MGO
MT OWEN / GLENDELL

GLENCORE

2024 Annual Review
Report

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Title Block

Name of operation	Mt Owen / Glendell Operations
Name of operator	Mt Owen Pty Limited
Development consent/ project approval	SSD-5850 (Mt Owen and Ravensworth East) DA 80/952 (Glendell).
Name of holder of development consent/ project approval	Mt Owen Pty Limited
Mining lease and exploration lease #	CCL715, CL383, ML1355, ML1415, ML1419, ML1453, ML1475, ML1561, ML1608, ML1629, ML1673, ML1694, ML1741, ML1802, ML 1794, ML 1872 EL6254, EL5824, A423, A426, A429
Name of holder of mining lease	Mt Owen Pty Limited
Mining lease and Exploration Lease #	CL358, MPL343, ML1410, ML1476 EL6594, EL8184, EL 8916
Name of holder of mining lease	Glendell Tenements Pty Ltd
Water licence #	Refer list provided in Table 7
Name of holder of water licences	Mt Owen Pty Limited
RMP start date	July 2023
RMP end date	July 2026
Annual Review start date	01/01/2024
Annual review end date	31/12/2024

I, Sebastien Moreno, certify that this audit report is a true and accurate record of the compliance status of Mt Owen Glendell Operations for the period 01/01/2024 to 31/12/2024 and that I am authorised to make this statement on behalf of Mt Owen Glendell Operations.

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	Sebastien Moreno
Title of authorised reporting officer	Environment and Community Manager
Signature of authorised reporting officer	
Date	29/03/2024

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1. Executive Summary

1.1 Executive Summary

This Annual Review ('the report') is for the period of 01 January 2024 to 31 December 2024. It is required under Schedule 5, Condition 5, of Development Consents:

- State Significant Development (SSD)-5850 (Mount Owen Continued Operations, incorporating Mount Owen (MTO) and Ravensworth East open cuts; and
- Development Approval (DA) 80/952 (Glendell Open Cut Mine).

The report has been prepared generally in accordance with the *NSW Department of Planning and Environment Annual Review Guideline*, dated October 2015.

Mount Owen Glendell Operations (MGO) produced a total of 8.33 million tonnes (Mt) of run of mine (ROM) coal during the reporting period. In 2024, product coal totalled 4.88 Mt (see *Table 1*).

Table 1: Summary of ROM and Product Coal

Site	2024 ROM Coal (Mt)	ROM Consent Limit (Mt)	2024 Saleable Coal (Mt)
Mt Owen (MTO)	7.48	10	4.03
Glendell	0	4.5	0
Ravensworth East	0.86	4	0.85
Total	**8.33**	**17***	**4.88**

**Up to 17 million tonnes of ROM Coal allowed to be processed via CHPP in a calendar year, per SSD-5850.*

A total of 618 trains were loaded during the reporting period, with 4.72 Mt of product coal railed from site.

1.1.1 Noise

The noise monitoring program for MGO incorporates both continuous noise monitors and attended noise monitoring. Over the reporting period, MGO was generally in compliance with consent conditions and Noise Management Plan except on one occasion. Night time attended noise monitoring identified one elevated $L_{A1,\ 1min}$ result at N1 in June 2024. In accordance with the Noise Management Plan, the Mining Supervisor was immediately notified who made operational changes. A second measurement was conducted a couple of hours later, and no elevated result was recorded. This result was reported to DPHI who determined that this would be recorded as a breach with no further action proposed. No complaint was received at the time of the incident.

1.1.2 Blasting

A total of 117 blasts occurred at MGO in 2024, compared to 160 blasts in 2023. There were two blasts at Ravensworth East and 115 blasts at MTO; there was no blasting at Glendell due to mining operations ceasing in November 2022. Over the reporting period, MGO was generally in compliance with consent conditions and Blast Management Plan except on one occasion. An air blast overpressure result of 120.4 dBL was recorded on 21 June 2024 against a limit of 120 dBL and was reported to DPHI. The monitor is located approximately 100m from the closest privately owned residence and following an

investigation DPHI determined that there was no breach of conditions. No complaints were received as a result of this blast.

1.1.3 Air Quality

Measurements of Particulate Matter less than 10 microns (µm) and less than 2.5 µm (PM_{10} and $PM_{2.5}$ respectively), Total Suspended Particulates (TSP) and deposited dust were compared to the short and long-term impact assessment criteria from SSD-5850 and DA 80/952. Monitoring completed during 2024 determined that MGO was in compliance with its development consent criteria in terms of air quality impacts.

Predictions of air quality impacts made in the latest environmental assessment of the approved operation were compared to the measurement results. The comparisons showed that the 2024 monitoring results were generally lower than modelled PM_{10}, TSP and deposited dust levels for MGO.

1.1.4 Biodiversity

MGO completed monitoring of its Conservation Agreement (CA) Offsets with overall good composite value scored throughout the offsets.

In addition, comprehensive fauna and flora monitoring surveys were conducted at MGO offsets in 2024. Fourteen (14) threatened species were sighted, including seven bird species, four non-flying mammals and three microbat species. A total of 31 threatened species have been detected at MGO since the commencement of fauna monitoring.

The biodiversity credits associated with SSD-5850 and DA 80/952 were fully retired in April 2024 via direct payment into the Biodiversity Conservation Fund. The Biodiversity Stewardship Agreement for Esparanga Offset was finalised in September 2024, and the Total Fund Deposits for all Offset properties were paid in 2024. All Offset properties are now in active management.

1.1.5 Heritage

In 2024, MGO continued the monitoring of Aboriginal heritage sites, in conjunction with Registered Aboriginal Parties (RAPs) and a qualified archaeologist. Monitoring of Aboriginal heritages sites occurred quarterly, and artefacts were found to be well preserved. One new artefact was found and registered and salvaged and there were no incidents relating to Aboriginal heritage in 2024.

During the reporting period, MGO conducted quarterly monitoring and ongoing maintenance of European heritage sites including land management of the Hebden and Ravensworth Public School ruin sites.

1.1.6 Water

Groundwater levels and quality for approximately 100 groundwater monitoring bores are monitored in accordance with the MGO *Groundwater Monitoring and Management Plan* (GWMMP). There was no water level drawdown outside the trigger levels recorded during 2024. Review of water quality results and comparison to trigger levels for Electrical Conductivity (EC), Total Suspended Solids (TSS) and pH identified that some results were above trigger levels in 2024. These were investigated by a third party and found to be generally either in line with historical trends or correlated with weather events.

1.1.7 Rehabilitation

Progressive rehabilitation continued across MGO during 2024, generally in line with the *Rehabilitation Management Plan* (RMP) and *Forward Program*. In 2024, MGO rehabilitated 37.9 ha of open woodland at MTO that aligns with geomorphic landform design and 4.2 ha of pasture. Rehabilitation across MGO was generally stable and a few erosion features were identified.

1.1.8 Community Complaints and Consultation

During 2024, MGO received six community complaints, all related to blasting. All complaints were investigated and addressed promptly, with MGO contacting the complainants who had requested it. MGO was compliant with consent conditions at the time of these complaints.

Two Community Consultive Committee (CCC) meetings and three community gatherings were held in 2024.

1.1.9 Demolition Works

No demolition works were undertaken onsite at MGO during 2024.

2. Statement of Compliance

During the reporting period, Mount Owen and Glendell sites operated under their respective Development Consents and Environment Protection Licences (EPLs), together with Mining Leases (MLs) and secondary approvals, such as Management Plans and water licences.

Table 2 summarises the compliance against MGO's major approvals during 2024. Non-compliances are listed in *Table 4* and detailed in later sections of this report, with a definition of risk levels for each provided in *Table 3*.

Table 2: MGO Statement of Compliance 2024

Relevant Approvals	Compliance
Rehabilitation Management Plan (RMP)/ Forward program (FP)	Yes
DA SSD-5850 (Mt Owen / Ravensworth East)	No
DA 80/952 (Glendell)	Yes
EPL 4460 *	Yes
EPL 12840 **	Yes
CCL 715	Yes
CL 358	Yes
CL 383	Yes
EL6254	Yes
ML 1355	Yes
ML 1419	Yes
ML 1453	Yes
ML 1561	Yes
ML 1475	Yes
ML 1608	Yes
ML 1410	Yes
ML 1415	Yes
ML 1476	Yes
ML 1802	Yes
ML 1694	Yes
ML 1629	Yes
ML 1673	Yes
ML 1741	Yes
ML 1794	Yes
MPL 343	Yes

Relevant Approvals	Compliance
Auth 0268	Yes
Auth 0423 (relinquished in 2024)	Yes
Auth 0429	Yes
EL 5824	Yes
EL 6594	Yes
EL 8184	Yes
EL 8916	Yes
Water Licences	Yes

** In reference to Schedule 3, Condition 23 of SSD-5850*

*** In reference to Schedule 3, Condition 25 of DA80/952*

Table 3: Compliance Status Key

Risk Level	Colour Code	Description
High	Non-Compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence.
Medium	Non-Compliant	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low	Non-Compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-Compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later that required under approval conditions).

Table 4: MGO Non-Compliance 2024

Relevant Approval	Condition #	Condition Description	2024 Compliance Status	Comment
SSD-5850	Schedule 3 Conditions 5	The Applicant must ensure that the noise generated by the development (including rail movements along the Mount Owen Rail Loop, but excluding the construction work specified in condition 3), does not exceed the criteria in Table 3 at any residence on privately-owned land.	Non-Compliant	MGO recorded a LA1 (1 min) noise measurement above criteria. See **Section 7.2 and Section 11** for further details. No complaint was received at the time of the incident
SSD-5850	Schedule 3 Condition 31(d)	The Applicant must prepare a Biodiversity Management Plan for the development…This plan must…include a final location for the Rehabilitated Woodland offset area (see Table 9) within 5 years (or other such period as agreed by the Secretary) of the commencement of development under this consent;	**Non-Compliant**	MGO was unable to finalise the location of the 518 ha Rehabilitated Woodland offset prior to the due date. An extension was requested but approved 19 days after the due date. See **Sections 7.5 and 11** for further information.

2.1 Statutory Requirements

Table 5: Statutory Requirements

Approval	Condition	Relevant Section of Document
Development Consents SSD-5850 (Mt Owen and Ravensworth) and 80/952 (Glendell) ***Schedule 5, Condition 5***	By the end of March each year, or as otherwise agreed with the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must:	**This document**
	(a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;	**5, 9**
	(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • monitoring results of previous years; and • relevant predictions in the documents listed in condition 2(a) of Schedule 2 or 3;	**7, 8, 9, 10**
	(c) identify any non-compliance or incident over the past year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;	**1, 11**

Approval	Condition	Relevant Section of Document
	(d) identify any trends in the monitoring data over the life of the development;	**Various**
	(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	**Various**
	(f) describe what measures will be implemented over the next year to improve the environmental performance of the development.	**Various**
Development Consent 80/952 (Glendell) ***Schedule 4, Condition 7***	**Continuous Improvement** 7. The Applicant must:	
	(a) implement all reasonable and feasible best practice noise mitigation measures;	**7.2**
	(b) investigate ways to reduce the noise generated by the development, including maximum noise levels which may result in sleep disturbance; and	**7.2**
	(c) report on these investigations and the implementation and effectiveness of these measures in the Annual Review.	**7.2**
Development Consent 80/952 (Glendell) ***Schedule 4, Condition 46***	**Monitoring of Coal Transport** 46. The Applicant must keep records of the amount of coal transported from the site each year, and include these records in the Annual Review.	**5.2.1 and Appendix B**
Development Consent 80/952 (Glendell) ***Schedule 4, Condition 52***	The Applicant must… (e) report on waste management and minimisation in the Annual Review,	**5.2.2**
Development Consent SSD-5850 (Mt Owen and Ravensworth) ***Schedule 3, Condition 41***	The Applicant must… (d) monitor and report on the effectiveness of the waste minimisation and management measures in the annual review referred to in condition 5 of Schedule 5.	**5.2.2.2**
Development Consent SSD-5850 (Mt Owen and Ravensworth) ***Schedule 3, Condition 26***	Water Management Plan The Applicant must… (vii) a protocol to report on the measures, monitoring results and performance criteria identified above, in the annual review referred to in condition 5 of Schedule 5.	**8**
Development Consent SSD-5850 (Mt Owen and Ravensworth) ***Schedule 3, Condition 18***	Air Quality Operating Conditions The Applicant must: … (h) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, and report on this in the annual review referred to in condition 5 of Schedule 5.	**7.4 and Appendix E**

Approval	Condition	Relevant Section of Document
Development Consent SSD-5850 (Mt Owen and Ravensworth) ***Schedule 3, Condition 31***	Biodiversity Management Plan The Applicant must … report on the effectiveness of the above measures against the periodic performance and completion criteria, as part of the annual review referred to in condition 5 of Schedule 5	**7.5**

3. Introduction

MGO generally refers to the following (refer *Figure 1*):

- Mount Owen open cut mine (MTO), including a Coal Handling and Preparation Plant (CHPP);
- Glendell open cut mine (Glendell); and
- Ravensworth East open cut mine (Ravensworth East).

This report is prepared for the reporting period 01 January 2024 to 31 December 2024 and has been prepared generally in accordance with the *NSW Department of Planning, Industry and Environment (DPE) Annual Review Guideline*, dated October 2015.

It covers the reporting requirements of SSD-5850, DA 80/952, and associated approvals, mining and exploration leases, and environmental management plans.

An annual rehabilitation report is submitted annually to the NSW Resources Regulator, separate to this document, in accordance with the *Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021* which came into force on 30 June 2022.

3.1 Mount Owen Glendell Operations

MGO is located on Hebden Road at Ravensworth, approximately 20 km north-west of Singleton, NSW (refer *Figure 2*), and is owned and managed by Mt Owen Pty Limited, a wholly owned subsidiary of Glencore Coal Pty Limited (Glencore).

3.1.1 Mount Owen Complex

The Mount Owen Complex (MOC) includes the Ravensworth East and Mount Owen open cut mines.

Mining operations at Mount Owen began in 1993 under the management of Hunter Valley Coal Corporation Pty Limited (HVCC). Mining operations at Ravensworth East (previously known as Swamp Creek Mine) date back to the early 1960s and commenced under Peabody Resources in 2000.

Glencore has owned and managed the MOC since 2004.

Mount Owen Continued Operations (MOCO), SSD-5850 which allowed for the integration and continued operation of both MTO and Ravensworth East, was granted in November 2016, and allowed mining operations until December 2031. The application was supported by the *Mount Owen Continued Operations Project Environmental Impact Statement* (EIS), (Umwelt, 2015).

SSD-5850 has been modified on seven occasions to date, with one application refused (Modification 4) and one withdrawn (Modification 8). SSD-5850 allows extraction of coal at a mining rate of 4 Mt of ROM per year from Rav East and 10 Mt at MTO. The MTO CHPP can process up to 17 Mt ROM per year.

- **Modification 1**: approved in August 2017 to allow for the inclusion of the Greater Ravensworth Area Water Sharing Scheme, and the construction of a water pipeline from Integra Underground Mine to MGO.
- **Modification 2**: approved September 2019 to allow an increased disturbance area and extend mining operations to 31 December 2037.

- **Modification 3**: approved January 2020 which was an administrative modification in which a land parcel was included within the Schedule of Land.
- **Modification 5**: approved January 2021 to slightly change the approved offset package.
- **Modification 6**: approved June 2021 to allow the realignment of the Narama Pipeline.
- **Modification 7**: approved May 2023 to allow minor changes to Great Ravensworth Water and Tailings System (GRAWTS).
- **Modification 9**: approved August 2024 to make minor changes the Biodiversity Offset areas within Schedule 3, Table 9.

MOCO was also approved under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2013/6978). This approval has been modified twice, in October 2018 and November 2020, to vary condition 2 and extend the time required to secure the Biodiversity Offsets required under SSD-5850.

3.1.2 Glendell

Glendell was granted DA 80/952 in May 1983 to enable the extraction of coal from an undeveloped coal reserve, at a rate of 3.6 Mtpa of ROM coal until 2013. DA 80/952 has been modified five times:

- **Modification 1**: approved February 1997 to allow transport and processing of coal to Liddell Mine.
- **Modification 2**: approved February 2008 to allow Glendell to increase the mining rate to 4.5 Mtpa, process coal through the MOC CHPP and extended approval for mining operations until June 2024.
- **Modification 3**: approved December 2016 to allow a minor relocation of a power line.
- **Modification 4**: approved in March 2020 to allow an extension to the approved Barrett pit shell to access additional ROM coal and to install a western haul road under the existing approval.
- **Modification 5**: approved July 2024 to extend the life of mine until June 2026. The modification allows continued access to the ROM tonnes approved under MOD 4. No other changes to the operation were proposed.

Mount Owen Glendell Operations

Figure 1: Mt Owen/Glendell Operations Overview

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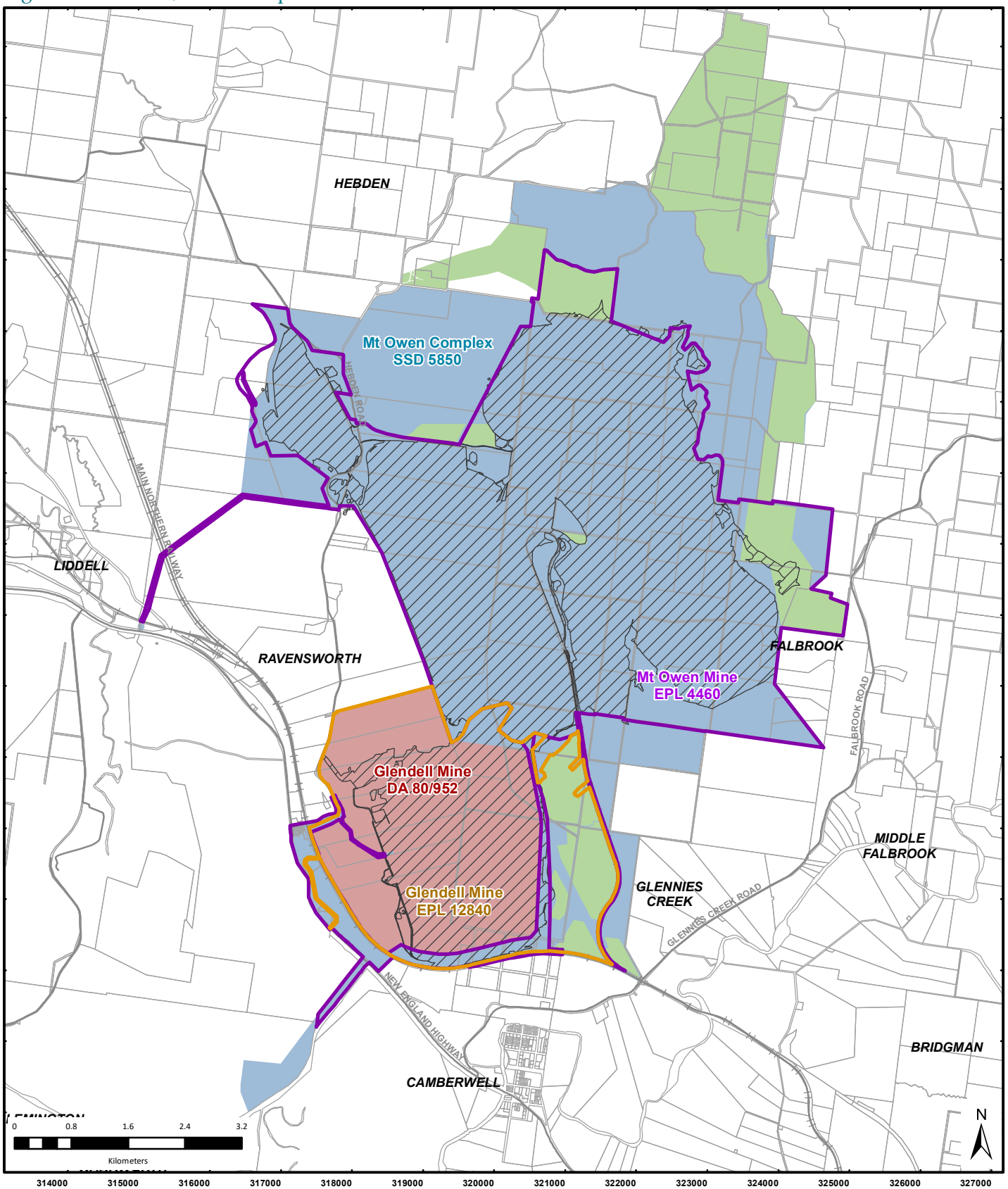


Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\AEMR_2024_MOCO_Surrounds_GDA2020.mxd

