reporting period were considered effective as demonstrated in section 6.4.2 Environmental Monitoring results.

6.4.2 Environmental Monitoring Results

Noise monitoring was undertaken during the reporting period to demonstrate compliance with noise impact assessment criteria set out in Development Consent Condition 6.4(c), which requires that noise generated by CGO does not exceed the criteria outlined in Table 6-k below, at any residence on privately-owned land. Noise monitoring locations are identified in Figure 6a.

Development Consent 14/98 Mod 16 was updated in September 2021 to include a sleep disturbance nighttime criterion of 52dB(A) (L_{max}).

Table 6-k - Noise Impact Assessment Criteria dB(A)

Location (Figure 6-a)	MOD14 - Day/Evening/Night ($LA_{eq\ (15minute)}$)	Night (L_{max})
Lakeview III	38	52
The Glen	37	
Lakeview, Foxhman Downs II	36	
All other privately-owned land	35	

6.4.2.1 Results from the Reporting Period

Mine operations noise monitoring was completed at quarterly intervals throughout the reporting period in accordance with the NMP and Development Consent. Table 6-l provides a summary of the quarterly attended noise monitoring results for the Laurel Park, Bramboyne, Lakeview, Lakeview III, The Glen, Caloola and Foxman Downs II properties during the reporting period (Spectrum Acoustics, 2024a, 2024b, 2024c, and 2024d). For each sample point, two consecutive 15-minute field measurements were taken, providing two values for the Mine Contributed LAeq (15minute) – dB(A) within Table 6-l.

Table 6-l - Attended Noise Monitoring Results for 2024 - Mine Contributed LAeq(15minute) – dB(A)

Location	Period	Mar-24		May-24		Aug-24		Nov-24	
N09 Lakeview III	Day	<20	<20	20	21	<20	<20	<20	<20
	Evening	<20	<20	22	22	<20	<20	<20	<20
	Night	25	24	20	21	<20	<20	20	<20
N10 Bramboyne	Day	<20	<20	27	21	<20	<20	21	23
	Evening	<20	<20	<20	<20	<20	<20	21	<20
	Night	20	22	<20	<20	25	22	<20	<20
N11 Laurel Park	Day	<20	<20	<20	<20	<20	<20	<20	<20
	Evening	<20	<20	<20	<20	<20	<20	<20	<20
	Night	22	22	<20	<20	<20	<20	<20	<20
N12 The Glen	Day	<20	<20	21	20	<20	<20	<20	<20
	Evening	<20	<20	<20	<20	<20	<20	<20	<20
	Night	21	<20	23	21	25	24	<20	<20
N15 Caloola 2	Day	<20	<20	<20	<20	<20	<20	<20	<20
	Evening	<20	<20	<20	<20	25	26	<20	<20
	Night	<20	<20	<20	<20	26	25	<20	<20
N16 Foxman Downs II	Day	<20	<20	<20	<20	<20	24	<20	<20
	Evening	<20	<20	<20	<20	<20	<20	<20	<20
	Night	<20	<20	<20	<20	<20	<20	21	22
N17 Lakeview I & II	Day	<20	<20	24	25	<20	<20	<20	<20
	Evening	<20	<20	25	22	<20	<20	<20	<20
	Night	29	28	22	22	24	<20	<20	<20

Source: Spectrum Acoustics (2025a, b, c, d).

Notes: <20 = Mine noise emission inaudible or barely audible.

Measured L1 (1 min) (i.e. Lmax) noise levels for each nighttime monitoring period is summarised in Table 6-m below for the Laurel Park, Bramboyne, Lakeview, Lakeview III, The Glen, Caloola and Foxman Downs II properties. The measured L1 (1 min) level shown is for mine noise only.

Table 6-m - CGO Sleep Disturbance Monitoring Results dB(A), L1 (1 min) Night Period

Location	Mar-24	May-24	Aug-24	Nov-24
N15 Caloola II	n/a	n/a	31	n/a
	22	n/a	30	n/a
N16 Foxman Downs II	n/a	n/a	n/a	25
	n/a	n/a	n/a	27
N09 Lakeview III	30	24	n/a	23
	27	25	n/a	n/a

N17 Lakeview I & II	33	27	n/a	n/a
	34	28	n/a	n/a
N10 Bramboyne	24	n/a	n/a	n/a
	27	n/a	n/a	24
N11 Laurel Park	26	n/a	n/a	n/a
	28	n/a	n/a	n/a
N12 The Glen	n/a	n/a	28	n/a
	n/a	n/a	28	n/a

Attended noise monitoring results for all the properties were well below noise impact assessment criteria for these properties as defined in Development Consent Condition 6.4(c).

6.4.2.2 Comparison with EIS Predictions

Table 6-n summarises SLR's (2013) predicted $L_{Aeq(15\ minute)}$ noise levels at the nearest privately-owned residential receivers (excluding those properties already afforded acquisition rights [i.e. Westella]) during day, evening and night-time periods with adverse meteorological conditions of a strong inversion, in comparison to noise impact assessment criteria for these properties listed in Development Consent Condition 6.4(c).

Table 6-n - Summary of Predicted Intrusive LAeq(15 minute) Noise Levels at nearest privately owned residential receivers

Privately-owned Residential Receiver	Predicted Noise Level $L_{Aeq(15\ minute)}$ Day/Evening/Night-time during Strong Inversion (1800 – 0700 hours)	Noise Impact Assessment Criteriadefined in Development Consent Condition 6.4(c)
Laurel Park	37	35
Bramboyne	36	35
Bungabulla	35	35
The Glen	36	37
Gumbelah	35	35

Source: SLR (2013).

6.4.3 Key Performance and Management Issues

There were no performance or management issues in relation to operational noise during the reporting period.

6.4.4 Proposed Improvements

CGO will undertake a review of the noise monitoring program to ensure its efficacy in monitoring for mining related impacts, whilst considering the Open Pit Continuation project, and undertaken in accordance with the conditions of Consent.

6.5 Visual Amenity and Stray Light

6.5.1 Environmental Management

In accordance with Development Consent Condition 6.5(b) and SSD 10367 condition B20, visual impact mitigation measures that have been employed at the CGO during the reporting period included landscaping and design specifically conducted for visual impact mitigation purposes. Specific strategies implementation at CGO included:

- utilising existing vegetation as visual screens.
- planting of vegetation screens around the ML 1535 boundary.
- construction of waste emplacements, reducing visual impact of the processing plant from the eastern side of Lake Cowal.
- placement of topsoil stockpiles on the southern and western sides of the STSF to break the view from the relocated Travelling Stock Route.
- ensuring no fixed outdoor lighting shines directly above the horizon.
- ensuring mobile lighting is directed internal of the mine lease.

CGO received no complaints regarding stray light attributed to CGO Mining Lease or its Operations during the reporting period.

Control measures implemented during the reporting period were considered effective as demonstrated in section 6.5.2 Environmental Monitoring results.

6.5.2 Environmental Monitoring

A summary of the landscape maintenance and monitoring programme implemented at CGO is provided in Table 6-o.

Table 6-o - Landscape Maintenance and Monitoring Summary

Component	Monitoring Frequency	Monitoring Method	Typical Maintenance
Landscaping Works • General Inspections	Annual	Visual assessment of moisture stress, plant survival, presence of weeds and erosion/ sedimentation.	• Supplementary watering if required. • Control of invasive weed species. • Supplementary planting of failed plants where necessary.
• Erosion Inspections	Following significant, high intensity rainfall events.	Visual assessment of earth mound screening to determine if significant erosion or washouts have occurred in accordance with the ESCMP.	• Repair any significant erosion or washoutareas on earth mounds. • Stabilisation with Jute mesh or other materials as required. • Additional revegetation planting or sowingif required.
Buildings, Structures and Facilities	Annual	Visual assessment as required.	• Replace or repair items as necessary tomaintain structural integrity. • Repaint any exterior surfaces where thefinish has deteriorated. • Maintain fixed outdoor and in-pit mobile lighting.
Rehabilitation Works • General Inspections	Annual	Monitoring in accordance with the RMP, the BMP and MOP (with reporting in the AR).	• Repair any significant erosion or washoutareas. • Control of invasive weed species in accordance with the Land ManagementPlan. • Supplementary planting or seeding of

• Erosion Inspections	Following significant, high intensity rainfall events.	Visual assessment of rehabilitation works to determine if significant erosion or washouts have occurred in accordance with the ESCMP.	failed plants where necessary. • Repair any significant erosion or washoutareas on earth mounds. • Stabilisation with Jute mesh or other materials as required. • Additional revegetation planting or sowingif required.

6.5.2.1 Monitoring Results

Visual impact management and landscape maintenance and monitoring measures conducted during the reporting period included:

- inspections and maintenance of fixed outdoor lighting and in-pit mobile lighting.
- general inspections of landscaping (i.e. visual screens) and rehabilitation works.
- monitoring of tree and shrub survival rates of landscape plantings; and
- erosion inspections of landscaping and rehabilitation works following periods of significant, high intensity rainfall.

As a result of this visual landscape monitoring the following maintenance activities were undertaken:

- weed control within landscaping and rehabilitation areas by manual removal or chemical application; and
- maintenance of erosion control structures.

6.5.3 Key Performance and Management Issues

There were no performance or management issues in relation to visual amenity or stray light during the reporting period.

6.5.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.6 Cyanide Management

6.6.1 Environmental Management

Development Consent Condition 5.3 outlines requirements in relation to management of cyanide at CGO. A cyanide monitoring program has been developed for CGO and is incorporated into CGO's Cyanide Management Plan (CMP), which has been prepared in accordance with Development Consent Condition 5.3(b).

EPL 11912 requires Evolution to undertake cyanide monitoring at points identified in EPL 11912 Condition P1.3. Cyanide monitoring points and frequencies required by EPL 11912 are consistent with monitoring required by Development Consent and the CMP. The CMP has also been prepared to address relevant requirements of ML 1535.

Monitoring and management of cyanide during the reporting period was undertaken in accordance with relevant Development Consent Conditions, approved CMP and EPL 11912.

Evolution has continued to report monthly weak acid dissociable cyanide (CN_{WAD}) results on the company's website during the reporting period. Evolution continues to report and discuss these results with the Community Environmental Monitoring Consultative Committee (CEMCC) at all quarterly meetings.

The CGO is certified under the International Cyanide Management Institute's (ICMI) Code for Cyanide Management. Details regarding the re-certification audit are provided on the ICMI's website: https://cyanidecode.org/sig-directory-type/evolution-mining-cowal-pty-ltd-australia/

6.6.2 Environmental Monitoring

In accordance with CMP and Development Consent Condition 5.3(d), results of CN_{WAD} monitoring of tailings discharge (at the processing plant) and decant water were monitored during the reporting period. Levels of CN_{WAD} recorded are presented in Table 6-p. Note planned shutdowns can result in a reduced number of samples for the month. In this reporting period, shutdowns occurred on the following dates:

- 06/03/2024 – 10/03/2024
- 05/04/2024
- 04/09/2024 – 08/09/2024
- 03/12/2024 – 05/12/2024

6.6.2.1 Monitoring Results

CN_{WAD} levels within aqueous components of the tailings slurry stream were maintained so that they did not exceed 20 milligrams (mg) $CN_{WAD/L}$ (90 percentile over six months) and 30 mg $CN_{WAD/L}$ (maximum permissible limit at any time) at the process plant during the reporting period. Groundwater results for cyanide during the reporting period remained at or below the laboratory detection limit.

Table 6-p - CN_{WAD} Levels of Aqueous Component of Tailings Slurry – 2024.

			CN_{WAD} (mg/L equivalent to ppm)	
Frequency	**Month**	**No. Sampled during Month**	**Minimum**	**Maximum**
Twice daily	January	62	0	11.41
Twice daily	February	58	0.34	9.55
Twice daily	March^	53	0.39	10.36
Twice daily	April^	58	0.25	12.61
Twice daily	May	62	0.40	10.44
Twice daily	June	60	1.019	11.025
Twice daily	July	62	0.956	19.58
Twice daily	August	62	1.485	8.96
Twice daily	September^	52	0.43	8.01
Twice daily	October	62	0.324	6.21
Twice daily	November	60	0.433	7.07
Twice daily	December^	57	0.277	15.47

Notes: ^Planned shutdowns occurred on the dates 6-10/03/2024, 05/04/2024, 4-8/09/2024, and 03-05/12/2024.

6.6.3 Key Performance and Management Issues

There were no performance or management issues in relation to cyanide management during the reporting period.

6.6.4 Further Improvements

No further improvements are proposed for the next reporting period.

6.7 Biodiversity

6.7.1 Environmental Management

Development Consent Condition 3.2 details requirements for CGO in relation to management of flora and fauna. A Flora and Fauna Management Plan (FFMP) and Threatened Species Management Protocol (TSMP) has been developed for CGO in accordance with Development Consent Conditions 3.2(b) and 3.2(c), respectively.

The FFMP has also been prepared to address relevant requirements of ML 1535 and ML 1791 and identifies relevant control strategies for management of flora and fauna specie. Control strategies that have been implemented at CGO include:

- Implementation of the Compensatory Wetland Management Plan (CWMP) and Remnant Vegetation Enhancement Program (RVEP) to restore and enhance ecosystems.
- Incorporation of fauna management initiatives into operational design, including a Fauna Monitoring Program, and management of impacts on terrestrial and aquatic fauna.
- Implementation of the Vegetation Clearance Protocol (VCP), with pre-clearance surveys, and adherence to Threatened Species Management Strategies (TSMS) for endangered ecological communities (e.g., Inland Grey Box Woodland, Aquatic Ecosystems (lower Lachlan River), Weeping Myall Woodland).
- Specific controls for threatened species and observance of the Threatened Species Management Plan (TSMP).
- Ongoing management and control of weeds and pests to maintain ecosystem health.
- Providing information to employees and contractors on the management of native flora and fauna during inductions.
- Updating and submitting the Rehabilitation Management Plan (RMP) and monitoring of rehabilitation progress, including criteria and performance reviews for mine site rehabilitation.
- Maintaining a clean, rubbish-free environment, imposing speed limits to reduce fauna mortality, and prohibiting the introduction of animals, including pets, to the site.

6.7.2 Environmental Monitoring

Flora Monitoring

Monitoring and management of flora continued in accordance with the requirements of the FFMP (Section 6.7.1.1), the Biodiversity Offset Management Plan (BOMP) and the RMP during the 2024 reporting period.

Flora monitoring was conducted during the reporting period in accordance with the RMP, though some sites remained inaccessible due to the high-water level of Lake Cowal. The flora monitoring conducted included:

- Compensatory Wetland (CW);
- Rehabilitation areas and rehabilitation trial areas;
- Offset management areas;
- *Pilularia novae-hollandiae* (Austral Pillwort) habitat; and
- RVEP areas (Figure 6-f).

Fauna Monitoring

In accordance with the FFMP, monitoring activities in relation to fauna were conducted during this reporting period, including:

- Continuation of long-term monitoring of bird breeding transects, as shown in Figure 6-e.
- Bat call monitoring at the active IWL and control site.

- Twice daily monitoring of any fauna usage of the IWL.
- Weekly boundary inspections of ML 1535.
- Daily and weekly fauna incident inspections and field patrols.

6.7.2.1 Monitoring Results

6.7.2.1.1 Flora Monitoring Results

Flora monitoring within the Compensatory Wetland (CW) and RVEP areas was undertaken during the 2024 reporting period. A summary of the results from this monitoring survey are outlined below.

Compensatory Wetland

Monitoring of wetland areas has been undertaken on an annual basis during late spring since 2005. Historically the range of ecological characteristics have been significantly impacted on by fluctuating water levels associated with the wetting and drying cycles of the lake. Since monitoring began, most changes in the wetlands have occurred as a result of climatic and biophysical factors and the monitoring data up to 2024 does not indicate any adverse effects occurring within the CW as a result of mining (DnA Environmental 2025b).

In November 2024 water levels remained high so only two sites, CW3 and GW1, were accessible for the monitoring.

In 2023 abundance of Lippia *(Phyla canescens)* was noted to have increased in CW areas and RVEP conservation areas. During this reporting period Lippia was recorded in increasing abundance along the foreshores of Lake Cowal at sites CW3 and GW1, as well as within RVEP4 conservation area. Weed control continues to be required.

No threatened species have been recorded in any CW monitoring site since monitoring began.

Tree density is highest on the lake foreshore, particularly in CW3, where tree numbers have increased over time. Healthy *Acacia stenophylla* and *Eucalyptus camaldulensis* exhibiting reproductive structures and hollows are present. This year, with lake water fully receding from CW3 and GW1, 210 and 859 seedlings were recorded in each site, respectively. Ground cover remained consistent with previous reporting years for CW3 while GW1 recorded an increase in ground cover. CW3 recorded floristic diversity increase with 70% of species native while GW1 continued to decline as the site stabilises with 68% of species native.

Over the past two years, there has been further eucalypt regeneration events, and with the lake water beginning to recede due to the drier conditions, it is expected that the diverse range of colonising plants will again re-colonise the bare exposed lake sediments as they have previously done.

Pilularia novae-hollandiae (Austral Pillwort) Habitat

Since extensive flooding in 2022, rainfall has been limited with the very dry conditions resulting in a significant decrease in live ground cover and floristic diversity and all gilgais had long dried up (DnA Environmental 2025e). Therefore, the 2024 survey was not completed due to the dry conditions.

CGO commissioned additional external independent consultants to re-survey a short time after November 2022 survey as hotter and drier conditions had resulted in water levels in many of gilgais to recede, providing optimum Austral Pillwort habitat. Full results of surveys and resultant habitat distribution at Lake Cowal have been provided through the Environmental Impact Statement (EIS) for the Open Pit Continuation Project.

Remnant Vegetation Enhancement Program (RVEP)

Six permanent monitoring sites, Hill01, Hill02, Hill03, Hill04, RVEP3 and RVEP4 are surveyed annually (when accessible) to monitor changes in vegetation cover, species diversity and to determine extent of regeneration occurring within these conservation areas. The monitoring methodology is a simplified version of CGO annual rehabilitation monitoring program and includes an assessment of ecosystem

characteristics using an adaptation of methodologies derived from CSIRO Grassy Woodland benchmarking project and associated Biometric Model. It does not include Landscape Function Analysis or comprehensive soil sampling.

In this reporting period RVEP monitoring was undertaken on three separate occasions 11th – 15th and 21st – 23rd November and 9th – 11th December 2024 (DnA Environmental 2025d). The extreme variability in seasonal conditions experienced over the past few years has had a significant influence on the diversity, abundance and composition of the monitoring sites and these have reflected in the range of monitoring data. Despite the drier conditions which resulted in a decline in floristic diversity and active plant growth this year, total ground cover remained relatively high in all sites on Fellman's Hill.

RVEP2 has not formally been assessed, however there has been extensive regeneration and growth of Lignum which now forms significant habitat for a large diversity of wetland birds at the area. There have also been several extensive River Red Gum regeneration events along the foreshore and floodplains.

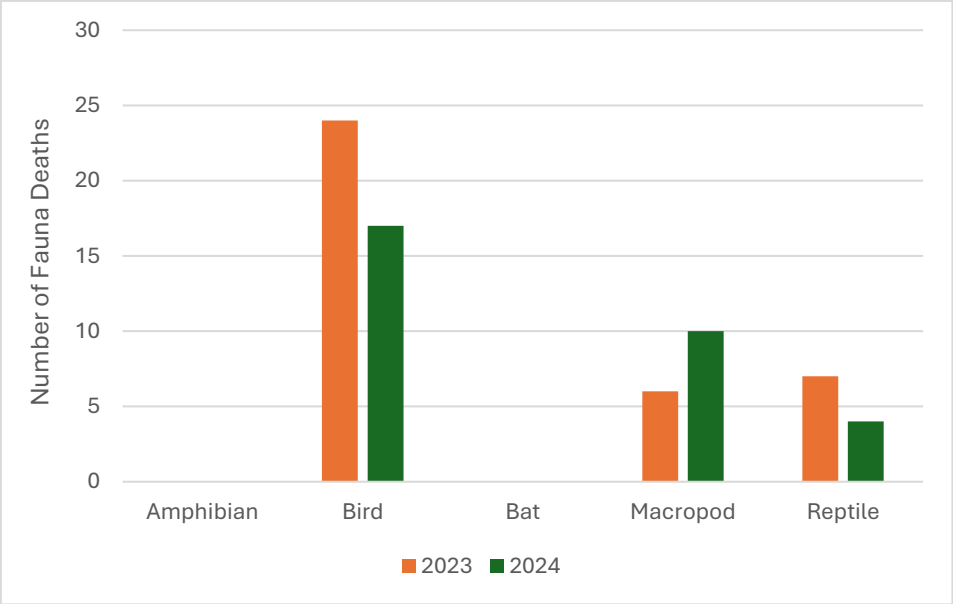
During this monitoring period, the lake water has receded, allowing a range of grasses, reeds and other ground covers and weeds to establish in bands along the lakebed at RVEP 3 and there was significant tree and shrub regeneration.

RVEP4 has seen a decline in floristic diversity however good ground cover has been retained in the open clearings. Extensive eucalypt regeneration along the foreshore since 2019 has grown considerably, with numerous individuals now reaching up to 4.0m in height and some are bearing reproductive structures.

6.7.2.1.2 Fauna Monitoring Results

There was a total of 31 fauna incidents on ML 1535 during the reporting period (see Graph 6-c), which was in line with the 37 events recorded during 2023. All injured or deceased fauna were taken to the local vet for examination as required (i.e. in instances where cause of death cannot be immediately determined). There were no cyanide related fauna incidents or deaths recorded during 2024.

Graph 6-c - Number of Fauna Deaths for the Reporting Period.



Lake Cowal Waterbird Monitoring

Long-term monitoring of bird breeding continued during 2024 with specific programs undertaken in January, August, and November 2024. A summary of monitoring results undertaken by Malcom Carnegie and Professor Peter Gell (Diatoma 2024a) and Professor Peter Gell (Diatoma 2024b, 2024c) during the reporting period is provided below. The location of waterbird monitoring transects are presented on Figure 6-e.

January 2024

Lake Cowal was visited on January 23rd, 28th and 30th when the transects were surveyed and while the breeding surveys were undertaken on 30th January 2024. While water levels were high, they had receded more than 2m since the peak level of November 2022. These high lake levels continued to limit the extent of shallow water around the lake margins and so there were few dabbling ducks and small wading species observed.

A total of 24 species were observed along transects and the total count of bird was 1442. Transect 7 supported the greatest number of species (17) and transect 1 the greatest number of birds (388).

The species recorded most were Australian Pelican (63), Great Cormorant (254), Little Black Cormorant (351), Pacific Black Duck (100), Grey Teal (156), Australian Wood Duck (68), and Straw-necked Ibis (142). The number of fish-eating species had increased greatly representing 59% of all observations.

Colonial breeding continued into January 2024 with over 4200 adults observed spanning 13 waterbird species and over 250 juvenile birds being recorded.

Birds typical of infilling events had declined and the shift in bird fauna was dominated by fish-eaters (darter and cormorants). Large wading species (herons, egrets, ibis, spoonbills) were relatively common. This pattern of fish-eater dominance 1-2 years after flooding, likely owing to the maturation of fish populations, is well recognised and has been noted at Lake Cowal following previous flood events.

August 2024

Lake Cowal was visited on 29th, 30th, and 31st August 2024. Lake levels had declined but remained high and so it was possible for the original survey lines to be followed. They were surveyed on foot and all birds observed between the water's edge and up to 400 m into the lake, were noted. Habitat to the north and west of the lake were surveyed for waterbird breeding on August 31st.

A total of 24 species were observed along transects. The total of 3680 birds observed was the 3rd highest for that period. Transects 1 and 7 supported the greatest number of species (16,16) while transect 7 the greatest number of birds (1749).

The species recorded most were the Australian Pelican (252), Hoary-headed Grebe (56), Great Cormorant (85), Australasian Darter (116), Pacific Black Duck (66), Grey Teal (1024), Pink-eared Duck (278), Australian Wood Duck (97), Black-tailed Native-Hen (82), Eurasian Coot (1391) and Silve Gull (69). The numbers of fish-eating species remained high at 14%. The assemblages remained dominated by ducks (40%) while waterhens represented 41% of all birds recorded. This assemblage is typical of high-water levels with little mudflat habitat available for waders.

Rainfall across the catchments had declined and the water level at Lake Cowal continued to recede in August 2024. Despite that the water level remained high limiting the availability of shallows and the extent of habitat suitable for wading waterbirds. As a result, the diversity of birds was low. The high-water conditions continue to favour waterhens which exploit the inundated cane grass and grassy margins rather than mudflats. The lake has been full for several years and is gradually proving attractive to fish-eating species such as cormorants.

Colonial breeding rarely commences in August, yet a large number of species were establishing breeding pairs. While numerous species were preparing for breeding, activity is usually greatest when the lake level is high and is not declining. So, the success of breeding through this breeding season depends on spring rainfall to maintain water levels.

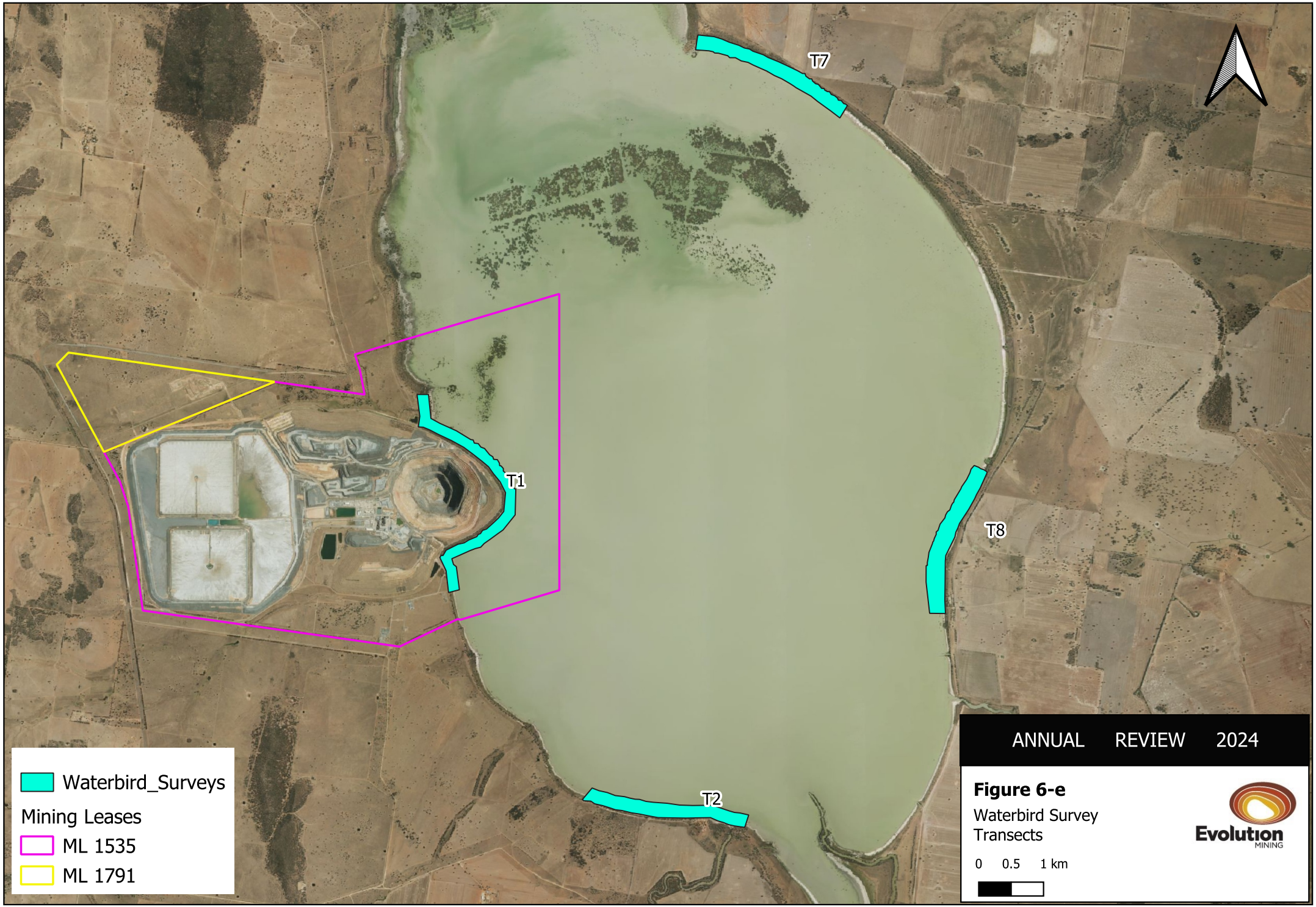
November 2024

Lake Cowal was visited on 3rd and 4th November 2024 and the breeding areas were surveyed on 4th November. Lake levels were ~24cm lower than the previous August 2024 survey and nearly 46cm for the year to date. The transect lines were surveyed on foot and birds were observed with the aid of binoculars. The colonial breeding areas in the north of the lake were surveyed by boat.