Legend

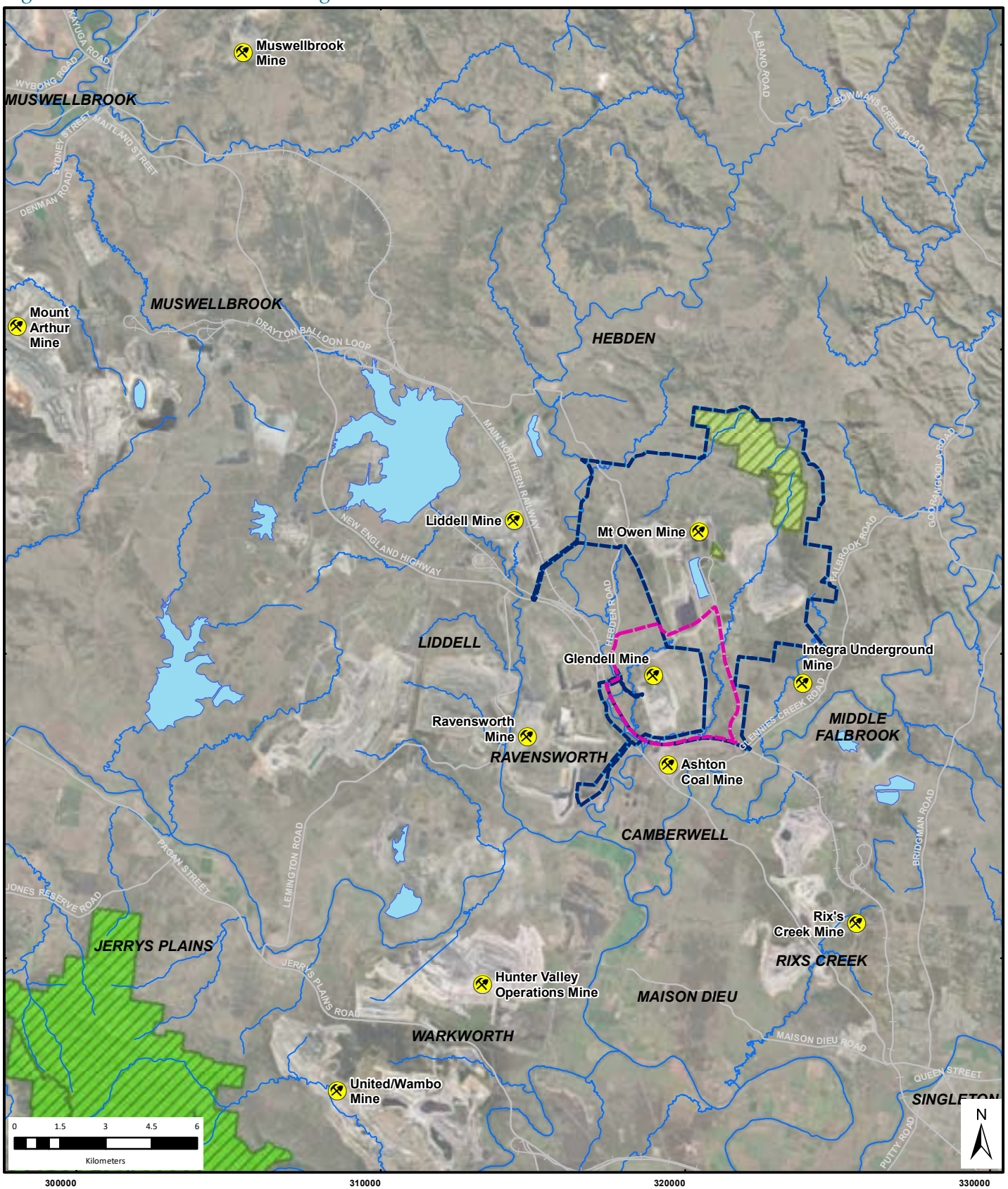
- Mt Owen EPL Boundary 4460
- Glendell EPL Boundary 12480
- Disturbance EOY 2024
- Mt Owen Complex Development Approval SSD 5850
- Glendell Development Approval Boundary DA 80/592
- Biodiversity Offset Area
- Main Roads
- Railway

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:75,000
Map Created By: rabbott
Coordinate System: GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

Mount Owen Glendell Operations

Figure 2: 2024 MGO Overview - Regional Context



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Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Operational coal mine
- Main Roads
- Railway
- Ravensworth State Forest (after disturbance)
- National Parks and Reserves
- Waterbody
- Creek/River

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:175,000
Map Created By: rabbott
Coordinate System: GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

3.2 Mine Contacts

Mine contacts for MGO are provided in *Table 6* below.

Table 6: MGO Contact Details

Name	Position Held	Contact Details	
Mount Owen/ Glendell Operations Management			
Christopher Gerard	Operations Manager	02 6520 2693	
Mount Owen / Glendell Operations Environment and Community			
Sebastien Moreno	Environment and Community Manager	02 6520 2693	
General Contact Details			
Mt Owen / Glendell Operations		Street Address: Postal Address: Phone: 24-hour Community Hotline: 24-hour Blasting Hotline: Website:	Hebden Road Ravensworth NSW 2330 PO Box 320, Singleton NSW 2330 02 6570 0880 1800 730 883 1800 319 566 *www.mtowencomplex.com.au*

4. Approvals and Licences

MGO operates under a number of approvals and licences which are summarised in *Table 7*. MGO project boundaries and mining tenements are illustrated in *Figure 3*.

MGO also operates in accordance with the RMP, and *Forward Plan* required under *Mining Regulation 2016.* The RMP was submitted on 1 July 2022 and the Forward Plan is revised annually.

Table 7: MGO main Approvals and Licences

Approval Number	Approval Description	Date Granted /Renewed	Expiry Date/
Development Consents			
DA 80/952	Development Consent 80/952	05/03/1983	30/06/2024
	Modification 5: Extension of life of mine until June 2026	01/07/2024	30/06/2026
SSD-5850	Development Consent SSD-5850	03/11/2016	31/12/2031
	Modification 9: minor changes to Offset property areas in Table 9.	15/05/2023	31/12/2037
EPBC Approval			
EPBC 2013/6978	EPBC Act approval	19/01/2017	31/12/2037
Environment Protection Licences			
EPL 4460 (MOC)	Environment Protection Licence 4460	29/08/2019	After licence surrender (reviewed at least every 5 years)
EPL 12840 (Glendell)	Environment Protection Licence 12840	11/11/2019	After licence surrender (reviewed at least every 5 years)
Mining tenements			
CCL715	Mining lease	06/05/2009	28/08/2037
CL358	Coal Lease	26/03/1990	27/03/2032
CL383	Coal Lease	26/06/2014	12/11/2033
ML1355	Mining Lease	30/06/2014	23/07/2036
ML1410	Mining Lease	15/05/1997	12/05/2027
ML1415	Mining lease	07/08/1997	07/08/2043
ML1419	Mining Lease	02/02/2015	12/11/2033
ML1453	Mining Lease	08/05/2001	08/05/2034

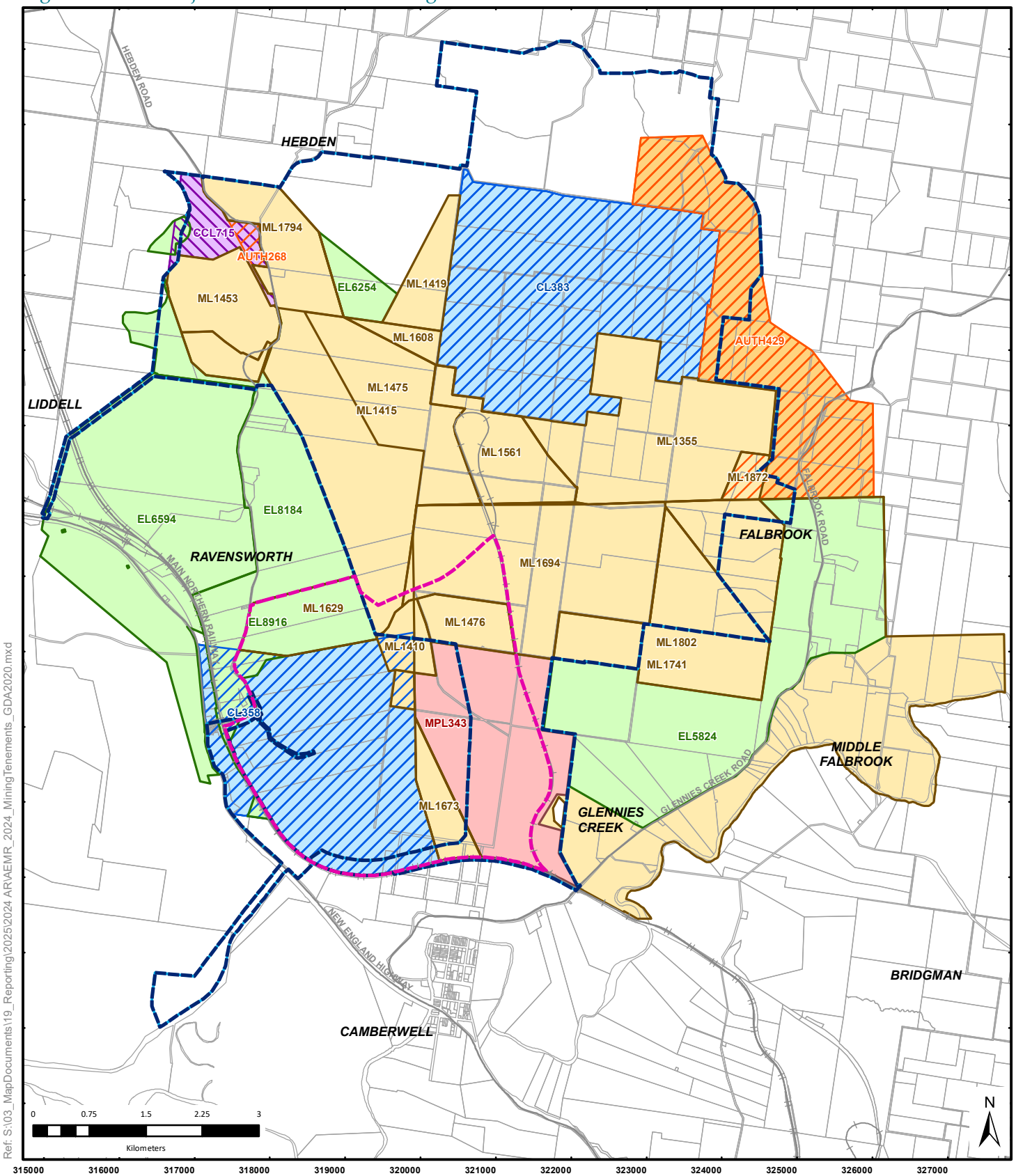
Approval Number	Approval Description	Date Granted /Renewed	Expiry Date/
ML1475	Mining lease	24/11/2000	23/11/2042
ML1476	Mining lease Renewed 14 March 2024	23/11/2000	23/11/2037
ML1561	Mining Lease Renewal application submitted	16/02/2005	16/02/2026
ML1608	Mining Lease	18/12/2007	19/12/2028
ML1629	Mining Lease	08/03/2009	09/03/2030
ML1673	Mining Lease	04/11/2016	11/11/2033
ML1694	Mining Lease	21/10/2013	22/10/2034
ML1741	Mining Lease	11/03/2020	11/11/2033
ML1794	Mining Lease	16/07/2019	31/12/2031
ML1802	Mining Lease	30/03/2020	30/03/2041
ML1872	Mining Lease	21/12/2023	21/12/2044
MPL343	Mining Purposes Lease Renewal application submitted	16/06/1996	04/01/2026
Auth268	Exploration Authorisation	13/09/2017	25/08/2025
Auth423	Exploration Authorisation Relinquished	11/01/2017	
Auth429	Exploration Authorisation Renewed 10/10/24	26/07/1990	27/07/2026
EL5824	Exploration Licence	14/11/2016	19/03/2026
EL6254	Exploration licence Renewed 14/08/2024	07/07/2006	04/06/2028
EL6594	Exploration licence	06/11/2020	06/07/2025
EL8184	Exploration licence	14/10/2013	14/10/2025
EL8916	Exploration Licence	02/12/2019	05/12/2028
Rehabilitation Management Plan /Forward Program			
FFWP0001204	Mt Owen Complex Forward Program	1/07/2022	30/06/2025
Water Licences			
WAL612	Water Licence (General Security)	02/05/2008	06/02/2029
WAL613	Water Licence (General Security)	01/07/2004	30/06/2027
WAL637	Water Licence (General Security)	02/05/2008	30/06/2027
WAL704	Water Licence (High Security)	02/05/2008	30/06/2027
WAL705	Water Licence (General Security)	02/05/2008	30/06/2027

Approval Number	Approval Description	Date Granted /Renewed	Expiry Date/
WAL706	Water Licence (Domestic and Stock)	23/03/2005	30/06/2027
WAL754	Water Licence (Domestic and Stock)	01/07/2004	08/10/2028
WAL816	Water Licence (General Security)	01/07/2004	30/06/2027
WAL1118	Water Licence (High Security)	02/05/2008	30/06/2027
WAL1119	Water Licence (General Security)	02/05/2008	30/06/2027
WAL1215	Water Licence (General Security)	02/05/2008	30/06/2027
WAL1218	Water Licence (Domestic and Stock)	31/03/2005	05/01/2028
WAL1364	Water Licence (Supplementary Water)	01/07/2004	30/06/2027
WAL1420	Water Licence (Supplementary Water)	02/05/2008	6/02/2029
WAL7814	Water Licence (High Security)	15/03/2011	3/01/2029
WAL7817	Water Licence (Domestic and Stock)	01/07/2004	29/12/2027
WAL7823	Water Licence (Domestic and Stock)	17/05/2010	28/06/2028
WAL7826	Water Licence (Domestic and Stock)	01/07/2004	29/12/2027
WAL9521	Water Licence (High Security)	22/05/2008	30/06/2027
WAL10520	Water Licence (General Security)	01/07/2004	22/04/2029
WAL11084	Water Licence (Domestic and Stock)	01/07/2004	30/06/2027
WAL13324	Water Licence (Domestic and Stock)	20/08/2019	28/02/2029
WAL13750	Water Licence (General Security)	20/10/2006	19/10/2026
WAL18000	Water Licence (General Security)	20/08/2019	31/07/2032
WAL18304	Water Licence (Unregulated)	01/08/2009	31/07/2032
WAL18310	Water Licence (Unregulated)	01/08/2009	31/07/2032
WAL18320	Water Licence (Unregulated)	01/08/2009	31/07/2032
WAL41526	Water Licence (Groundwater)	01/07/2016	Perpetuity
WAL41540	Water Licence (Groundwater)	01/03/2023	Perpetuity
WAL41541	Water Licence (Groundwater)	01/03/2023	Perpetuity
WAL41542	Water Licence (Groundwater)	25/07/2019	Perpetuity
WAL42055	Water Licence (General Security)	01/07/2004	29/12/2027
WAL45256	Water Licence (Groundwater)	01/08/2009	31/07/2029
20WA215076	Water Use Approval – domestic only	01/07/2016	Perpetuity
Monitoring Bores			
20BL168116	Groundwater Licence – Monitoring Bore	15/06/2001	Perpetuity
20BL169332	Groundwater Licence – Monitoring Bore	24/08/2004	Perpetuity
20BL169333	Groundwater Licence – Monitoring Bore	24/08/2004	Perpetuity

Approval Number	Approval Description	Date Granted /Renewed	Expiry Date/
20BL169334	Groundwater Licence – Monitoring Bore	24/08/2004	Perpetuity
20BL169335	Groundwater Licence – Monitoring Bore	24/08/2004	Perpetuity
20BL169336	Groundwater Licence – Monitoring Bore	24/08/2004	Perpetuity
20BL169544	Saline Water Excavation Bore	24/02/2005	Perpetuity
20BL171534	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171535	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171536	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171537	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171538	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171539	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171540	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171541	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171542	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171543	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171544	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171545	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171546	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171547	Groundwater Licence – Monitoring Bore	03/10/2007	Perpetuity
20BL171707	Groundwater Licence – Monitoring Bore	17/08/2007	Perpetuity
20BL172279	Groundwater Licence – Monitoring Bore	Unknown	Perpetuity
Diversion Works			
20WA211425	Water Supply Works – Swamp Creek Middle Diversion	01/08/2009	31/07/2032
20WA211429	Water Supply Works – Yorks Creek Diversion	16/05/2007	15/05/2023
20WA211430	Water Approval (Water Supply Works) – Swamp Creek Lower Diversion	01/05/2008	31/07/2032
20WA212187	Water Supply Works – Bettys Creek Upper and Middle Diversion	01/08/2009	17/10/2032
20WA212660	Water Approval (Water Supply Works) – Bettys Creek Lower Diversion	11/02/2013	07/02/2023

Mount Owen Glendell Operations

Figure 3: MGO Project Boundaries and Mining Tenements



Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\AEMR_2024_MiningTenements_GDA2020.mxd

Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Main Roads
- Railway
- Exploration Lease
- Mining Purposes Lease
- Mining Lease
- Authorisation
- Consolidated Coal Lease
- Coal Lease

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:70,000
Map Created By: rabbott
Coordinate System: GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

5. Operations Summary

5.1 Mining Operations

In 2024, MGO produced a total of 8.33 Mt of ROM coal, consisting of:

- 7.48 Mt ROM coal from MTO.
- 0.86Mt for Ravensworth East.
- 0 Mt ROM Coal from Glendell.

The annual ROM coal extraction limits for MGO are:

- 10 Mtpa for MTO.
- 4 Mtpa for Ravensworth East.
- 4.5 Mtpa for Glendell.

Details of the amount of ROM coal mined from each area and the total amount of product coal mined at MGO is provided in *Table 8*.

In 2024, MGO employed approximately 478 employees and 138 contractors at Mt Owen Glendell Operations.

Table 8: MGO Production Summary

Material	Approved limit (specify source)	2024 Reporting Period (Forecast)	2024 Reporting Period (Actual)	2025 Reporting Period (Forecast*)
MTO				
Prime Overburden (Million bank cubic metres (Mbcm))	-	39.4	36.2	36.3
ROM Coal Mined (Mt)	10 (Development Consent)	8.14	8.33	7.23
Saleable Product (Mt)	-	4.52	4.88	4.15
Ravensworth East				
Prime Overburden (Mbcm)	-	1.02	0.40	0
ROM mined (Mt)	4 (Development Consent)	0.79	0.86	0
Saleable Product (Mt)	-	0.52	0.85	0

Material	Approved limit (specify source)	2024 Reporting Period (Forecast)	2024 Reporting Period (Actual)	2025 Reporting Period (Forecast*)
CHPP				
ROM Coal Fed (Mt)	17 (Development Consent)	8.93	12.93	7.27
Coarse Waste Reject (Mt)	-	2.57	3.62	1.87
Total MGO Saleable Product (Mt)	-	5.03	4.72	4.15
Fine Waste Reject (Mt)	-	1.32	2.21	1.24

**Forecast is indicative and may change for 2025*

5.2 Other Operations

5.2.1 Train and Conveyor Movements and other Projects

Table 9 summarises the train and conveyor movements undertaken at the MGO during 2024. Daily train movements are provided in *Appendix B*.

ROM coal from MGO is transported for processing at the CHPP. Product coal is conveyed to the product coal stockpile where it is stored according to coal quality and loaded onto trains for transport to Newcastle Port. No coal is transported to domestic power stations. During the reporting period, 4.7 Mt of product coal from MGO was loaded onto 618 trains (*Appendix B* and *Table 9*) and railed from site.

Approximately 600,000 tonnes (t) of coal product are stockpiled at the CHPP. The stockpile currently has five product types:

- Semi-soft.
- High Ash Thermal.
- Mid Ash Thermal.
- Low Ash Thermal (<0.6% sulphur).
- Low Ash Thermal (>0.6% sulphur).

Table 9: MGO Train and Conveyor Movements

Train Movements	Total
Annual Average Daily Train Movements	1.68
Total Train Movements 2024	618
Annual Average Daily Train Tonnage	12,902 t/day
Annual Average Monthly Train Tonnage	393,510 t/month

Train Movements	Total
Total Product Coal Loaded from CHPP	4,722,118 t
Average Train Loading Time	112 minutes
Average Load Rate (Tonnes per hour)	42.8 t/hr
CHPP Compliance Limit	up to 17 Mt ROM coal per year

Note: *Product coal can be stockpiled when not required, hence the product coal sales total will differ from product coal railed to port total.*

SSD-5850 allows for up to 2 Mtpa ROM coal or crushed gravel to be transported by conveyor to Liddell Coal Mine or Ravensworth Coal Terminal. No material was transported under this allowance in 2024. The conveyor the subject of this approval has been decommissioned and is proposed to be demolished.

In 2024, MGO commenced a project to dredge unconsolidated tailings from the Eastern Rail Pit to the West Pit tailings storage facility, to allow the progression of the Western Out Of Pit (WOOP) dump as approved under SSD-5850. This project is due to be completed in Quarter 2 2025.

5.2.2 General Waste and Other Hazardous Material Management

Waste Management at MGO is undertaken in accordance with the MGO *Environmental Management Strategy* and internal Waste Management Plans.

5.2.2.1 Waste Management

Recycling and disposal of waste at MGO focuses on the correct handling, storage, segregation, and reuse of materials. MGO recycles waste wherever possible, to reduce the amount of waste destined for landfill.

Waste oil, grease, scrap steel, timber, paper and cardboard, oil filters and batteries were the major waste streams recycled during 2024 as outlined in *Table 10*.

Table 10: MGO Recycled Materials

Waste Stream	MTO and CHPP		MTO, CHPP and Ravensworth East	Glendell and Ravensworth East		Glendell only
	2022	2023	2024	2022	2023	2024
Paper and Cardboard (t)	14.47 (CHPP: 1.2)	15.85	21.38	8.44	2.57	0.18
Waste Oil (Hazardous) (t)	508 (CHPP: 1.5)	1005.32	1109.73	520.00	49.18	0.00
Grease (t)	6.42	2.75	5.95	0.86	3.73	0.00
Oil filters (t)	24.05	40.07	42.83	26.75	2.46	0.00
Batteries (Hazardous) (t)	21.91	12.50	22.54	6.70	2.85	0.00
Scrap Steel (t)	199.30 (CHPP:12.78)	233.84	543.64	174.00	38.40	0.00

Waste Stream	MTO and CHPP		MTO, CHPP and Ravensworth East	Glendell and Ravensworth East		Glendell only
	2022	2023	2024	2022	2023	2024
Timber (t)	55.98	31.26	21.46	9.18	0.96	0.00
Total (t)	830.12	1,341.59	1,767.53	745.93	100.15	0.18

**co-mingled recycling at MTO includes paper and cardboard, and also glass, aluminium, and plastic.*

MGO dispose of waste heavy vehicle tyres through deep burial in overburden dumps. The location of all waste heavy vehicle tyres is tracked by using spatial data (see *Table 11*).

Table 11: MGO Waste Tyre Burial

Waste Stream	MTO and Ravensworth East			Glendell		
	2022	2023	2024	2022	2023	2024
Waste Heavy vehicle Tyres (t)	335	682	598	104	0	0

Waste light vehicle tyres are removed from site by a third-party contractor.

Monthly housekeeping inspections are undertaken across MGO, to monitor implementation of best practices.

5.2.2.2 Effectiveness of waste minimisation and management measures

Operations at Glendell ceased in November 2022, and Glencore took over management of the Mt Owen pit. Waste management services for Ravensworth East and Mt Owen CHPP, which were previously consolidated with Glendell, have been grouped with MTO services.

During the reporting period approximately 0.18 t of waste materials consisting of paper and cardboard was recycled from Glendell alone, this is significantly less than in 2023 (100.15 t). The mine offices are used by the Glencore Coal Assets Australia training team for inductions and training.

At MTO approximately 1,767.53 t of waste were recycled in 2024. This volume is about 32% more than in 2023 (1,341.59 t) because of the integration of Ravensworth East and Mt Owen CHPP into Mt Owen waste reporting in 2024 and there has been an increase in the number of contractor personnel onsite due to major shutdown maintenance activities ongoing as part of Mt Owen site operations.

During 2024, no Heavy plant tyres were buried at Glendell, but 598 t of tyres were buried at MTO, a slight decrease compared to 682 t of tyres buried at MTO in 2023. This can be attributed to the improved tyre handling service that is focused on prolonging service life of tyres used in MGO Fleet.

5.2.2.3 Hazardous Chemical Storage

Bulk fuel facilities at MGO are bunded and designed to hold at least 110 % of the largest fuel storage tank. This is in accordance with *Australian Standard (AS) 1940-2017 – The Storage and Handling of Flammable and Combustible Liquids*. Emergency measures and safeguards are in place in the event of a spill. There is low potential for off-site contamination once fuel is received on-site.

Hazardous waste materials generated across MGO sites are disposed offsite in accordance with MGO *Hydrocarbon and Non-Mineral Waste Management Plans*.

5.2.3 Demolition Works

No demolition works were undertaken on-site during the reporting period.

5.2.4 Exploration

There were 8 exploration holes drilled during the 2024 reporting period to better define the coal sequences within the pit area. Additional exploration holes are proposed for the 2025 reporting period.

5.2.5 Land Ownership

MGO landholdings total over 9,000 hectares. The landholdings cover the immediate and surrounding areas of MGO, excluding the Ravensworth State Forest (RSF), which is situated north-east of MTO. The RSF consists of approximately 880 ha and is owned by the Forestry Corporation of NSW. Land not actively used for mining purposes is either rehabilitated or managed for grazing or biodiversity offsets.

Total land ownership for MGO is summarised in *Table 12.*

Table 12: Land Ownership

Operation	Land Owned (ha)	Land Leased (ha)
MTO	6,809.1	331*
Glendell	2,733.1	15.3
Total	9,447.7	346.9

** Incorporates the leased crown roads associated with offset properties.*

6. Actions Required from Previous Annual Review

The 2023 Annual Review for MGO was submitted to DPHI on 31 March 2024 in accordance with Schedule 5 Condition 5 of SSD-5850 and Schedule 5 Condition 5 of DA 80/952.

DPHI advised on 26 November 2024 that the Annual Review generally satisfied the reporting requirements of the consent. Two actions were required for future Annual Reviews:

a) Actions required from previous Annual Reviews should include actions that were proposed by Mt Owen Pty Limited in the previous Annual Review, in addition to the actions requested by NSW Planning. Refer to Section 5 of the *Annual Review Guideline* (October 2015)

b) Independent Environmental Audit - Please include a status update for all actions provided in the Response to Audit Recommendations in the next Annual Review until all actions are completed. Table 11 summarises status of these actions.

Table 13: Actions required from previous Annual Reviews

Action required from previous Annual Review	Proposed by	Due Date	Action taken and status	Where discussed
1.0 Actions required from previous Annual Reviews should include actions that were proposed by Mt Owen Pty Limited in the previous Annual Review, in addition to the actions requested by NSW Planning. Refer to Section 5 of the *Annual Review Guideline* (October 2015)	DPHI	31 March 2025 and ongoing	Table added to Section 6 to capture actions (this table) **complete**	**This table**
2.0 Independent Environmental Audit - Please include a status update for all actions provided in the Response to Audit Recommendations in the next Annual Review until all actions are completed.	DPHI	31 March 2025 and ongoing	This table. See below Co**mplete**	**This table**
2.1 As agreed in consultation with CST and DPE, on receipt of draft revised conditions for Modification 8 of SSD-5850, ensure the requirement for the Crown road to be included in the Esparanga Biodiversity Offset Area is removed from relevant conditions.	2023 Independent Compliance Audit	June 2025	MGO submitted Modification 9 (Mod 9) in June 2024 to seek the removal of Crown Roads from Esparanga. Mod 9 was approved on 21 August 2024. A Stewardship Agreement was approved in September 2024. **Complete**	**This table Section 7.5**
2.2 Ensure DPE is updated on compliance with Schedule 3, Conditions 29B, 29C and 29D	2023 Independent Compliance Audit		MGO paid into the Biodiversity Credit Fund All the outstanding biodiversity credits	**Section 7.5**

Action required from previous Annual Review	Proposed by	Due Date	Action taken and status	Where discussed
following processing and payment of the Charge Quote application.			required under Sch 3 conditions 29B, 29C and 29D on 11 April and 24 April 2024. These credits have been retired. This Annual Review and this table are to confirm the status of compliance with these conditions **Complete**	
2.3 To ensure the decline in air quality monitoring data at EPL 4460 Monitoring Points 8 does not continue to occur, investigate, and implement actions to improve the capture of air quality monitoring data from this location.	2023 Independent Compliance Audit		MGO replaced the dust monitoring unit that had a decline in air quality monitoring data capture. A new dust monitoring unit was ordered in November 2023. The new unit was installed and commissioned in January 2024. **Complete**	**Section 7.4.1**

7. Environmental Performance

7.1 Meteorological Monitoring

7.1.1 Wind speed and direction

Meteorological monitoring is undertaken at MGO in accordance with SSD-5850 and DA 80/952 at the locations shown in *Figure 8*. MGO operates a continuous meteorological monitoring network which includes three weather stations located to the west and south-east of the active mining areas:

- Sx13 M1.
- Sx13 M2.
- Sx13 M8.

The wind-roses in *Figure 4* show the frequency of wind speeds and wind directions during the reporting period, based on hourly records for the three MGO weather stations.

These results are comparable with data from 2022 and 2023 (see *Table 14*).

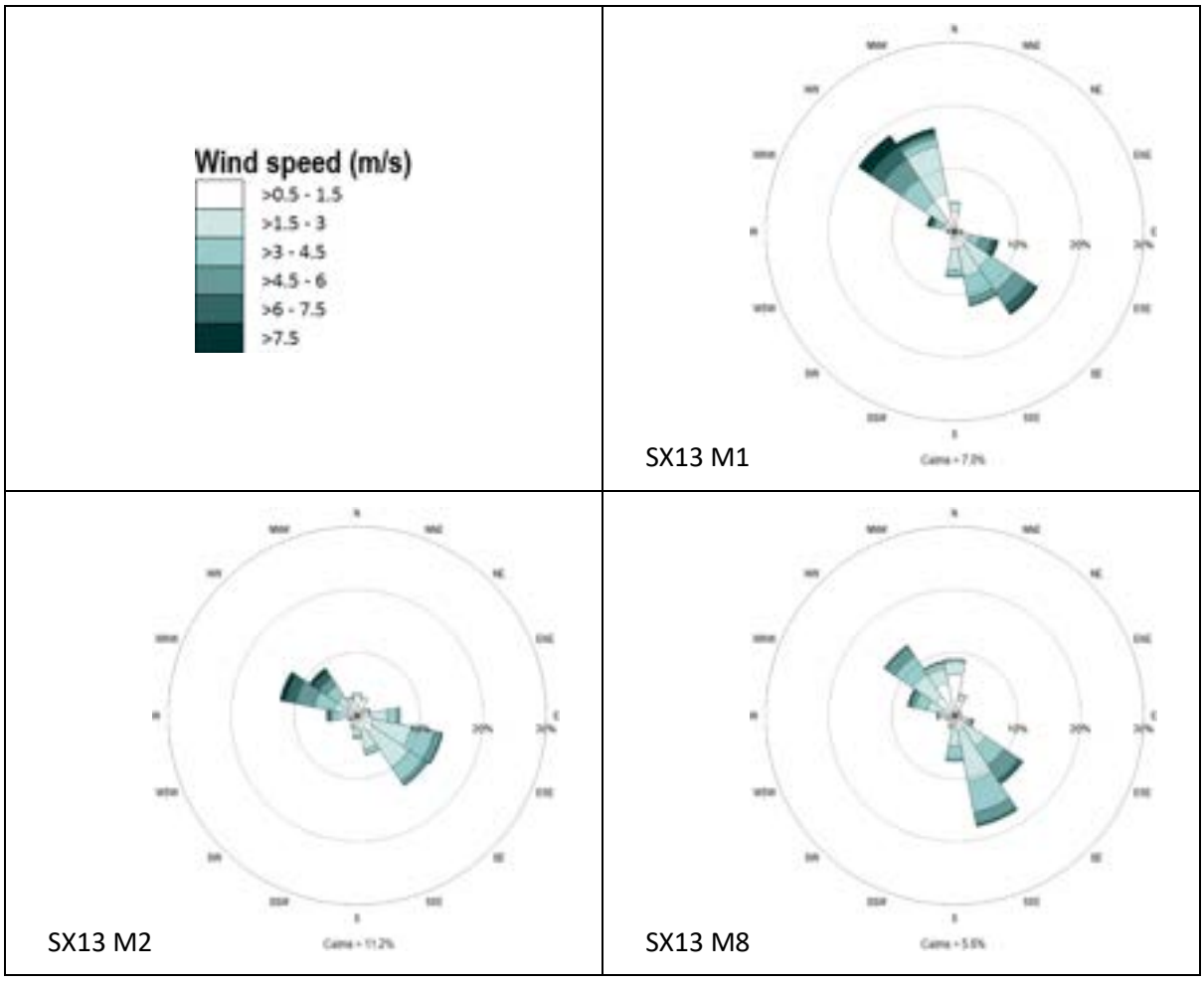


Figure 4: 2024 Annual Wind Roses for MGO Weather Station

Table 14: Wind Data 2022 to 2024

	2022		2023		2024	
Month	**Mean Wind Direction (°)**	**Mean Wind Velocity (m/s)**	**Mean Wind Direction (°)**	**Mean Wind Velocity (m/s)**	**Mean Wind Direction (°)**	**Mean Wind Velocity (m/s)**
January	137.5	2.6	150.9	2.3	177.5	2.6
February	155.9	2.7	178.1	2.4	173.3	1.9
March	137.9	2.1	204.3	1.9	147.7	1.8
April	191.1	1.9	203.2	2.1	194.4	1.4
May	236.5	2.2	273.5	2.8	225.6	1.3
June	290.4	3.9	264.5	3.1	276.2	2.1
July	236.6	2.5	265.0	2.9	264.4	2.9
August	253.8	2.6	249.8	2.0	242.3	2.0
September	212.3	2.5	217.5	2.0	258.7	2.8
October	186.4	2.4	232.7	3.1	208.2	1.9
November	215.7	3.1	184.4	2.5	194.7	2.1
December	190.9	3.0	201.1	2.8	200.7	2.1

7.1.2 Rainfall

Approximately 899 mm of rainfall was recorded at MGO at Sx13 M1 during the reporting period. In the previous reporting period, approximately 481.6 mm of rainfall was recorded at Sx13 M1, indicating that 2024 was wetter than the previous year (*Table 15*).

Table 15: Monthly rainfall from 2022 to 2024

Month	2022	2023	2024
January	65.8	53.0	78.4
February	97.6	101.6	127.4
March	368.6	86.6	49.0
April	38.0	49.4	150.8
May	37.8	5.0	114.4
June	9.6	9.6	101.8

Month	2022	2023	2024
July	151.8	9.0	61.6
August	67.6	31.6	46.8
September	86.2	11.0	40.4
October	81.4	40.6	57.6
November	91.2	30.6	39.4
December	33.8	53.6	31.0
Total	**1,129.4**	**481.6**	**899.0**

Rainfall data for Bowman's Creek (the Bureau of Meteorology monitoring station closest to the site), recorded a total of 845.8 mm in 2024 which is less than the long-term annual average rainfall of 866 mm (based on data from 1970 to 2024) for that site confirming that 2024 was drier than average.

Over the last several years MGO has received highly variable rainfall. In the years prior to 2021, MGO experienced lower than average rainfall resulting in long periods of no flow conditions within MGO's creek systems (*Figure 5*).

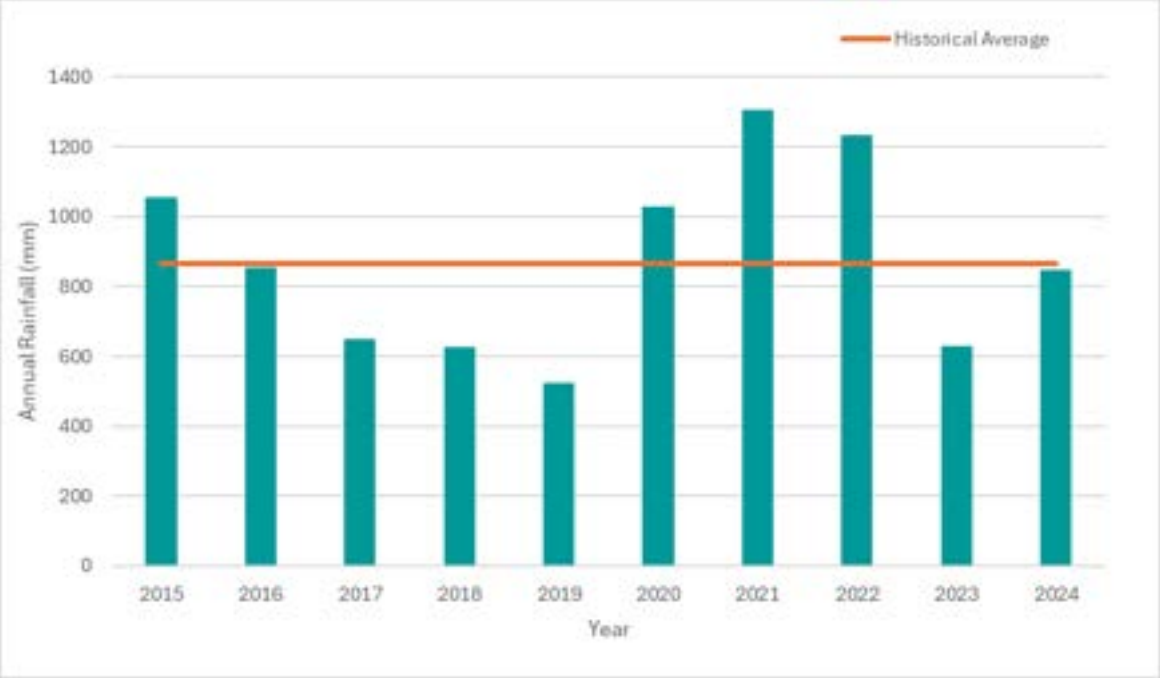


Figure 5: Regional Rainfall Data (Bowmans Creek BoM Station (061270))

7.2 Operational Noise

7.2.1 Management and Monitoring

MGO has a range of management strategies in place to limit the generation of noise and noise associated impacts as described in the approved MGO *Noise Management Plan* (NMP). During 2024, the following activities were undertaken:

- Monthly attended noise monitoring in accordance with the program described in the approved NMP.
- Continued use of directional real-time noise units integrated to the MGO noise monitoring network.
- Maintenance of the real-time noise monitoring network.
- Ongoing measurement of machine sound power levels to monitor equipment performance and assess the requirement for installation of noise attenuation equipment.
- Continued use of the weather forecast summary report to identify periods of potential adverse weather that could affect the propagation of noise.
- Ongoing MGO employee education on noise management.
- Development and implementation of MGO-specific noise training packages delivered to key site personnel.

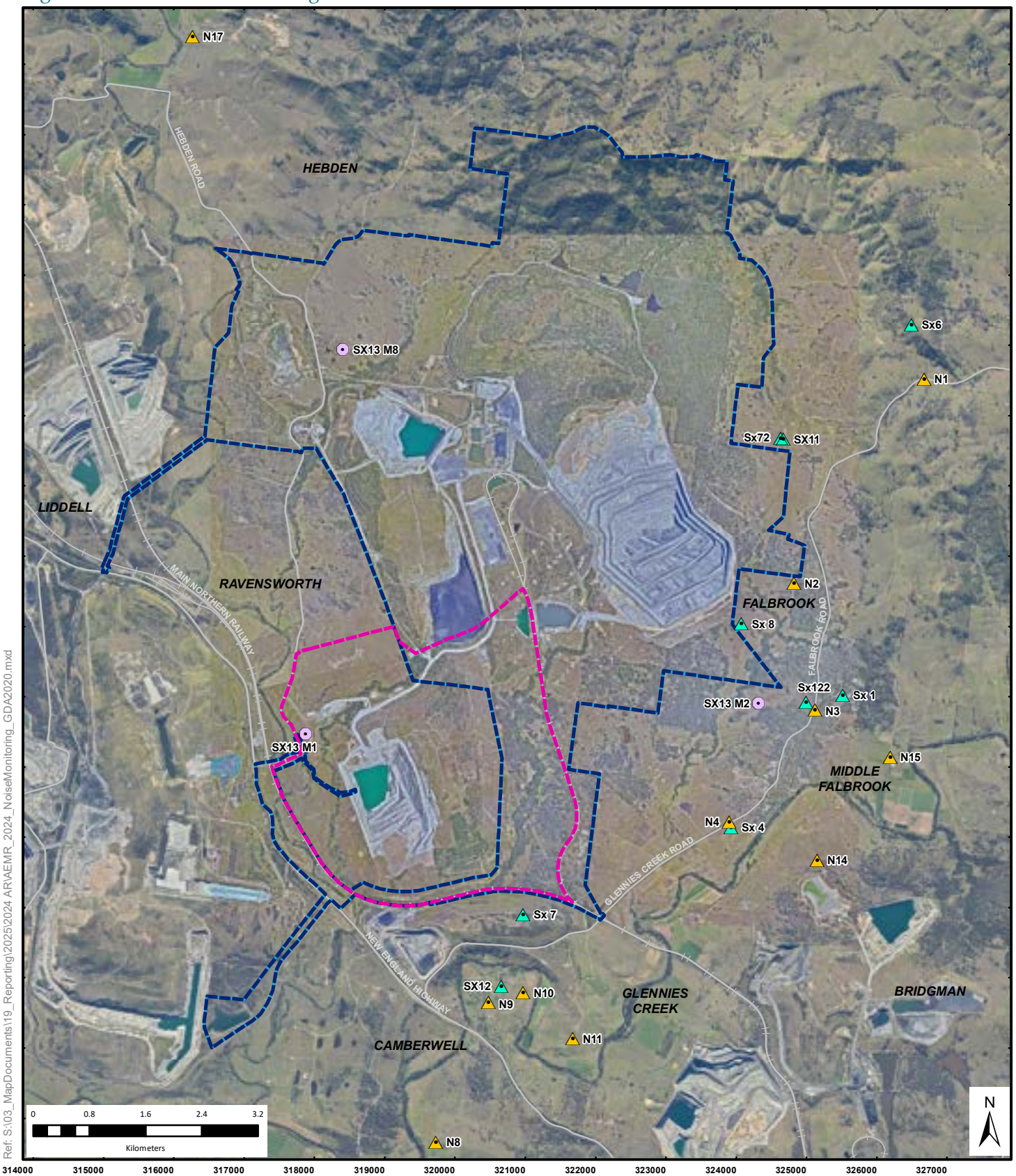
The noise monitoring program includes both continuous noise monitors and attended noise monitoring. It is designed to measure the contribution that MTO, Ravensworth East and Glendell make to the environmental noise levels in the region surrounding MGO.