A total of 31 species were observed along transects and a total of 2528 birds were observed. High water levels typically support fewer birds. Numbers, and diversity, of birds tends to increase as water levels decline exposing a wider range of habitats (mudflats, cane-grass, lignum). Transect 8 had the highest species diversity, with 23 species observed, while it also recorded the greatest number of birds, totalling 1,047.

The most recorded species were Australian Pelican (441), Australasian Darter (58), Pied Cormorant (113), Pacific Black Duck (83), Grey Teal (1000), Australian Wood Duck (115), Eurasian Coot (149), Black-tailed Native-hen (103), Straw-necked Ibis (54), Yellow-billed Spoonbill (92) and Whiskered Tern (92). The species typical of early flooding (e.g., Great-crested Grebe, Hoary-headed Grebe, White-necked Heron) have declined and, as the lake matures, are increasingly being replaced by fish-eating species (cormorants, herons, egrets etc.) that now represent 27% of all birds recorded. The assemblage is still characterised by a low number (0.6%) of small wading species as there is still limited area of shallows around the lake margins. The numbers of daters, cormorants and large wading birds increased, likely as they had only recently abandoned breeding activities but remained at the lake.

While some colonial breeding had commenced for the season in August 2024, it appears that the fall in water level had triggered birds to abandon nests or to not commence nesting. This is the likely explanation for the nigh numbers of colonial breeding species observed around the margins of the lake.


T7
T1
T8
T2
Waterbird_Surveys
Mining Leases
ML 1535
ML 1791
ANNUAL REVIEW 2024
Figure 6-e
Waterbird Survey Transects
0 0.5 1 km
Evolution MINING

Compensatory Wetland Habitat and Fish Investigation

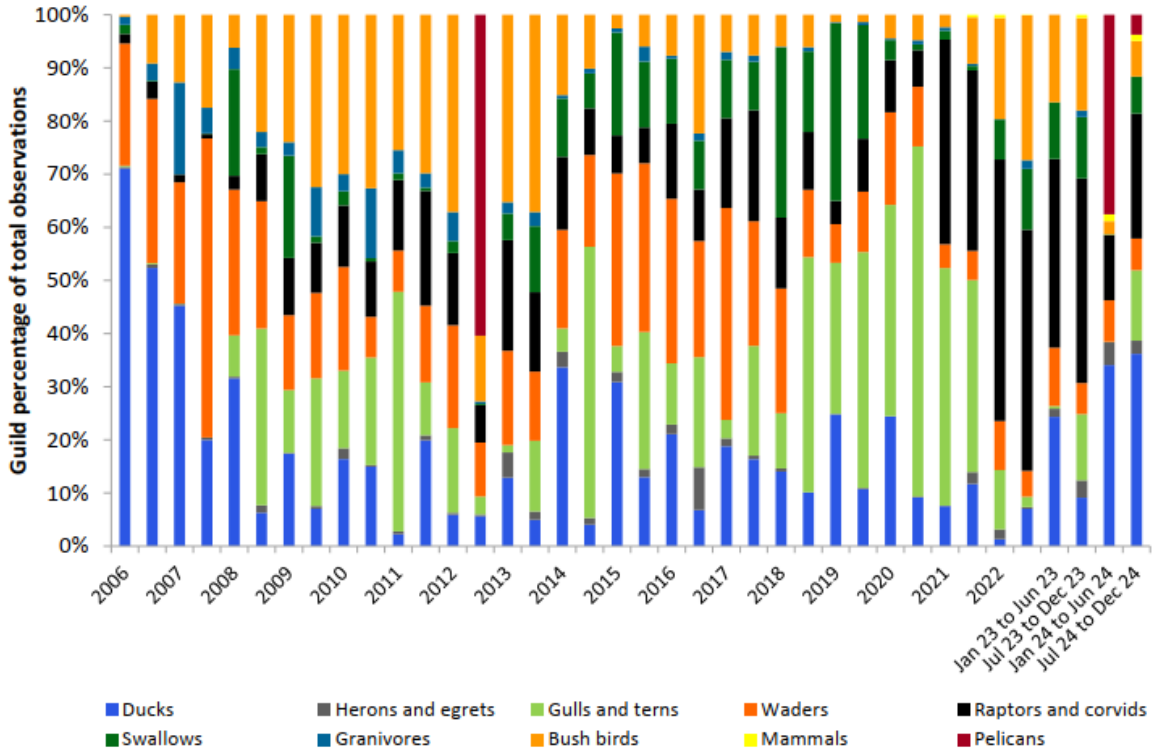
A Compensatory Wetland habitat and fish investigation was not conducted during this monitoring period due to the receding lake level significantly below the full storage level. During previous monitoring periods surveys were conducted while the lake was substantially inundated in accordance with the requirements of the CWMP and DA14/98. FRC Environmental previously undertook these assessments in 2011, 2012, 2014, 2016, 2017, 2022 and 2023.

Fauna Monitoring of IWL and ML 1535 Boundary

Detailed fauna usage reports in relation to the active IWL areas were prepared by Donato Environmental Services (DES) (2024; 2025) during the reporting period being, 1st January to 30th June 2024 and 1st July to 31st December 2024, respectively.

The main findings included:

- The tailings discharge and supernatant CN_{WAD} concentrations were consistently below levels established as operating conditions in the CGO FFMP (DES, 2024; DES, 2025). The CN_{WAD} monitoring program results are further discussed in Section 6.6.
- Monitoring of cyanide concentrations within the active IWL and other water bodies has been conducted frequently and at a high standard consistent with industry best practice.
- Construction of the IWL perimeter fence is complete, with vermin mesh and gate skirting. Maintenance is required on sections of the perimeter fence where there have been washouts. Additionally, ongoing maintenance of the vermin fence, gate skirting and electrified wires is required.
- Considering currently accepted knowledge of cyanide toxicosis in the gold industry, the range of concentrations reported at CGO are considered benign to wildlife (DES, 2024; DES, 2025).
- Four wildlife mortalities were recorded at the IWL due to entrapment. The area was the inactive/dry cell, and rainwater had accumulated, creating a pond. No evidence suggests cyanide-related mortality.
- CGO processing personnel (mill technicians) conducted twice-daily routine inspections for wildlife at the IWL on 685 occasions from a possible 366 days (93.5%) during 2024. The frequency of systematic wildlife surveys makes it unlikely that cyanide-related wildlife deaths were occurring undetected.
- There are environmental influences that cause fluctuations in wildlife visitations. In 2024, scavenger prey oscillated between a declining mouse population and an increasing waterbird hatching population. Most likely responsible for the increase observation of raptors and corvids in recent monitoring periods. The decline in Gull and tern observations has been duplicated in the most recent waterbird survey at Lake Cowal.
- The shift to dry conditions across the region began to affect Lake Cowal, with water levels 2.9m lower in the second half of 2024 than the peak of 11th November 2022. The species typical of the flooding phase are declining, and the proportion of fish-eating species is increasing as the lake ecosystem matures.
- Wildlife observations on the IWL were also markedly higher than those recorded in the previous nine years. Avian numbers were influenced by large flocks of pelicans and cormorants, 2671 and 2543 observations, respectively, accounting for 62% of all observations. Pelicans and cormorants are a fish-eating species; the tailings supernatant provides no food; therefore, they use the supernatant as a safe roost during daylight hours. They will likely disperse to feed in lakes and farm dams in the late evening, returning to the tailings system just before dawn.
- Ducks and waterbirds were the most common diurnal vertebrate wildlife recorded visiting the IWL during the 2024 monitoring period (Graph 6-I).
- Over the IWL, 4386 bat echolocation calls from 224 hours of monitoring was analysed. No insectivorous bat deaths were recorded at the IWL during the 2024 monitoring period or since systematic wildlife monitoring commenced in April 2006.
- Nocturnal surveys, including echolocation call recording methods, indicate that insectivorous bats were consistently present in the airspace above the active IWL and the control site, demonstrating the effectiveness of CGO proactive approach to environmental monitoring.



Graph 6-I - Guild-specific percentages of total wildlife observations recorded at the active IWL

6.7.2.2 Long Term Trend Analysis

Flora Monitoring Results

Compensatory Wetland Area

Since monitoring began in 2005, there has been extensive regeneration of wetland trees and shrubs, particularly River Red Gum (*Eucalyptus camaldulensis)* and Lignum (*Duma florulenta)*. Regeneration has been strongest during post flood periods, such as after the 2022 floods with high density river red gum seedling recruitment occurring along receding high water lines.

Extreme seasonal fluctuations have significantly shaped wetland conditions. Droughts (2007-2007, 2013-2014, 2017-2019) have seen reduced tree health, lower species diversity and increased grazing pressure. While floods (2010-2011, 2016, 2020-2022) have promoted wetland regeneration but also caused seedling mortality in areas or prolonged inundation. Overtime some old growth trees have declined due to senescence, drought, storm damage, and prolonged inundation.

Remnant Vegetation Enhancement Program (RVEP)

Tree regeneration has occurred in cycles, driven by climatic fluctuations, with major flood events promoting growth and prolonged droughts causing declines. Ground cover has significantly increased in most RVEP sites following extended periods of rainfall, but floristic diversity has declined during drier periods due to reduced moisture availability and heavy macropod grazing. While native species continue to dominate upland woodland sites, exotic species have become more prevalent in lake-associated areas as the waterline recedes. Tree density has varied significantly across sites, with higher regeneration in floodplain areas (RVEP3, RVEP4) compared to the woodland areas of Fellman's Hill and RVEP1.

Fauna Monitoring Results

Lake Cowal Waterbird Monitoring

Waterbird diversity has declined in recent years, with the second-lowest January tally since 2011 and the lowest August tally since 2014. However, overall bird numbers remain relatively high, with species such as the Australian Pelican, Australasian Darter, and several cormorants reaching record counts. The number of birds present is strongly influenced by the filling and drying climate cycles known of ephemeral lakes such as Lake Cowal. As water levels decline, the number of birds tend to increase, as expanding mudflats provide critical habitat, attracting waders and ducks. However, typical breeding activity is subdued when water levels are declining, even if the lake remains relatively deep, as conditions become less favourable and unsupportive, discouraging breeding activity.

Since 2021, colonial breeding has increased, particularly among pelicans, darters, cormorants, and spoonbills. This rise in breeding activity appears to be linked to sustained water levels, which have supported nesting in the northern and western parts of the lake.

High water levels have reduced the availability of shallow wetland habitat, essential for small wading birds and certain duck species. As a result, the bird assemblage has shifted from being duck-dominated to fish-eater-dominated, a pattern consistent with previous post-flood trends. This trend may reverse as water levels continue to recede.

Fauna Monitoring of IWL and ML 1535 Boundary

Monitoring cyanide concentrations within the IWL and other water bodies has been conducted frequently and at a high standard, consistent with industry best practices (DES, 2024; DES, 2025). Despite occasional spikes, there is no indication of increasing cyanide concentrations overtime.

The long-term trend indicates a gradual decline in avian observations, unaffected by rainfall patterns. Since 2010, duck numbers have fluctuated, increasing during warmer months after high rainfall and decreasing in drier periods. Gull and tern populations peaked between 2020 and 2021 but have since declined, while granivore sightings have steadily decreased since 2006, stabilizing at low levels after 2012. The 2020–2021 mouse plague temporarily boosted scavenger bird activity, which subsided once the plague ended. Meanwhile, bat activity follows a distinct seasonal pattern, peaking in summer and declining through autumn and winter.

6.7.3 Key Performance and Management Issues

There were no performance or management issues in relation to biodiversity management during the reporting period.

6.7.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.8 Biodiversity Offset Areas

6.8.1 Environmental Management

Development Consent Condition 3.4 details requirements for CGO in relation to biodiversity offset strategy. A BOMP has been developed for CGO in accordance with Development Consent Condition 3.4(c). The BOMP has also been prepared to reflect the approved biodiversity offset strategy described in subsequent Environmental Assessments and approvals.

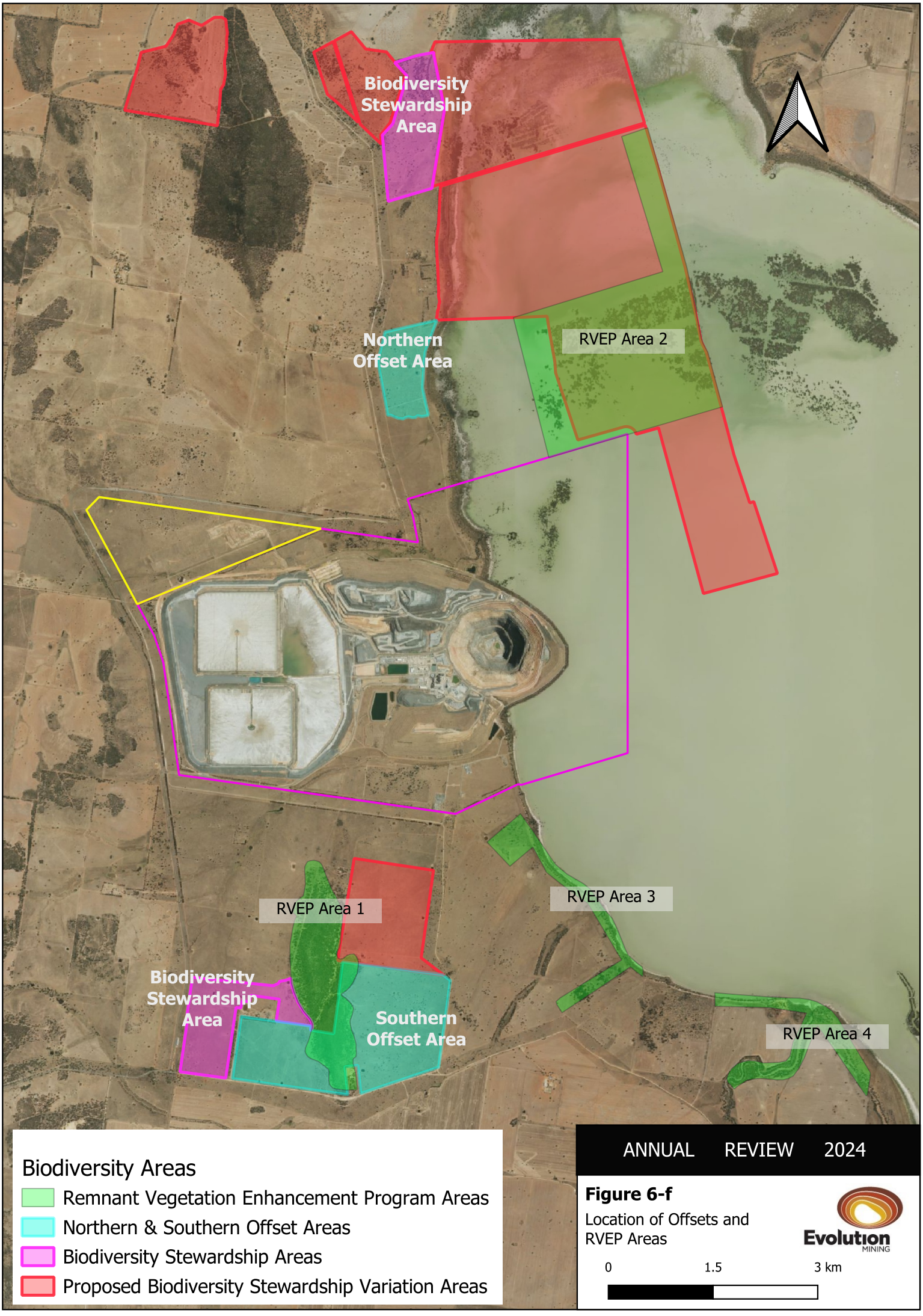
Monitoring and management of biodiversity offset areas continued in accordance with the requirements of the BOMP and Development Consent during the reporting period. The biodiversity offset strategy outlined in the BOMP, includes the key components:

- Short, medium, and long-term actions to be carried out, including implementing the offset strategy, managing remnant vegetation, and integrating the strategy with site rehabilitation.
- Detailed criteria for evaluating the strategy's success and triggering corrective actions if needed.
- Measures to improve the quality of existing vegetation and fauna habitats, as well as create new native vegetation and habitats in the offset areas.
- Salvaging resources from disturbed areas for use in the offset areas (e.g., vegetation and soil).
- Seed collection and propagation, weed and pest control, erosion control, grazing management, access control, and bushfire management.
- A seasonal program to monitor and report on the effectiveness of these measures and track progress against performance criteria.
- Identification of potential risks to the strategy's success, with contingency measures to mitigate these risks.
- Clear details on who is responsible for monitoring, reviewing, and implementing the biodiversity offset plan.

The BOMP also identified relevant control strategies for the management of biodiversity offset areas. Control strategies that have been implemented at CGO include:

- Offsets for existing areas have been established and are continuously being developed. Future offsets will continue to be secured.
- Fencing to exclude grazing and removal of unnecessary fencing.
- Provision of signage.
- Habitat enhancement via nest boxes and salvage placement.
- Weed management conducted in the BOA as per ongoing management practices.
- Biodiversity offset monitoring program.

A spatial summary of these offset areas is described in Figure 6-f.


Biodiversity Stewardship Area
Northern Offset Area
RVEP Area 2
RVEP Area 1
RVEP Area 3
RVEP Area 4
Biodiversity Stewardship Area
Southern Offset Area
Biodiversity Areas
Remnant Vegetation Enhancement Program Areas
Northern & Southern Offset Areas
Biodiversity Stewardship Areas
Proposed Biodiversity Stewardship Variation Areas
ANNUAL REVIEW 2024
Figure 6-f
Location of Offsets and RVEP Areas
Evolution MINING
0
1.5
3 km

6.8.2 Environmental Monitoring

Monitoring and management of the offset management areas continued in accordance with the requirements of the BOMP during the reporting period. Some monitoring areas may have been inaccessible during the monitoring period due to the inundation of Lake Cowal, and the Lake level remaining high throughout the monitoring period.

6.8.2.1 Monitoring Results

In 2024, biodiversity offset monitoring was undertaken by DnA Environmental (2025a). The monitoring methodologies are consistent with the BOMP and with other CGO programs and includes Landscape Function Analyses (LFA); accredited soil analyses; and an adapted Biometric Assessment Method (BAM).

Northern Offset Area

Floristic species diversity in the Northern Offset Area (NOA) increased slightly, with 38–49 species recorded, of which 71–73% were native. Stability indices showed a marginal increase in NOA sites, but a slight decline in SOA05, though all remained above the Myall woodland reference site.

Grazing pressure was minimal in NOA, maintaining high infiltration capacity, while heavy macropod grazing in SOA05 caused a minor reduction. Nutrient recycling trends followed similar patterns, with all offset sites exceeding target ranges.

Ecological functionality was highest in NOA01 and NOA02 (scores of 170), while SOA05 declined to 154 but remained more functional than RSlope01 (142). Tree density in RSlope01 increased as *Acacia pendula* saplings continued to establish, while *Geijera parviflora* in SOA05 remained stable and reproductive. No native shrubs were recorded in slope offset sites, except for *L. ferocissimum* in SOA05.

Despite dry conditions, offset sites maintained high ground cover (96–100%), with native plant cover reaching 100% in RSlope01, 61–73% in NOA, and 94% in SOA05. Dead leaf litter dominated ground cover (51–91%), with minimal perennial and annual plant cover. Sparse foliage cover (2.0–4.0m) was recorded from *Acacia pendula* and *Geijera parviflora*.

Eight species were common across slope offset sites, with native perennial grasses like *Carex inversa* and *Vittadinia cuneata* dominant. *Sonchus oleraceus* (Milk Thistle) was the most widespread exotic species. No rills were recorded in NOA sites.

Southern Offset Area

Floristic diversity in the Southern Offset Area (SOA) remained higher in Grey box woodlands than in Dwyer/s Red Gum woodlands. Woodland reference sites recorded 10–43 species (80–100% native), while SOA sites had 24–37 species, with 75–91% being native.

Drier conditions in 2023–2024 have led to a decline in perennial cover and stability. Despite this decline, offset sites remained more stable than Dwyer's Red Gum woodland reference sites, even with limited tree and shrub cover. Infiltration capacity in hill woodland communities remained variable, among offset sites, SOA03 had the lowest infiltration (32.8), while SOA01 recorded the highest (45.7), comparable to or exceeding hill woodland reference sites. Nutrient recycling capacity followed similar trends to infiltration, influenced by litter development and perennial plant cover.

Ecological functionality showed a decline across most sites. Grey Box reference site Grey01 remained the most functional but dropped to a score of 167. It was followed closely by Grey02 (163), SOA01 (162), and SOA02 (157). Dwyers02 (153), Dwyers01 (151), and SOA04 (144) ranked next in functionality. SOA03 continued to be the least functional offset site, with its total score declining further to 135.

Dry conditions and macropod grazing have caused tree densities and regeneration to decline in three of four hill reference sites. Most trees were in moderate to good health, but a significant portion (32–

47%) consisted of dead stags. All reference sites had reproductive structures, with Grey01 containing nesting hollows.

In 2024, cover remained high in hill reference sites and SOA (97–100%), despite slight declines in some areas. Dead leaf litter dominated woodland reference sites (77–81%), while native plant cover ranged from 83–100% in hill sites and increased to 87–100% in SOA.

Sixteen species were common across SOA monitoring sites, with hardy native perennial grasses like *Enteropogon acicularis* (Curly Windmill Grass) and *Chloris truncata* (Windmill Grass) dominant. No rills were recorded within SOA sites.

6.8.3 Key Performance and Management Issues

There were no performance or management issues in relation to the management of Biodiversity Offset Areas during the reporting period.

6.8.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.9 Weed and Pest Management

6.9.1 Environmental Management

General weed and pest management activities within ML 1535 and biodiversity offset areas have been managed during this reporting period in accordance with the Land Management Plan (LMP), the FFMP and the BOMP.

In accordance with the LMP, FFMP and BOMP, control strategies for weed and pest management on Evolution owned lands and biodiversity offset areas include the following:

- Identification of weeds by regular and annual site inspections.
- Communication with other landholders/leaseholders and regulatory authorities to keep weed management practices in line with regional weed control activities.
- Mechanical removal of identified noxious weeds and/or the application of approved herbicides in authorised areas (herbicide use in wetland areas will be strictly controlled).
- Implementing follow-up site inspections to determine effectiveness of weed control measures
- pest control activities.
- Regular property inspections to assess status of pest populations within Evolution owned land
- Mandatory pest control for declared pests (i.e. rabbits, foxes, pigs and wild dogs) in accordance with Pest Control Orders under NSW Local Land Services Act, 2013.
- Inspections to assess effectiveness of control measures implemented and review these if necessary.

Implementation of weed management strategies typically occurs in accordance with seasonal and climatic requirements. Control strategies implemented during the reporting period were considered effective as demonstrated by environmental monitoring results

6.9.2 Environmental Monitoring

6.9.2.1 Weed Monitoring

In accordance with the LMP, the FFMP and the BOMP, Evolution has implemented a weed monitoring program at CGO. Evolution-owned land including biodiversity offset areas continue to be surveyed for weeds annually. Follow-up inspections are also made in specific areas following implementation of weed control measures (to assess the success of weed controls). Weed monitoring was undertaken by DnA Environmental (2025f) qualified personnel from a slow-moving vehicle or on foot.

Weed monitoring includes identification of:

- extent of weed occurrence (noxious or otherwise).
- details of weed distribution (i.e. locations of infested areas) and possible reasons for any infestations (e.g. a change in land use practices).
- optimum herbicide application or physical removal timing (for implementation of controls).
- any resistance to an herbicide type or herbicide application technique (on the basis of success of previous controls); and
- identification of any new weed species that may be carried into the CGO area on vehicles accessing the site and become established near the vehicle wash-down area.

6.9.2.2 Pest Monitoring

Pest eradication programs were conducted during the reporting period using various control methods including trapping, baiting, and aerial shooting.

6.9.2.3 Monitoring Results

6.9.2.3.1 Weed Monitoring Results

Weed surveys were undertaken in November – December 2024 covering a total of 14,200ha. Surveys recorded two priority weeds (PW) and nine species of concern (SoC) in the Riverina and /or Bland Shires (Table 6-q).

Table 6-q - Priority weeds and weeds of concern recorded in the 2024 weed survey.

Annual/ Perennial	Riverina/ State	Bland Shire	Scientific Name	Common Name	Habit
A	SoC		*Conyza bonariensis*	Fleabane	h
A	SoC	SoC	*Echium plantagineum*	Paterson's Curse	h
P	SoC		*Hypericum perforatum*	St. John's Wort	h
A	SoC		*Ibicella lutea*	Yellow-flower Devils claw	h
P	#PW (WoNS)	SoC	*Lycium ferocissimum*	African Boxthorn	s
P	SoC	SoC	*Marrubium vulgare*	Horehound	h
A	SoC		*Onopordum acanthium*	Scotch Thistle	h
P	SoC		*Phyla canescens*	Lippia	h
A	SoC		*Proboscidea louisiana*	Purple-flowered Devil's Claw	h
P	SoC		*Sclerolaena birchii*	Galvanised Burr	ss
A	#PW		*Xanthium spinosum*	Bathurst Burr	h

Key to habit: S = shrub, ss = sub shrub, h = herb ; A= Annual, P= Perennial

The most common and more serious weeds are perennial weeds and included *Hypericum perforatum* (St. John's Wort), *Lycium ferocissimum* (African Boxthorn), *Marrumbium vulgare* (Horehound), and *Sclerolaena birchii* (Galvanised Burr). Due to the recent flood events across the region, the foreshores of Lake Cowal continues to be vulnerable to weed invasion, as the lake water recedes. A significant increase in the abundance of Phyla canescens (Lippia) having been recorded along the eastern foreshores.