Compliance with the development consents and regulatory requirements is determined from routine attended noise monitoring. Real-time noise monitors provide supporting information to the compliance assessment process when high noise levels are recorded during the attended noise monitoring program.

Both attended and real-time noise monitoring locations are detailed in *Figure 6* and *Appendix C*. Continuous and attended locations were selected as being representative of the nearest and/or most affected residences to the east, south and south-east of MGO. Monitoring locations are reviewed and where necessary, revised over the life of operations.

Mount Owen Glendell Operations

Figure 6: MGO Noise Monitoring Locations



Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\AEMR_2024_NoiseMonitoring_GDA2020.mxd

Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Noise Attended Monitoring Location
- Noise Real Time Monitoring Location
- Meteorological Station
- Main Roads
- Railway

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:75,000
Map Created By: rabbott
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

7.2.2 Performance

Attended noise monitoring was undertaken monthly during the night-time periods in accordance with the approved NMP. Additional monitoring of day and evening periods occurred seasonally at MTO in accordance with EPL 4460 during the reporting period.

Results of the 2024 attended noise monitoring program are summarised in *Table 16* and *Table 17*, for MTO and *Table 18* and *Table 19*, for Glendell.

One elevated $L_{A1,1min}$ night-time noise was recorded above the 45dB(A) limit (47dB(A)) during the attended noise monitoring at the N1 location in June 2024. Follow up measurements were undertaken in accordance with the MGO noise measurement protocol which recorded noise levels within compliance limits specified in Schedule 3, Condition 5 of SSD-5850. Relevant notification was reported to DPHI, EPA and residents within the affected location. DPHI investigated this incident and requested further information. They finally determined it was a breach of consent condition, but no further action was required. No community complaint was received at the time of the incident.

An elevated $L_{Aeq(15min)}$ result was recorded at N3 above the 42 dB(A) limit (45 dB(A)). In accordance with the NMP, the acoustic consultant moved to the relevant 'supplementary' monitoring location N15. The recorded contribution at this time was 37 dB(A) against a limit of 37 db(A) confirming that MGO was in compliance with the noise criteria for N15.

Table 16: Summary of MTO and Ravensworth East's 2024 Environmental Noise Level (dB(A)) Contribution (LAeq, 15min)

Monitoring Location	Monitoring Period	Criteria	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024
N1	Day	35	IA[1]	N/A[2]	N/A	IA	N/A	N/A	IA	N/A	N/A	IA	N/A	N/A
	Evening	35	IA	N/A	N/A	IA	N/A	N/A	IA	N/A	N/A	IA	N/A	N/A
	Night	35	<25	32	<30	<30	<30	35	<30	<30	<30	<30	<30	32
								33[3]						
								35[4]						
N3	Day	45	<30	N/A	N/A	<30	N/A	N/A	IA	N/A	N/A	<30	N/A	N/A
	Evening	45	<35	N/A	N/A	<30	N/A	N/A	IA	N/A	N/A	<30	N/A	N/A
	Night	42	<25	41	37	37	39	34	<30	34	45	39	<30	33
N4	Night	42	IA	<40	<32	<35	34	IA	IA	<35	42	41	IA	<35
N15[5]	Night	37	-	-	-	-	-	-	-	-	37[6]	-	-	-
N17	Night	35	IA	IA	IA	30	IA	IA	IA	IA	<35	IA	IA	IA

[1] *IA indicates that the Mine was not audible at the location*

[2] *N/A indicates that day and evening monitoring was not undertaken during this month, it is undertaken on a quarterly basis.*

[3] *Re-measure undertaken following an initial LA1,1minute exceedance at N1 per the NMP*

[4] *Follow-up measurement undertaken after an initial LA1,1minute exceedance at N1 per the NMP*

[5] *N3 Supplementary monitoring point*

[6] *Supplementary measurement undertaken at N15 (N3 supplementary location) after an initial LAeq, 15minute exceedance at N3 per the NMP*

Table 17: Summary of MTO and Ravensworth East's 2024 Environmental Noise Level (dB(A)) Contribution (LA1, 1min) – Night

Monitoring Location	Criteria	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	July 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024
N1	45	<25	<40	<40	<45	<32	47 <40[3] <40[4]	<35	40	<35	<35	<35	<40
N3	49	<30	<49	40	<45	41	37	<35	<40	49	42	<35	<40
N4	52	IA	<40	<40	<45	<40	IA	IA	<45	48	<46	IA	<45
N15	45	-	-	-	-	-	-	-	-	45[6]	-	-	-
N17	45	IA	IA	IA	<45	IA	IA	IA	IA	IA	IA	IA	IA

.

Table 18: Summary of Glendell's 2024 Environmental Noise Level (dB(A)) Contribution (LAeq, 15min) – Night

Monitoring Location	Monitoring Period	Criteria	Jan 2024	Feb 2024	March 2024	April 2024	May 2024	June 2024	July 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024
N4	Night	38	IA[1]	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N8	Night	35	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N9	Night	42	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N10	Night	40	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N11	Night	38	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA

Table 19: Summary of Glendell's 2024 Environmental Noise Level (dB(A)) Contribution (LA1, 1min) – Night

Monitoring Location	Monitoring Period	Criteria	Jan 2024	Feb 2024	March 2024	April 2024	May 2024	June 2024	July 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024
N4	Night	45	IA[1]	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N8	Night	45	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N9	Night	45	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N10	Night	45	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
N11	Night	45	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA

Night time monitoring results are provided in *Appendix C***.** Detailed seasonal noise reports are also available on the Glencore website at *https://www.glencore.com.au/*. The results presented in *Appendix C* and in the seasonal reports do not appear to indicate any trends in the data but generally, align with the predicted noise levels in the relevant MGO approvals.

Sound Power Level (SPL) testing was undertaken on 32 plant items (including fifteen haul trucks, eight dozers, two loaders, one grader, two rubber wheel dozers and four water trucks) during 2024 by an external acoustics consultant. Three items of plant exceeded the EIS targets, and actions were recommended to improve sound attenuation on these units. Sound suppression systems are installed on equipment where needed.

7.2.3 Continuous Improvement

As a part of the ongoing commitment to the management of noise impacts from MGO, a range of continuous improvement activities have been undertaken during 2024, including:

- Ongoing refresher training on noise management
- Ongoing SPL testing of equipment
- Ongoing servicing and maintenance of real-time monitoring units
- Regular review of the performance of the Noise Assessment Tool (DNAT) and update as needed
- The NMP was revised and updated following approval of MOCO Mod 9 and Glendell Mod 5. The updated plan was approved by DPHI on 9 January 2025.

7.3 Blasting

7.3.1 Management and Monitoring

MGO blast management practices are managed in accordance with the MGO *Blast Management Plan* (BMP). Blast monitoring locations are shown in *Figure 7.*

7.3.2 Performance

MGO's performance for 2024 against the approved blasting hours and frequencies is summarised in *Table 20.* All blasts were fired within approved blasting hours.

Three blasts were fired at MTO between 7am and 9am (Monday to Saturday inclusive) in 2024, in accordance with relevant condition of consent. No blasts were fired at Ravensworth East between 7am and 9am (Monday to Saturday inclusive). Operations in Ravensworth East ceased in March 2024.

No blasting occurred at Glendell during 2024.

All blasting results from MGO are available on the website at:

https://www.glencore.com.au/operations-and-projects/coal/current-operations/mt-owen-glendell-open-cut.

Table 20: MGO Blasting Hours and Frequencies for 2024

Approval	Operation	Compliant?	Approved Blasting Hours	Approved Blast Frequencies[1]		Actual Blast Frequencies (2024)		
				Max per day	Ave per week	Total recorded	Max per day	Ave per week
DA 80/952	Glendell	Yes	9am – 5pm Mon to Sat (EST) 9am – 6pm Mon to Sat (DST)	2	5[3]	0	0	0
SSD-5840	Ravensworth East	Yes	9am – 5pm Mon to Sat[2]	2	5[4]	2	1	0.04
SSD-5850	MTO	Yes		2	8[4]	115	2	2.2[5]

1. Does not apply to blasts that generate ground vibration of 0.5mm/s or less at any residence on privately-owned land, or to blast misfires required to ensure the safety of the mine, its workers or the general public.

2. With the exception of an allowable maximum of 12 blasts in a calendar year which may be undertaken between 7 am and 9 am (Monday to Saturday inclusive).

3. Averaged over a 12-month period

4. Averaged over a calendar year

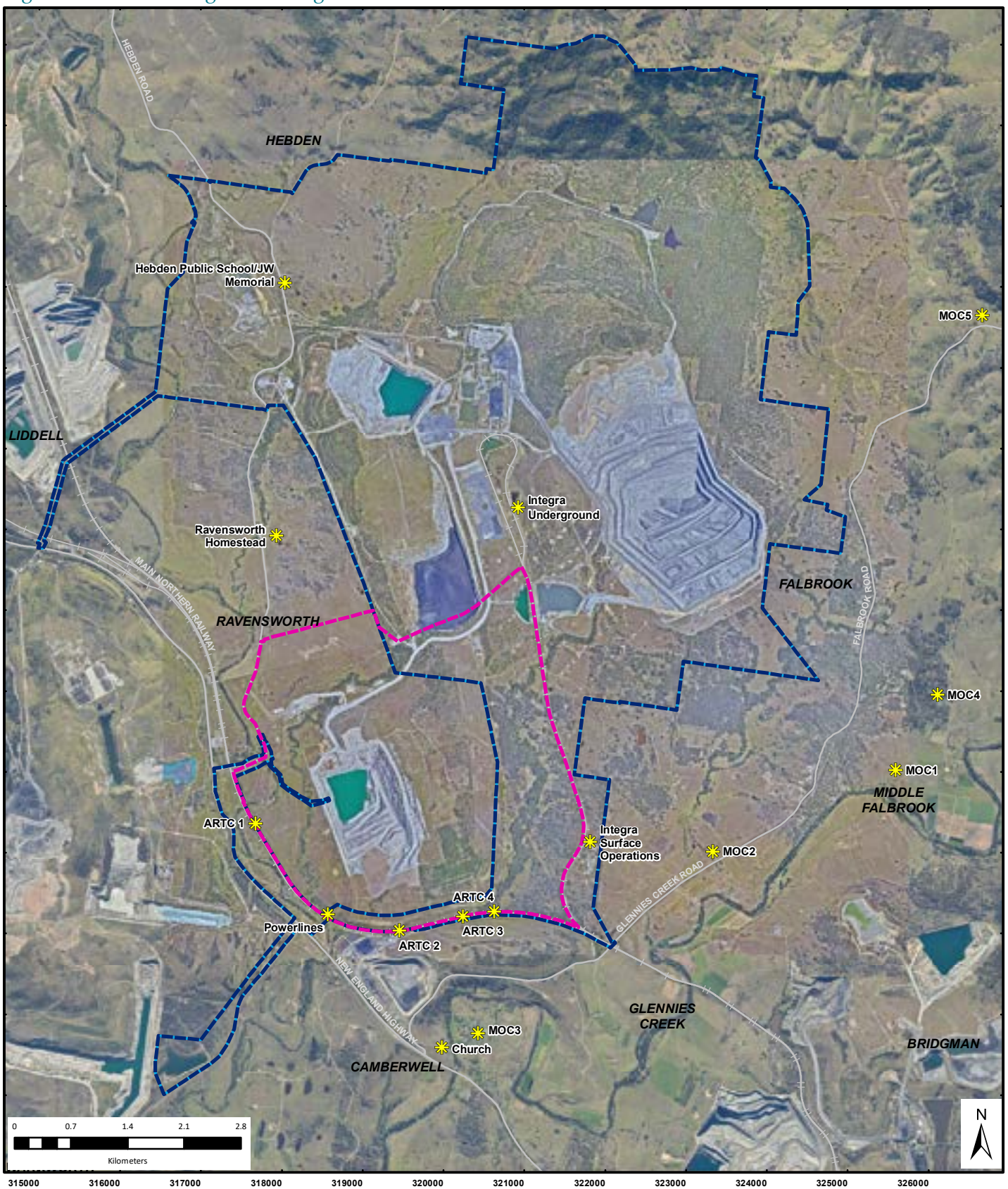
5. Averaged over the 2024 calendar year i.e., 1 Jan 2024 – 31 Dec 2024

EST – Eastern Standard Time

DST – Daylight Savings Time

Mount Owen Glendell Operations

Figure 7: MGO Blasting Monitoring Locations



Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\AEMR_2024_BlastMonitoring_GDA2020.mxd

Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Blast monitoring location
- Main Roads
- Railway

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:65,879
Map Created By: rabbott
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

MGO's performance for 2024 against the approved blasting criteria is summarised in *Table 21*.

Table 21: MGO Blasting Criteria and Performance for 2024

Location	Operation	Approval Criteria			Environmental Performance	Key Trends	Implemented/ Proposed Management Actions
		Airblast Over Pressure (dB (Lin Peak))	Ground Vibration (mm/s)	Allowable Exceedance			
Residents on Privately-Owned Land	MTO Ravensworth East Glendell	120	10	0%	Compliant	Nil	Nil
		115	5	5% of the total number of blasts over a period of 12 months	Compliant		
Ravensworth Homestead	Ravensworth East	126	5	0%	Compliant	Nil	Nil
Chain of Ponds Inn	MTO	133	10	0%	Compliant	Nil	Nil
Kangory (Dulwich) Homestead	MTO	126	5	0%	Compliant	Nil	Nil
Former Hebden Public School	MTO	n/a	16	0%	Compliant	Nil	Nil
John Winter Memorial	MTO	n/a	250	0%	Compliant	Nil	Nil
Integra Underground Surface	MTO	n/a	25 or 100	0%	Compliant	Nil	Nil
Integra Underground Workings	MTO	n/a	10 or 250*	0%	Compliant	Nil	Nil
St Clements Church	Glendell	120	5	0 %	Not Applicable as no blasting undertaken at Glendell due to ceased mining operations		
	Glendell	115	2	5% of the total number of blasts over a period of 12 months			

Location	Operation	Approval Criteria			Environmental Performance	Key Trends	Implemented/ Proposed Management Actions
		Airblast Over Pressure (dB (Lin Peak))	Ground Vibration (mm/s)	Allowable Exceedance			
Main Northern Railway Culverts and Bridges	Glendell	120	25	Negotiated Agreement			
Powerlines	Glendell	n/a	25	Negotiated Agreement			

**10 mm/s safety and personnel withdrawal limit for occupied underground workings and 250 mm/s structural limit for unoccupied workings*

7.3.2.1 MTO

Overpressure and vibration compliance results for MTO are detailed in *Appendix D*.

There were 115 blasts fired at MTO during the reporting period, averaging two blasts fired per week. There were no non-compliances relating to blasting at MTO during the reporting period. An air blast overpressure result of 120.4 dBL was recorded at the blast monitor MOC 4 (located approximately 100m from nearest private residence) following a blast fired on 21 June 2024. Upon further investigation it was determined that the blast overpressure did not exceed 120 dBL at the nearest residence. No complaints were received following this incident. The incident was reported to the DPHI, who determined that there had not been a breach of Schedule 3, Condition 8 of Mt Owen Consent SSD-5850. No community complaint was received following this incident.

7.3.2.2 Glendell

As November 2022, operations ceased at Glendell Mine. As a result, there were no blasts conducted in 2024.

7.3.2.3 Ravensworth East

Overpressure and vibration compliance results for Ravensworth East are detailed in *Appendix D*.

There was a total of two blasts fired at Ravensworth East during the reporting period averaging less than one blast fired per week. There were no non-compliances relating to blasting at Ravensworth East during the report period. Operations at Ravensworth East ceased in March 2024.

MGO will continue to operate and manage blasting activities in accordance with the approved management plan and best practices.

7.3.3 Continuous Improvement

MGO continues to ensure periodic upgrades, maintenance and calibration of its blast monitoring stations to Australian Standards AS2187.2-2006.

The BMP was revised and updated following approval of MOCO Mod 9 and Glendell Mod 5. During this review, it was identified that blast monitors ARTC 1, 2 and 3 were no longer required and could be removed from the monitoring network. The updated plan was approved by DPHI on 9 January 2025.

7.4 Air Quality and Greenhouse Gas

7.4.1 Air Quality

7.4.1.1 Management and Monitoring

Air quality is managed in accordance with the approved MGO *Air Quality and Greenhouse Gas Management Plan* (AQGHGMP). Monitoring locations are shown in *Figure 8* Results of air quality monitoring are presented in *Appendix E*.

Air quality conditions can be characterised by various substances and by various measurement techniques. Airborne particulate matter is typically the key air quality issue for open cut mining and the monitoring in the vicinity of MGO includes the measurement of:

- Particulate matter PM_{10}
- Particulate matter $PM_{2.5}$
- Particulate matter TSP
- Dust deposition.

Appendix E of this report presents the monitoring results for 2024 and for recent years. It should be noted that the measurement data represents the contributions from all sources upwind of each monitor. In the case of PM_{10}, the background concentration may contain emissions from many sources such as from mining activities, construction works, bushfires and 'burning off', industry, vehicles, roads, wind-blown dust from nearby and remote areas, fragments of pollens, and moulds.

Mount Owen Glendell Operations

Figure 8: MGO Air Quality Monitoring Locations

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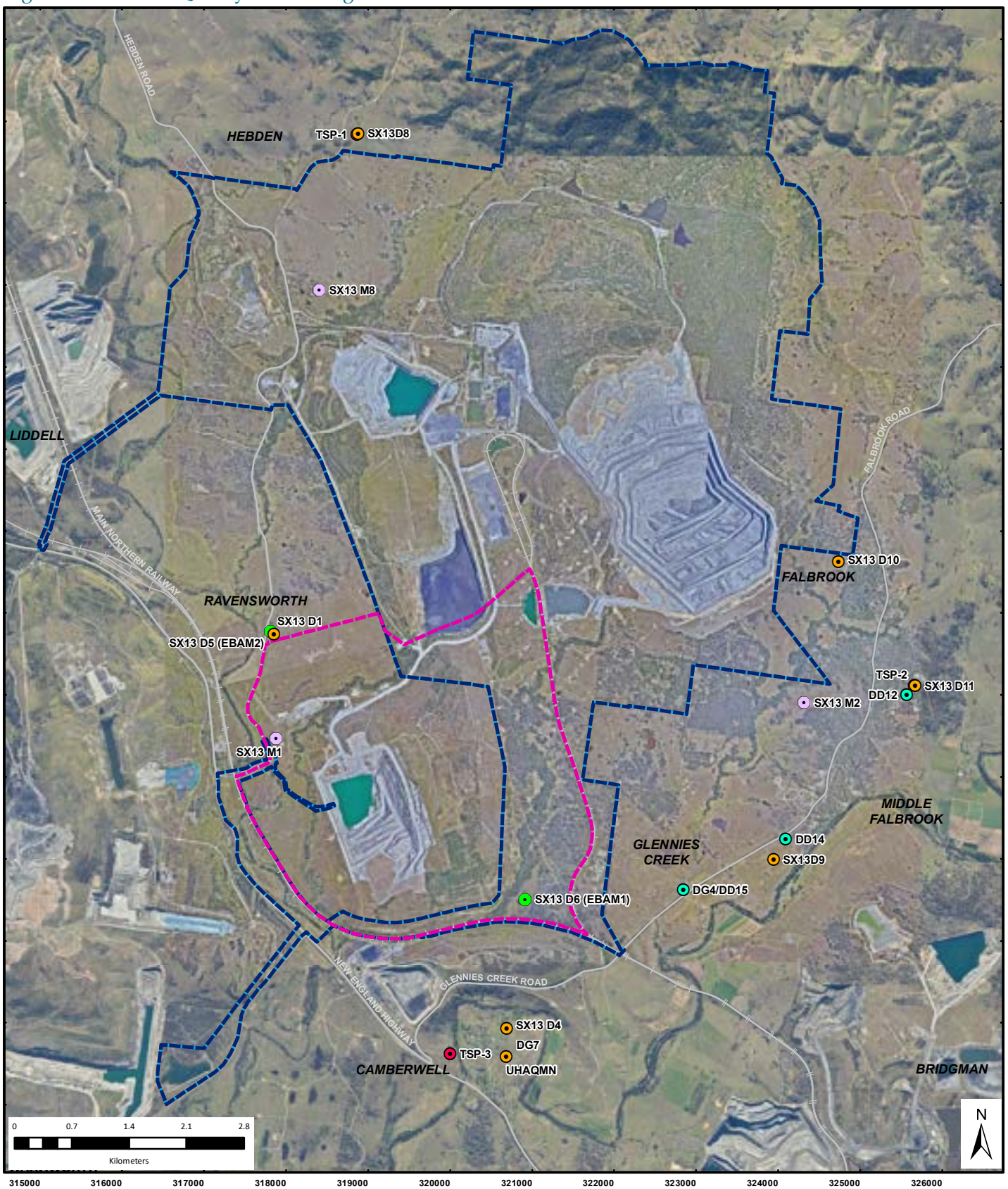


Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\AEMR_2024_AirQualityMonitoring_GDA2020.mxd

Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Air quality (TEOM)
- Air quality (TSP)
- Air quality (depositional)
- Meteorological station
- eBAM particulate
- Main Roads
- Railway

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:65,000
Map Created By: rabbott
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

7.4.1.2 Performance

As noted in DA 80/952 and SSD-5850, determination of compliance against MGO air quality impact assessment criteria are to exclude "…*extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed to by the Secretary*". The DPHI did not record any extraordinary events during the 2024 reporting period. As such, annual averages have been calculated including all events for comparison with the development consent criteria.

Particulate Matter PM_{10}

PM_{10} concentrations are measured by a variety of instruments including Tapered Element Oscillating Microbalance (TEOM) and High-Volume Air Samplers (HVAS).

Table 22 summarises the measured PM_{10} concentrations recorded at MGO during the reporting period. The data in *Table 22* show that the PM_{10} concentrations at all five monitors were below the 24-hour and annual average criteria. Consequently, the monitoring demonstrates compliance with DA 80/952 and SSD-5850 PM_{10} criteria. *Appendix E* provides a more detailed analysis of the monitoring data, including a description of the method used to determine contributions from the direction of MGO.

Table 22: Summary of PM_{10} concentration from MGO monitors in 2024

Statistic	SX13 D1	SX13 D4	SX13 D8	SX13 D9	SX13 D11	Criterion	Environmental Performance this Reporting Period	Implemented/ Proposed Management Actions
Maximum 24-hour average in µg/m³								
Total Impact (all sources)	36.1	143.1	45.0	48.5	48.9	NA	N/A	N/A
Calculated contribution from direction of MGO	11.5	30.7	15.7	22.9	25.6	**50 (SSD-5850 & DA 80/952)**	Compliant	Continuation of existing management and mitigation measures
Annual average in µg/m³								
Total Impact (all sources)	14.3	17.8	15.0	15.7	14.7	**25 (SSD-5850)** **30 (DA 80/952)**	Compliant	Continuation of existing management and mitigation measures
Calculated contribution from direction of MGO	2.2	2.7	1.4	2.6	2.3	NA	N/A	N/A

Particulate Matter $PM_{2.5}$

Table 23 summarises the measured $PM_{2.5}$ concentrations and the calculated contribution from the direction of MGO. The data in *Table* 23 shows that the $PM_{2.5}$ concentrations were below the 24-hour and annual average criteria. Consequently, 2024 monitoring demonstrates compliance with SSD-5850 in terms of $PM_{2.5}$ emissions. *Appendix E* provides a more detailed analysis of the monitoring data.

Table 23: Summary of PM2.5 Concentrations from MGO Monitors in 2024

Statistic	SX13 D8	SX13 D11	Criterion	Environmental Performance this Reporting Period	Implemented/Proposed Management Actions
Maximum 24-hour average in µg/m^3					
Total Impact (all sources)	16.9	17.6	N/A	N/A	Continuation of existing management and mitigation measures
Calculated contribution from direction of MGO (without extraordinary events)	5.3	6.2	**25 (SSD-5850)**	Compliant	Continuation of existing management and mitigation measures
Annual average in µg/m^3					
Total Impact (all sources)	5.6	5.1	N/A	N/A	Continuation of existing management and mitigation measures
Calculated contribution from direction of MGO (without extraordinary events)	0.8	0.5	N/A	N/A	Continuation of existing management and mitigation measures

Particulate Matter TSP

TSP concentrations have been measured by HVAS at three locations, TSP 1, TSP 2 and TSP 3. It should be noted that TSP 1 and TSP 2 are on mine owned land. *Table 24* shows the measured annual average TSP concentrations from each monitor for data collected in 2024.

The data shows that the TSP concentrations at TSP 1, TSP 2 and TSP 3 were below the 90 µg/m^3 annual average criteria. Consequently, the monitoring demonstrates compliance with the development consents in terms of TSP emissions.

Table 24: Summary of TSP Concentrations from MGO Monitors in 2024

Statistic	TSP 1	TSP 2	TSP 3	Criterion SSD-5850 & DA80/932	Environmental Performance this Reporting Period	Implemented/ Proposed Management Actions
Annual average in µg/m^3	44	67	47	**90**	Compliant	Continuation of existing management and mitigation measures

Depositional Dust

Table 25 shows the measured annual average deposited dust levels from each monitor during 2024. The annual averages excluded monthly results marked as contaminated by the monitoring contractor. The deposited dust levels recorded during the reporting period were below 4 g/m^2/month at all

monitoring sites (refer *Table 25*). The calculations also show that the MGO did not exceed the "incremental impact" criteria from the development consents (i.e. 2 g/m^2/month increase on the previous year).

Following the approval of DA 80/952 Mod 5, the requirement for measuring deposited dust was removed for Glendell.

Table 25: Summary of Deposited Dust Levels from MGO Monitors in 2024

Statistic	DD12	DD14	DD15/DG4	DG7	Criterion (SSD-5850)	Environmental Performance this Reporting Period	Implemented/ Proposed Management Action
Annual average in g/m^2/month							
Annual average	2.7	0.7	1.2	1.0	**4**	Compliant	Continuation of existing management and mitigation measures
MTO incremental increase	0.8	0.3	0.6	0.4	**2**	Compliant	Continuation of existing management and mitigation measures

7.4.1.3 Comparison of data

EIS predictions

The measured annual average PM_{10}, TSP and deposited dust levels have been compared to the predictions made in the latest environmental assessment of the approved operation, that is, the Statement of Environmental Effects (SEE) for MOCO Modification 2 (Umwelt, 2018). The SEE air quality predictions for Year 8 (approximately 2026) were used for the comparison, as the most representative of current MGO operations.

Table 26 shows the comparisons, which confirm that the measured results for annual average PM_{10}, annual average TSP concentrations and annual average deposited dust levels for 2024 remain lower than the SEE predictions.:

Table 26: Comparison between EIS Predictions and Air Quality Measurements in 2024.

Location	Prediction (MOCO Mod 2 for Year 8)	Measurement 2022	Measurement 2023	Measurement 2024
Annual average PM_{10} in µg/m^3				
SX13 D1	21	16	18	14
SX13 D4	28	15	20	18
SX13 D8	17	15	20	15
SX13 D9	25	13	19	16
SX13 D11	25	10	17	15

Location	Prediction (MOCO Mod 2 for Year 8)	Measurement 2022	Measurement 2023	Measurement 2024
Annual average TSP in µg/m³				
TSP 1	71	29	44	44
TSP 2	76	40	69	67
TSP 3	78	39	48	47
Annual average deposited dust in g/m²/month				
DD12	3.7	1.7	3.0	2.7
DD14	2.6	1.0	0.9	0.7
DD15/DG4	2.6	1.6	1.5	1.2
DG7	2.9	1.3	1.7	1.0

Further information on the air quality data can be found in the independent air quality report, prepared by a suitably qualified air quality specialist, in *Appendix E*.

Trends

Air quality impacts from MGO have remained within compliance when compared to the short term and long-term impact assessment criteria stipulated in the Mt Owen/Glendell development consents (SSD-5850 and DA80/952), and below EIS predictions. Measurement results in 2024 were generally lower than in 2023. This was primarily due to an increase in rainfall in 2024.

7.4.1.4 Continuous Improvement

As a part of the ongoing commitment to the management of dust impacts from MGO, a range of activities were undertaken during 2024 that fall within the continuous improvement program, the most important being:

- Haul road dust control efficiency monitoring in the active Mt Owen North Pit. In accordance with the AQGHGMP, MGO engages an air quality consultant to assess (every three years) the effectiveness of dust mitigation measures (eg water cart usage). The dust control efficiency target is 85%and results ranged from 91% to 94% efficiency across the haul road sections monitored.
- Installation of environmental monitoring camera to monitor potential dust and blast fume events across MGO approved Project Boundary
- Ongoing refresher training of mining personnel on MGO dust management system, Trigger Action Response Plans (TARPs) and alarm response
- The AQGHGMP was revised and updated following approval of MOCO Mod 9 and Glendel Mod 5 in 2024. DDG7 was removed to align with Glendell Mod 55 conditions.

7.4.2 Greenhouse Gas

MGO reports greenhouse gas emissions (GHG) in accordance with National Energy and Greenhouse Gases (NGER) legislation.

Each financial year, MGO submits emissions data to the federal government. The NGERs reporting year is based on a financial year, not a calendar year such as this Annual Review. In order to prevent incompatible public reporting, the values in this report cover the 2023/2024 financial year. *Table 27* contains the Scope 1 (direct emissions from the mining activities during the year), and Scope 2 emissions (electricity consumption by the mine during the year).

Table 27 compares average annual predictions of **tCO2-e** from the original Environmental Impact Statements (EIS) for Mt Owen and Glendell and the actual emissions reported by MGO in the last report (2023-2024). Actual annual emissions are well under predictions values.

Table 27: Greenhouse Gas Emissions at MGO during the 2023/24 Financial Year

Emission Source	MTO Continued Operations EIS (Umwelt, 2015) and MOCO Mod 2 (Umwelt, 2018) predictions (t CO_2-e/ year)	Glendell EIS (Umwelt, 2007) predictions (t CO_2-e/ year)	Total Predictions for MGO (t CO_2-e/ year)	Actual MGO (t CO_2-e/ year)
Scope 1 Emissions	472,000	150,501	622,501	265,669
Scope 2 Emissions	72,000	1,193	73,193	33,672
Total Emissions	**544,000**	**151,694**	**695,694**	**299,341**

MGO is a part of the wider coal assets held by Glencore across Australia. Glencore Coal Assets Australia (GCAA) are themselves a part of the global Glencore mining portfolio. In line with the ambitions of the 1.5^{o}C scenarios set out by the Intergovernmental Panel on Climate Change (IPCC), Glencore target a short-term reduction of 15% by 2026 and a medium-term 50% reduction of our total Scope 1, 2 and 3 emissions by 2035 on 2019 levels. Post 2035, Glencore's ambition is to achieve, with a supportive policy environment, net zero total emissions by 2050.

Glencore incorporates energy costs and carbon footprint into the annual planning process. Commodity departments, such as Glencore Coal Assets Australia (GCAA), are required to provide energy and GHG emissions forecasts for each asset over the forward planning period and provide details of emissions reduction projects.

In the case of MGO this includes involvement with GCAA when considering available GHG abatement technology and mine planning to optimise efficiency (which usually translates into reduced fuel consumption).

MGO minimises emissions from diesel and electricity consumption by:

- Optimisation of mining practices e.g. haulage planning, blast design, conveying arrangements
- Optimisation of engine performance e.g. studies undertaken in collaboration with OEMs to enhance fuel efficiency and emissions reduction
- New fleet is purchased with the most fuel-efficient engines available where possible
- Ongoing monitoring and assessment of emerging technologies.

7.5 Biodiversity and Land Management

7.5.1 Management and Monitoring

7.5.1.1 Biodiversity Offset Management Plan and Strategy

The *Biodiversity Offset Management Plan and Strategy* (BOMPS) has been developed in accordance with

- Schedule 3, Conditions 27 - 29 of SSD-5850
- Schedule 3, Condition 36A of DA80/952.

The BOMPS is used to describe the controls and monitoring implemented for the management of flora and fauna at Mount Owen Glendell Operations (MGO), Conservation Areas (CAs) and Biodiversity Offset Areas (BOAs) for biodiversity conservation and enhancement purposes. The objectives for land management at MGO are based on land management principles, including:

- Ecological management actions
- Regeneration and revegetation strategies
- Controls and monitoring programs.

Natural regeneration is promoted where practical to enhance biodiversity and landscape amenity.

7.5.1.2 Biodiversity Offset and Conservation Areas

MGO has secured several BOAs and CAs in accordance with conditions of SSD-5850 and DA 80/952.

Since 2019, MGO has held Conservation Agreements with the Biodiversity Conservation Trust (BCT) for the following:

- Bettys Creek (Enex Foydell) Conservation Area
- Bettys Creek (Glendell) Conservation Area
- Mount Owen Offsets Conservation Area, represented by a cluster of four smaller offset areas, being;
    - North-East Offset;
    - Forest East Offset;
    - South-East Offset; and
    - South-East Corridor Offset.
- Southern Remnant Conservation Area
- North-West Offset Conservation Area.

In accordance with Schedule 3, Condition 29 of SSD-5850 MGO has secured the long-term protection of the MOCO BOAs.

In 2023, the Biodiversity Stewardship Agreements (BSA) for Mitchell Hills, Cross Creek and Stringybark were executed by Glencore and BCT representatives. The Total Fund Deposit (TFD) for the three BSA offset sites were paid in full in January 2024 and the associated biodiversity credits were retired. The three BSA offset sites are currently in Year 1 (March 2024-March 2025) for active management. The BSA for Esparanga offset area was executed in September 2024 excluding the crown roads that lie

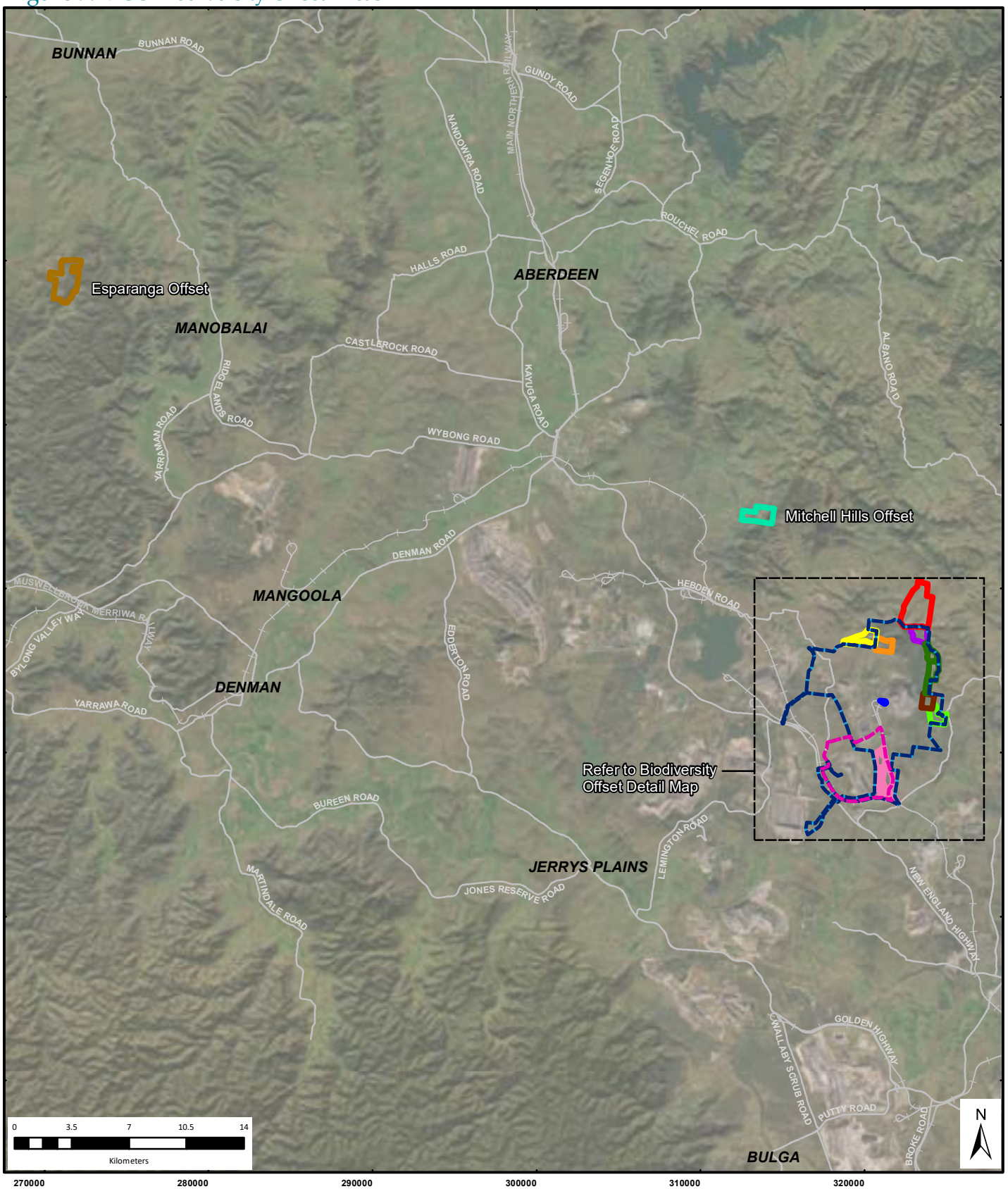
within the property. MGO paid the TFD and retired the associated biodiversity credits in December 2024. Esparanga started Year 1 Active Management as of January 2025.

The biodiversity credits associated with Schedule 3, Condition 29A to 29E of SSD-5850 Mod 2, Mod 5, Mod 6, Mod 7 and Schedule 3, Condition 36a of DA 80/952 Mod 4 were retired in April 2024 via direct payment into the Biodiversity Conservation Fund (BCF).

MOCO Mod 9 was approved by DPHI on 21 August 2024 to make changes to minor errors within the consent and correct miscalculations in the offset areas in Table 9 of SSD 5850. Details of the MGO BOAs are provided in *Appendix F, Table F1* with their locations shown in *Figure 9* and *Figure 10.*

Mount Owen Glendell Operations

Figure 9: MGO Biodiversity Offset Areas



Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\Biodiversity\AEMR_2024_Biodiversity_Overview_GDA2020.mxd

Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Bettys Creek Habitat Management Area (HMA)
- Cross Creek Offset
- Esparanga Offset
- Forest East Offset
- Mitchell Hills North Offset
- North East Offset
- North West Offset
- South East Corridor Offset
- South East Offset
- Southern Remnant Offset
- Stringybark Creek Habitat Corridor Offset
- Road
- Railway

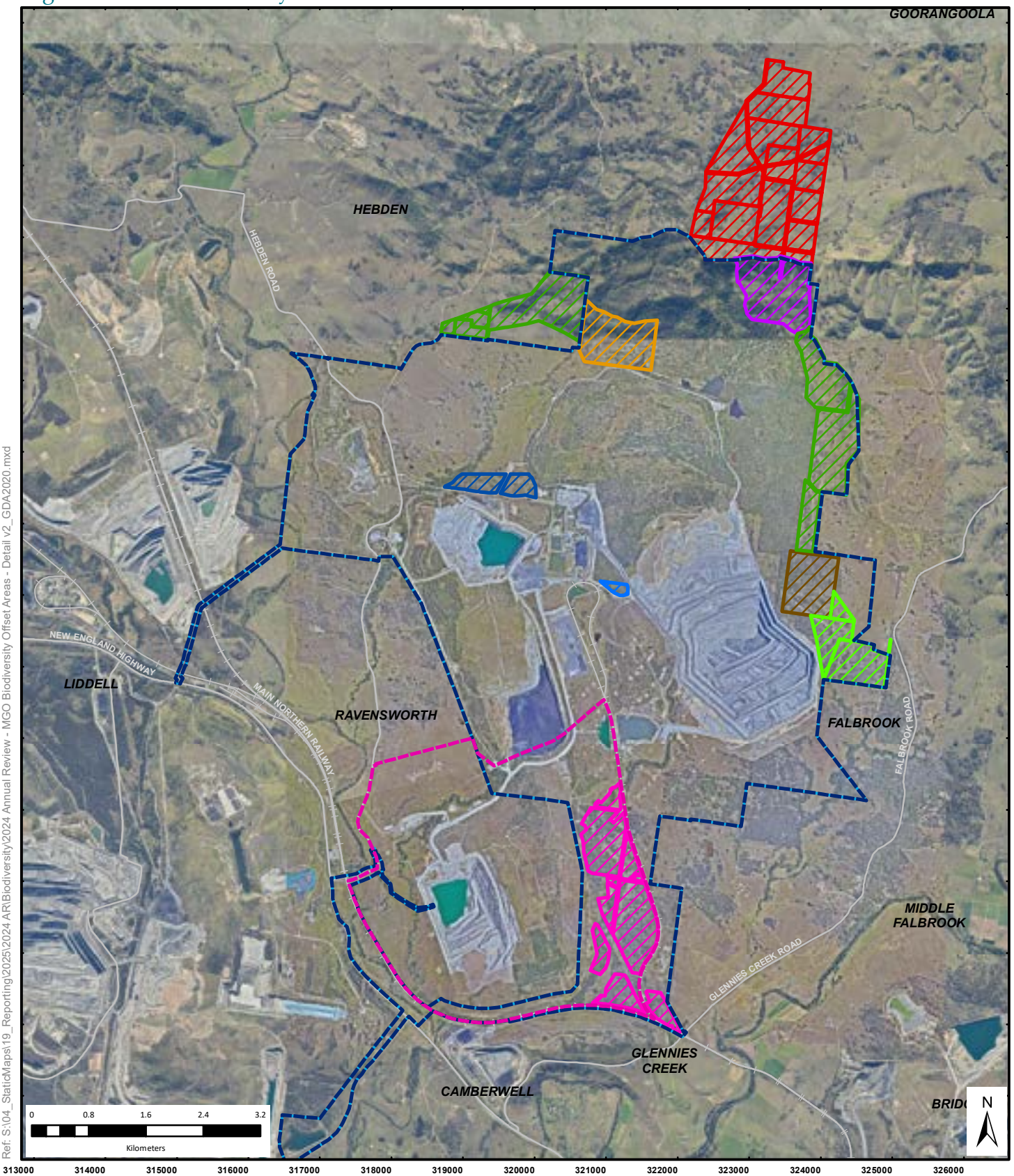
GDA2020

Date Created: 16/01/2025
Map Size: A4 Portrait
Scale: 1:325,000
Map Created By: ssatinathan
Coordinate System: GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

Mount Owen Glendell Operations

Figure 10: MGO Biodiversity Offset Areas - Detail

GLENCORE



Ref: S:\04_StaticMaps\19_Reporting\2025\2024 AR\Biodiversity\2024 Annual Review - MGO Biodiversity Offset Areas - Detail v2_GDA2020.mxd

Legend

- Glendell Project Boundary
- Mt Owen Project Boundary
- Bettys Creek Habitat Management Area (HMA)
- Cross Creek Offset
- East West Corridor Management Area
- Forest East Offset Offset
- North East Offset
- North West Offset
- South East Corridor Offset
- South East Offset
- Southern Remnant Offset
- Stringybark Creek Habitat Corridor Offset
- Footprint
- Main Roads
- Railway

GDA2020

Date Created: 26/02/2025
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Map Created By: ssatinathan
Coordinate System: GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

7.5.1.3 Rehabilitation Woodland Offset

In accordance with the requirements of SSD 5850 Schedule 3, Condition 27A, MGO was required to identify 518 ha of mine rehabilitation to commit as a BOA within five years of commencement of operations. This area is to be restored to *Central Hunter Ironbark – Spotted Gum – Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions* EEC under the *Biodiversity Conservation Act 2016* (BC Act). The long-term conservation of this offset will be determined in accordance with Schedule 3, Condition 29, of SSD-5850 which requires the Rehabilitated Woodland to be under long term protection within 12 months of the finalisation of the location of the offset area, unless the Secretary agrees otherwise.