Many other weeds were very common and widespread and were observed in most disturbed areas such as overgrazed or fallow cultivation of most properties, as well as around dams, stockyards, along access tracks, graded firebreaks, edges of crops and/or around farm sheds and yards.

Notwithstanding where possible a mixture of spot spraying, bar spray, cut and paste and roadside spraying was used to target a variety of weeds across the mine site and within leased areas. High disturbance areas such as fire breaks and roads, as well as priority weeds were targeted. The following weeds and vegetation were specifically targeted during 2024:

- African Boxthorn (*Lycium ferocissimum*)
- Bathurst Burr (*Xanthium spinosum*)
- Galvanised Burr (*Sclerolaena birchii*)
- St. John's Wort (*Hypericum perforatum*)

Lippia (*Phyla nodiflora*) was also targeted by weed spraying, however this will remain a priority as the lake level recedes.

Weed control measures that have been executed will be assessed during the next period for efficacy and to determine if follow up treatments are required.

6.9.2.3.2 Pest Monitoring Results

A pest eradication program continued during the reporting period using collapsible traps, talon mouse bait blocks and traps. No fox, pig or rabbit baiting was conducted during the reporting period.

6.9.3 Key Performance and Management Issues

There were no performance or management issues in relation to weed and pest management during the reporting period.

6.9.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.10 Aboriginal Heritage

Development Consent Condition 3.1(a)(ii) outlines requirements in relation to salvage, excavation and monitoring of archaeological sites within CGO area prior to and during development. An Indigenous Archaeology and Cultural Heritage Management Plan (IACMP) has been prepared and approved for CGO.

Monitoring and management of Aboriginal objects and archaeological sites continued in accordance with IACHMP and relevant permits and consents (under Section 87 and Section 90 of the NPW Act) during the 2024 reporting period.

6.10.1 Environmental Management

The IACHMP sets out salvage, excavation, monitoring and other management measures that have been undertaken for each registered archaeological site and other Aboriginal objects within CGO areas.

In general, the strategies include protection; investigation; collection; excavation; documentation and storage of Aboriginal objects in an on-site temporary “Keeping Place”.

Sites LC2, LC3 and LC4 are managed in accordance with Special Conditions 6, 12 and 13 of Permit 1468.

Management measures are not limited to registered sites. Permit 1468 and Permit 1681 authorise a range of management measures and mitigation measures via the Research Design and Study Plan for other Aboriginal objects at CGO that are not contained within Registered Sites.

Activities undertaken at CGO and surrounding included the following:

- Cultural heritage and due diligence inspections with archaeologists and representatives from the Aboriginal community.
- Archaeological salvage activities with representatives from the Aboriginal community.

6.10.2 Environmental Monitoring

During the reporting period, due diligence inspections were undertaken within proposed exploration areas and along the repair zone of the Up Catchment Diversion System (UCDS).

No aboriginal or other archaeological artefacts were identified during these due diligence inspections.

6.10.2.1 Monitoring Results

No non-compliance issues were reported.

6.10.3 Key Performance and Management Issues

There were no performance or management issues in relation to Aboriginal heritage during the reporting period.

6.10.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.11 European Heritage

6.11.1 Environmental Management

The Heritage Management Plan (HMP) was prepared in accordance with Development Consent Condition 3.1. Monitoring and management of European heritage continued in accordance with the HMP during the reporting period.

The object of the HMP is to establish a non-indigenous heritage management strategy for the operation that complies with Consent Conditions by providing:

- A summary of non-indigenous heritage issues which arise in relation to the CGO;
- Potential impacts on identified non-indigenous heritage items relating to operations;
- Management measures for existing non-indigenous heritage items; and
- Mechanisms in relation to community consultation and complaints, and reporting regarding non-indigenous heritage.

6.11.2 Environmental Monitoring

An interpretive display has been established at the Lake Cowal Conservation Centre (LCCC) in consultation with the Lake Cowal Foundation (LCF), Bland Shire Council (BSC) and Bland District Historical Society. The display includes maps, photographs, narrative, and fragments/elements salvaged from the Cowal West Homestead Complex to illustrate its history. Other items containing a level of local heritage significance identified in the HMP will continue to be maintained in accordance with the HMP.

Inspections of heritage sites are conducted periodically in accordance with the HMP.

6.11.2.1 Monitoring Results

The maintenance works carried out within the Lake Cowal Homestead have been effective in preserving integrity and heritage value of the buildings.

6.11.3 Key Performance and Management Issues

There were no performance or management issues in relation to Historic heritage during the reporting period.

6.11.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.12 Bushfire Management

6.12.1 Environmental Management

Development Consent Condition 3.6 and Emergency Preparedness Response Plan (EPRP), RMP and BOMP describe fire preventative measures and fuel management measures for the mine site, rehabilitation areas and biodiversity offset areas.

In accordance with the RMP and BOMP, bushfire preventative and control strategies for CGO and CGO offset areas include:

- Educating employees and contractors on general fire awareness and response procedures.
- Fire track (and fire break) maintenance for fire control.
- Annual inspections to identify areas requiring bushfire control measures including assessment of fuel loads.
- Fuel management (e.g. hazard reduction burns) in consultation with the NSW Rural Fire Service.

Monitoring and management of bushfire risk continued in accordance with Development Consent Condition 3.6, the EPRP, RMP and BOMP during the 2024 reporting period.

6.12.2 Environmental Monitoring

In accordance with Development Consent Condition 6.2, data from the meteorological station maintained on-site was used to determine whether current weather conditions were suitable for fire management activities, and to assist in the management of bushfire fighting activities.

6.12.2.1 Monitoring Results

There were no uncontrolled bushfires within ML 1535 or biodiversity offset areas during this reporting period.

Several all-weather access tracks are established and have been maintained during this reporting period on Evolution-owned land and within Lake Cowal.

6.12.3 Key Performance and Management Issues

There were no performance or management issues in relation to bushfire management during the reporting period.

6.12.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.13 Hydrocarbon Contamination

6.13.1 Environmental Management

A Hazardous Materials Management Plan (HMMP) has been prepared for CGO in accordance with Development Consent Condition 5.4 (d).

As part of the HMMP, a Chemical Management Strategy has been developed. This strategy allows the management of each chemical used at CGO; control strategies include:

- Site wide inductions, awareness and training on Hazardous Substances and Hydrocarbon spill response.
- Concrete bunding and tankage integrity audits.
- Area planned general inspections.
- Chemical Register including hazardous substances and dangerous goods.
- Incident reporting and follow up action items.
- Bioremediation Facility for treatment of hydrocarbon contaminated soils.

Monitoring and management of hazardous waste and chemicals continued in accordance with HMMP during this reporting period.

6.13.2 Environmental Monitoring

6.13.2.1 Monitoring Results

Throughout the 2024 reporting period, there were no reportable substance spillage incidents that caused or threatened material harm to the environment.

A concrete bunding and tankage integrity audit was undertaken in April 2024 by Techt (Techt 2024). Key findings include:

There has been significant improvement in the quality of repairs and maintenance related to bunding. Crack repairs and sealing have increased life and performing well due to correct specification and improved quality control. Notwithstanding two failure pathways that need ongoing focus, being:

- Heaving of clay soils as primary cause for cracking and concrete slab movement. This movement has caused elastomeric jointing materials to fail prematurely and for proud crack edges to form trip hazards within the plant.
- Chemical attack is responsible for widespread exposed aggregate degradation that can and is minimised by applying a protective coating, such as a silane treatment, or similar to reduce chloride ingress to the reinforcement. There is limited environmental risk where this treatment is continued.
- Two areas marked as priority 1 were identified being:
  - Corroding Davit Crane support at truck wash
  - Ground settlement/movement at the primary crusher leading to seal failure.
- A total of 81 other repair observations made in the audit were of lower priority.

CGO has commenced the design, capital acquisition, tender and execution work to address the above matters in order of priority in 2025.

6.13.3 Key Performance and Management Issues

There were no performance or management issues in relation to hydrocarbon contamination during the reporting period.

6.13.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.14 Waste Minimisation

6.14.1 Environmental Management

Waste materials generated at CGO are tracked according to waste stream with monthly records kept pursuant with relevant licences, permits and applicable legislation. Additionally hazardous materials are used in accordance with the HMMP.

Waste minimisation management strategies include:

- Buying in bulk wherever possible to economise on cost and reduce packaging materials.
- Recycle waste streams where possible including scrap steel, waste oil, paper, cardboard, etc.

6.14.2 Environmental Monitoring

6.14.2.1 Monitoring Results

Evolution seeks to minimise generation of waste and where it cannot be minimized then recycle materials where possible. Volumes of waste produced during the 2024 reporting period are seen in Table 6-r below.

Hazardous waste materials generated during 2024 included items such as air and oil filters, waste oil and grease, hydraulic hoses, batteries, coolant, obsolete chemical products, sewage effluent, drums and containers. Of the 2419.61 tonnes generated over 96% by weight was recycled and 75.61 tonnes had to be disposed of into landfill.

General (or non-hazardous) waste streams recycled included paper and cardboard, scrap steel, mill balls, scrap lights and liners, timber pallets and fire extinguishers. 3254.77 tonnes of non-hazardous waste was generated during 2024 and of this 72% of general waste was recycled during the reporting period.

Table 6-r - Waste and Recycling Totals for 2024

Waste Class	Waste Produced (tonnes)	Recycled (tonnes)	Percentage Recycled (%)	Waste Disposed (tonnes)
Hazardous Waste	2419.61	2344	96.87	75.61
General Waste (Non-Hazardous)	3254.77	2374.15	72.94	880.62
TOTAL Waste	**5674.38**	**4718.15**	**83.14**	**956.23**

6.14.3 Key Performance and Management Issues

There were no performance or management issues in relation to waste minimisation during the reporting period.

6.14.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

6.15 Waste Geochemistry

During annual on-site AR performance review meetings in 2005 and 2006, the then DPI Mineral Resources requested confirmatory test-work of waste rock geochemistry to be undertaken. In their 2007 report, the Independent Monitoring Panel also recommended that Evolution continue to monitor waste rock being removed from the open pit, to facilitate identification of potentially acid-generating material (if present) and selective placement of that material within waste emplacements.

6.15.1 Environmental Management

Regional and local geology of the E42 Deposit has been described by McInnes, Miles, Radclyffe, Brooker (1998). In summary the complex consists of calc-alkaline to shoshonitic volcanic rocks and related sedimentary rocks deposited in a deep-water environment and are unconformably overlain, in parts, by Siluro-Devonian Manna Conglomerate. The auriferous quartz-carbonate-sulphide and carbonate-quartz-sulphide veins occur throughout the deposit and have a consistent dip of 305° and dip of 35° to the southwest. McInnes et al. (1998) describe the gold-bearing veins as generally being associated with one of two alteration styles: ankerite-quartz-pyrite-sphalerite- chalcopyrite-galena veins, which are associated with ankerite-quartz-sericite-carbonate alteration; and quartz, potassium feldspar, pyrite, sphalerite, and chalcopyrite veins associated with the chlorite-carbonate-pyrite alteration. Oxide blankets occur at the base of tertiary transported lacustrine cover, saprolite-saprock transition and at the base of oxidation (pers. comm, McInnes, Freer [2007]). These flat lying blankets can be up to several hundred metres wide and 1 m to 15 m thick and are interpreted to have formed as a result of remobilisation of gold during weathering processes in association with water table fluctuations.

Based on prior test work there is no indication that the E42 Deposit or associated process tailings are acid forming (Environmental Geochemistry International Pty Ltd [EGI], 2004; and Geo-Environmental Management [GEM], 2009; 2013). Overall, EGI (2004) results indicated a very low likelihood of Acid Rock Drainage (ARD) generation from waste rock and tailings material that was sampled in the testing programs. Therefore, no special handling requirements are indicated for ARD control at the CGO.

Operational monitoring and testing was recommended to be a carried out on an occasional and as needed basis to confirm the low ARD potential of all waste types with particular focus on any unexpected rock types or alteration types which may be exposed during mining. CGO within its grade control program continues to examine sulfur concentration and if significant adverse results are identified during block modelling the matter will trigger additional ARD examination.

Chemical groundwater data will continue to be collected as part of the groundwater monitoring programme detailed in the SWGWMBMP. Leachate water quality monitoring will continue to be undertaken at the NWRE, SWRE and PWRE external toe drain points in accordance with the EPL 11912.

6.15.2 Environmental Monitoring

Results of detailed geochemical investigations of waste rock and tailings were reported in the EIS and in subsequent environmental assessments undertaken for CGO. Ongoing periodic field observations undertaken during the reporting period confirmed the low salinity potential of waste hard rock types mined during the reporting period.

Barrick commissioned O'Kane in late-2007 to conduct repeat test work of Waste Rock Emplacement and contents of the TSFs. O'Kane representatives visited site to obtain samples in January 2008. A report was delivered in June 2008 (O'Kane, 2008) and was provided to the DRE. O'Kane (2008) concluded that results are generally consistent with previous investigations that predicated waste rock

would be predominantly non-acid forming. Geo-Environmental Management Pty Ltd (GEM, 2009) also verified these findings.

A geochemical assessment of proposed Pebble materials was carried out in 2020 (GEM 2020) which confirmed previous findings indicating a very low likelihood of ARD generation from waste rock materials.

Sampling of waste rock was carried out during the reporting period to identify and stockpile suitable material for future construction of the Lake Protection Bund. No PAF material was detected throughout the monitoring period.

6.15.3 Key Performance and Management Issues

There were no performance or management issues in relation to waste geochemistry during the reporting period.

6.15.4 Proposed Improvements

No further improvements are proposed for the next reporting period.

7 WATER MANAGEMENT

7.1 Water Supply

Water taken by CGO during the reporting period is summarised in Table 7-a below.

Table 7-a - Water Taken for CGO during 2024

Water Licence #	Water Sharing Plan, Source, Management Zone	Entitlement (ML)	Passive Take/Inflows	Active Pumping(ML)	TOTAL
WAL 31864 (BCPC)	*Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012.* Upper Lachlan Alluvial Groundwater Source. Upper Lachlan Alluvial Zone 7 Management Zone	15ML/day and 3,350ML/yr	-	1682.23	1682.23
WAL 36569 (ESB)		300 ML (with temporary transfer of 750 ML per bore per yr)	-	4.0	4.0
WAL 36615 (Saline groundwater supply bore field within ML 1535 and pit dewatering bores)		3,660 ML/yr	-	-	-
WAL 36617 (pit dewatering)	*Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011.* Lachlan Fold Belt Murray Darling Basin GroundwaterSource. Lachlan Fold Belt Mdb (Other) Management Zone	3,294 ML/yr	-	2133.5	2133.5
WAL 13749 (High SecurityTitle)	*Water Sharing Plan for the Lachlan Regulated River Water Source 2003.* Lachlan Regulated RiverWater Source. That Part of The Water Source Upstream of LakeCargelligo Weir.	Zero share component enabling temporary trade of water from regulated Lachlan River source.	453		
WAL 13748 (GeneralSecurity)			-		
WAL 14981 (High SecurityTitle)	*Water Sharing Plan for the Lachlan Regulated River Water Source 2003.* Lachlan Regulated RiverWater Source. That Part of The Water Source Downstream of Lake Cargelligo Weir.	80-unitshares.	-		

Notes: ML – megalitre; ML/day – megalitres per day; ML/year – megalitres per year.

7.1.1 Groundwater

A total of 1682.23 ML of water was extracted from Bland Creek Palaeochannel borefield (BCPC) during the 2024 reporting period (Table 7-a), less than 50% of the annual allocation. Groundwater levels associated with BCPC are monitored on a continuous basis by the DPHI Water groundwater monitoring bore on Burcher Road (GW036553). Contingency measures have been developed for implementation when water levels reach 137.5 m AHD and tighten further at 134 m AHD. These trigger levels were developed in consultation with the then NSW Office of Water (NoW) and other water users near the BCPC including irrigators, stock and domestic users. The trigger levels were not reached during this reporting period.

In addition, as agreed with the then NoW and BCPC Water Users Group, Evolution conducted regular surveys to monitor 11 monuments on the east side of Lake Cowal for any evidence of soil compaction. Monitoring of these monuments has indicated no significant movement to date and shows no specific trends that would be of concern.

Development Application No. 2011/0064 was granted by the Forbes Shire Council (FSC) on 20 December 2010 for the construction and operation of the Eastern Saline Borefield (ESB), located approximately 10 km east of Lake Cowal's eastern shoreline (Figure 7-b). Water extraction from the ESB is licensed under WAL 36569. The total volume extracted from the ESB during the 2024 reporting period was 4.0 ML, less than 2% of the current allocation limit.

A saline groundwater supply bore field on the floor of Lake Cowal within ML 1535 (Figure 7-a) was commissioned in mid-2009. Water extraction from this saline groundwater supply bore field within Lake Cowal is licensed under WAL 36615. However, no extraction has occurred since April 2010 due to access restrictions from the inundation of Lake Cowal with both production and monitoring bores remaining capped. Access via a gravel track to these bores was reinstated during 2015, however has since been inundated. Extraction from these bores did not occur during the reporting period.

A total of 2133.5 ML, or ~65% of current allocation limits, was extracted from open pit dewatering sumps (which collected water during the 2024 reporting period via rock wall seepage, horizontal depressurisation bores, underground dewatering, and rainfall). Water extraction from the open pit dewatering bore field is licensed under WAL 36615 and WAL 36617.

Extracted water was used mainly for ore treatment within the processing plant, dust suppression on haul roads and soil conditioning to achieve optimal compaction rates during IWL construction works.

7.1.2 Surface Water

A total of 453 ML was pumped from the Jemalong Irrigation Channel during 2024, similar to the previous reporting period 314.39 ML in 2023.

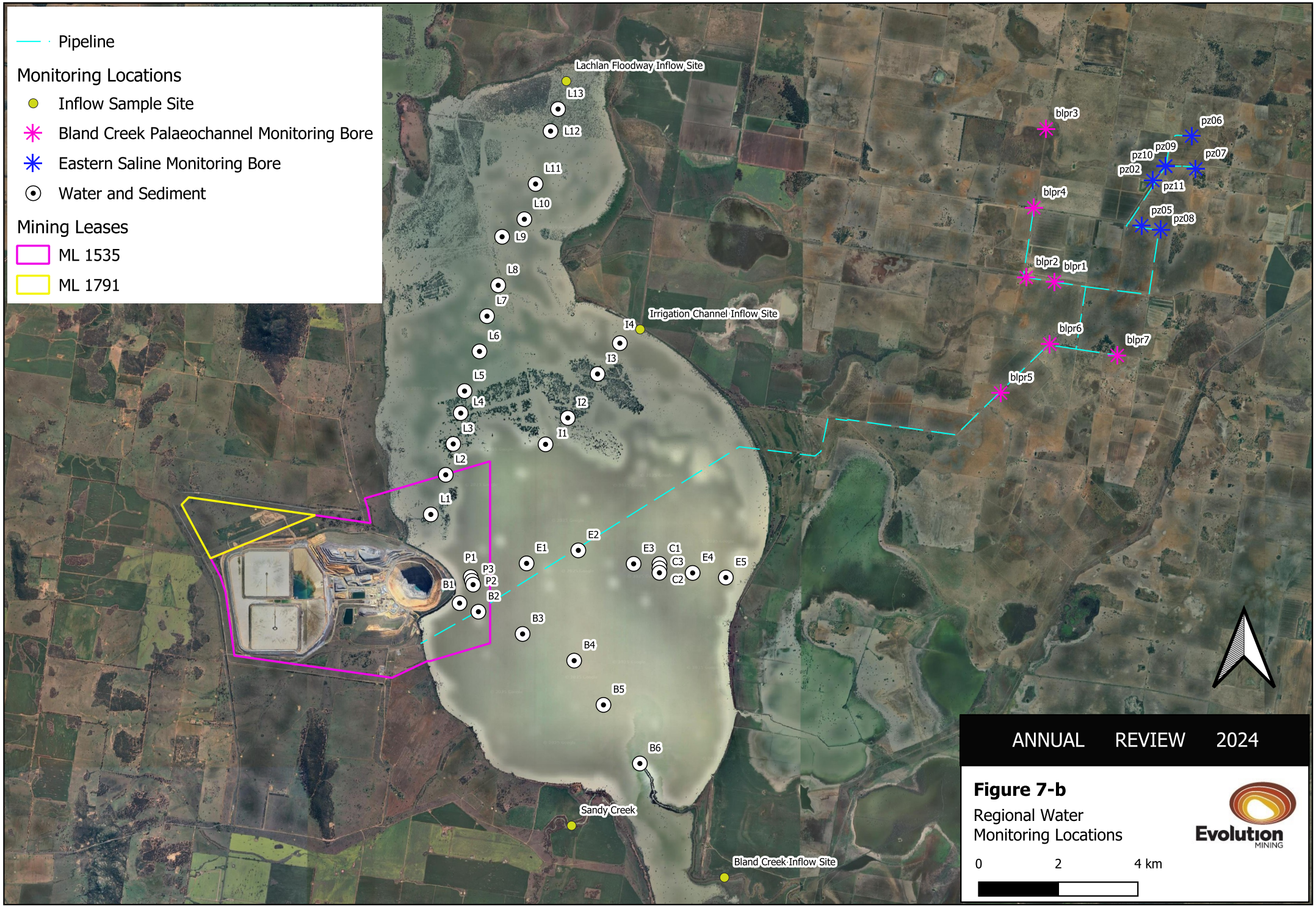
The Jemalong Irrigation Channel water was purchased from the regulated Lachlan River trading market. Water access from the Lachlan River Regulated Water Source is licensed under Evolution's High Security WAL 14981 (80 Unit Shares) and General Security WAL 13748 (30 Unit Shares). High Security WAL 13749 has no allocated Unit Shares and is used for temporary water transfers only.

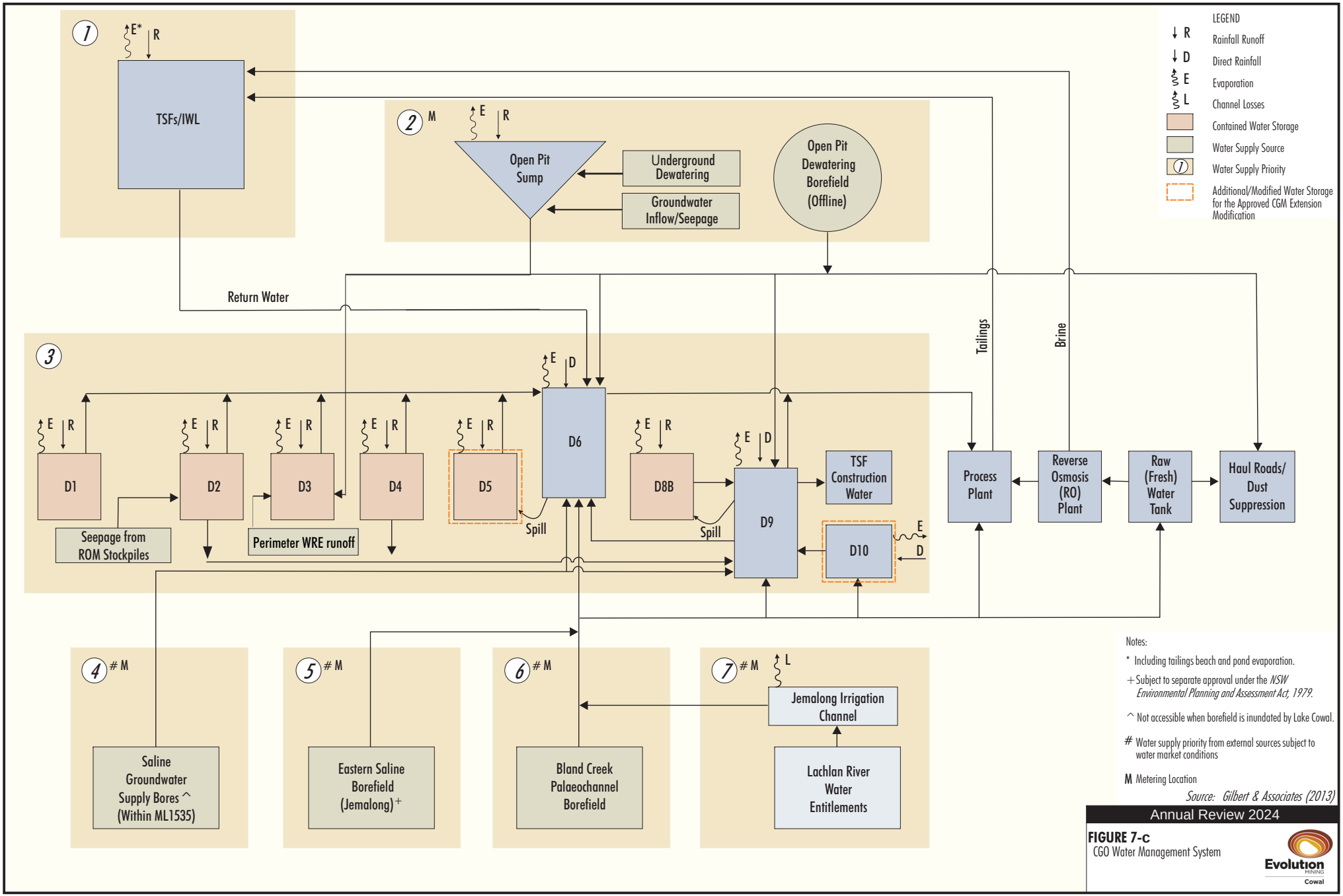
Licensed water from the Lachlan River is supplied via a pipeline from the Jemalong Irrigation Channel to the BCPC Bore 4 pumping station (Figure 7-b).

The CGO water management system is conceptually shown in Figure 7-c.

CGO's Water Management Plan (WMP) and MOP provide further detail regarding water management at CGO.


Monitoring Locations
Surface Water
Monitoring Bore
Water and Sediment
Mining Leases
ML 1535
ML 1791
L2
L1
UCD North
P561A
P561B
P418A
P418B
IWL01A
IWL01B
NDC-1
IWL02A
IWL02B
PDB1B
D1
PDB1A
P558A-R
IWL03A
IWL03B
P555A-R
P555B
IWL04A
IWL04B
IWL05A
IWL05B
P417A
P417B
D2
D6
PP01
PP02
D5
PP06
PP03
PP04
IWL06A
IWL06B
D8B
D9
D3
PDB3A
PDB3B
P1
P2
P3
B1
B2
D4
PDB5A
PDB5B
UCD South
ANNUAL REVIEW 2024
Figure 7-a
ML1535 Water
Monitoring Locations
Evolution
MINING
0
0.5
1 km


Pipeline
Monitoring Locations
Inflow Sample Site
Bland Creek Palaeochannel Monitoring Bore
Eastern Saline Monitoring Bore
Water and Sediment
Mining Leases
ML 1535
ML 1791
Lachlan Floodway Inflow Site
Irrigation Channel Inflow Site
Sandy Creek
Bland Creek Inflow Site
L13
L12
L11
L10
L9
L8
L7
L6
L5
L4
L3
L2
L1
I4
I3
I2
I1
E1
E2
E3
C1
C3
C2
E4
E5
P1
P3
P2
B1
B2
B3
B4
B5
B6
blpr3
blpr4
blpr2
blpr1
blpr6
blpr7
blpr5
pz06
pz09
pz10
pz07
pz02
pz11
pz05
pz08
ANNUAL REVIEW 2024
Figure 7-b
Regional Water Monitoring Locations
Evolution MINING
0
2
4 km



Annual Review 2024

FIGURE 7-C
CGO Water Management System

Evolution MINING Cowal

HAL-04-22_AR2017_005A

7.1 Surface Water

7.1.1 Environmental Management

The WMP and the SWGMBMP have been prepared in accordance with Development Consent Conditions 4.4(a) and 4.5(b) (and other relevant Development Consent Conditions) to guide water management and detail the CGO's water monitoring programme, respectively.

The site water management system is designed to contain all potentially contaminated water and comprises the following major components:

i. Up Catchment Diversion System (UCDS).
ii. Lake Isolation System (comprising the Temporary Isolation Bund (TIB), Lake Protection Bund (LPB) and PWRE.
iii. Internal Catchment Drainage System (ICDS) (including the permanent catchment divide and contained water storages).
iv. Integrated Erosion and Sediment Control System.
v. E42 Open Pit and Underground Dewatering System.

Site water management system is designed to contain all potentially contaminated water generated within the closed catchment of ML 1535 area while diverting all other water around the perimeter of site. The UCDS, Lake Isolation System and Internal Catchment Drainage System are designed to minimise volume of surface water entering ML 1535 by isolating site from Lake Cowal and catchments up-slope of UCDS. Surface water collected within ML 1535 is controlled using several water management structures designed to prevent discharge to Lake Cowal. No discharge to Lake Cowal has occurred during the reporting period or during previous periods.

Monitoring and management of surface water during the reporting period has been undertaken in accordance with relevant Development Consent Conditions, the WMP, the SWGMBMP and EPL 11912.

7.1.2 Environmental Monitoring

During the reporting period surface water monitoring was conducted in accordance with the WMP, SWGMBMP and EPL 11912. Surface water monitoring locations within ML 1535 are shown in Figure 7-a.

7.1.2.1 Monitoring Results

7.1.2.1.1 Surface Water Quality

Electrical conductivity (EC), pH and Total Suspended Solids (TSS) results fluctuated across on-site surface water ponds throughout the 2024 reporting period, likely due to changes in standing water level within ponds. pH results were relatively stable throughout the reporting period, ranging from 6.59 to 9.21 across on-site surface water ponds. EC ranged from 332 to 32,128 microSeimens per centimeter (µS/cm) and TSS ranged from <1 to 1320 milligrams per litre (mg/L) and were both significantly influenced by filling and drying of ponds (Table 7-b). Observed monitoring results and fluctuations are generally consistent with previous reporting periods.

A comparison of surface water results with ANZG (2018) guidelines has not been undertaken for on-site surface water ponds as they are contained inside a closed catchment within the mining lease area. The closed catchment is engineered to contain all runoff on the mining lease and physically separates mine water from offsite waters in the upstream diversion drains and Lake Cowal.

Table 7-b - Summary of Monthly and Quarterly Surface Water Monitoring Results for 2024

Monthly Surface Water Monitoring - D1, D4, UCD North and UCD South				
Dam D1	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	15	6.85	7.89	9.01
Electrical Conductivity - Field (µS/cm)	15	5352	8628.67	14133
Total Suspended Solids (mg/L)	15	3	19	41
Dam D4	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	14	6.68	7.64	8.94
Electrical Conductivity - Field (µS/cm)	14	1527	21225.31	32128
Total Suspended Solids (mg/L)	14	3	53.08	441
UCD North	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	12	7.17	7.97	8.84
Electrical Conductivity - Field (µS/cm)	12	589	760.1	990
Total Suspended Solids (mg/L)	12	37	125.5	406
UCD South	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	14	7.21	8.54	9.21
Electrical Conductivity - Field (µS/cm)	14	332	1163.36	3731
Total Suspended Solids (mg/L)	14	20	341.14	1320
Quarterly Surface Water Monitoring – D2, D3, D8B, D9, D6, and D5				
Dam D6	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	5	7.25	7.59	7.88
Electrical Conductivity - Field (µS/cm)	5	13079	17463.4	22155
Total Suspended Solids (mg/L)	5	17	31.8	53
Dam D5	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	3	7.15	7.92	8.33
Electrical Conductivity - Field (µS/cm)	3	5476	6798.33	8717
Total Suspended Solids (mg/L)	3	4	66	184
Dam D2	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	4	7.32	7.95	8.31
Electrical Conductivity - Field (µS/cm)	4	10305	12082.25	13448
Total Suspended Solids (mg/L)	4	1	4.33	9
Dam D3	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	4	6.84	7.64	8.28
Electrical Conductivity - Field (µS/cm)	4	18362	25292	27905
Total Suspended Solids (mg/L)	4	2	43.5	130
Dam D8B	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	4	7	7.99	8.55
Electrical Conductivity - Field (µS/cm)	4	6592	10457.5	13607
Total Suspended Solids (mg/L)	4	10	55.25	123
Dam D9	**COUNT**	**MIN**	**MEAN**	**MAX**
pH - Field	4	6.59	7.52	8.34
Electrical Conductivity - Field (µS/cm)	4	19876	20976.25	21620
Total Suspended Solids (mg/L)	4	1	1.67	2

^ *Dam D9 was used as storage for water collected from surface water runoff dams after heavy rain*
^ *Dam D5 only has 3 monitoring events as no safe access was available in April during reporting period*

EC and TSS results significantly fluctuated across both UCD North and UCD South throughout the reporting period, due to changes in standing water level in the area. pH results were generally stable throughout the reporting period and ranged from 7.17 to 9.21 across both ponds. 2024 monitoring results and fluctuations due to changes in standing water levels are consistent with previous reporting periods and baseline monitoring results for the 1991-1992 periods, which are above ANZG (2018) guideline values for pH, EC and turbidity.

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Lake Cowal

During the high rainfall period from 2020 to 2022, and subsequent floods, the lake rose from a dry state to a peak of 207.79m RL (AHD) on 11th of November 2022. In 2023-2024 rainfall returned to below average which has led to a declining lake level. The lake water level heights from 2010 to 2024 are presented in

Graph **7-a**.

Water quality monitoring at Lake Cowal was undertaken by Evolution Mining personnel (weekly) and DM McMahon Pty Ltd (monthly/quarterly). In 2024, 35 locations were sampled for lake water. As the lake water level dropped in 2024 the northern sample points of the 'L' transect became less accessible by boat. The Sandy Creek and Bland Creek inflow points were able to be sampled, however the Lachlan and Irrigation inflow points were too shallow to safely access by boat. The quarterly lake sampling events were conducted on 22-23 January 2024, 16-17 April 2024, 23-24 July 2024, and 21-22 October 2024.

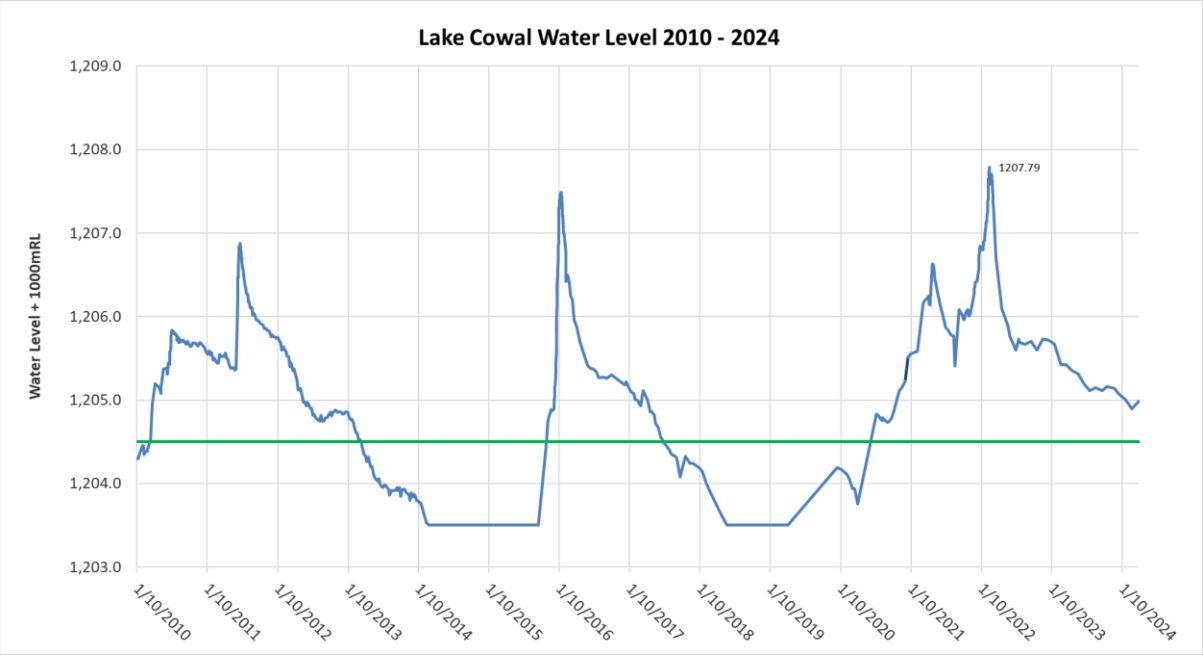
A comparison of the 2024 sediment results against the ANZG (2018), ANZECC and ARMCANZ (2000) trigger values indicated that the results were all below the recommended default trigger values

Table **7-c**.

Key summaries of the lake water monitoring results (DM McMahon, 2024) are provided in the subsections below and in Table 7-c and Table 7-d.

A comparison of the 2024 Lake Cowal water quality results against the ANZG (2018) default trigger values for surface water (lakes) indicates that 2024 monitoring results (totals and dissolved) are below or marginally above the default trigger values. Heavy metal readings were similar to historical data whilst pH and Electrical Conductivity (EC) were within the range of values previously recorded.

Graph 7-a - Lake Cowal Water Level 2010 - 2024



Note: The 204.5 m RL (AHD) trigger value is in green (Source: Evolution Mining (Cowal Operations)).

7.1.2.1.2 Lake Cowal Sediment Monitoring Results

Electrical conductivity (EC)

EC of lake sediment ranged from 59 to 213 µS/cm with a mean of 113 µS/cm. The mean for 2024 was consistent with historical data. The ANZG (2018) recommended guideline trigger values for sediment does not include a trigger value for EC.

Heavy Metal (total and dissolved)

The extractable arsenic concentration of the sediment ranged from <1 to 4.2 mg/kg with an average concentration of 1.8mg/kg. For total arsenic concentration, the results ranged from 1.2 to 6.1 mg/kg with a mean of 2.8 mg/kg. The concentration of both dissolved and total arsenic is similar to the historical data and below the ANZG (2018) default guideline value.

The extractable lead concentration of the sediment ranged from 4.4 to 14.7 mg/kg with a mean value of 8.6 mg/kg. For total lead concentration, the results ranged from 8 to 24 mg/kg with a mean of 13 mg/kg. The concentration of lead is similar to the historical data and below the ANZG (2018) default guideline value.

The extractable zinc concentration of the sediment ranged from <1 to 8.8 mg/kg with a mean of 3.5 mg/kg. For total zinc concentration, the results ranged from 16 to 55 mg/kg with a mean of 29 mg/kg. The concentration of zinc is similar to the historical data and below the ANZG (2018) default guideline value.

All results for cadmium and antimony were at or below the laboratory limit of reporting which is consistent with historical data.

7.1.2.1.3 Lake Cowal Water Quality Monitoring Results

pH and Electrical Conductivity

Lake water pH ranged from 7.50 to 8.80 with a mean of 8.29, which is slightly lower than the baseline water quality data collected in 1991-1992. However, it is within the ANZG (2018) guideline values except for the maximum value of 8.29. The average lake water pH in 2024 was slightly higher than the 2022 and 2023 monitoring periods.

Lake water electrical conductivity (EC) ranged from 210 to 870 µS/cm with a mean of 721 µS/cm, which is lower than the baseline data results. Lake water EC was higher than the freshwater guideline values (ANZG, 2018). However, EC in lakes will vary depending upon catchment geology. The data trends analysis demonstrated that lower EC levels corresponded with high inflows and lake levels; and higher EC levels occurred when inflows and lake levels were the lowest. This is consistent with the historical trend.

Turbidity and Suspended Solids

Turbidity of the lake water ranged from 40 to 400 NTU with a mean of 169 NTU. The turbidity of the lake water in 2024 was higher than the ANZG (2018) level of 20 NTU for Fresh Water. Lakes in catchments with highly dispersive soils such as Lake Cowal will have high turbidity (ANZG, 2018).

The suspended solid concentration in the lake water ranged from 25 to 210 mg/L with a mean of 89 mg/L. The ANZG (2018) recommended guideline trigger values for toxicants does not include a trigger value for suspended solids. The suspended solid concentrations in 2024 were similar to 2023.

Dissolved Oxygen

Dissolved Oxygen concentration of the lake water ranged from 0.04 to 16.14 mg/L with a mean of 8.76 mg/L, which is similar to historical data and the mean was within the 1991-92 baseline data.

Heavy Metals (total and dissolved)

Dissolved arsenic concentration of lake water ranged from 0.001 to 0.006 mg/L with an average concentration of 0.002 mg/L. For total arsenic concentration, results ranged from 0.001 to 0.004 mg/L with a mean of 0.003 mg/L. The concentration of both dissolved and total arsenic is similar to the baseline data but exceeded the ANZG (2018) default trigger value of 0.0008 mg/L.

All results for cadmium were laboratory LOR which is consistent with historical data except for a single occurrence of 0.0005 mg/L.

The dissolved lead concentration of the lake water was below the limit of reporting for all samples (<0.001 mg/L). For total lead concentration, the results ranged from <0.001 to 0.004 mg/L with a mean of 0.002 mg/L. The concentration of total lead exceeded the ANZG (2018) default trigger value of 0.0001 mg/L and but is overall in line with the baseline data.

The dissolved nickel concentration of the lake water ranged from 0.001 to 0.008 mg/L with an average concentration of 0.002 mg/L. For total nickel concentration, the results ranged from 0.002 to 0.009 mg/L with a mean of 0.005 mg/L. The concentration of both dissolved and total nickel was at or below the ANZG (2018) default trigger value of 0.008 mg/L. The mean dissolved nickel concentrations were similar to historical data.

The dissolved zinc concentration of the lake water ranged from <0.005 to 0.006 mg/L with a mean of 0.005 mg/L. For total zinc concentration, the results ranged from <0.005 to 0.032 mg/L with a mean of 0.011 mg/L. The concentration of total lead exceeded the ANZG (2018) default trigger value of 0.0024 mg/L but is overall in line with the baseline data.

All results for antimony were below or slightly above the laboratory limit of reporting which is consistent with historical data.

The mean concentrations of other heavy metals (total and dissolved); including mercury and selenium; were all below the limit of reporting and/or ANZG (2018) default trigger values.

Historical data trends analysis indicated that higher metal concentrations were found at times where the inflow and lake level were low. This may be due to accumulation through evaporation. However, when inflow and lake level were high, the metals concentration were low.

Table 7-c - Summary of Lake Cowal Sediment Results – 2010 – 2024

Parameter	Lake Cowal Sediment Results (Nov 2010)	Lake Cowal Sediment Results (2011) Range (Mean)	Lake Cowal Sediment Results (2012) Range (Mean)	Lake Cowal Sediment Results (2013) Range (Mean)	Lake Cowal Sediment Results (2014) Range (Mean)	Lake Cowal Sediment Results (2016) Range (Mean)	Lake Cowal Sediment Results (2017) Range (Mean)	Lake Cowal Sediment Results (2018) Range (Mean)	Lake Cowal Sediment Results (2021) Range (Mean)	Lake Cowal Sediment Results (2022) Range (Mean)	Lake Cowal Sediment Results (2023) Range (Mean)	Lake Cowal Sediment Results (2024) Range (Mean)	DGV ^
EC (µS/cm)	33 – 142 (94)	3 – 162 (99)	49 – 215 (94)	53 – 187 (105)	70 – 207 (133)	45 – 218 (105)	46 – 184 (90)	47 – 162 (90.7)	48 – 171 (86)	41 – 628 (242)	28-464 (86)	59-213 (113)	No data
Arsenic (mg/kg)	2.6 (total)	0.02 – 5.6 (3.1) (total)	1 – 6 (3.2) (total)	1.9 – 5.8 (3.2) (total)	2.2 – 6.0 (3.62) (total)	1.6 – 5.8 (3.2) (total)	1.3 – 5.6 (2.8) (total)	1.8 – 3.3 (2.62) (Total)	1.6 – 4.6 (2.74) (total)	1.6 – 5.3 (3.1) (total)	1.1-10.7 (2.9) (total)	1.2-6.1 (2.8) (total)	20
	1.5 (extractable)	<0.1 – 1.8 (1.25) (extractable)	1 – 3.1 (1.4) (extractable)	1 – 3.1 (1.2) (extractable)	1 – 2.2 (1.38) (extractable)	1 – 3.4 (1.7) (extractable)	<1 – 3.4 (1.4) (extractable)	<1 - 1.8 (1.26) (extractable)	<1 – 2.2 (1.20) (extractable)	1.0 – 3.2 (1.8) (extractable)	<1-3.1 (1.8) (extractable)	<1-4.2 (1.8) (extractable)	
Cadmium (mg/kg)	1 (total)	<1 - <1 (1) (total)	1 – 1 (1) (total)	1 – 1 (1) (total)	1 – 1 (1) (total)	1 – 1 (1) (total)	<1 - <1 (<1) (total)	<1 - <1 (<1) (total)	<1 - <1 (<1) (total)	<1 - <1 (<1) (total)	<1 - <1 (<1) (total)	<1-<1 (<1) (total)	1.5
	0.1 (extractable)	<0.1 - <0.1 (0.1) (extractable)	0.1 – 0.1 (0.1) (extractable)	0.1 -0.1 (0.1) (extractable)	0.1 – 0.1 (0.1) (extractable)	0.1 – 0.1 (0.1) (extractable)	<0.1 - <0.1 (<0.1) (extractable)	<0.1 - <0.1 (<0.1) (extractable)	<0.1 - <0.1 (<0.1) (extractable)	<0.1 - 0.1 (0.1) (extractable)	<0.1 - 0.1 (0.1) (extractable)	<0.1-0.1 (0.1) (extractable)	
Lead (mg/kg)	15 (total)	8 – 20 (13.7) (total)	7 – 20 (12.6) (total)	8 – 23 (14.2) (total)	9 – 20 (13.53) (total)	5 – 18 (12.55) (total)	7 – 22 (12) (total)	6 - 13 (10.36) (total)	6 – 32 (13.52) (total)	7 – 21 (14) (total)	6-20 (13) (total)	8-24 (13) (total)	50

Parameter	Lake Cowal Sediment Results (Nov 2010)	Lake Cowal Sediment Results (2011) Range (Mean)	Lake Cowal Sediment Results (2012) Range (Mean)	Lake Cowal Sediment Results (2013) Range (Mean)	Lake Cowal Sediment Results (2014) Range (Mean)	Lake Cowal Sediment Results (2016) Range (Mean)	Lake Cowal Sediment Results (2017) Range (Mean)	Lake Cowal Sediment Results (2018) Range (Mean)	Lake Cowal Sediment Results (2021) Range (Mean)	Lake Cowal Sediment Results (2022) Range (Mean)	Lake Cowal Sediment Results (2023) Range (Mean)	Lake Cowal Sediment Results (2024) Range (Mean)	DGV ^
	8.7 (extractable)	3.8 – 15 (8.8) (extractable)	4.3 – 14.5 (8.6) (extractable)	3.5 –13.3 (7.33) (extractable)	5.3 -13.5 (8.51) (extractable)	3.5 – 14.8 (8.09) (extractable)	4.4 – 16.3 (8.4) (extractable)	4.2 – 9 (7.0) (extractable)	2 – 11.2 (5.08) (extractable)	3.8 – 12.7 (8.1) (extractable)	0.2-11.0 (6.8) (extractable)	4.4-14.7 (8.6) (extractable)	
Zinc (mg/kg)	31.5 (total)	14 – 57 (32.5) (total)	11 – 43 (23.3) (total)	13 – 63 (33.2) (total)	16 – 100(36.8) (total)	11 – 39 (25.8) (total)	11 – 37 (22) (total)	10 - 23 (16.5) (total)	12 – 36 (24.74) (total)	14 – 86 (31) (total)	9-45 (27)	16-55 (29) (total)	200
	3.5 (extractable)	1 - 14.8 (3.9) (extractable)	1.1 – 7.7 (3.6) (extractable)	1 – 11.4 (3.4) (extractable)	3.3 – 52 (27.19) (extractable)	1.2 – 6.3 (2.83) (extractable)	<1 – 10.5 (3.3) (extractable)	1.2 – 4.4 (2.5) (extractable)	<1 – 6.1 (1.99) (extractable)	1 – 7.8 (2.8) (extractable)	<1-9.8 (2.9) (extractable)	<1-8.8 (3.5) (extractable)	
Antimony (mg/kg)	5 (total)	<5 - <5 (5) (total)	5 – 5 (5) (total)	<5 - <5 (5) (total)	<5 – <5 (5) (total)	5 – 5 (5) (total)	<5 - <5 (<5) (total)	<5 - <5 (<5) (total)	<5 - <5 (<5) (total)	<1 - <1 (<1) (total)	<5 - <5 (<5) (total)	<5-<5 (<5) (total)	2
	1 (extractable)	<1 – 6.9 (1.1) (extractable)	1 – 7.6 (1.1) (extractable)	1 - 4.8 (1.18) (extractable)	1- 2 (1.03) (extractable)	1 – 2.2 (1.02) (extractable)	<1 – 1.9 (1.1) (extractable)	<1 – 3.4 (1.19) (extractable)	<1 – <1 (<1) (extractable)	<1 – <1 (<1) (extractable)	<1 – <1 (<1) (extractable)	<1-<1 (<1) (extractable)	

^ Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 -Sediment default guideline values

Table 7-d - Summary of Lake Cowal Water Monitoring – 2010 – 2024

Parameter	Lake Cowal Water Quality Results (November 2010 – Mean#)	Lake Cowal Water Quality Results (2011) Ranges (Mean)	Lake Cowal Water Quality Results (2012) Ranges (Mean)	Lake Cowal Water Quality Results (2013) Ranges (Mean)	Lake Cowal Water Quality Results (2014) Ranges (Mean)	Lake Cowal Water Quality Results (2016) Ranges (Mean)	Lake Cowal Water Quality Results (2017) Ranges (Mean)	Lake Cowal Water Quality Results (2018) Ranges (Mean)	Lake Cowal Water Quality Results (2021) Ranges (Mean)	Lake Cowal Water Quality Results (2022) Ranges (Mean)	Lake Cowal Water Quality Results (2023) Ranges (Mean)	Lake Cowal Water Quality Results (2024) Ranges (Mean)	Lake Cowal Baseline Water Quality Results (1991 -1992)	Fresh Waters ^ ~
Alkalinity (mg/L)	105	64 – 142 (100)	50 – 152 (87)	113 – 178 (157)	191 – 322 (269)	44 – 356 (160)	102 – 192 (140)	199 – 320 (244)	107 – 151 (129)	45 – 153 (103)	81-188 (120)	59-230 (187)	NA	NA
Suspended Solids	6 - 192	5 – 184 (38)	7 – 274 (67)	66 – 472 (216)	57 – 556 (233)	13 – 417 (145)	24 – 650 (361)	36 – 130 (70)	3 – 87 (26)	4 – 281 (49)	13-324 (92)	25-210 (89)	NA	NA
Acidity – Alkalinity scale (pH)	7.03 – 8.27	7.22 – 8.82 (8.14)	5.56 – 9.78 (7.81)	7.82 – 8.43 (8.19)	8.45 – 8.97 (8.72)	7.05 – 8.76 (7.8)	7.12 – 8.44 (7.88)	8.27 – 9.01 (8.61)	6.65 – 9.19 (7.88)	5.82 – 9.77 (7.77)	7.23-8.20 (7.87)	7.50-8.80 (8.29)	8.27 – 8.67	6.5 to 8.0
Electrical Conductivity	100 – 701	190 – 727 (322)	107 – 433 (236)	351 – 572 (503)	882 – 1350 (1193)	119 – 1350 (583)	299 – 511 (409)	514 – 838 (641)	213 – 619 (346)	41 – 628 (254)	255-940 (395)	210-870 (721)	222 – 1557[1, 3]	20 to 30 µS/cm[1]
Turbidity (NTU)	8.2 – 211	11.5 – 144 (53.3)	7.8 – 829 (246.1)	271 – 755 (470)	189 – 671 (391)	57 – 644 (366)	26.7 – 640 (360.6)	58.4 – 300 (180.9)	4.6 – 204 (115.1)	7.6 - 328 (147.4)	40.8-497 (257.4)	40-400 (169)	22 – 224	1 to 20[2]
Dissolved Oxygen (mg/L)	0.84 – 8.89	1.64 – 14.74 (9.76)	2.24 – 17.89 (8.95)	1.84 – 12.70 (9.03)	5.65 – 13.83 (9.0)	0.08 – 8.57 (6.46)	0.04 – 15.97 (9.4)	3.18 – 23.53 (9.51)	6.20 – 9.58 (8.08)	4.05 – 13.23 (8.54)	1.61-94.7 (8.09)	0.04-16.14 (8.76)	7.3 – 11.5	90 to 110 (derived from daytime measurements)
Temperature (°C)	24.9	9.6 – 29.8 (18.4)	7.5 – 28.8 (16.7)	9.80 – 27 (17.4)	7.8 – 30 (18.6)	11.7 – 27.3 (18.3)	7.6 – 29.2 (16.7)	20.0 – 27.6 (23.0)	4.86 – 28.2 (18.7)	2.3 – 28.0 (17.0)	8.0-28.8 (18.5)	6.8-28 (18.2)	NA	Not applicable
Depth(m)	0.10 – 1.20	0.60 – 2.50 (1.7)	0.50 – 3.60 (2.0)	0.40 – 2.00 (1.2)	0.25 – 1.0 (0.54)	0.8 – 4.5 (2.6)	0.6 – 3.1 (1.64)	0.4 – 1.8 (1.18)	0.7 – 3.33 (2.05)	0.0 – 4.4 (2.49)	0.7-3.7 (1.9)	0.5-2.2 (1.4)	0.2 – 2.0	Not applicable
Lake Water Level (m)	204.5	205.75	206.88	205.24	203.5 - 204.78	207.45	205.86	203.62	206.17	207.79	205.42 – 206.1	204.90 – 205.35	205.1	Not applicable
Total Iron (mg/L)	6.5	0.36 – 11.00 (2.50)	0.92-22.6 (9.55)	2.54-33.6 (21.49)	4.76-21.7 (11.7)	4.05-21.7 (14.81)	10.7-25.4 (16.6)	<0.05-12.8 (7.47)	0.29-13 (5.37)	0.33-13.2 (5.32)	0.4-25.3 (9.27)	0.07-8.50 (2.71)	0.92-22.6 (9.55)	Not applicable (Insufficient data)