One section of the proposed Rehabilitated Woodland offset area is located within the Ravensworth State Forest footprint and MGO will require an agreement or land transfer with Forestry Corporation NSW (FCNSW) for this area. MGO will continue to discuss this matter to understand the scope of the agreement and the final location of the 518 ha Rehabilitated Woodland cannot be determined until these discussions are concluded. DPHI approved an extension until 30 September 2025 to determine the location of the required 518 ha.

Schedule 3, condition 31(d) requires MGO to include a final location of the 518 ha of Rehabilitated EEC Woodland offset area in the BOMPS within a period as agreed by the Secretary. An extension until 30 March 2024 was approved in March 2023. MGO reported an administrative non-compliance with condition 31(d) to DPHI on 5 April 2024. An application for a time extension to meet this condition was submitted to DPHI on 15 March 2024, however extension approval was not received until 19 April 2024.

7.5.1.4 Revegetation

Direct seeding and planting were undertaken across MGO's BOAs in 2024. Approximately 29.5 ha was revegetated across Stringybark offset, Bettys Creek Enex Foydell offset, South East offset, South East corridor offset and East West Corridor offset. 12 ha of Stringybark offset and 3.5 ha of East West Corridor Offset were direct seeded. In total, 13,340 tube stock were planted across South East offset and South East corridor offset while 2,300 tube stock were planted in Bettys Creek Enex Foydell offset.

The location of the revegetated areas is shown on *Figure 11*.

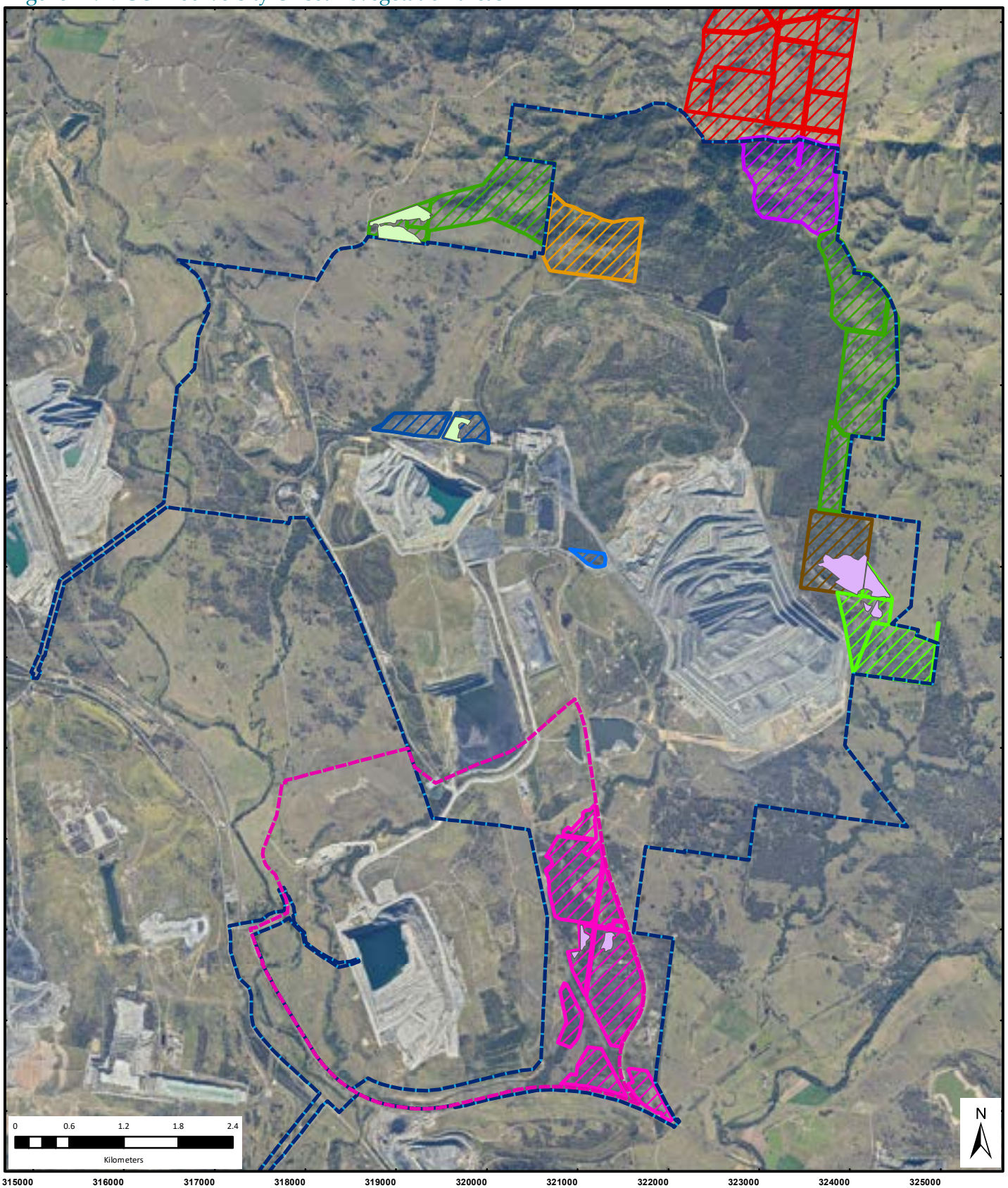
7.5.1.5 Compensatory Planting

In accordance with DA 80/952 and SSD-5850, a compensatory planting ratio of 10:1 is required for every Hunter River Oak removed or severely damaged as a result of works associated with the relocation of the transmission line at Glendell and the installation of the infrastructure associated with GRAWTS.

In 2020, MGO planted Hunter River Oak using direct seeding at two fenced locations (northern and southern compensatory planting locations) along Bowmans Creek Riparian Corridor. Due to the low survival rate of the previous revegetation an additional 2,000 River Oak tube stock were planted in 2021 at the same locations. The southern compensatory area was impacted by a grassfire in October 2023, maintenance was conducted on the fence and an additional 1000 *Casuarina cunninghamiana* (River Oaks) tube stock plants were planted in late 2024. MGO will monitor their survival rate.

Mount Owen Glendell Operations

Figure 11: MGO Biodiversity Offset Revegetation areas



Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\Biodiversity\AEMR_2024_Revegetation Areas_GDA2020.mxd

Legend

Revegetation 2024

- Direct seeding
- Tubestock planting
- Glendell Project Boundary
- Mt Owen Project Boundary
- Bettys Creek Habitat Management Area (HMA)
- Cross Creek Offset
- East West Corridor Management Area
- Forest East Offset Offset
- North East Offset
- North West Offset
- South East Corridor Offset
- South East Offset
- Southern Remnant Offset
- Stringybark Creek Habitat Corridor Offset
- Footprint

GDA2020

Date Created: 16/01/2025
Map Size: A4 Portrait
Scale: 1:58,682
Map Created By: ssatinathan
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

7.5.1.6 Flora Monitoring

Conservation Areas

As specified within Annexure D of the CAs, annual monitoring of each CA is required. Monitoring methods during 2024 were consistent with Annexure D of each CA and included:

- Photo monitoring for comparison to baseline photos taken between 2015 and 2017 (undertaken at the exact location and from the exact bearings as baseline photos) (See *Figure 14* and *Figure 13* for example)
- Quadrat monitoring, to compare data to benchmark data provided in Annexure D, Table 26 of each CA.
- Walkthrough assessment of opportunistic sightings, including:
  - Fire events or impacts of fire management.
  - Weeds (including compilation of list of exotic species and recording new weed infestations including location and extent).
  - Pest animals (species and location must be recorded, including evidence of pest animals such as burrows, scats or disturbance).
  - Visitor impact and vehicle access (including evidence of any recent usage, and the presence of any new access trails or tracks).
  - Rubbish dumping.
  - Natural regeneration of previously disturbed areas.
  - Sightings of threatened species.

All monitoring works were undertaken by qualified ecologists at the locations required in Annexure D, Table 1 of each CA (reproduced in *Appendix F, Table F2).* Monitoring locations are provided in the BOMPS which is available on MGO's website**.** The results of the monitoring are discussed in **Section 7.5.2**.

Figure 12: Betty's Creek Enex Foydell

Figure 13: Mount Owen Conservation Area

Biodiversity Stewardship Agreement Offset Areas

In 2024, flora monitoring was conducted within MGO BSA BOAs (see *Appendix F, Table F2*).

All monitoring works were undertaken by qualified ecologists based on monitoring locations on each BSA. Monitoring locations are provided in the BOMPS.

Figure 14: Photo plot P06 showing regeneration of Northwest Conservation Area

7.5.1.7 Fauna Monitoring

Fauna monitoring methods undertaken at MGO fauna monitoring sites and within the BOAs in 2024 consists of the following methods:

- Diurnal woodland bird surveys;
- Targeted winter bird surveys;
- Microbat echolocation call surveys;
- Diurnal herpetofauna surveys;
- Spotlight surveys;
- Call playback surveys; and
- Remote camera surveys.

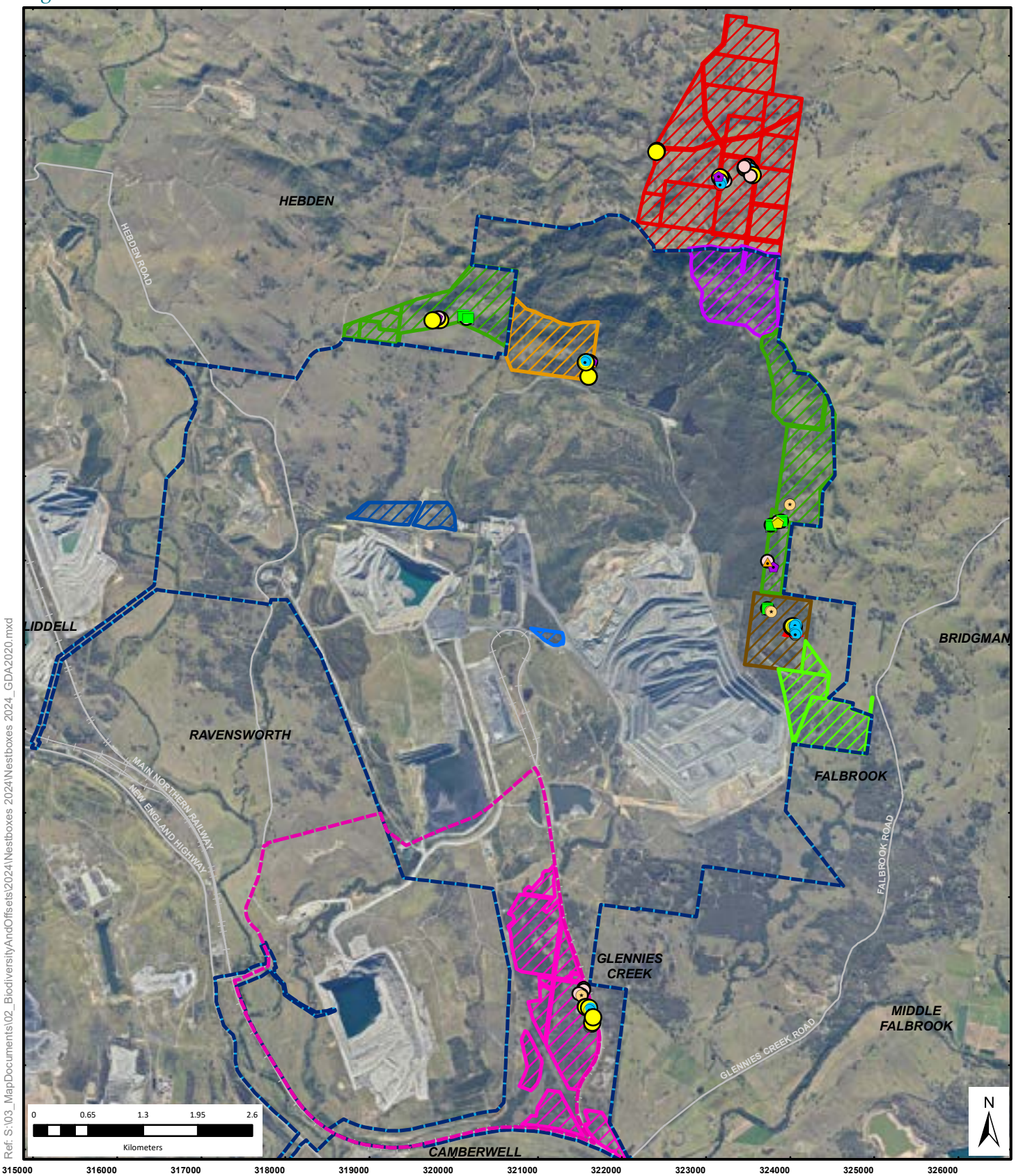
The results of the 2024 Fauna Monitoring are discussed in *Section 7.5.2.3*.

7.5.1.8 Habitat Augmentation

105 nest boxes were installed across MGO BOAs in 2024. The locations of these nestboxes are shown on *Figure 15*, and photographs of a sample of the boxes are provided in *Figure 16*.

Mount Owen Glendell Operations

Figure 15: Location of nestboxes installed 2024 within MGO BOAs



Ref: S:\03_MapDocuments\02_BiodiversityAndOffsets\2024\Nestboxes 2024\Nestboxes 2024_GDA2020.mxd

Legend

fauna_spec

- bat
- bird
- galah
- glider
- large parrot
- microbat
- possum
- small mammal
- small parrot
- Glendell Project Boundary
- Mt Owen Project Boundary
- Bettys Creek Habitat Management Area (HMA)
- Cross Creek Offset
- East West Corridor Management Area
- Forest East Offset Offset
- North East Offset
- North West Offset
- South East Corridor Offset
- South East Offset
- Southern Remnant Offset
- Stringybark Creek Habitat Corridor Offset
- Footprint
- Main Roads
- Railway

GDA2020

Date Created: 13/12/2024
Map Size: A4 Portrait
Scale: 1:62,623
Map Created By: ssatinathan
Coordinate System: GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

A: Brush-tailed Phascogale emerging from nestbox, MGO Offset

B: Microbat nestbox installed in Stringybark Offset

Figure 16: Nestboxes installed in MGO Offsets, 2024

7.5.1.9 Weed Management

A Weed Action Plan was developed in 2024 to identify all targeted weed control activities at MGO BOAs. The plan was implemented during the reporting period, continuing the active programs of control that have been implemented since 1996. During 2024, weeds targeted in MGO's BOA include:

- St John's Wort- *H. perforatum*
- Lantana- *Lantana camara*
- Coolatai Grass- *Hyparrhenia hirta*

- Prickly Pear -*Opuntia spp.*
- African Boxthorn - *Lycium ferocissimum*
- African Olive - *Olea europaea subsp. cuspidata*

Weeds were also treated across the MGO buffer land and rehabilitation areas, targeting species including (but not limited to):

- African Boxthorn - *Lycium ferocissimum*
- African Olive - *Olea europaea subsp. cuspidata*
- African Lovegrass - *E. curvula*
- *Acacia saligna*
- Bathurst Burr - *Xanthium spinosum*
- Blackberry - *Rubus fruticosus* species aggregate
- Coolatai Grass - *Hyparrhenia hirta*
- Cotton Bush – *Gomphocarpus fructicous*
- Inkweed - *Phytolacca octandra*
- Lantana - *Lantana camara*
- Pampass Grass – *Cortaderia spp.*
- Prickly Pear - *Opuntia spp.*
- Saffron Thistle – *Carthamus lanatus*
- Scotch Thistle - *Onopordum acanthium*
- Tiger Pear - *Opuntia aurantiaca*
- Spear Thistle - *Cirsium vulgare*

A summary of weed management works undertaken in MGO offsets during the reporting period is included in *Appendix F, Table F4*.

7.5.1.10 Pest Control

A targeted wild dog and fox baiting program was conducted across MGO BOAs and bufferlands during the reporting period. The program consisted of a seasonal '1080' baiting program undertaken in Autumn (May) and Spring (October). MGO's baiting program ran at the at the same time as other operations' baiting programs in the Singleton and Muswellbrook areas, and as such formed part of a broad scale baiting program to target and control the populations of foxes and wild dogs in the area.

Trained personnel placed '1080' poison baits across all areas. Results of the 2024 offset baiting program are summarised in *Table 28, Table 29* and *Section 7.5.2.5.* Pig trapping was conducted in 2024 at Stringybark offset, Northwest offset, Forest East offset and Northeast offset, and a total of 27 pigs were trapped in 2024.

7.5.2 Performance

7.5.2.1 Revegetation

Direct seeding and planting were undertaken across MGO's BOAs in 2024. Approximately 29.5 ha was revegetated across Stringybark offset, Bettys Creek Enex Foydell offset, South East offset, South East corridor offset and East West Corridor offset

During the 2024 flora monitoring, natural canopy regeneration was commonly encountered across all BOAs flora survey plots, most likely in response to the improved environmental conditions following the above average rainfall throughout 2024.

Weed cover is typically low across all BOAs however there are areas where exotic species are abundant. These areas will be targeted for treatment. The distribution of exotic species is dependent on the site features i.e. slope, remnant vegetation and disturbance. Areas containing remnant vegetation along slopes, ridges and creek lines primarily contain woody weeds such as Lantana and African Olive whereas open areas with minimal canopy and midstory cover contain an increased frequency of exotic grasses and herbaceous weeds.

7.5.2.2 Flora Monitoring Results

Conservation Areas

Appendix F, Table F6 summarises biodiversity management performance in the Conservation Areas for 2024. Monitoring indicates an overall improvement throughout the Conservation Areas, assisted by weed control, and management of vertebrate pests.

Biodiversity Offset Areas

Appendix F, Table F7 summarises biodiversity management performance in the BSA BOAs for 2024. Generally, the Biodiversity Offset areas have shown good growth over the last few years. Maintenance and construction of perimeter fences is ongoing, along with ongoing weed control and vertebrate pest management. All BSA BOAs are currently in active management.

7.5.2.3 Fauna Monitoring Results

The 2024 monitoring year was characterised by slightly below average rainfall with wetter conditions during the winter period. Vehicle access was difficult at times due to wet ground conditions. However, despite the limitations of vehicle access, all sites were accessed at the specified times throughout the year.

All fauna monitoring works were undertaken by a qualified ecologist. Monitoring locations are provided in the BOMPS which is available on Glencore's website.

Birds

A cumulative total of 89 native and two introduced bird species were recorded during the 2024 monitoring year. Bird species diversity was comparable to previous monitoring years, where 81 species were recorded in 2023, for example. There was significant variation in bird species abundance when comparing across individual monitoring sites during each monitoring period. However, this is an issue with sampling bias, whereby surveys conducted at dawn and dusk coincide with high bird activity. In contrast, bird activity is often subdued during the middle part of the day. One new bird species was recorded in 2024 at Mitchell Hills VCA, the threatened Glossy Black Cockatoo. The cumulative total of all bird species recorded in the MGO Complex and Offsets since commencement of monitoring in 1995 is 174 bird species.

Seven threatened bird species were recorded in 2024, including White-bellied Sea Eagle (MGO), Glossy Black Cockatoo (Mitchell Hills), Little Lorikeet (North East Offset), Powerful Owl (MGO), Speckled Warbler (Stringybark Creek, Bettys Creek Habitat Management Area, Mitchell Hills, Esparanga, MGO), Scarlet Robin (Forest East Offset), Grey-crowned Babbler (Southern Remnant, Forest East, South East, Bettys Creek Habitat Management Area, Mitchell Hills, Esparanga, MGO).

Refer to *Appendix F, Table F9* for bird species recorded 1994-2024.

Mammals

Twelve native and nine introduced mammal species were recorded across MGO CAs and BOAs in 2024, a slight increase on diversity to the 2023 monitoring period where ten native species and eight introduced species were observed. Mammals were recorded by a combination of nocturnal spotlight searches, diurnal observation whilst undertaking other duties and field camera monitoring over the period June to December 2024. Native mammals recorded include the threatened Brush-tailed Phascogale, Spotted-tail Quoll, Squirrel Glider and Koala (see *Figure 17*). The Brush-tailed Phasogale was detected in several nestboxes installed across MGO Offsets including Bettys Creek Habitat Management Area. The Squirrel Glider was detected at a number of locations in 2024, mostly in installed nest boxes. The Spotted-tail Quoll was detected by field camera at a number of locations including Ravensworth State Forest, Mitchell Hills, Stringybark Creek.

The Koala was heard calling at Mitchell Hills Offset on one evening in November 2024. This is the first recorded occurrence of the species within the Mitchell Hills Offset, although several nearby records of the species occur. For instance, the Koala has been recorded at the adjoining Hillcrest Offset also managed by Glencore.

Nine introduced mammal species were recorded in 2024. The abundance of each species, as determined by remote field camera monitoring, was considered low. This is based on the number of days each species was recorded over the entire monitoring period. However, damage to habitat was evident at specific locations, particularly during the winter period when ground conditions were very wet. Damage by pigs was widespread during this period.

Refer to *Appendix F, Table F10* for mammal species recorded 1994-2024.

A: Squirrel Glider in installed Nest Box, South East Offset

B: Leaf and Feather nest typical of Brush-tailed Phascogale use

Figure 17: Opportunistic photos of fauna identified at MGO in 2024

Bats

Twelve microbat species were recorded in 2024, which is comparable to previous monitoring periods. However, bat activity, as determined by the number of recorded calls, was very low in 2024. This is consistent with monitoring at other BOAs owned and managed by Glencore in the mid- to upper Hunter Valley. At several monitoring sites, very low number of microbat calls [<10 per night] were recorded despite favourable weather conditions. Three threatened microbat species were recorded, the Eastern Freetail Bat, Eastern Bentwing-bat, Little Bentwing-bat. A possible recording of Yellow-bellied Sheathtail-bat was tentatively identified from call but was restricted to one call only.

Refer to *Appendix F, Table F10* for mammal species recorded 1994-2024.

Reptiles

Five reptile species were recorded in 2024, which is lower than previous monitoring periods. For several offsets such as Stringybark Creek and Cross Creek, reptile habitat is relatively sparse, due to the extensive grassland habitat with limited habitat features. Several Lace Monitors were observed utilising installed nest boxes in 2024. Those reptile species that were recorded are relatively widespread and abundant. The Bearded Dragon was the most abundant reptile species detected, due to its larger size and being easily detected.

Refer to *Appendix F, Table F11* for reptile species recorded 1994-2024.

Frogs

Six frog species were recorded in 2024 either opportunistically whilst undertaking other duties or heard calling during spotlight searches in MGO Offsets. All 6 species are common in the MGO Offset areas, with no evidence of the threatened Green & Golden Bell Frog *Litoria aurea.* Seasonal conditions in 2024 are likely to have influenced the level of frog activity. Wet conditions were experienced during the winter survey period, a time when typical frog activity is low, only 2-3 species were actively calling. By mid- to late spring 2024, conditions were significantly drier, with some ponds and small dams very low in water level. In late spring when higher frog activity is usual, the drier conditions resulted in low frog calling activity.

Refer to *Appendix F, Table F12* for amphibian species recorded 1994-2024.

Nest Boxes

A total of 330 nest boxes were inspected for use in 2024. Overall occupation rate of fauna across all nest box styles is 36%, with 119 of the 330 boxes either containing individuals, or evidence of use such as leaf nest, droppings or other material. In 2024, a total of 36 individuals were observed present in nest boxes

In 2024, a total of 105 nest boxes were installed across a number of CAs and BOAs, the nestboxes were designed for gliders, microbats, possum and big/small birds. Locations of the installed nestboxes are shown on *Figure 15*. However, the utilisation of these nest boxes varied amongst the different style of boxes. For instance, utilisation of the microbat roost boxes was low, with very few boxes containing microbats. In several instances, microbat boxes were used by other non-target fauna species, such as birds, arboreal mammals, reptiles and frogs.

Nest boxes designed for small and larger birds, gliders and possums recorded significant utilisation in 2024, with several target species such as Brush-tailed Phascogale, Squirrel Glider and Antechinus commonly recorded in boxes. For target threatened species such as the Phascogale and Squirrel Glider, the nest boxes are the most effective technique to determine their presence. For the Squirrel Glider, nest boxes installed in most BOAs revealed the presence of the species. Several nest boxes

exhibited use by birds such as Eastern Rosella and Australian Owlet-nightjar but were not present in the boxes at the time of inspection.

Some CAs, in particular Bettys Creek Enex Foydell CA, are currently saturated with installed nest boxes. The addition of an extra 175 nest boxes to fulfil the Conservation Agreement target will be problematic due to lack of suitable trees for nestbox installation. To overcome this potential problem, installation of the nest boxes towards the end of the 10-year target date (i.e. 2028 – 2029) is considered appropriate. This would give time for new trees to grow to sufficient height and girth to support nest boxes. At present many of the newly established trees are too small to support the weight and size of some nest boxes.

Nest boxes installed more than ten years prior to the CA dates may be approaching their use-by-date due to ageing timber and general decay. Those boxes that have decayed beyond repair will be substituted by new boxes to attain the required targets.

Threatened Species

A total of 31 threatened species have been recorded at MGO BOAs since the commencement of fauna monitoring. However, within any one year, only a subset of the cumulative total will occur, due to seasonal or irregular occurrence within the Hunter region. For instance, the endangered Swift Parrot has only been recorded in three of the 20 monitoring years. This is attributed to their highly irregular movements across the landscape.

In 2024, a total of 13 species comprising six birds, four non-flying mammals and three microbats were recorded. One new species was detected in 2024, the Koala, which was recorded at Mitchell Hills Offset.

Separate from MGO 2024 Fauna monitoring, on several occasions in 2024 Spotted-tail quolls were observed within Mt Owen operational areas. MGO received advice from NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)'s Regional Biodiversity Conservation Officer on the management of Spotted-tail quolls onsite. In addition, an ecologist was engaged to provide advice on relocation. Several Spotted-tail quolls were relocated to the Mt Owen Rehabilitation area and Ravensworth State Forest.

Refer to *Appendix F, Table F8* for threated species recorded 1994-2024 at MGO and BOAs.

7.5.2.4 Weed Management

During 2024, successful campaigns were carried out within the BOAs to remove abundant high threat weeds, mainly African olive, Lantana, and Coolatai grass. Before and after images can be viewed below in *Figure 18* and *Figure 19*.

Figure 18: Before and after treatment of African Olive in Stringybark offset.

Figure 19: Before and after treatment of Lantana in Forest East offset.

7.5.2.5 Pest Control

During 2024, baiting was undertaken within the BOAs and the buffer lands. Within the BOAs, 83 baits were taken by target species and within the buffer lands 130 baits were taken by target species, with the majority being taken by wild dogs (*Table 28*).

For the BOAs baiting program out of the total tally of baits, 279 were taken by non-target species which included feral pig, goanna, crows, unknown takes or case of bait shyness.

For the buffer lands baiting program out of the total tally of baits, 126 were taken by non-target species which included feral pig, goanna, crows, unknown takes or cases of bait shyness. For the baits taken by goannas, all were taken during the spring program, as they are more active during warmer months.

Pig trapping was conducted within MGO BOAs (Stringybark and Northwest offset, Mt Owen CA offsets) and a total of 29 pigs were trapped in 2024.

Table 28: Wild Dog and Fox Biodiversity Offset Baiting Program – 2024 Results

Program	Number of bait locations	Total number of baits made available to targeted species	Number of baits taken by targeted species	Targeted species success rate (2024)	Targeted species success rate (2023)	Targeted species success rate (2022)
1080 Baiting Program						
Autumn	63	126	43	58%	43%	13%
Spring	79	236	40	46%	34%	31%

Table 29: Wild Dog and Fox Onsite and Buffer land Baiting Program – 2024 Results

Program	Number of locations	Total number of baits made available to targeted species	Number of baits taken by targeted species	Targeted species success rate (2024)	Targeted species success rate (2023)	Targeted species success rate (2022)
1080 Baiting Program						
Autumn	69	207	58	28%	44%	28%
Spring	64	204	52	26%	35%	22%

The results of the baiting program compare favourably with previous years, especially in the BOAs where the target species success rate increased considerably over the years.

Figure 20: Images captured on motion cameras during MGO Baiting Program in 2024

7.5.3 Comparison to BOMPS Performance Indicators and Completion Criteria

The Biodiversity Offset Management Plan details medium term performance indicators for the 2024 reporting period. Performance against these indicators is listed in *Appendix F, Table F13.*

Overall, many conservation and management actions are being successfully implemented, with positive trends in vegetation condition, weed management, pest control, and nestbox installation.

Success rates of 2024 revegetation efforts are yet to be determined, and supplementary planting may be required if future monitoring shows failure.

General trends for each MGO BOAs and CAs are provided in *Appendix F, Table F6 and F7*.

MGO will continue to work towards the yearly actions as listed in *Appendix F, Table F13*, as well as management actions in each CA and BSA and any recommendations from annual ecological monitoring and bi-annual inspections reports.

7.5.4 Continuous improvement

In 2025, MGO, in consultation with Rural Fire Service (RFS), will be conducting ecological burns within MGO BOAs and CAs. An ecological burn is a useful method for controlling exotic weeds while facilitating natural regeneration and bushfire management.

Esparanga Biodiversity Stewardship Agreement (BSA) is being established in accordance with the BOMPS, EPBC 2013/6978 and SSD 5850 biodiversity offset requirements. Esparanga BSA is expected to be executed and biodiversity credits retired in QTR 1 2025. MGO will move towards active management of the Esparanga offset after biodiversity credits are retired.

The BOMPS was also updated in 2024 to align with SSD 5850 MOCO Modification 9 and DA 80/952 Glendell Modification 5.

7.6 Heritage

7.6.1 Management and Monitoring

7.6.1.1 Aboriginal Heritage

MGO manages Aboriginal Heritage in accordance with its *Aboriginal Cultural Heritage Management Plan* (ACHMP). The ACHMP provides strategies for the management of registered Aboriginal sites within the approved MGO disturbance boundaries, and of the Bettys Creek, Swamp Creek, Yorks Creek and Bowmans Creek areas that fall outside the approved MGO disturbance boundaries. These areas retain Aboriginal heritage and archaeological values that require management, despite being salvaged. The ACHMP was updated in 2024 and a copy is available on the Glencore MGO public website.

MGO uses ground disturbance permits (GDPs) to prevent impact on known Aboriginal sites. Where necessary, a due diligence assessment is conducted by a qualified archaeologist, and any necessary controls implemented. This is completed prior to authorisation of ground disturbance work.

Quarterly Monitoring

Quarterly monitoring of Aboriginal heritage sites across MGO continued in 2024, in association with Registered Aboriginal Parties (RAPs) and a qualified archaeologist. This monitoring includes site condition monitoring where previously recorded sites are inspected to evaluate the condition of the site.

Management recommendations may be made to improve the condition of a site, should it be required.

MGO undertakes the monitoring within the quadrants illustrated in *Figure 21*. As each quarterly monitoring event concentrates on one quadrant, the aim is that within a calendar year a large and representative sample of all sites at MGO will be inspected. As subsequent monitoring programs will

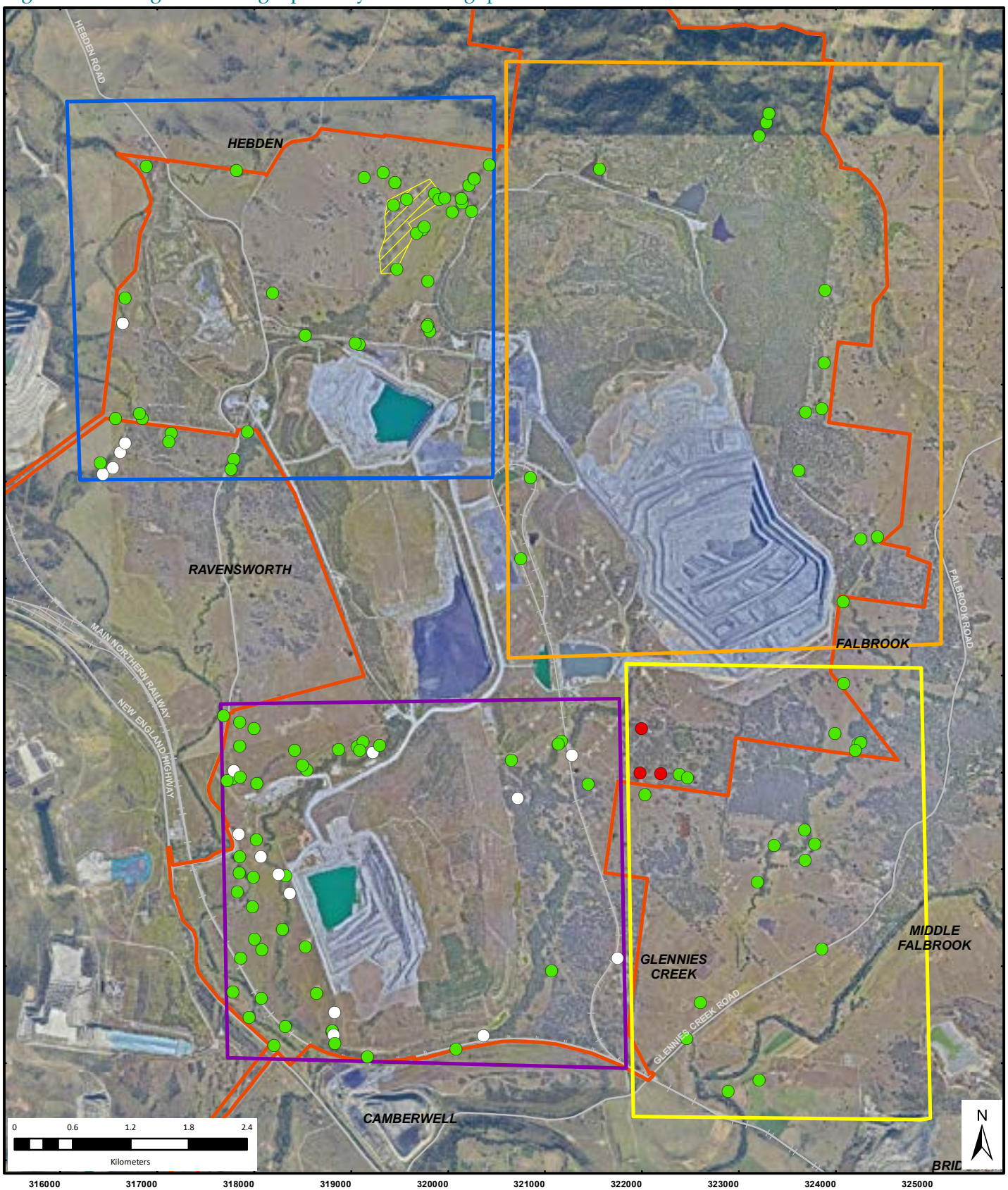
concentrate on inspecting those sites in a quadrant that were not inspected the previous year, it is envisioned that all sites will be inspected at least every two years.

The ACHMP requires MGO to monitor the sites within Yorks Creek Voluntary Conservation Area (YCVCA) annually. This monitoring is included as part of the quarterly monitoring, and monitoring of this area occurred during the Quarter 4 monitoring event undertaken in November 2024.

Over 79 artefacts sites were visited within the four quadrants. Artefacts were found to be well preserved with only minor management recommendations made such as improved signage and fence maintenance.

Mount Owen Glendell Operations

Figure 21: Aboriginal Heritage quarterly monitoring quadrants



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Legend

- Aboriginal Cultural Heritage Management Area
- Yorks Creek Voluntary Conservation Area
- Destroyed
- Partially destroyed
- Valid
- Quadrant 1
- Quadrant 2
- Quadrant 3
- Quadrant 4
- Main Roads
- Railway

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:55,000
Map Created By: rabbott
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

Figure 22 provides an example of the site MOCO-IF-17 (AHIMS 37-3-1186) which consists of an isolated find.

Figure 22: Site AHIMS 37-3-1186 site and artefact

Newly Recorded Site

A new Aboriginal artefact was identified at MGO by the RAPs and archaeologists during the ground truthing survey in October 2024. The artefact, designated as GCS - IF1 (AHIMS: 37-3-1652) is a single mudstone flake (length 29.1 mm, width 28.6 mm, thickness 8 mm) (*Figure 23*). The artefact was observed in an erosion scour on the southern bank of a tributary of Bettys Creek. The procedures in the ACHMP were enacted. As the site was outside of impact areas, the site was registered with AHIMS, site location was entered onto MGO GIS heritage database, and signage was added. The site is now added to MGO quarterly monitoring program in quadrant 4.

Figure 23: GCS-IF1 (AHIMS: 37-3-1652)

7.6.1.2 Yorks Creek Open Day

An open day was held on 6 November 2024 at Yorks Creek Voluntary Conservation Area (YCVCA). Six RAPs attended. Topics discussed included:

- Consultation on the update to MGO Aboriginal Cultural Heritage Management Plan;
- Overview of the quarterly monitoring program;
- Endorsement of the relocation of salvaged artefacts to Minimbah Teaching Place;
- Overview of MGO rehabilitation;
- Opportunities for eligible indigenous companies to assist with some land management activities in the YCVCA.

Following the meeting there was a walk on country.

7.6.1.3 Aboriginal Cultural Heritage Working Group

Two meetings of the Aboriginal Cultural Heritage Working Group (ACHWG) occurred during 2024.

In June 2024, a meeting was held at Mount Owen mine with local knowledge holders. Discussions included:

- An overview of operations from the 2023 Annual Review;
- Endorsement of the removal of artefacts to Minimbah Keeping Place in Bulga
- Update to current and proposed approvals.

A second meeting was held in December 2024 at Minimbah Keeping Place. This was a joint meeting with Bulga Coal, United Wambo Joint Venture and MGO and was attended by ten RAPs. Each site provided an update of Aboriginal Cultural Heritage actions to date, relevant site activities and current and proposed approvals.

7.6.2 European Heritage

MGO manages European heritage through the implementation of the *Historic Heritage Management Plan* (HHMP). The MGO area demonstrates a varied historical pattern of European habitation, with prior European land use including a range of activities, from dairying to mixed farming, cropping, and mining.

MGO has committed to historical heritage management initiatives. These include:

- Implementing a quarterly monitoring program for European heritage sites.
- Ongoing maintenance of monitoring sites including fencing.

Monitoring during the reporting period found that sites are well-preserved with minimal management recommendations required. *Figure 24* shows the John Winter Memorial, where in 2024 a new fence around the memorial and a gate to the site was constructed, and general grounds maintenance was undertaken.

Figure 24: John Winter Memorial

7.6.3 Continuous Improvement

Following extensive consultations with RAPs in 2024, MGO met with Regulatory agencies including DPHI and Heritage NSW to discuss the outcome of that process and agreed on a path forward. In Quarter 1 2025, MGO applied for a Care Agreement with Heritage NSW to relocate artefacts to Minimbah Teaching Place at Bulga. This is the first step required to comply with Schedule 3, condition 34.c) of SSD-5850.

MGO will continue to work with RAPs regarding Cultural Heritage matters and to manage and preserve Aboriginal heritage sites as per the process outlined in the ACHMP. MGO will also continue to monitor and manage European Heritage sites.

8. Water

Water is managed in accordance with the approved *MGO Water Management Plan (WMP)*. *Figure 25* illustrates the connection between the overarching WMP and the associated plans.