Table 7-d (Continued) - Summary of Lake Cowal Water Monitoring – 2010 – 2024

Parameter	Lake Cowal Water Quality Results (November 2010 – Mean#)	Lake Cowal Water Quality Results (2011) Ranges (Mean)	Lake Cowal Water Quality Results (2012) Ranges (Mean)	Lake Cowal Water Quality Results (2013) Ranges (Mean)	Lake Cowal Water Quality Results (2014) Ranges (Mean)	Lake Cowal Water Quality Results (2016) Ranges (Mean)	Lake Cowal Water Quality Results (2017) Ranges (Mean)	Lake Cowal Water Quality Results (2018) Ranges (Mean)	Lake Cowal Water Quality Results (2021) Ranges (Mean)	Lake Cowal Water Quality Results (2022) Ranges (Mean)	Lake Cowal Water Quality Results (2023) Ranges (Mean)	Lake Cowal Water Quality Results (2023) Ranges (Mean)	Lake Cowal Baseline Water Quality Results (1991 - 1992)	Fresh Waters ^ ~
Arsenic (mg/L)	0.006 (total)	<0.001 – 0.007 (0.003) (total)	0.002 – 0.007 (0.004) (total)	0.006 – 0.014 (0.009) (total)	0.014 – 0.023 (0.018) (total)	0.002 – 0.02 (0.00748) (total)	<0.001 – 0.01 (0.005) (total)	0.008 – 0.012 (0.0098) (total)	0.002 – 0.004 (0.0037) (total)	0.001 – 0.006 (0.0036) (total)	0.001- 0.007 (0.004) (total)	0.001- 0.004 (0.003) (total)	0.0026 (total)	0.0008
	0.005 (dissolved)	<0.0003 – 0.006 (0.0026) (dissolved)	0.001 – 0.006 (0.003) (dissolved)	0.003 – 0.011 (0.007) (dissolved)	0.012 – 0.024 (0.017) (dissolved)	0.0001 – 0.014 (0.00561) (dissolved)	0.003 – 0.006 (0.0045) (dissolved)	0.007 – 0.013 (0.0092) (dissolved)	0.001 – 0.005 (0.0026) (dissolved)	<0.001 – 0.007 (0.0027) (dissolved)	<0.001- 0.004 (0.002) (dissolved)	0.001- 0.006 (0.002) (dissolved)	0.0016 (dissolved)	
Cadmium (mg/L)	0.0001 (total)	<0.0001 - 0.001 (0.0001) (total)	<0.0001 – 0.005 (0.0002) (total)	0.0001 – 0.0002 (0.0001) (total)	0.0001 – 0.0001 (0.0001) (total)	0.0001 – 0.0002 (0.0001) (total)	0.0001 – 0.0002 (0.0001) (total)	<0.0001 – <0.0001 (<0.0001) (total)	<0.0001 – <0.0001 (<0.0001) (total)	<0.0001 – <0.0001 (<0.0001) (total)	<0.0001 – <0.0001 (<0.0001) (total)	<0.0001- <0.0001 (<0.0001) (total)	0.000055 (total)	0.0006
	0.0001 (dissolved)	<0.0001 – 0.0004 (0.0001) (dissolved)	<0.00001 – <0.0001 (0.00001) (dissolved)	0.0001 – 0.0002 (0.0001) (dissolved)	0.0001 – 0.0002 (0.0001) (dissolved)	0.0001 – 0.0001 (0.0001) (dissolved)	<0.0001 – <0.0001 (<0.0001) (dissolved)	<0.0001 – <0.0001 (<0.0001) (dissolved)	<0.0001 – <0.0001 (<0.0001) (dissolved)	<0.0001 – <0.0001 (<0.0001) (dissolved)	<0.0001 – <0.0001 (<0.0001) (dissolved)	<0.0001- 0.0005 (0.0001) (dissolved)	0.00005 (dissolved)	
Molybdenum (mg/L)	0.001 (total)	<0.001 – 0.006 (0.0012) (total)	<0.001 – 0.004 (0.001) (total)	0.001 – 0.003 (0.0014) (total)	0.002 – 0.005 (0.003) (total)	0.001 – 0.003 (0.0016) (total)	<0.001 – 0.002 (0.001) (total)	0.001 – 0.004 (0.0017) (total)	<0.001 – <0.001 (<0.001) (total)	<0.001 – 0.001 (0.001) (total)	<0.001- 0.002 (0.001) (total)	<0.001- 0.002 (0.001) (total)	NA	NA (Insufficient
	0.001 (dissolved)	<0.001 - 0.001 (0.001) (dissolved)	<0.001 – 0.001 (0.001) (dissolved)	0.001 – 0.002 (0.0014) (dissolved)	0.003 – 0.004 (0.035) (dissolved)	0.001 – 0.004 (0.0019) (dissolved)	<0.001 - 0.003 (0.0012) (dissolved)	<0.001 – 0.003 (0.001) (dissolved)	<0.001 – 0.002 (0.0011) (dissolved)	<0.001 – 0.001 (0.001) (dissolved)	<0.001 – 0.001 (0.001) (dissolved)	<0.001- 0.002 (0.001) (dissolved)	NA	data)
Nickel (mg/L)	0.007 (total)	<0.001 – 0.009 (0.0036) (total)	<0.001 – 0.018 (0.009) (total)	0.006 – 0.025 (0.018) (total)	0.010 – 0.025 (0.016) (total)	0.004 – 0.025 (0.015) (total)	0.009 – 0.021 (0.0147) (total)	0.003 – 0.012 (0.008) (total)	0.002 – 0.003 (0.002) (total)	0.002 – 0.012 (0.007) (total)	0.002- 0.020 (0.009) (total)	0.002 – 0.009 (0.005) (total)	NA	0.008

	0.004 (dissolved)	<0.001 – 0.004 (0.0023) (dissolved)	<0.001 – 0.004 (0.003) (dissolved)	0.002 – 0.005 (0.0035) (dissolved)	0.004 – 0.007 (0.006) (dissolved)	0.002 – 0.007 (0.0052) (dissolved)	0.002 – 0.02 (0.0032) (dissolved)	0.001 – 0.005 (0.0032) (dissolved)	0.002 – 0.011 (0.0058) (dissolved)	0.002 – 0.004 (0.0027) (dissolved)	0.001- 0.003 (0.002) (dissolved)	0.001 – 0.008 (0.002) (dissolved)	NA	

Table 7-d (Continued) - Summary of Lake Cowal Water Monitoring – 2010 – 2023

Parameter	Lake Cowal Water Quality Results (November 2010 – Mean#)	Lake Cowal Water Quality Results (2011) Ranges (Mean)	Lake Cowal Water Quality Results (2012) Ranges (Mean)	Lake Cowal Water Quality Results (2013) Ranges (Mean)	Lake Cowal Water Quality Results (2014) Ranges (Mean)	Lake Cowal Water Quality Results (2016) Ranges (Mean)	Lake Cowal Water Quality Results (2017) Ranges (Mean)	Lake Cowal Water Quality Results (2018) Ranges (Mean)	Lake Cowal Water Quality Results (2021) Ranges (Mean)	Lake Cowal Water Quality Results (2022) Ranges (Mean)	Lake Cowal Water Quality Results (2023) Ranges (Mean)	Lake Cowal Water Quality Results (2024) Ranges (Mean)	Lake Cowal Baseline Water Quality Results (1991 - 1992)	Fresh Waters ^ ~
Lead (mg/L)	0.003 (total)	<0.001 – 0.004 (0.0013) (total)	<0.001 – 0.009 (0.004) (total)	0.003 – 0.015 (0.009) (total)	0.003 – 0.010 (0.006) (total)	0.002 – 0.011 (0.0067) (total)	0.003 – 0.06 (0.008) (total)	<0.001 – 0.005 (0.0029) (total)	<0.001 – 0.005 (0.0024) (total)	<0.001 – 0.007 (0.0034) (total)	<0.001- 0.011 (0.004) (total)	<0.001 – 0.004 (0.002) (total)	0.0029 (total)	0.001
	0.001 (dissolved)	<0.001 - 0.001 (0.001) (dissolved)	<0.001 – 0.003 (0.001) (dissolved)	0.001 – 0.001 (0.001) (dissolved)	0.001 – 0.001 (0.001) (dissolved)	0.001 – 0.01 (0.0015) (dissolved)	<0.001 – 0.01 (0.003) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	0.0005 (dissolved)	
Antimony (mg/L)	0.001 (total)	<0.001 – 0.004 (0.0014) (total)	<0.001 – <0.001 (0.001) (total)	0.001 – 0.001 (0.001) (total)	0.001 – 0.050 (0.017) (total)	0.001 – 0.05 (0.017) (total)	<0.001 - <0.001 (<0.001) (total)	<0.001 – <0.001 (<0.001) (total)	<0.001 – <0.001 (<0.001) (total)	<0.001 – 0.007 (0.0027) (total)	<0.001- 0.003 (0.001) (total)	<0.001 – <0.001 (<0.001) (total)	NA	NA (Insufficient data)
	0.001 (dissolved)	<0.001 - 0.001 (0.001) (dissolved)	<0.001 – <0.001 (0.0013) (dissolved)	0.001 – 0.001 (0.001) (dissolved)	0.001 – 0.001 (0.001) (dissolved)	0.001 – 0.0001 (0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	<0.001 - 0.002 (0.001) (dissolved)	<0.001- 0.002 (0.001) (dissolved)	<0.001 - <0.001 (<0.001) (dissolved)	NA	
Zinc (mg/L)	0.012 (total)	<0.005 – 0.038 (0.0074) (total)	<0.005 – 0.04 (0.016) (total)	0.008 – 0.079 (0.036) (total)	0.009 – 0.047 (0.023) (total)	0.006 – 0.047 (0.028) (total)	0.015 – 0.045 (0.027) (total)	<0.005 – 0.020 (0.011) (total)	<0.005 – 0.023 (0.011) (total)	<0.005 – 0.034 (0.013) (total)	<0.005- 0.044 (0.016) (total)	<0.005 – 0.32 (0.011) (total)	0.012 (total)	0.0024
	0.015 (dissolved)	<0.005 – 0.022 (0.0109) (dissolved)	<0.005 – 0.264 (0.035) (dissolved)	0.005 – 0.067 (0.018) (dissolved)	0.005 – 0.03 (0.011) (dissolved)	0.005 – 0.052 (0.014) (dissolved)	<0.005 – 0.017 (0.0064) (dissolved)	<0.005 – <0.005 (<0.005) (dissolved)	<0.005 – <0.005 (<0.005) (dissolved)	<0.005 – 0.006 (0.005) (dissolved)	<0.005 – <0.005 (<0.005) (dissolved)	<0.005 – 0.066 (0.005) (dissolved)	0.00306 (dissolved)	

^ Guideline values in accordance with ANZG 2018.
~ 99% protection level trigger values for toxicants – lakes and reservoirs.
N/A – Not Available.
ANZECC and ARMCANZ (2000) notes that conductivity in lakes is generally low but will vary depending upon catchment geology.
ANZECC and ARMCANZ (2000) notes that lakes in catchments with highly dispersible soils will have high turbidity.
3 Mean value.
Two readings only for December 2010

7.1.3 Key Performance and Management Issues

There were no performance or management issues in relation to surface water during the reporting period.

7.1.4 Further Improvements

No further improvements are proposed for the next reporting period.

7.2 Groundwater

The WMP and the SWGMBMP have been prepared in accordance with Development Consent Conditions 4.4(a) and 4.5(b) (and other relevant Development Consent Conditions) to guide water management and detail the CGO's water monitoring programme, respectively.

CGO manages groundwater in accordance with the Site Water Management System laid out in the WMP. The WMP establishes the following objectives for CGO site water management system including groundwater:

- Prevent quality of any surface water (including waters within Lake Cowal) and groundwater being degraded, through containment of all potentially contaminated water (contained water) generated within CGO and diversion of all other water around the perimeter of site.
- Manage quantity of surface water and groundwater within and around the mine site through appropriate design (i.e., sizing), construction and operation of water management structures.
- Establish a monitoring, review and reporting programme that facilitates identification of potential surface water and groundwater impacts and development of ameliorative measures as necessary, including provision of appropriate compensation measures for landholders affected by changes to flood regime of Nerang Cowal

The groundwater quality results and trends in section 7.2.2.1 illustrate that the water management control measures for containment of mine site water and control of runoff from the IWL and waste rock emplacement appear to be operating effectively to prevent groundwater contamination.

Evolution also holds various licences for monitoring bores, open pit dewatering bores and CGO supply water/production bores.

7.2.1 Environmental Management

Monitoring and management of groundwater during the reporting period has been undertaken in accordance with relevant Development Consent Conditions, the WMP, the SWGMBMP and the EPL 11912.

In order to monitor important background and predicted future water level drawdowns, monitoring bores and piezometers have been installed within ML 1535 and within aquifers potentially affected by CGO (i.e., surrounding BCPC Bore field and ESB) (Figure 7-a and Figure 7-b).

In accordance with the SWGMBMP, groundwater monitoring includes:

- monitoring of bores in aquifers potentially affected by the CGO (drawdown levels); and
- feedback from private groundwater users regarding adverse changes in groundwater quantity.

7.2.2 Environmental Monitoring

Groundwater monitoring locations within ML 1535 are shown in Figure 7-a and regional groundwater monitoring locations shown on Figure 7-b. The CGO water management system is outlined in Figure 7-c.

7.2.2.1 Monitoring Results

A Groundwater Monitoring Annual Review 2024 report has been prepared by SLR Consulting Australia (SLR, 2025a), which provides a detailed description and interpretation of the groundwater monitoring results during the reporting period. Piper Plots of groundwater chemistry of the BCPC Bore field, processing plant area bores, pit area bores and IWL bores are provided on Figure 7-d. Contour maps of the hydraulic head and a cross-sectional interpretation are presented in Figure 7-e and Figure 7-f,

respectively. Key summaries of the groundwater monitoring results presented in SLR (2025a) are provided in the subsections below.

Groundwater Levels

The Cowal groundwater system generally shows a limited and delayed response to rainfall. Within the BCPC borefield there is an inferred relationship where above average rainfall leads to reduced bore field drawdown and partial recovery of groundwater levels. However, in the mine site area, no direct correlation is observed between rainfall and water levels, as groundwater level fluctuations is primarily driven by pit dewatering.

With the exception of BLPR3, groundwater levels in the BCPB area reflect the pumping schedule. Pumping has resulted in a maximum groundwater drawdown of approximately 67 m (in bore BLPR5) since April 2004 with the greatest drawdown recorded in BLPR5 in October 2018. As of December 2024, the average drawdown in the bores (since April 2004) was approximately 38 m. Less impact (drawdown of about 20 m) is observed in BLPR3 due to the higher screened interval of that bore, which intersects the Lower Cowra Formation rather than the Lachlan Formation (SLR, 2025a).

In the CGO mine area, piezometric levels decline toward the pit and show the following features:

- Pit dewatering has resulted in groundwater drawdown in the Pit Area bores of up to approximately 78 m between 2004 and 2024 (lowest groundwater level for PDB3A recorded in May 2018);
- A groundwater level reduction of approximately 45 m in bore PDB3A since late January 2011 is likely induced by the dewatering bores (PD101 to PD103) located in relatively close proximity to monitoring bore PDB3A;
- Vertical hydraulic gradients within the groundwater system are downward indicating some drainage from the Saprock;
- Measured piezometric levels within the transported material tend to change more steadily than those for the Saprolite and Saprock;
- Piezometric levels within the transported material show a greater response to rainfall (and possibly inundation of Lake Cowal) for monitoring bores PDB1B, PDB3B, and PDB5B than the Saprock; and
- Substantial fluctuations in groundwater level have been recorded in the Saprolite and Saprock because of changes in the rate of dewatering and changes associated with pit development.

Localised increase in groundwater levels is observed in the vicinity of the IWL area. In 2009, Coffey was engaged to undertake modelling and assess changes in groundwater level in this area (Coffey, 2009). The calibrated model indicated that increasing groundwater levels south of the TSF (MON02A and MON02B) and east (P412A-R since decommissioned with building the IWL) are related to movement of seepage from the TSF (Coffey, 2009b). It was also assessed that groundwater level rises associated with the TSF are not expected to reach the ground surface (Coffey, 2009). Additional work in 2022 examined groundwater mounding but with a focus on considering both hydrogeological and geochemical analysis, and it found that increased pore pressure has occurred from the weight of the IWL (SLR, 2023b) rather than seepage. In 2023, SLR conducted further investigation into rising groundwater levels surrounding the IWL (SLR, 2023), concluding the increases in groundwater levels surrounding the IWL at Cowal were the result of the compression of aquifer materials below the tailings dams and not the result of tailings seepage. Aquifer compression is due to the high clay content and low hydraulic conductivities of the strata underlying the IWL. This was concluded based on the following evidence.

- Chemically, the elevated groundwater levels do not show any evidence of tailings seepage impact. The current major ion composition of groundwater surrounding the TSFs remained effectively unchanged since prior to tailings deposition in 2006.
- Recognised surface seeps along the Northern IWL tailings dam wall show a significantly different major ion composition compared to the groundwater. Further, tailings decant water, and the reported seeps have substantially lower concentrations of chloride and sodium. Hence,

if seepage would be responsible for groundwater level increases a clear reduction of chloride and sodium concentrations should be evident. This is not the case.

Standing water levels measured during the reporting period are presented in Figure 7-g to Figure 7-k.

Groundwater levels in the ESB have been impacted by groundwater extraction, with periodic pumping often not followed by full recovery of groundwater levels.

- Groundwater levels at bores PZ05 and PZ08 were relatively stable while PZ02, PZ06, PZ07 and PZ10 continue to increase.
- Bores PZ09 and PZ11 showed a general increasing trend in water levels in 2024.
- Until the end of 2024, the water levels in bores PZ02, PZ06, PZ10, and PZ11 have increased to levels similar to those recorded in 2013. Additionally, the water level in bore PZ09 has increased to over 207 mAHD.

In 2023, 10 new UG lake bores were installed for monitoring hydraulic connection beneath Lake Cowal. All ten bores were installed to include telemetry logging units for water level, EC, pressure head, and temperature. For the majority of 2024, groundwater levels in the lake bores all show stable levels.

Groundwater Quality

Variations in groundwater chemistry can be due to natural climatic conditions such as drought and changes in groundwater level due to pit dewatering or water supply pumping, or possible anthropogenic inputs such as the introduction of cyanide in the gold extraction process. Possible reasons for changes in water quality are discussed below.

Physiochemical parameters pH and EC can fluctuate significantly but have generally remained in the same ranges since mining operations began in 2004. ANZG (2018) default guideline values for pH range from 6.5 to 8 and are based on values for NSW upland rivers. Some pH results are consistently below the guideline value of pH 6.5. However, pH levels have generally remained stable since baseline measurements have been taken, which predate any mine activity. These slightly acidic to neutral measurements are similar to baseline EIS levels.

EC results have generally remained stable and are similar to, or higher than, the baseline EIS levels for all monitoring bores. The only exemption being Pit Area bore PDB1B, which showed a decline in groundwater EC. This decline is likely due to freshwater influence, either as direct surface water ingress or the influence of a seasonal shallow groundwater contributing to the deeper aquifer. The EC levels in bore PZ11 within the ESB area have shown a general increasing trend but remains within the range of other ESB monitoring bores, this is likely due to water level recovery mobilising minerals or chemical constituents.

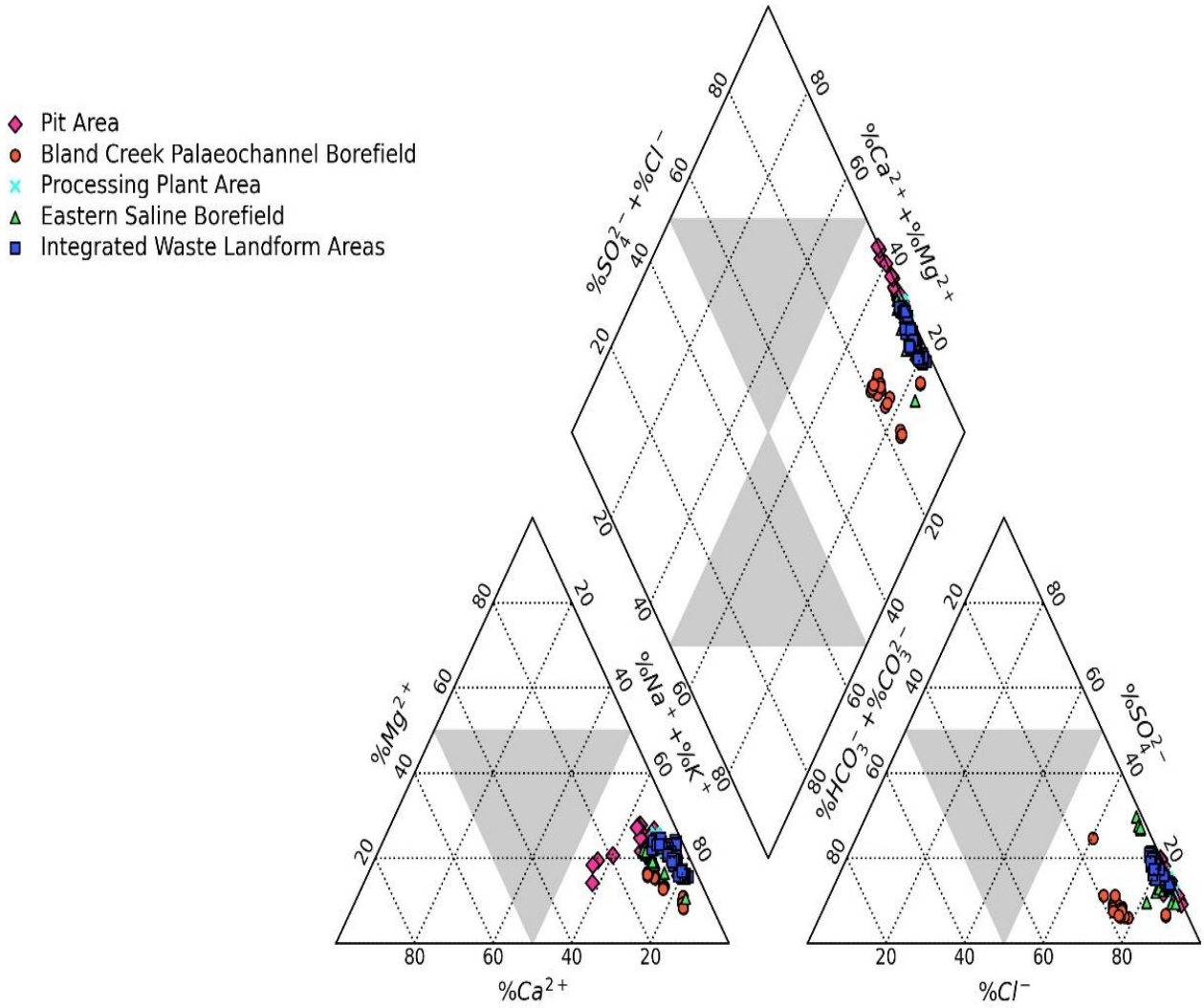
Trends in major ions have generally remained stable, though statistical analyses suggest slight increases in sodium concentrations for one of the seven BCPB bores (BLPR2) and three of the monitoring bores in the IWL area (P417B, IWL05A, and IWL05B), while Pit Area Bore PDB1B showed a significant decrease in sodium concentrations. Overall, there is in general, a broad decreasing trend of sodium concentrations in most bores since about 2010. Prior to this (2004-2010) sodium concentrations increased. These trends are stronger for the mine site than they are for the BCPB and ESB. This suggests that the cause for the initial increase may be related to severe drought conditions between 2004 and 2010. Groundwater with higher TDS, in high evaporation climates, is more prone to impact by drought conditions.

Mine site sulphate concentrations appear to show a similar trend to sodium concentrations, suggesting a general decline in concentrations across the mine site since about 2010. Again, Pit Area bore PDB1B showed a significant decline in concentrations, suggesting either the influence of fresh water as direct surface water ingress or the influence of a seasonal shallow groundwater contributing to the deeper aquifer. Regardless, there were statistical increases in sulphate concentrations in 7 operational bores, none of which are considered significant.

Around the IWL Area, where groundwater levels have been increasing since tailings deposition commenced in 2006, only copper and the siderophile elements iron, manganese nickel and molybdenum show an increase. Concentrations of the other metals (cadmium, lead, selenium, and zinc) together with sulphate, sodium, and bicarbonate remained unchanged since the start of measurements in 2005. If seepage was the cause of rising groundwater levels around the IWL Area, the sulphate and sodium concentrations would have likely remained static. Instead, the increase of only siderophile elements suggests that the increase in groundwater levels is mainly due to an increase in hydrostatic pressure asserted by the IWL on the low hydraulic conductivity aquifer below. The resulting increase in groundwater levels will submerge secondary iron and manganese mineral in the weathered strata and at the same time will result in a change in geochemical conditions from mainly oxidised to anoxic. Under anoxic conditions the secondary iron and manganese minerals will become unstable and dissolve, releasing iron, manganese, nickel, and molybdenum into the groundwater. The presence of copper may be explained by the uptake of copper during the initial formation of secondary iron and manganese minerals. Upon dissolution of these, copper will also be released (SLR, 2023).

There were no cyanide detections in the groundwater monitoring network from 2013 to 2024 with the exception of 2019. The last detection of cyanide was in three bores on 15 October 2019 but when resampled ten days later all bores were found to be below the level of detection. During July 2024, the laboratory applied a higher than usual LOR of 0.008 mg/L for two groundwater monitoring samples. Both sampling results for these bores were reported as below the LOR (<0.008), meaning there were no confirmed cyanide detections during the 2024 monitoring period. The increase in the LOR was due to analytical constraints rather than an actual change in groundwater quality. During 2024 reporting period, no cyanide detections were recorded in the groundwater monitoring network.

Monitoring of cyanide concentrations across the mine site will be continued.

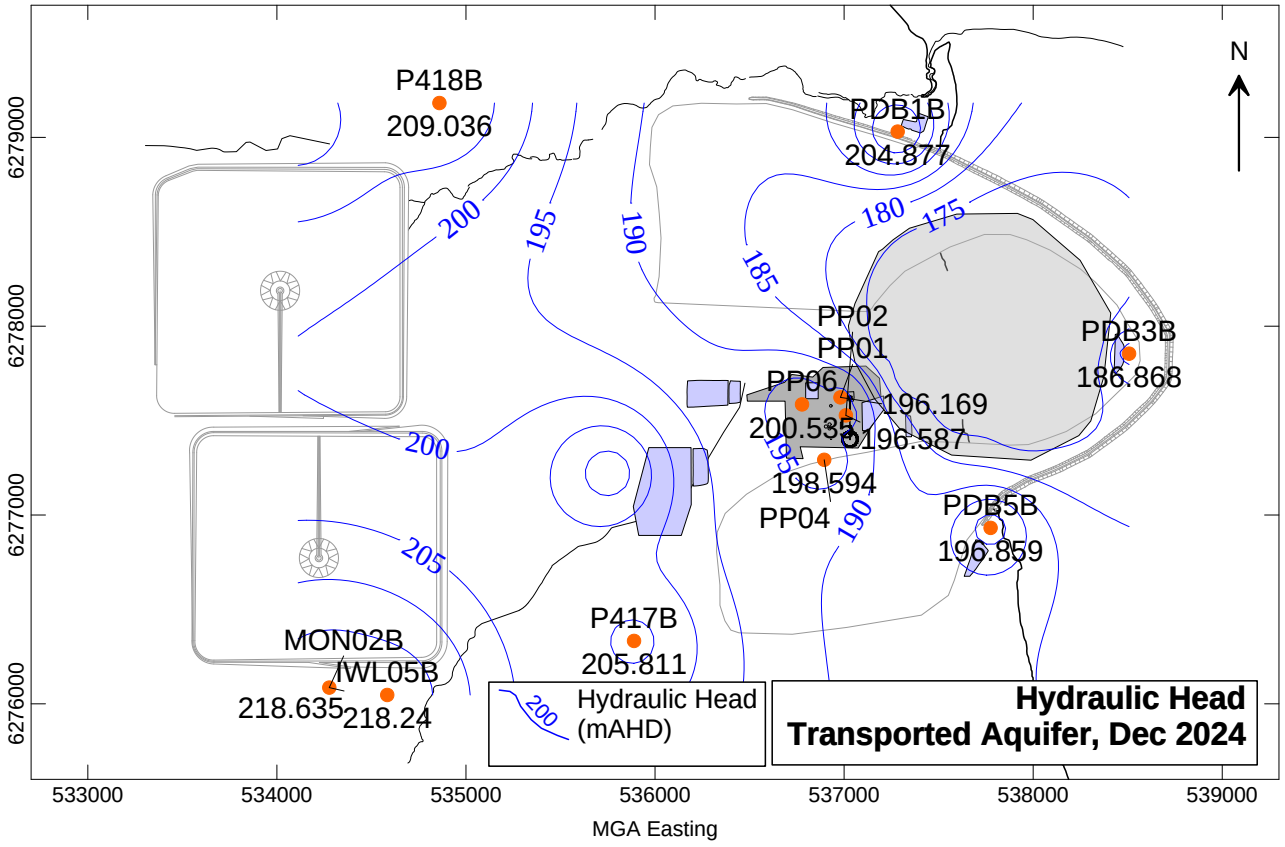


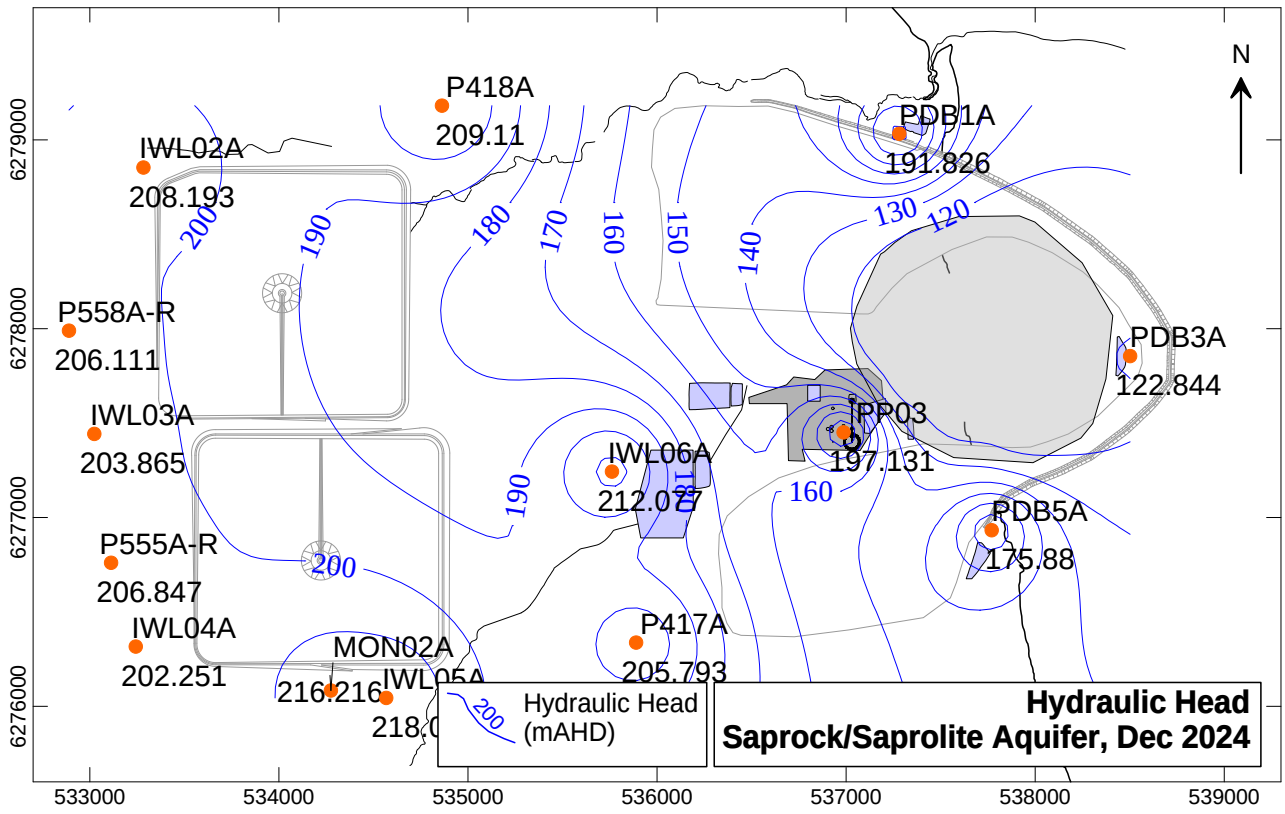
Source: SLR (2025)

Annual Review 2024

FIGURE 7-d

Piper Plot of Groundwater Chemistry





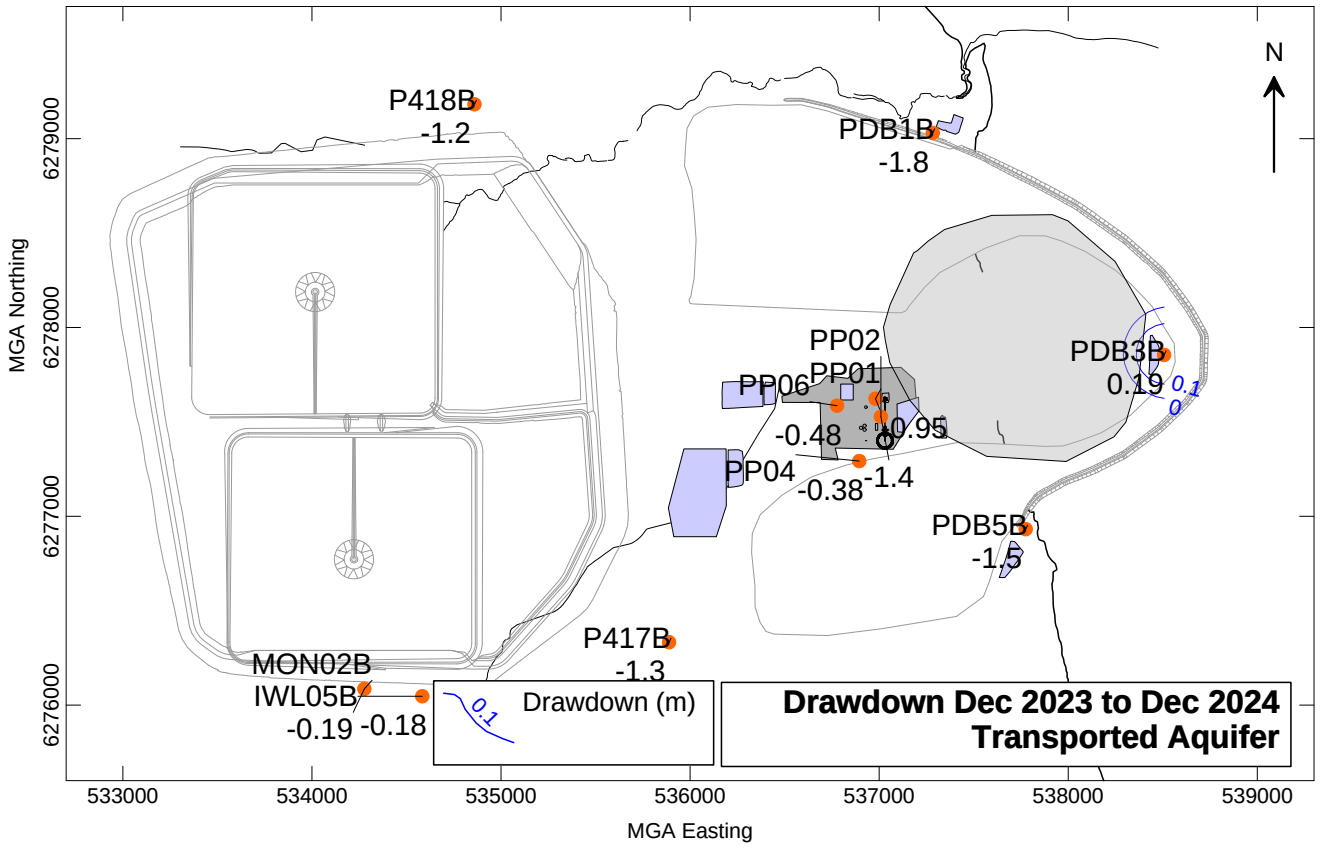
Source: SLR (2025)

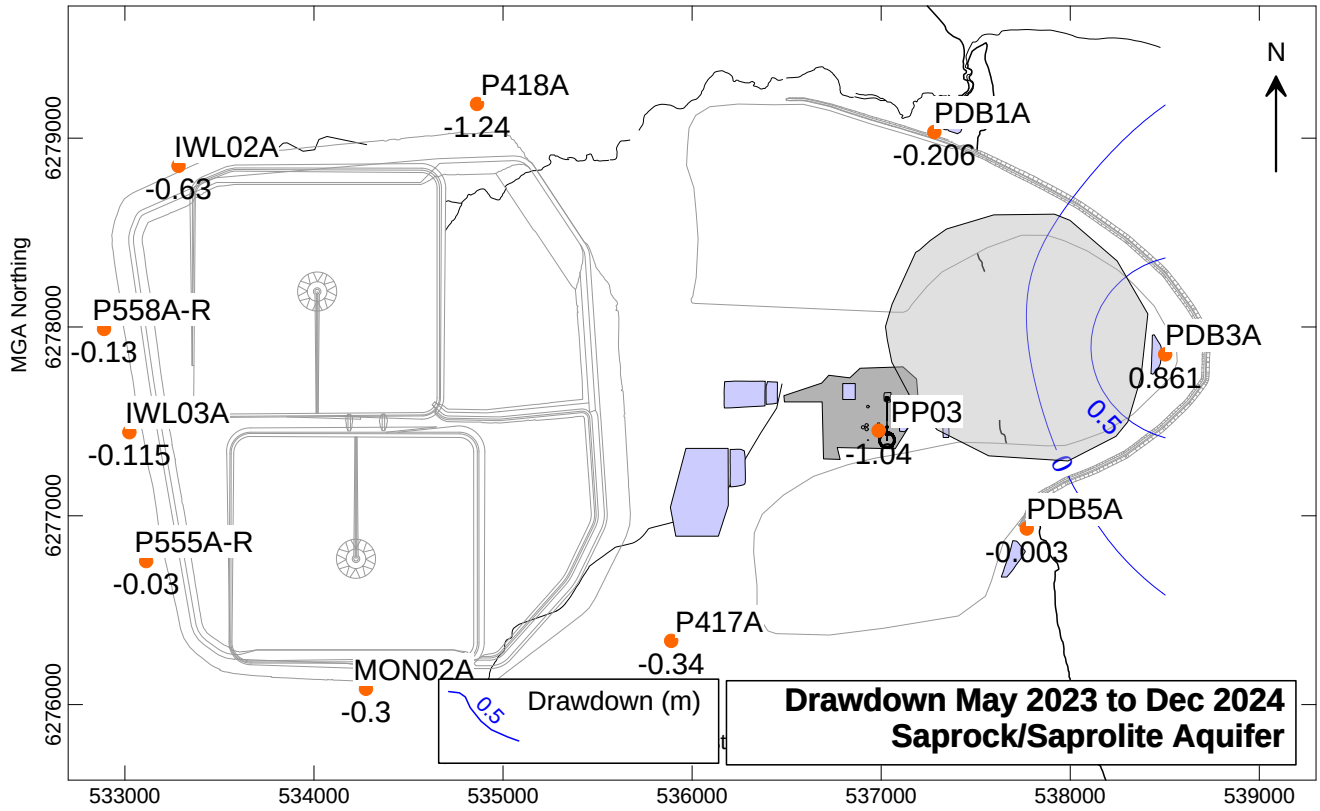
Annual Review 2024

FIGURE 7-e

Hydraulic Head (mAHD), Dec 2024

Evolution MINING Cowal





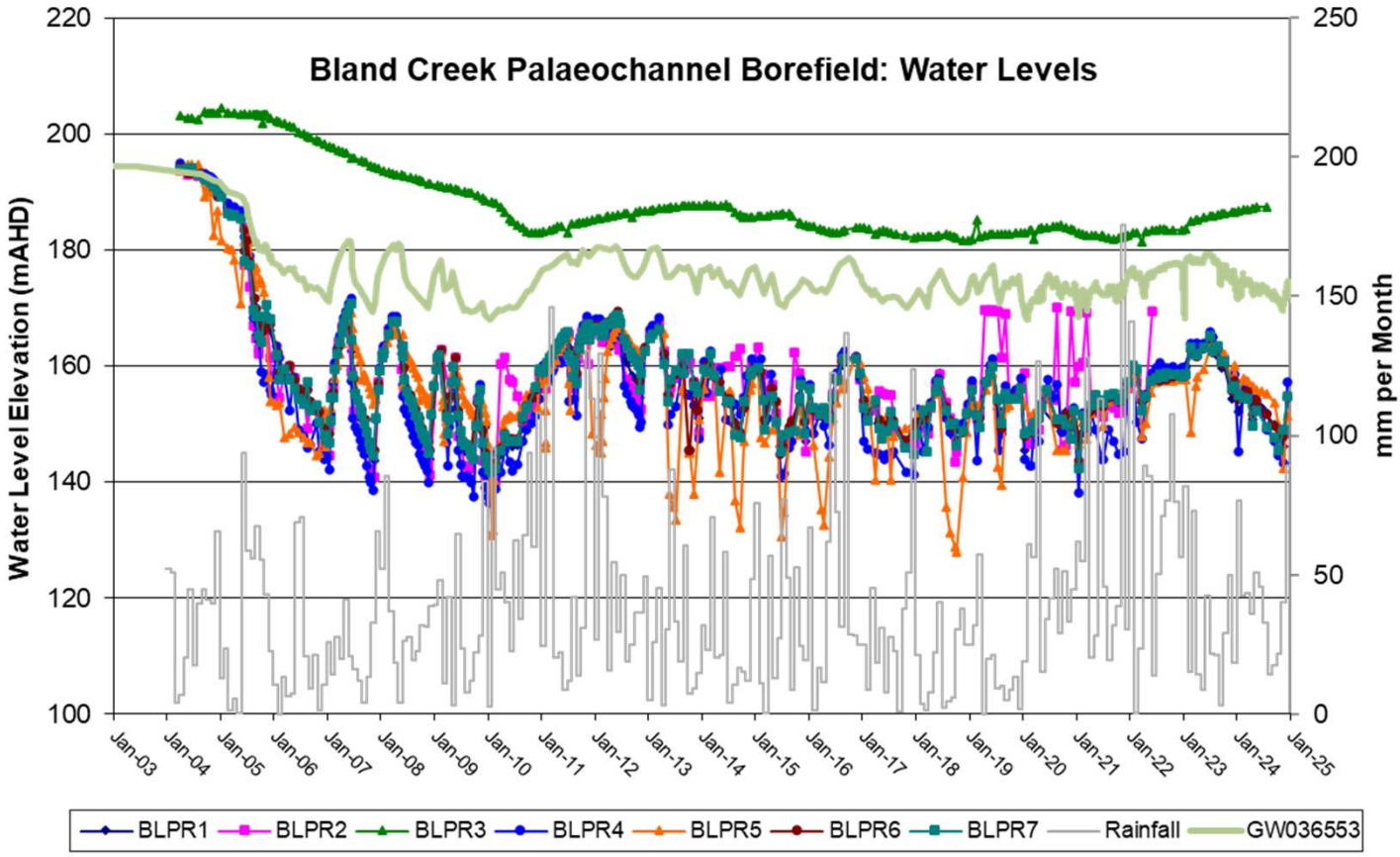
Source: SLR (2025)

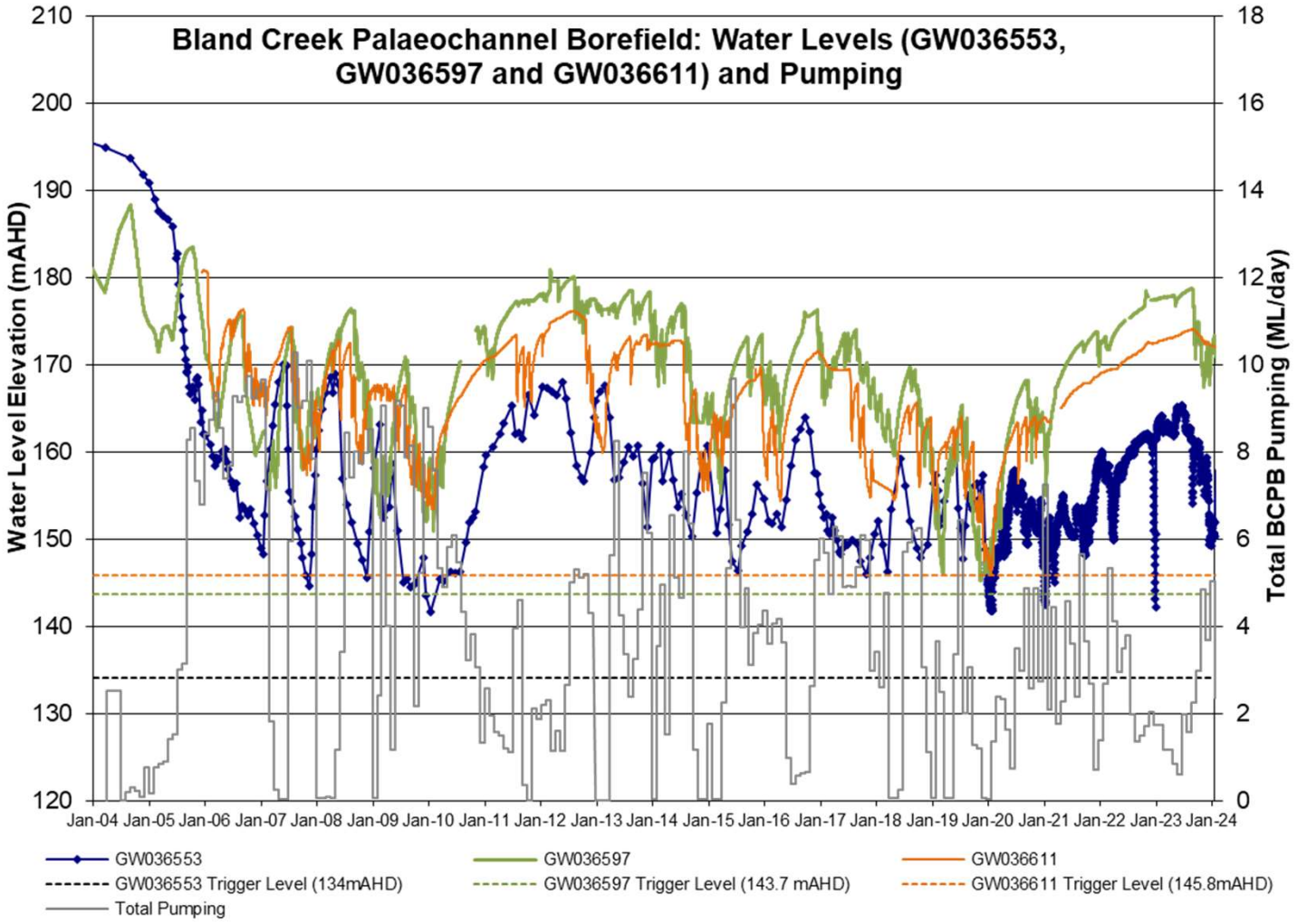
Annual Review 2024

FIGURE 7-f

Groundwater Drawdown (m)
May 2023 - Dec 2024

Evolution MINING Cowal





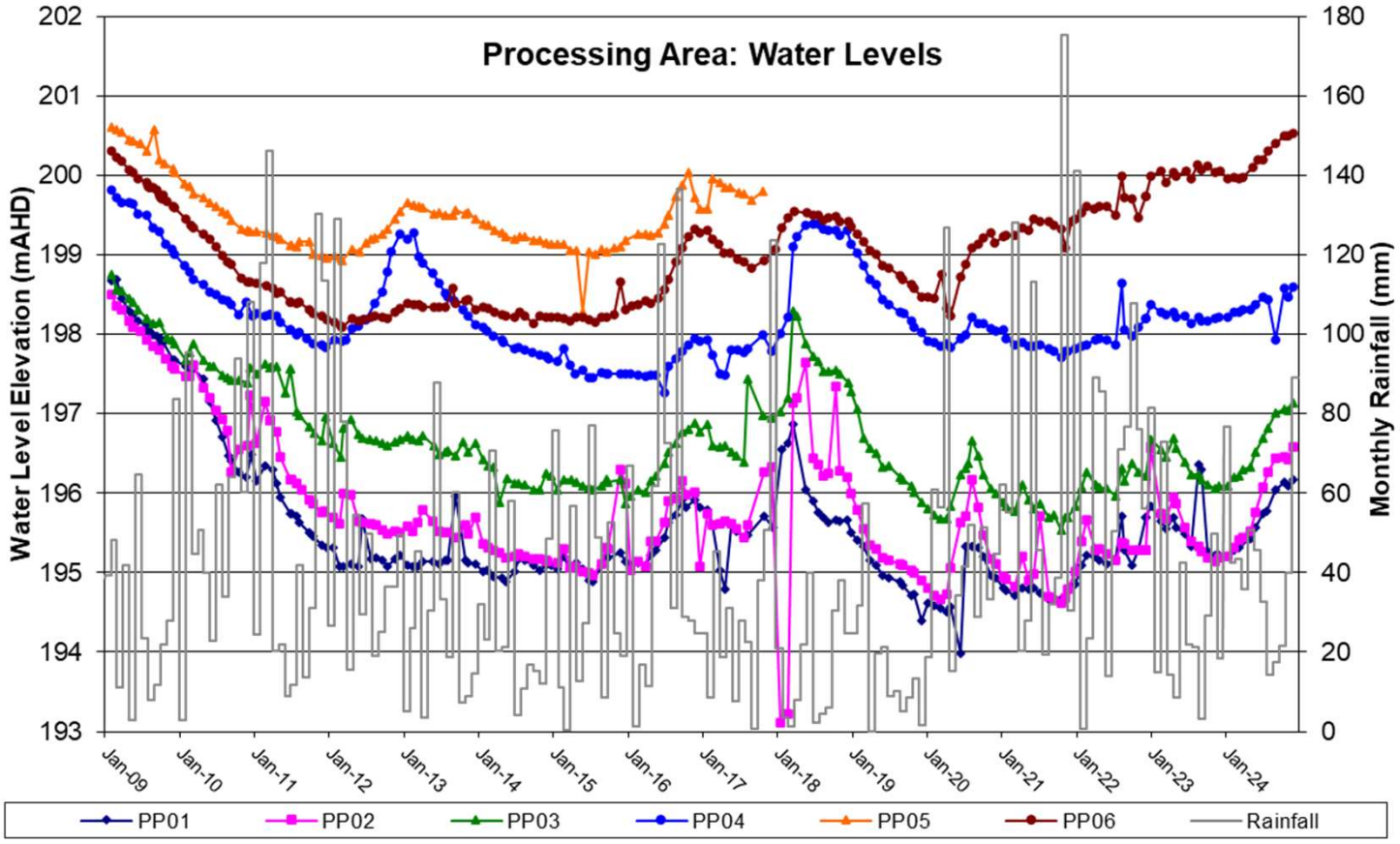
Source: SLR (2025)

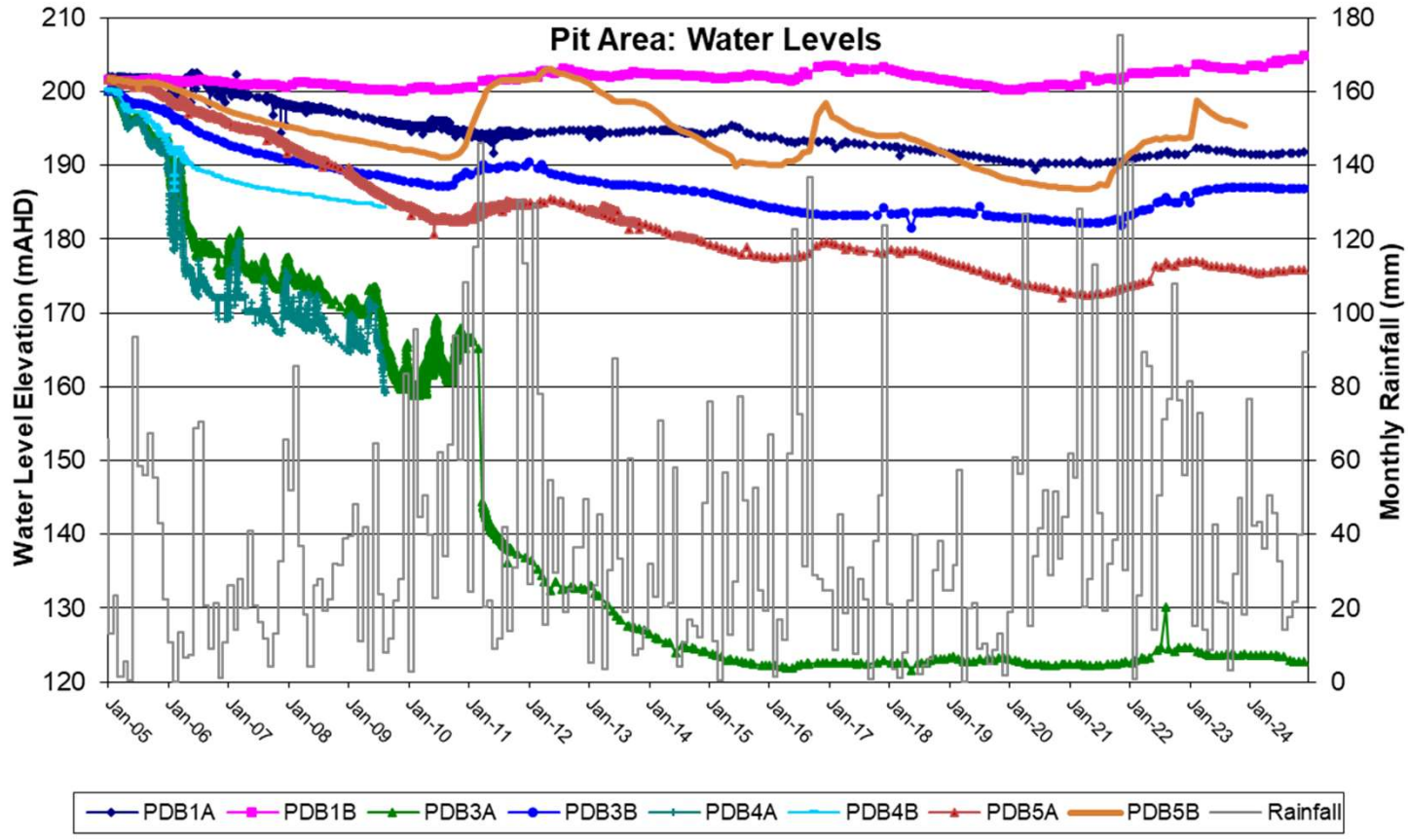
Annual Review 2024

FIGURE 7-g

Standing Water Levels Measured During the Reporting Period

Evolution MINING Cowal





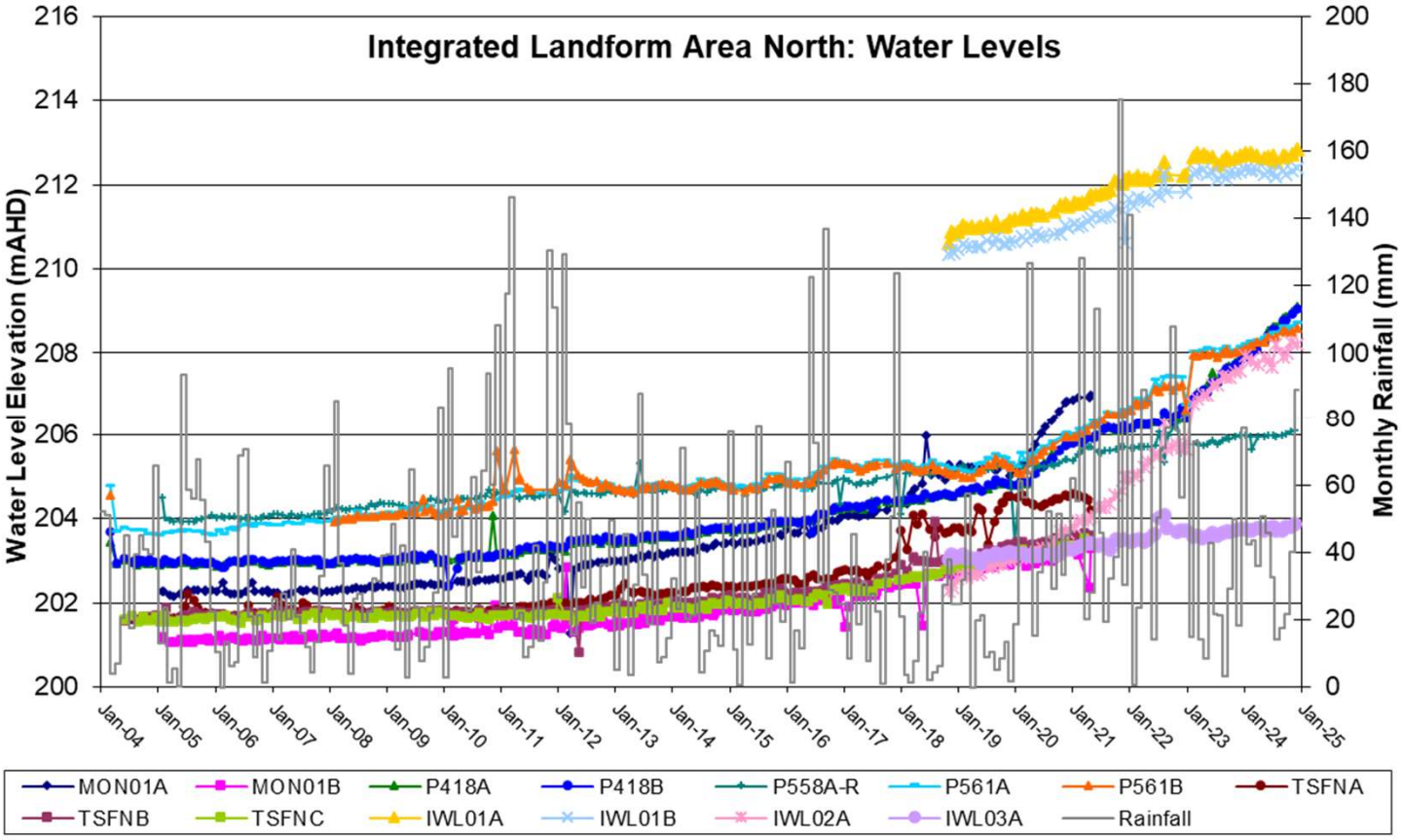
Source: SLR (2025)

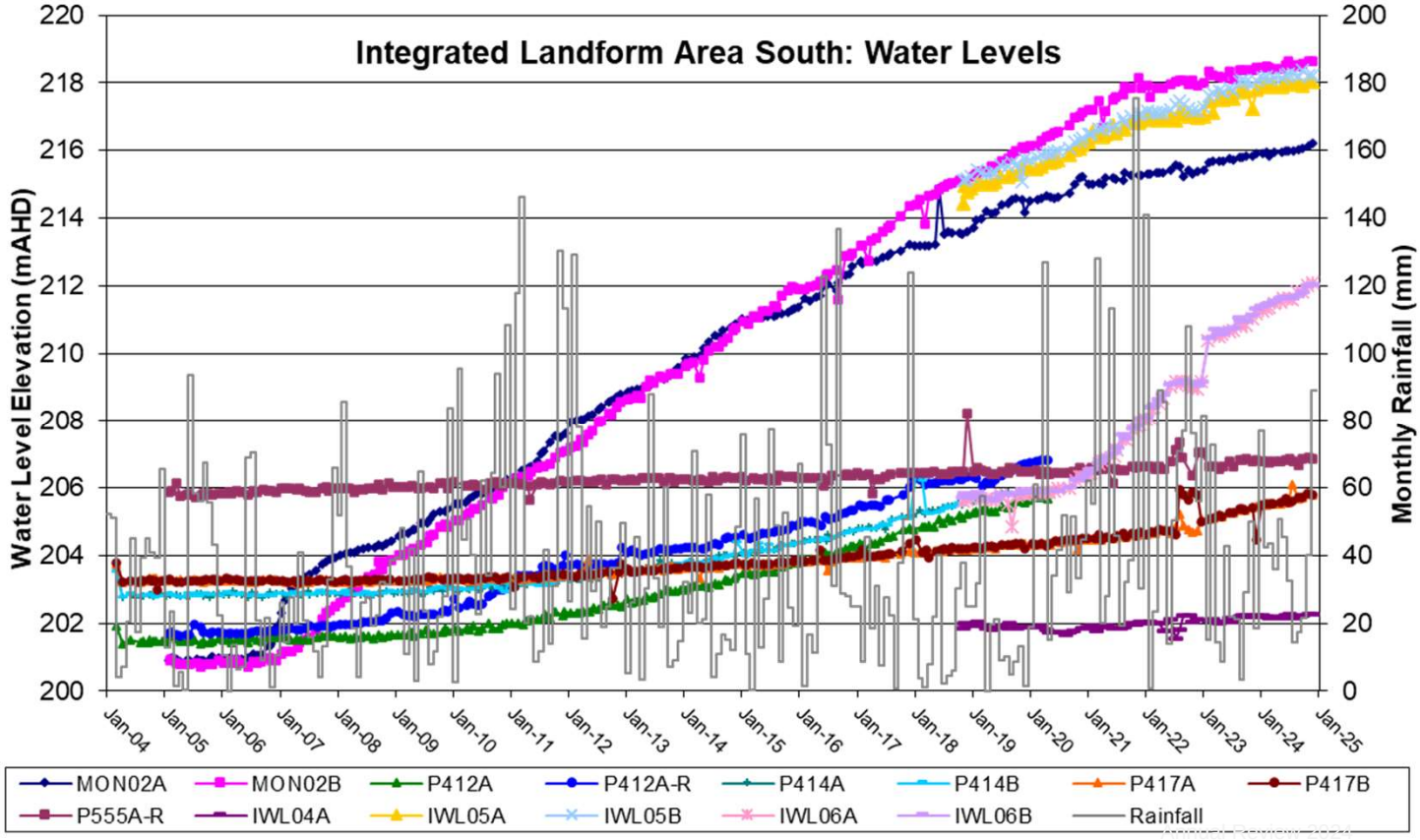
Annual Review 2024

FIGURE 7-h

Standing Water Levels Measured During the Reporting Period

Evolution MINING Cowal





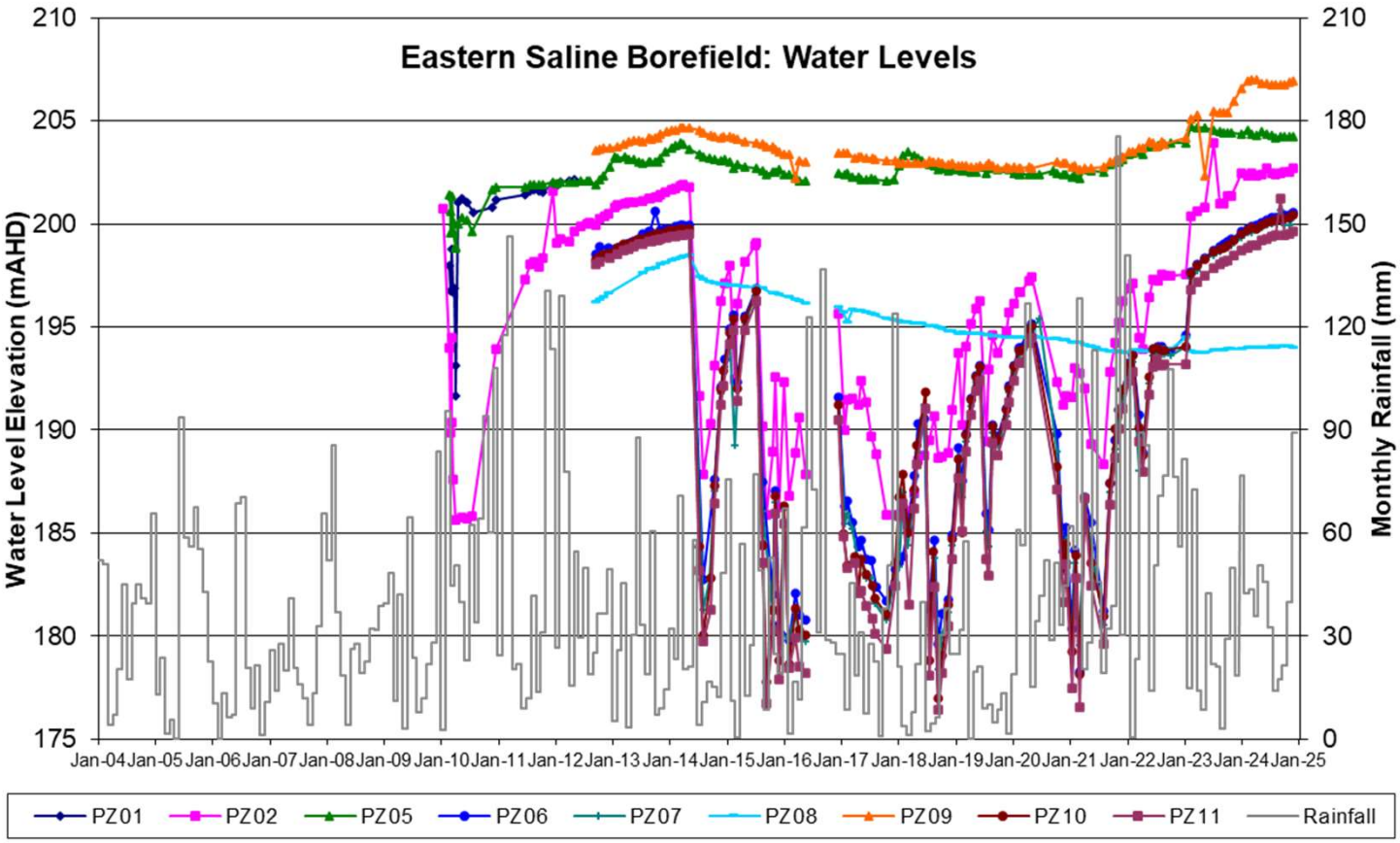
Source: SLR (2025)

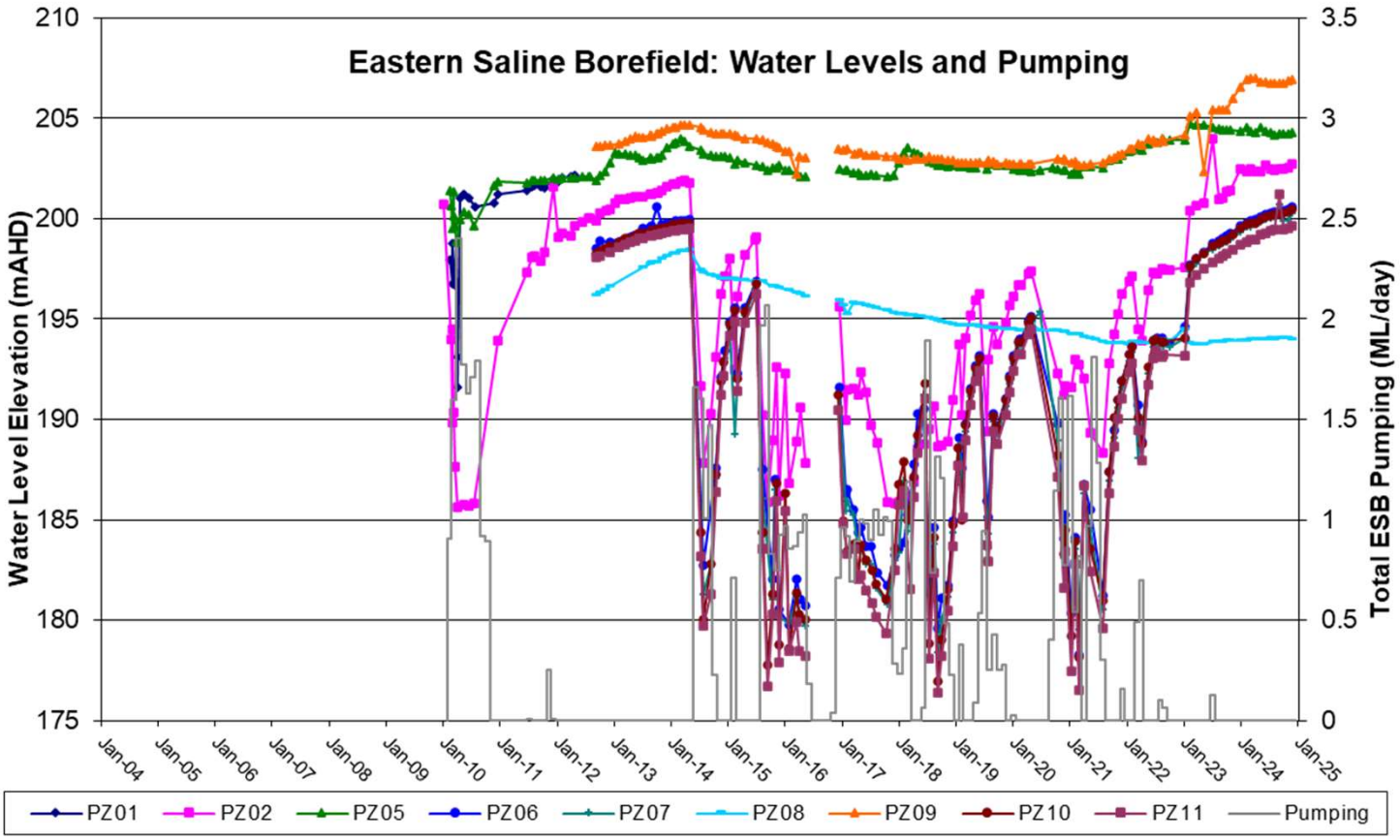
Annual Review 2024

FIGURE 7-i

Standing Water Levels Measured During the Reporting Period

Evolution MINING Cowal





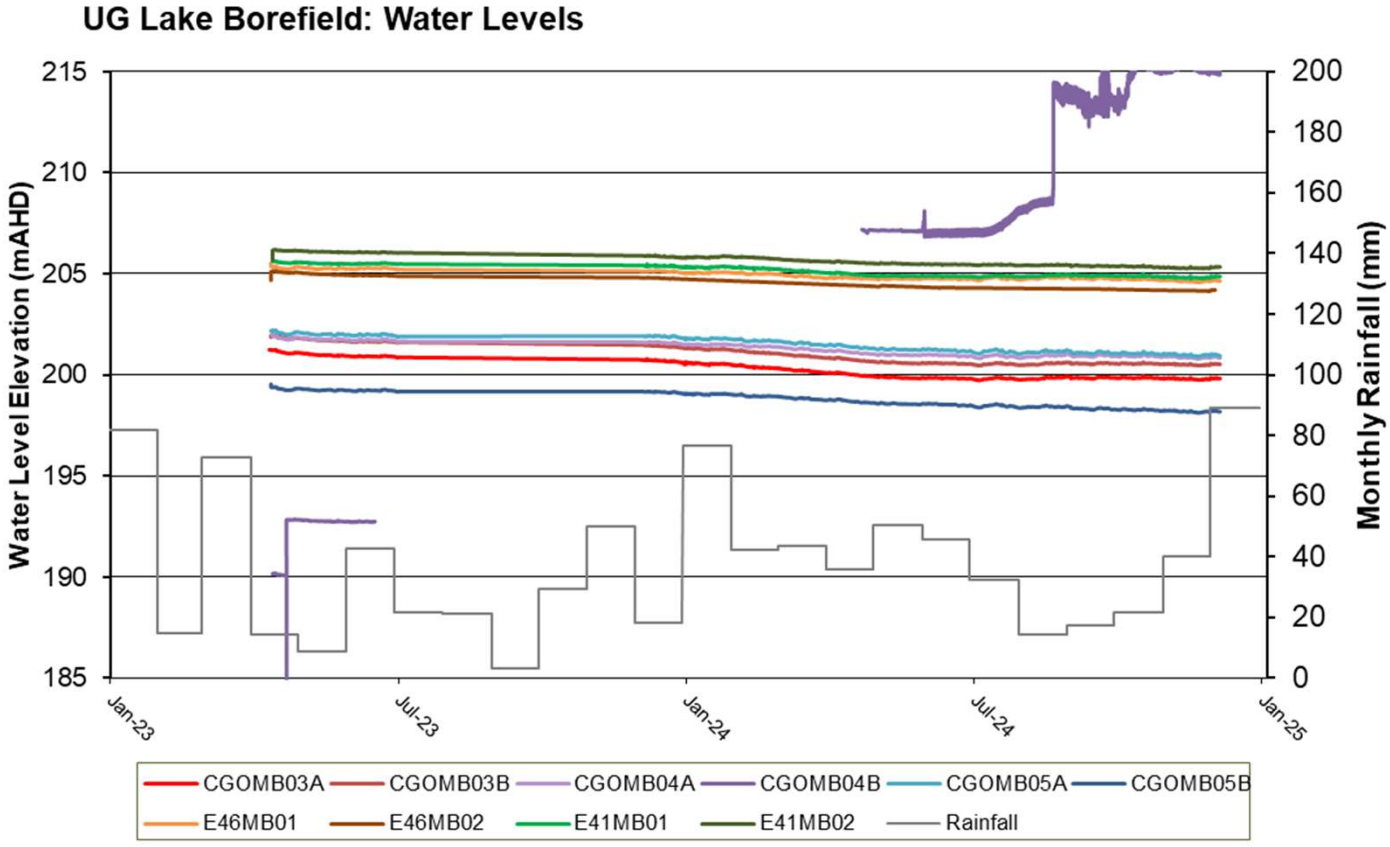
Source: SLR (2025)

Annual Review 2024

FIGURE 7-j

Standing Water Levels Measured During the Reporting Period

Evolution MINING Cowal



Source: SLR (2025)

Annual Review 2024

FIGURE 7-k

Standing Water Levels Measured During the Reporting Period

Evolution MINING Cowal

8 REHABILITATION

Condition 2.4(c) of DA 14/98 and condition B24 of SSD 10367 requires Evolution to prepare a Rehabilitation Management Plan (RMP). The RMP was updated in 2023 in line with Rehabilitation reforms using the 'Form and Way: Rehabilitation Management Plan (large mines)' as a guideline.

CGO operated in accordance with an approved RMP. The RMP includes a rehabilitation monitoring programme that was developed to monitor the effectiveness of the short, medium and long-term mine site rehabilitation measures and progress against performance and completion criteria.

Monitoring and management of rehabilitation areas was undertaken during the reporting period in accordance with relevant conditions in the Development Consent, ML 1535, ML 1791, and the RMP.

8.1 Rehabilitation Of Disturbed Land

A review of rehabilitation and disturbance data as completed in 2024, in alignment with the requirements of the Resources Regulator Operational Rehabilitation Reforms. Under the new framework, the total active disturbance area for ML 1535 and ML 1791 was measured to be 1598 ha at the end of the reporting period.

A summary of rehabilitation undertaken at the CGO during the reporting period is described below:

- NWRE – North Wall - continued monitoring on all lower, mid and upper batters, post seeding.
- SWRE – South Wall - continued monitoring on all lower, mid and upper batters post seeding.
- SWRE – South Wall (rock – topsoil trial plots) ongoing monitoring of the direct seeding of November 2011.
- Temporary Isolation Bund and Lake Protection Bund - road and weed maintenance where possible.
- Commencement of shaping and Landform Establishment activities along the southern and western batters of the IWL.
- Construction of capping trials on the STSF beach with varied depths of rock and growth medium.

Table 8-a provides a summary of rehabilitation activities at CGO during the reporting period. The table includes details of rehabilitation at the start of the reporting period and estimated for the next report.

Table 8-a - Rehabilitation Summary.

	Area Affected/Rehabilitated (hectares)		
	Previous ReportingPeriod (2023)	**Current ReportingPeriod (2024)**	**Next Reporting Period (estimated) (2025)**
A Total Mine Footprint	1,598	1,598	1,598
B Total Active Disturbance	1,421.36	1,421.36	1409.82
C Landform Establishment	15.14	15.14	15.14
D Ecosystem and land use establishment	140.02	140.02	140.02
E Ecosystem and land use development	21.18	21.18	21.18
E Completed Rehabilitation	0	0	0

All disturbed areas/structures had temporary erosion and sediment control measures implemented during construction in accordance with the ESCMP. Control measures included temporary sediment traps, sediment filters, diversion banks and silt fences. Further detail of erosion and sediment control measures for these areas/structures is described in the ESCMP.

During the reporting period the southwestern wall of the IWL continued landform establishment and progressive rehabilitation. Current status of mining and rehabilitation is shown in Figure 8-a.

Annual rehabilitation (and visual) monitoring of revegetated landforms is conducted to ensure vegetation is establishing and to determine need for any maintenance and/or contingency measures (such as requirement for supplementary plantings, erosion control and weed control). The rehabilitation works are subject to ongoing independent consultant review of effectiveness.

Progressive rehabilitation of each key final landform will continue to be undertaken in accordance with relevant environmental assessments and approvals and the RMP.

Rehabilitation
- Landform Establishment
- Ecosystem and land use development
- Ecosystem and land use establishment

Disturbance
- Beneficiation Facility
- Infrastructure Area
- Other
- Overburden Emplacement Area
- Tailings Storage Facility
- Active Mining Area (Open cut void)
- Water Management Area

ANNUAL REVIEW 2024

Figure 8-a
Current Status of Mining and Rehabilitation

0 0.5 1 km

Evolution MINING

8.1.1 Perimeter Waste Rock Emplacement (PWRE)

The PWRE has been constructed to approximately 223 mAHD and surrounds the open pit to north, east and south (Plate 2). The emplacement occupies an area of approximately 60 ha and forms part of the series of embankments (i.e. Temporary Isolation Bund and Lake Protection Bund (Plate 2)) between the open pit and Lake Cowal. Emplacement elevation has been designed to reduce potential noise and light impacts of mining and processing on the surrounding environment and sensitive receptors.

No areas of the PWRE were further rehabilitated during the reporting period, however, areas were monitored for stabilisation and effectiveness of seeding during 2024 reporting period.

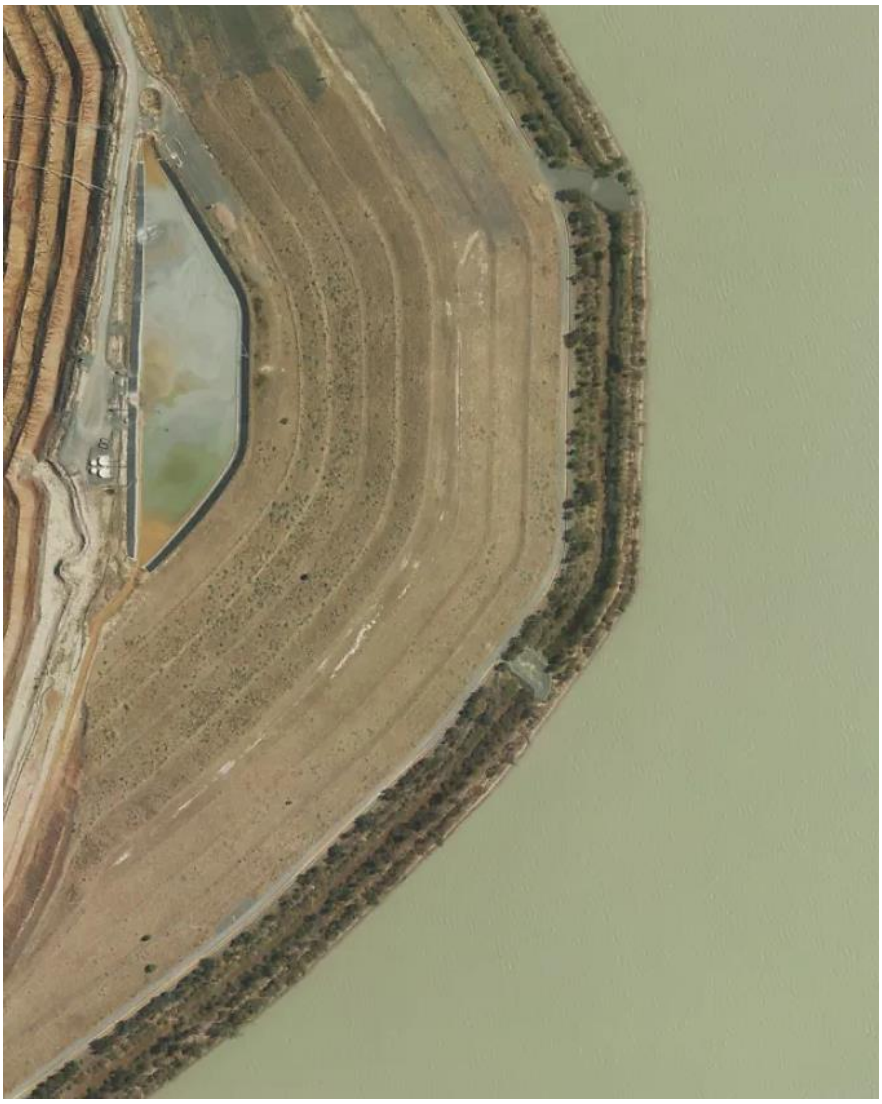


Plate 2 - Aerial View Perimeter Waste Rock Emplacement (February 2025)

8.1.2 Northern Waste Rock Emplacement (NWRE) – Outer Batters

The NWRE is approved to be constructed to approximately 308 mAHD and will occupy an area of approximately 313 ha northwest of the pit (Plate 3).

No additional rehabilitation was conducted on the NWRE during the reporting period. Monitoring of previously rehabbed areas continued throughout the reporting period, focussing on tube stock that had be supplementary planted.

Plate 3 - Aerial View Northern Waste Rock Emplacement (February 2025)

8.1.3 Southern Waste Rock Emplacement (SWRE) – Outer Batters

The SWRE is approved to be constructed to approximately 283 mAHD and will occupy an area of approximately 185 ha southwest of the pit. The SWRE was constructed predominately with oxide waste and is encapsulated with waste rock armour.

No additional rehabilitation was conducted on the SWRE during the reporting period. Monitoring of previously rehabilitated areas continued throughout the reporting period.

8.1.4 Integrated Waste Landform (IWL) encapsulating the original Northern and Southern Tailings Storage Facility (TSF) – Starter Embankments and Lifts

Historical rehabilitation in the lower NTSF and STSF batters has since been inundated through the commissioning of the IWL. The construction of IWL primarily used waste rock and therefore will provide protected from erosion.

The IWL Southwestern walls became available for rehabilitation, and landform formation commenced in 2023 and continued throughout 2024. Landform formation will continue throughout the 2025 monitoring period.

Plate 4 - Aerial View - Southern Waste Rock Emplacement (February 2025).

8.1.5 Boundary Amenity Plantings

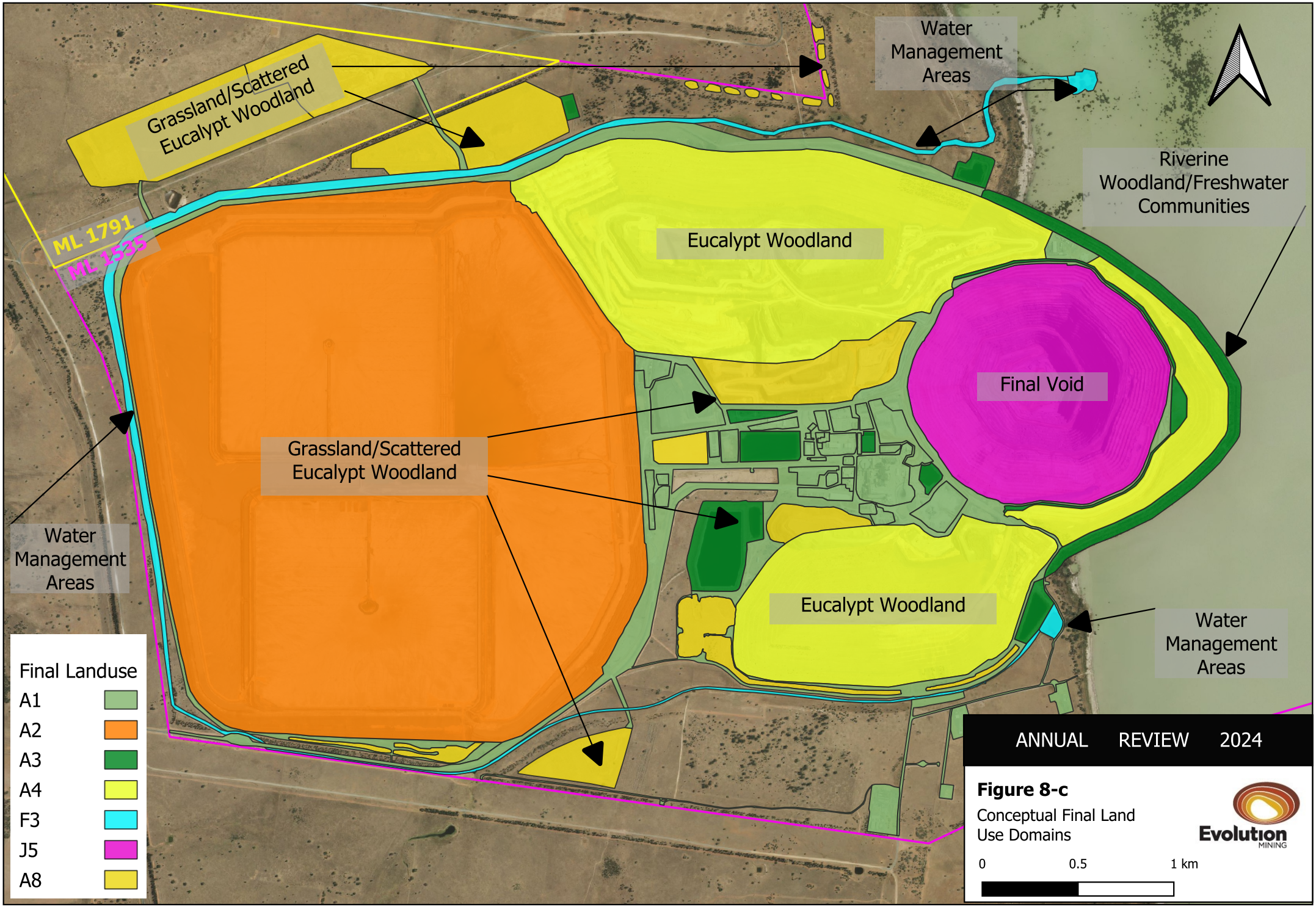
Inspections of vegetation screening surrounding CGO identified no additional tube stock were required to be planted during the reporting period, as there was no disturbance to the current established tree screens. This will continue to be reassessed as disturbance to tree screens for approved development occurs and additional planting will be investigated and may be implemented in future reporting periods.

8.2 Rehabilitation Monitoring Results

Monitoring within the active rehabilitation areas was undertaken by DnA Environmental (2025c) during the reporting period. A summary of the results from this monitoring survey are outlined below. The location of rehabilitation offset and RVEP monitoring sites and the indicative location of soil stockpiles are presented in Figure 6-f Figure 8-b. Conceptual Final Land Use Domains, developed in accordance with the requirements of the 2022 Operations Rehabilitation Reforms, are presented on Figure 8-c. For the purposes of Figure 8-c, Final Land Use Codes represent the following descriptions:

- A1 – Native Ecosystem (former infrastructure Area)
- A2 - Native Ecosystem (former Tailings Storage Facility)
- A3 - Native Ecosystem (former Water Management Area)
- A4 - Native Ecosystem (former Overburden Emplacement Area)
- A8 – Native Ecosystem Other (Stockpiles)
- F3 – Water Management Area (to be retained)
- J5 – Final Void (to be retained)


ML 1791
ML 1535
Stockpile Locations
Subsoil
Topsoil
ANNUAL REVIEW 2023
Figure 8-b
Indicative Location of Soil Stockpiles
Evolution MINING
0
0.5
1 km


Water Management Areas
Grassland/Scattered Eucalypt Woodland
Riverine Woodland/Freshwater Communities
ML 1791
ML 1535
Eucalypt Woodland
Final Void
Grassland/Scattered Eucalypt Woodland
Water Management Areas
Eucalypt Woodland
Water Management Areas
Final Landuse
A1
A2
A3
A4
F3
J5
A8
ANNUAL REVIEW 2024
Figure 8-c
Conceptual Final Land Use Domains
Evolution MINING
0
0.5
1 km

8.2.1 Waste Rock Emplacement Monitoring Results

The range of ecological monitoring data in 2024 indicated there have been significant ecological and chemical changes occurring within rehabilitation areas, largely as a result of volunteer colonization of exotic annual grasses especially *Lolium rigidum* (Wimmera Ryegrass) and/or *Avena fatua* (Wild Oats). While Lolium and Avena are typically hayed off during annual monitoring period, dead leaf litter has been accumulating to provide a thick mulch cover across much of the rehabilitation areas. This has been essential not only to provide stability, but accumulating and decomposing litter assists with development of soil surface profile, reducing soil hardness, increasing soil coherency and improving water infiltration capacity of rather unstable, nutrient poor soils.

The data also indicates that volunteer native perennial grasses and saltbushes have been increasing in abundance across most WREs as the rehabilitation areas develop. Both rehabilitation sites on the PWRE have had an ecological function higher than all woodland reference sites, while NWRE01 and NWRE02 were more functional than Dwyer's Red Gum woodland this reporting period. Three sites were only marginally lower than woodland reference sites, while NWRE05, SWRE03, and NWRE03 continue to have low ecological performance and continue to be developing at a much slower rate and is likely to be implicated with adverse soil chemistry. Drier conditions and increased grazing and disturbances by macropods has reduced levels of ground cover and this was most evident in areas containing shady trees and shrubs in areas less disturbed by mining activity.

Tree and shrub densities continue to be very low or absent across most of the WREs, while all rehabilitation sites had an adequate cover of perennial ground covers. Due to the drier conditions, there has been a decline in active plant growth and annual plant covers were sparse, resulting in a simultaneous increase in dead leaf litter which remained the dominant form of protective ground cover, while there may have been scattered pockets of cryptogam and rocks. Floristic diversity has declined this year, and with very low diversity recorded in Dwyer's Red Gum woodlands, all rehabilitation areas met total floristic diversity targets. Most rehabilitation sites had a higher diversity of exotic species, however native plants provided 54 – 73% of the live plant cover across the range of sites and remained weedier than desired.

In the rehabilitation sites, there has continued to be a high diversity of herbs and grasses, and there was a good variety of sub-shrubs across the range of sites, with one reed also recorded on the PWRE. There continued to be a lack of tree species in all rehabilitation sites except NWRE03, while numerous sites also had a low diversity of shrubs and often these were species associated with the woodlands on slopes. The native grass *Walwhalleya proluta* (Rigid Panic) continued to be the most abundant species across all rehabilitation sites and has become successfully established across the WRE.

Newer areas of rehabilitation are showing some active erosion but as plant establishment continues it is anticipated that these will also stabilise. At PWRE02, one sink hole continued to be observed in the monitoring plot, with there being potential for more to be present across the slope. At SWRE02 there continues to be one active rill, however its cross-sectional area has declined. This year, there has been a decline in cover in NWRE05 with two active rills recorded.

EC, Exchange Sodium Percentage (ESP) and Sulfur (S) are naturally occurring in geology of the area and below levels of concern for formation of Acid Rock Drainage. However, these parameters are known to inhibit vegetation growth and CGO tracks EC, ESP and S values in WREs against relevant guidelines (agricultural and reference sites) as an indicator of future revegetation success.

The soils in the rehabilitation sites were slightly to strongly alkaline, low organic matter, phosphorous (P), low ESP and most had high Cation Exchange Capacity (CEC) and Nitrogen (N) similar to local woodlands. EC has declined to acceptable levels in many monitoring locations, except in NWRE05 and SWRE03 which remained moderately saline. In NWRE05, ESP has decreased however soils continue to be sodic. Previous soil analysis displayed S) concentrations were excessively high in numerous rehabilitation sites. Follow up analysis indicated S concentrations have typically declined each year however S remained elevated in PWRE02 and SWRE04.

Improved soil testing, management selection and placement of materials to be used in rehabilitation should be undertaken, with a particular emphasis for the need to use benign waste rock and healthy topsoil. Soils with a proven seedbank of ground cover species should be a priority topsoil resource, even if they contain an abundance of exotic seeds.

8.2.2 Rehabilitation Trial Monitoring Results

The NWRE rehabilitation trial objective was to assess effectiveness of a variety of rehabilitation treatments, or combinations of treatments, known to improve rehabilitation objectives using a replicated experimental design. The design incorporated “standard” procedures including rock mulch, topsoil, gypsum, and a sterile cover crop, essential for rehabilitating saline, sodic, and dispersive soils in semi-arid environments. The trial also sought to determine adequate rehabilitation outcomes could be obtained by reducing topsoil depth from the recommended 300mm while meeting ecological targets. Additionally, it assessed effectiveness of different mulches, such as wheaten straw and seed-bearing native hay, for erosion control and seed application, along with native tube stock planting to observe shrub and tree survival. Due to challenges with timing and achieving uniformity in the experimental design implementation, results showed high variability and should be interpreted with caution.

The density of seedlings recorded in the trial sites varied significantly between treatments and two years after sowing in 2019. The highest densities in 2019 were recorded in areas with freshly applied topsoil on both the NWRE and SWRE. Although there has been a slight decline since 2019, these areas still maintain higher densities due to limited grass cover and the absence of hard surface crusts. Additionally, seedling densities were higher on the NWRE, where exposed large rocks provided stability and suitable microsites for establishment.

In 2024, there was little difference between trial treatments at either WRE, however ground cover was significantly lower on the SWRE largely due to grazing and disturbance from macropods, as establishing trees and shrubs have provided ideal shade conditions, away from mining activities.

Acacia seedlings were significantly more abundant than eucalypts in all trial areas with a total of only four eucalypts surviving across the trial sites. On the SWRE, extensive sediment mobilisation may have buried a large quantity of seed within the troughs of the rip lines. The most abundance species was *Acacia pendula* followed by *A. stenophylla* with both species normally associated with lake and floodplain environments from which the topsoil was derived. It is possible that many of these have established from the soil seed bank.

In trial sites, seedlings have grown with increasing tree densities >5 cm diameter at breast height in both trial areas on the SWRE. A small but increasing number of individuals were recorded in NWREDS01 this year, however none were yet recorded in NWREDS02. Seedling densities under 5 cm DBH declined in 2021, with little change since then. Some individuals have grown and are now included in tree population data, while additional volunteer species have been recorded in NWREDS02. Although smaller individuals were still present, most were taller than 2 m. The density and diversity of shrubs and juvenile trees were higher in all trial treatments compared to the seedling densities in the hill woodland reference sites.

Overall, the SWRE trials demonstrated that it is imperative that a protective soil cover treatment (rock, topsoil, wood chip or hay (lucerne, pasture hay or straw) be applied, regardless of its type or combination of covers, however better longer-term outcomes and achieving completion goals may be obtained when there is good plant establishment, especially native perennial ground covers. The treatments compared in these trials have shown that this can be achieved using topsoil, with or without a rock mulch underlay. The NWRE trials indicated that there was no apparent difference in the effects of topsoil depth or mulching type, however mulching with either straw or Native Pasture Hay (NPH) tended to enhance the ecological function of the sites and assisted in the development of the sites compared to those without a mulch treatment, especially in the early developmental stages.

Plate 5 shows the NWRE trial site, and monitoring will continue during future reporting periods.

Plate 5 - NWRE - Pond D1 North Trial Tube Stock (February 2025)

9 COMMUNITY

Evolution recognises developing and maintaining a positive relationship with the local community is essential to running a successful mining operation.

Evolution strives to earn the trust of all with whom we interact, whether they be our employees, the communities where we live and work, the governments that host us, or other stakeholders with whom we engage in the sustainable development of mineral resources.

9.1 Community Complaints

The Development Consent, SSD 10367 and EPL 11912 require implementation of a complaints mechanism. A community line for enquiries, feedback or complaints was established on 9 December 2003 and operates 24 hours per day. Complaints and/or concerns can be made by calling +61 2 6975 3454 where a member of the Cowal Community team will advise the caller that they have reached the Evolution CGO Community line and assist with their enquiry, feedback or complaint. The information is logged along with the date and time that the call was made. Upon receiving an enquiry, the Community Team conducts necessary investigations and prepares a response. The caller is contacted within 24 hours of the complaint, to gather further information and notify of any proposed action to take place. Enquiries, complaints and feedback can also be made by emailing the community team on cgo.community@evolutionmining.com.

Complaints may also be submitted through regular stakeholder interactions that may occur between CGO personnel and community members from time to time.

Details of the Cowal Community Line and contact details are advertised quarterly in the following local newspapers, The West Wyalong Advocate, The Forbes Advocate and The Condobolin Argus. They are also included within the Cowal Update community newsletter, released by Evolution bi-annually and distributed to approximately 12,000 households within West Wyalong, Forbes, and Condobolin.

A summary of the community complaints received during the reporting period (as required by the Development Consent) is provided in Table 9-a below.

Table 9-a - Summary of Community Complaints during the Reporting Period

Summary of Community Complaints 2024	
Record No 1	
Details	Community Organisation
Complaint/Concern	Community
Date	10/01/2024
Outcome	Received a call through the Cowal Community feedback line from a community organisation communicating an EVN employee has been parked out front of their business daily for a week or so restricting customer access. Letters were placed on vehicles involved, notifying alternate places to park. Comms out to site to address parking around pick up points. Evolution continues to monitor**.**
Date of Response	Initial response – 10/01/2024 Complaint closed – 12/01/2024
Record No 2	
Details	Nearby Neighbour
Complaint/Concern	Community
Date	10/01/2024
Outcome	Received a call through Cowal Community Feedback line from nearby neighbour voicing frustration over loud noise coming from the UG accommodation village at 6:15am. They also mentioned that it occurred the previous day around 4:00pm. They communicated that it was not acceptable and was also considering going to the Bland Shire Council to make a complaint. On investigation it was established that the noise was coming from a sucker truck. The sucker truck is being used to pump excess water from recent rain event underneath the accommodation units, so it's a safe working space for welding jobs to be completed. Project manager (PM) communicated to contractors permitted hours of works. PM to contact P&C/ Community team in future should there be any disturbance to nearby neighbours to allow this to be communicated before works are undertaken.
Date of Response	Initial response – 10/01/2024 Complaint closed – 12/01/2024
Record No 3	
Details	Nearby Neighbour
Complaint/Concern	Community
Date	04/07/2024
Outcome	Received a phone call through the Cowal community feedback line from a nearby neighbour of the UG accommodation village. Neighbour indicated that an employee that resides at the UG village had entered their yard without permission and damage had occurred. Meeting set up with landowner to understand events that had taken place and actions put in place to address damage.
Date of Response	Initial response – 04/07/2024 Complaint closed – 05/07/2024

9.2 COMMUNITY LIAISON

9.2.1 Community Environmental Monitoring and Consultative Committee (CEMCC)

During the reporting period, quarterly meetings of the CEMCC were conducted in accordance with the Development Consent.

The CEMCC was established prior to commencement of construction works, in accordance with the Development Consent requirements. The CEMCC monitors compliance with conditions of the Development Consent and other matters relevant to the operation of the mine.

The CEMCC meets on-site or in local communities, undertakes regular inspections, reviews environmental and audit reports and discusses any incidents or complaints that may have been registered. The CEMCC members are an active conduit between local communities and the CGO. Minutes are taken from each meeting and published on the Cowal Gold Mine website (http://www.evolutionmining.com.au/cowal/).

9.2.2 Community Consultation

The “Cowal Update” is the CGO community newsletter that is distributed to approximately 12,000 households in West Wyalong, Condobolin, and Forbes. The Cowal Update is released bi-annually June/December.

Evolution has previously extended invitations to numerous community groups to visit the CGO for presentations and site visits. Site visits have been undertaken by a number of groups during the reporting period including:

- Bland, Forbes and Lachlan Shire Councils;
- CEMCC Committee; and
- various secondary schools.

Stakeholder meetings are carried out on-site or in the local community including:

- CEMCC meetings (held quarterly)
- Local landholders, local community and charitable groups
- Local Government and State agency meetings.

Evolution also attended several off-site presentations involving the community including:

- local community and charitable groups
- Wiradjuri Condobolin Corporation
- Lachlan, Bland and Forbes Shire Councils; and
- Local primary and secondary schools.

9.2.3 Indigenous Consultation

Evolution continued to work with the Wiradjuri community through the Wiradjuri Condobolin Corporation and a number of formal committees, including:

- the Cowal Project Coordinating Committee; and
- the Employment, Training and Business Committee.

The CGO meets with the Wiradjuri Condobolin Corporation on a regular basis.

9.2.4 Community Development

Evolution continued to support numerous donations, sponsorships and partnerships to a variety of local schools, annual events, charity and not for profit groups, community infrastructure and town advancement groups.

Evolution operated the Cowal Partnering Program, the Cowal Cares Program, the Shared Value Projects and the Endeavour and Wiradjuri Scholarship programs to facilitate financial contributions to the community during the reporting period.

10 INDEPENDENT ENVIRONMENTAL AUDIT

An Independent Environmental Audit (IEA) was conducted in 2022 under a triennial requirement pursuant to DA 14/98 and SSD 10367. Environmental Resources Management Australia (ERM) were engaged by CGO and approved by Department of Planning, Industry and Environment (DPIE) on 28 March 2022 to conduct the IEA. Field components of IEA were subsequently undertaken between 11 and 13 April 2022 with report findings provided to CGO on 26 May 2022 and subsequently provided to DPIE by CGO on 8 June 2022 with a corrective action plan.

Out of 268 commitments and obligations within DA 14/98, SSD 10367, EPL 11912, ML 1535 and ML 1791 there were ten (10) non-compliances identified. It is CGO's assessment that the non-compliances are generally administrative in nature and do not pose immediate risk to the environment. A summary of non-compliance matters raised, and CGO response are below in Table 10-a, noting that all actions have been completed and closed.

Table 10-a Summary of non-compliance matters and CGO response

Non- Compliance Matters	CGO Response
Construction of Integrated Waste Landform (IWL) outside approved hours in late 2021	Approval received on 7 February 2022; considered historical non-compliance
Rehabilitation Management Plan lacked geotechnical analysis of IWL, open pit, and Lake Cowal	Requirement introduced on 30 September 2021; plan updated by August 2022
Heritage Management Plan and Indigenous Archaeology and Cultural Management Plan needed updates for mine ownership and agency names	Plans updated and submitted by June 2022
Biodiversity Management Plan and Biodiversity Offset Strategy needed updates for mine ownership, agency names, and offset area alignment	Plans updated and submitted by June 2022
Water Management Plan required suitably qualified authors endorsed by DPIE.	Conditionally approved on 15 April 2022, resubmitted on 20 May 2022, and again in July 2022 with author qualifications
WADCN levels in aqueous slurry stream exceeded 30mg/L, with one exceedance in February 2020 omitted from 2020 report	July 2021 exceedance included in 2021 report; February 2020 exceedance was an administrative oversight
Strategies, plans, and programs lacked an auditable review register	INX InForm system implemented for tracking by July 2022
Annual report required section on waste minimisation and management (introduced 30 September 2021)	Implemented in the latest annual report (Section 6.15)

11 INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

11.1 Non-Compliances During the Reporting Period

Non-compliances during the audit period have been described in Section 6 to Section 10 of the AR.

TSP Monitoring Frequency – Non-compliance

On the 9th October 2024, the TSP sampler failed to operate due to a motor drive instrumentation error. The instrumentation error was identified, rectified and unit returned to service. Additionally, servicing and calibration was completed on 21st October 2024.

Notification of failure to meet the frequency criteria, as required under EPL11912 was reported on the 16th October 2024 to info@epa.nsw.gov.au following internal investigations.

11.2 Incidents During the Reporting Period

No reportable environmental incidents were recorded in this monitoring period.

12 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

Summaries of the activities to be completed in the next reporting period have been described in the 'Further Improvements' sections included throughout this AR.

13 REFERENCES

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14 GLOSSARY OF TERMS

AHD	Australian Height Datum (meters)
AQMP	Air Quality Management Plan
AR	Annual Review
ANZECC	Australian New Zealand Environmental Conservation Council
ANZG	Australian and New Zealand Governments. Typically referring to guidelines for fresh and marine water.
ARD	Acid Rock Drainage
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AWS	Automatic Weather Station
BCPC	Bland Creek Paleochannel
BLMP	Blast Management Plan
BOMP	Biodiversity Offset Management Plan
BSC	Bland Shire Council
CEMCC	Community Environmental Monitoring & Consultative Committee
CGO	Cowal Gold Operations
CMP	Cyanide Management Plan
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CW	Compensatory Wetland
CWMP	Compensatory Wetland Management Plan
DA	Development Approval used interchangeable with Development Consent
DPHI	Department of Planning, Housing and Infrastructure
DPIE	Department of Planning, Industry and Environment
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPI	Department of Primary Industries
DRE	Department of Resources and Energy
DRG EC	Division of Resources and Geoscience Electrical Conductivity
EC	Electrical Conductivity
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	Environment Protection Authority
EPL	Environment Protection License
EPRP	Emergency Preparedness Response Plan
ESB	Eastern Saline Borefield
ESCMP	Erosion and Sediment Control Management Plan
ETBC	Employment Training Business Council (WCC – Evolution)
Evolution	Evolution Mining (Cowal) Pty Limited
FFMP	Flora and Fauna Management Plan
HMP	Heritage Management Plan
HWCMP	Hazardous Waste and Chemical Management Plan
IACHMP	Indigenous Archaeology and Cultural Heritage Management Plan
ICDS	Internal Catchment Drainage System
IEA	Independent Environmental Audit
IWL	Integrated Waste Landform
LCCC	Lake Cowal Conservation Centre
LCF	Lake Cowal Foundation
LMP	Land Management Plan
MIC	Maximum Instantaneous Charge
ML	Mining Lease
MOP	Mining Operations Plan
NMP	Noise Management Plan
NPWS	National Park and Wildlife Service
NTSF	Northern Tailings Storage Facility
NWRE	Northern Waste Rock Emplacement
OEH	Office of Environment and Heritage
PWRE	Perimeter Waste Rock Emplacement
RL	Relative Level (metres)
RMP	Rehabilitation Management Plan

RVEP	Remnant Revegetation Enhancement Programme
SSD	State Significant Development
STSF	Southern Tailings Storage Facility
SWRE	Southern Waste Rock Emplacement
SWGMBMP	Surface Water, Groundwater, Meteorological and Biological Monitoring Programme
TSF	Tailings Storage Facility
TSMP	Threatened Species Management Protocol
TSMS	Threatened Species Management Strategy
TSP	Total Suspended Particulates
TSS	Total Suspended Solids
UCDS	Up Catchment Diversion System
VCP	Vegetation Clearance Protocol
WAD	Weak Acid Dissociated
WIRES	Wildlife Information Rescue and Education Service
WMP	Water Management Plan