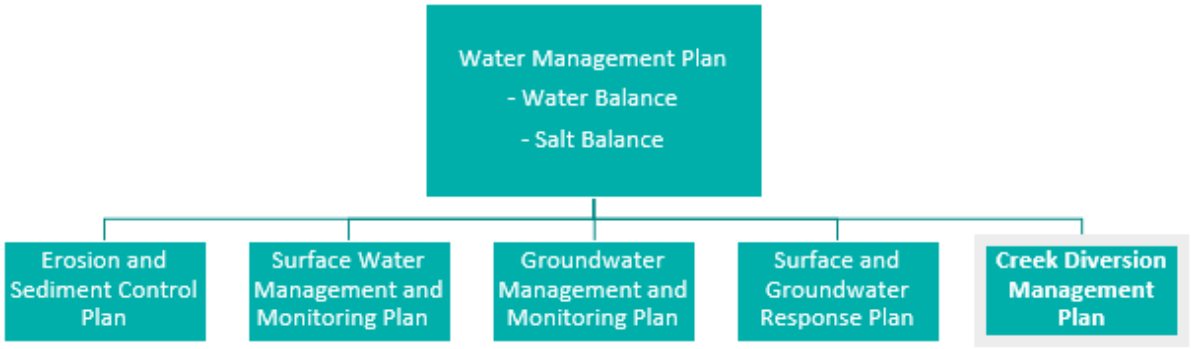


Figure 25: MGO Water Management Plan Structure

8.1 Water Balance and Water Take

The site water balance for MGO is used to assist in the management and reporting of water use at the site and in the assessment of water supply to ensure efficient operation of the site through the control of water inflow and the ready provision for onsite demands.

The water balance for 2024 is presented in *Table 31*.

Table 30: MGO Water Balance for 2024 (Calendar Year)

Aspect	Average Water Balance from MOCO EIS Year 8*	Volume (ML) for 2023	Volume (ML) for 2024
INFLOWS			
Runoff	2,275	617	3,002
Glennies Creek Extraction	146	207	144
Transfers from other sites	3,276	340	5,020
Tailings Bleed Water to West Pit[1]	1,057	2,864	9,964
Groundwater Inflow	494	390	463
Total	7,248	13,466	18,593
OUTFLOWS			
Evaporation	629	1,542	1,911
Exported to Other Sites	2,782	1,620	157

Aspect	Average Water Balance from MOCO EIS Year 8*	Volume (ML) for 2023	Volume (ML) for 2024
Freshwater Demand			12
Seepage losses	-	-	1,016
Dust Suppression	647	1,387	491
CHPP Gross Demand			5,591
Off-site Discharge	80	-	-
Total	4,138	7,526	9,166
BALANCE			
Inflow-outflow	1,217	5,939	9,366

1. *Tailings bleed from Ravensworth and Liddell tailings*
2. *Includes water entrained in tailings, product coal and coarse rejects.*
3. *Salt calculated using 5,000 mg/L TDS for large water storages not accessible due to safety concerns.*

Appendix G details the water flow path throughout the complex. In an average dry year, MGO is predicted to operate with a water deficit assuming no water imports from either the GRAWTS or from licensed surface water allocations.

MGO is licenced to draw water from Glennies Creek. The water take for the last financial year is summarised in *Table 31*.

*Table 31: Water Take (1 July 2023 - 30 June 2024) **

Water Licence #	Water sharing plan, source and management zone		Entitlement	Passive take/inflows	Active Pumping	Total
7814**	Plan	Hunter Regulated River Water Source	1000	No	Yes	720
	Source	Hunter Regulated River Water Source				
	Zone	3A (Glennies Creek)				
41540** **41542**** **41526****	Source	Sydney Basin-North Coast Groundwater Source	910	Yes	No	297[1]

**Period to align with water licence reporting requirements*

***Used for mining operations*

[1]*Estimated total from modelling.*

8.2 Salt Balance and Hunter River Salinity Trading Scheme (HRSTS)

MGO hold a total of five credits as a non-discharging participant of the scheme. MGO has no licensed discharge point and transfers excess water to other Glencore sites as part of the GRAWTS. MGO has the ability to transfer HRSTS Credits to other Glencore sites to ensure that discharge limits are not exceeded.

The salinity of MGO water storages is generally within range and increases gradually due to salt load imported in the tailings emplaced in West Pit, before gradually decreasing. The site salt load has gradually increased due to the increased volume of water stored on site.

8.3 Surface Water

8.3.1 Surface Water Monitoring

MGO monitors surface water quality at 19 creek locations as shows in *Figure 26*. These include:

- Bowmans Creek (5 sites: BMC1-BMC5)
- York's Creek (3 sites: YC1-YC3)
- Swamp Creek (4 sites: SC1-SC4)
- Betty's Creek (4 sites: BC1-BC4)
- Main Creek (3 sites: MC1-MC3).

In 2024 MGO recorded higher rainfall compared to 2023. More samples were therefore able to be collected during 2024 than 2023. Samples collected in the 2024 reporting period were collected under variable flow conditions. MGO was unable to take water samples from Bowmans Creek (BMC3 and BMC5), Bettys Creek (BC1, BC2, and BC3), Main Creek (MC1, MC2, and MC3), Swamp Creek (SC3 and SC4), and Yorks Creek (YC, YC2, and YC3) during dry or no flow conditions (*Appendix G, Table G2*).

Sites are monitored for pH, Electrical Conductivity (EC) and Total Suspended Solids (TSS). Results are recorded in the site Environmental Monitoring Database (EMD). Results are assessed against baseline trigger levels outlined in the *MGO Surface Water Monitoring and Management Plan* (SWMMP) (*Table* 32).

Table 32: Surface Water Quality Triggers

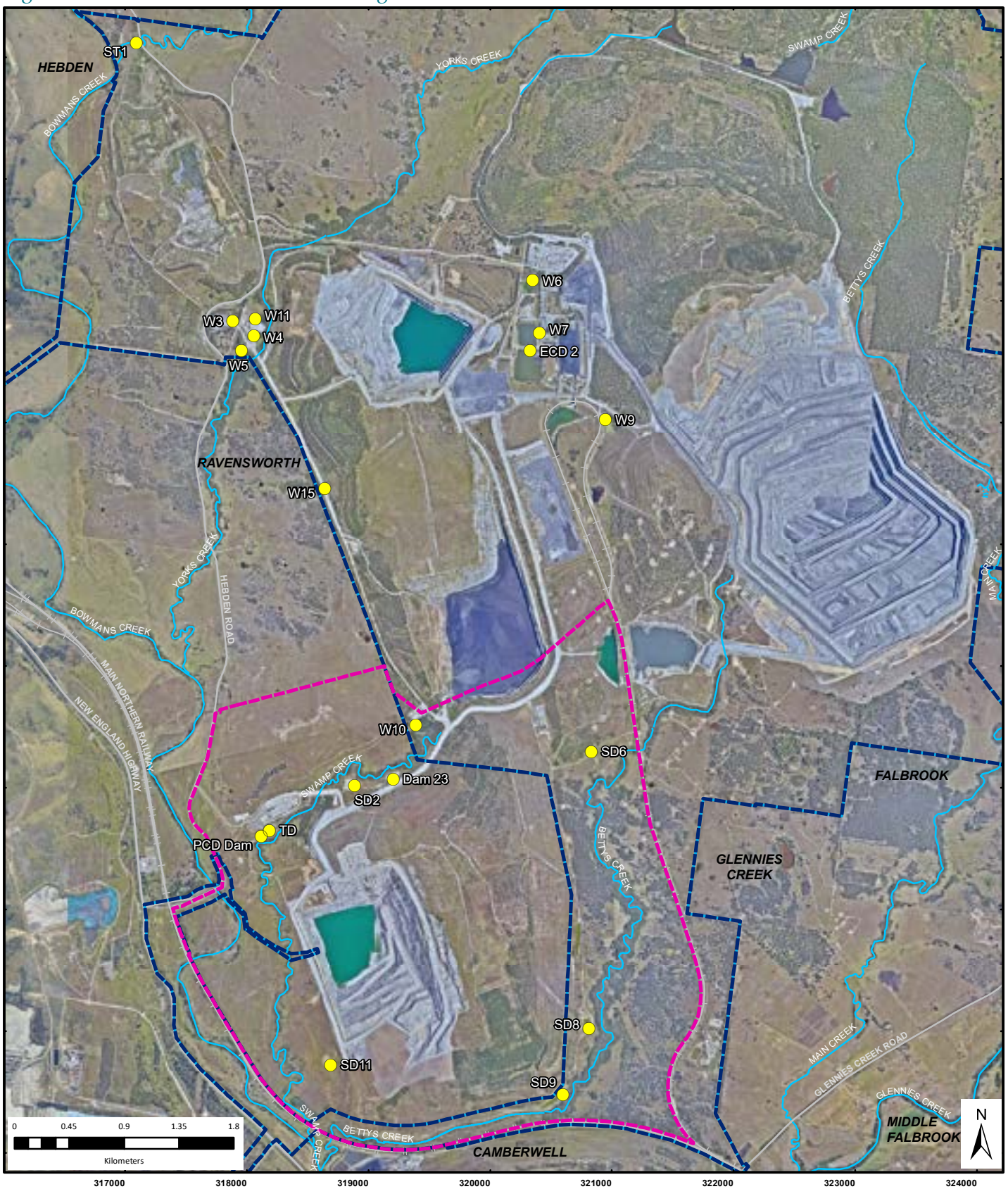
Water Quality Variable	Bowmans Creek	York's Creek	Swamp Creek	Bettys Creek	Main Creek
pH	7.5 – 8.1	7.0 – 7.9	7.1 – 8.6	7.1 – 8.3	7.1 – 8.4
EC (µS/cm)[1]	1,257 - 2,430	5,286 - 8,852	824 - 8,824	1,882 - 6,680	1,191 – 5,440
TSS (mg/L)[1]	10 - 26	20 - 33	21 - 35	16 - 52	10 - 140

[1] 80th percentile range for EC and TSS. Sites have specific triggers as per MGO's approved SWMMP.

MGO has defined 80th percentile trigger values for EC and TSS, and 20th percentile (acidic) and 80th percentile (alkaline) triggers for pH. Triggers are specific to each individual creek monitoring site. These values are based on historical datasets for each site. The specific triggers are contained within MGO's approved SWMMP.

Mount Owen Glendell Operations

Figure 26: MGO Surface Water Monitoring Locations



Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\AEMR_2024_SurfaceWaterMonitoring_GDA2020.mxd

Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Surface Water Monitoring Location
- Main Roads
- Railway
- Watercourse

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:43,709
Map Created By: rabbott
Coordinate System: GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

8.3.2 Surface Water Monitoring Performance

A summary of 2024 surface water monitoring results is presented in the sections below with a copy of all monitoring results included in *Appendix G*. A comparison of 2024 data against historical data for the last five years is also provided in *Appendix G*. A third-party consultant reviewed the results. Comments from these reviews are included in the tables in *Appendix G.*

8.3.2.1 Bowman's Creek (BMC)

Monitoring data collected for Bowmans Creek in 2024 generally aligned with baseline conditions (refer to *Appendix G, Table G1*). A summary of surface water results is presented in *Table 33*. Results above the SWMMP trigger levels for Bowmans Creek are outlined in *Appendix G, Table G2*. All the results were within the historical range (highest and lowest measurements) recorded throughout the entire monitoring period. The sites that triggered SWMMP criteria in 2024 were internally reviewed in accordance with MGO's *Surface Water and Groundwater Response Plan* (SWGWRP).

Table 33: Summary of Bowman's Creek Surface Water Monitoring Results 2024

Site	pH (units)			EC (µS/cm)			TSS (mg/L)			Comment
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	
BMC1	7.5	8.0	7.8	637	1480	1075	5	8	7	Some samples were collected under low flow conditions but results remained within historical ranges.
BMC2	7.7	8.0	7.9	637	1440	994	7	14	10	Some samples were collected under low flow conditions and are within historical ranges.
BMC3	7.8	8.1	7.9	636	1290	917	5	33	15	Some samples were collected under low flow conditions but results remained within historical ranges.
BMC4	7.1	7.9	7.5	636	1060	913	5	9	7	Some samples were collected under low flow conditions but results remained within historical ranges.
BMC5	7.3	7.9	7.6	709	1250	955	5	694	238	Majority of samples taken were from still water. No Flow in November.

8.3.2.1 Betty's Creek (BC)

Betty's Creek exhibited variable flow conditions during 2024. Monitoring at all sites was only possible in select months due to water levels being too low to sample and dry conditions. A summary of surface water results is presented in *Table 34*.

Table 34: Summary of Betty's Creek Surface Water Monitoring Results 2024

Site	pH (units)			EC (µS/cm)			TSS (mg/L)			Comment
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	
BC1	7.4	7.7	7.5	836	1080	952	<5	<5	<5	No water sampled from January to April as creek was dry or too low to sample. All results were within historical range.
BC2	-	-	-	-	-	-	-	-	-	No water sampled as creek was dry for the whole year.
BC3	7.1	7.5	7.3	361	918	591	7	92	49	No water sampled from January to April as creek was dry or too low to sample. All results were within historical range.
BC4	7.3	8.1	7.6	391	1080	644	5	8	6	No water sampled from January to April as creek was dry or too low to sample. All results were within historical range.

Monitoring data for Betty's Creek is included in *Appendix G, Table G3*. 2024 monitoring results for Bettys Creek sites above the SWMMP trigger levels (see *Appendix G, Table G4)* were internally reviewed in accordance with the SWGWRP and confirmed that results were within historical range and within Australian and New Zealand Environment Conservation Council (ANZECC) Guidelines criteria.

8.3.2.1 Main Creek (MC)

Main Creek exhibited variable flow conditions during 2024. A summary of surface water results is presented in *Table 35*. Monitoring data for Main Creek is included in *Appendix G, Table G5*.

Table 35: Summary of Main Creek Surface Water Monitoring Results 2024

Site	pH (units)			EC (µS/cm)			TSS (mg/L)			Comment
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	

MC1	6.7	8.1	7.3	499	2380	1597	6	283	69	No water sampled from January to March or November to December as creek was dry or too low to sample. All results were within historical range.
MC2	7.2	7.7	7.5	828	2760	1397	6	6	6	No water sampled from January to April or November to December as creek was dry or too low to sample. All results were within historical range.
MC3	7.0	7.4	7.2	369	925	664	6	10	8	No water sampled from January to April or November to December as creek was dry or too low to sample. All results were within historical range.

8.3.2.1 Swamp Creek (SC)

Swamp Creek sample sites SC3 and SC4 were unable to be sampled during the 2024 reporting period due to low water levels and dry conditions. A summary of surface water results is presented in *Table* 36.

Table 36: Summary of Swamp Creek Surface Water Monitoring Results 2024

Site	pH (units)			EC (µS/cm)			TSS (mg/L)			Comment
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	
SC1	7.7	9.2	8.5	350	423	389	8	11	9	SC1 is the Dam upstream of the creek
SC2	7.1	9.7	7.7	165	649	310	6	42	19	
SC3	-	-	-	-	-	-	-	-	-	No water sampled as creek was dry for the whole year
SC4	-	-	-	-	-	-	-	-	-	No water sampled as creek was dry for the whole year

Monitoring data for Swamp Creek is included in *Appendix G, Table G6*.

8.3.2.2 Glennies Creek and York's Creek

Glennies Creek and York's Creek exhibited variable flow conditions during 2024. A summary of surface water results is presented in *Table 37*. The monitoring results for Glennies Creek and York's Creek are presented in *Appendix G, Table G8* and *Table G9* respectively.

Table 37: Summary of Glennies Creek and York's Creek Surface Water Monitoring Results 2024

Site	pH (units)			EC (µS/cm)			TSS (mg/L)			Comment
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	
Glennies Creek										
GC2/ W4	7.7	8.0	7.8	316	745	509	6	292	38	Samples collected under slow flow conditions. All results were within historical range.
GC3	7.7	8.0	7.8	311	747	504	6	16	10	Samples collected under low flow conditions. All results were within historical range.
York's Creek										
YC1	6.9	7.4	7.2	856	9160	3019	9	90	39	No water sampled from January to March or November to December as creek was dry or too low to sample. All results were within historical range.
YC2	6.6	7.4	7.0	887	1600	1358	34	34	34	No water sampled from January to April or November to December as creek was dry or too low to sample. All results were within historical range.
YC3	6.8	7.4	7.2	890	1820	1463	5	5	5	No water sampled from January to April or November to December as creek was dry or too low to sample. All results were within historical range.

The results above the SWMMP trigger levels at Swamp Creek during the reporting period are detailed in *Appendix G, Table G7*. These results were reviewed in accordance with the SWGWRP. The reviews confirmed there were no compliance issues and confirmed that results were within historical range and within ANZECC Guidelines criteria.

8.3.3 Stream Stability and Condition Monitoring

8.3.3.1 Location

Channel stability assessment is also carried out by qualified water and ecological professionals across both existing creeks and creek diversions at the site MGO monitors channel stability at 41 locations (*Figure 27*). These include:

- Reference waterway sites
  - Bowmans Creek (2 sites: BMC1-BMC2)
  - Yorks Creek (3 sites: YC1-YC3)
  - Main Creek (2 sites: MC1-MC2)
  - Swamp Creek (4 sites: SC1-SC4)
- Bettys Creek (2 sites: BC1-BC2)
- Bettys Creek Diversion (25 sites: UBD1-UBD6, MBD1-MBD6 and LBD1-LBD13)
- Swamp Creek Diversion (3 sites: SC1A-SC1C).

8.3.3.2 Methodology

Channel stability is assessed using the CSIRO Ephemeral Stream Assessment (2011) (*Table 38*) and the Rapid Appraisal of Riparian Condition (RARC) (Jansen et al., 2005) methodologies and scoring system (refer to *Table 39* and *Table 38*).

Table 38: CSIRO Ephemeral Stream Assessment Stability Classifications

Activity Rating (%)	Classification	Discussion of Classification
>80	Very stable	Drainage line is very stable and likely to be in original form. It is able to withstand all flow velocities that have the previously occurred in this area and only minimal monitoring is required, predominately after high flow events, to ensure condition does not deteriorate.
70-80	Stable	Drainage line is stable. It is important to assess this zone in relation to the other classifications and define whether this zone is moving from potentially stabilising to a more stable form, or if it is deteriorating from a very stable form. The nature of this relationship will identify the type of monitoring required.
60-69	Potentially Stabilising	Drainage line is potentially stabilising. Ongoing monitoring is required while rehabilitation works are not needed in the immediate future.

Activity Rating (%)	Classification	Discussion of Classification
50-59	Active	Drainage line is actively eroding, and remedial actions are required. It is important to classify if erosion is cause primarily by upstream flows, lateral flows, or unstable wall materials so that appropriate rehabilitation can be carried out.
<50	Very Active	Drainage line is very actively eroding and immediate remedial actions are required. It is important to classify if erosion is caused by upstream flows, lateral flows, or unstable wall materials so that appropriate rehabilitation can be carried out.

Table 39: Summary of Indicator, Functions and Components Assessed in the RARC Index

Functions of the riparian zone at different levels of organisation	Components of the riparian ecosystem that perform those functions	Indicators of the functions used in the RARC
Physical		
Reduction of erosion of banks	Roots, groundcover	Vegetation cover*
Sediment trapping	Roots, fallen logs, ground cover	Canopy cover, fallen log, ground cover vegetation, leaf litter cover
Controlling stream,	Riparian Forest	Canopy Cover
Microclimate/discharge/water temperatures		
Filtering of nutrients from upslope	Vegetation, leaf litter	Ground cover vegetation, leaf litter cover
Community		
Provision of organic matter to aquatic food chains	Vegetation	Vegetation cover*, leaf litter cover
Retention of plant propagules	Fallen logs, leaf litter	Fallen logs, litter cover
Maintenance of plant diversity	Regeneration of dominant species, presence of important species, dominance of natives versus exotics	Native canopy and shrub regeneration, grazing damage to regeneration, reeds, native vegetation cover*
Provision of habitat for aquatic and terrestrial fauna	Fallen logs, leaf litter, standing dead trees/hollows, riparian forest, habitat complexity	Fallen logs, leaf litter cover, standing dead trees, hollows, vegetation cover*, number of vegetation layers

Functions of the riparian zone at different levels of organisation	Components of the riparian ecosystem that perform those functions	Indicators of the functions used in the RARC
Landscape		
Provision of biological connections in the landscape	Riparian forest (cover, width, connectedness)	Vegetation cover*, width of riparian vegetation, longitudinal continuity of riparian vegetation, proximity to another habitat
Provision of biological connections in the landscape	Riparian forest (cover, width, connectedness)	Vegetation cover*, width of riparian vegetation, longitudinal continuity of riparian vegetation, proximity to another habitat

**vegetation cover = canopy, understorey and ground cover*

Table 40: Summary RARC Classification System

RARC Total Score	Classification
40-50	Excellent
35-39	Good
30-34	Average
25-29	Poor
<25	Very Poor

8.3.3.3 Reference Sites

Bowmans Creek

Bowmans Creek was assessed for stream stability and condition at two locations and results are presented in *Table 41*. In 2024, the stream trajectory has remained static at both monitoring points. There has also been no overall change in stream condition classification. The stream condition classification for Bowmans Creek has remained stable since 2014 and is generally a reflection of past land use and management.

Table 41: Bowmans Creek Stream Stability & Condition Assessment 2024

Monitoring Point	Stream Stability (CSIRO)			Stream Condition (RARC)		
	2023	2024	Trajectory	2023	2024	Trend 2014-2024
Bowmans Creek 1 (BMC1)	63% (Potentially Stabilising)	63% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
Bowmans Creek 2 (BMC2)	72% (Stable)	72% (Stable)	Static	Very Poor	Very Poor	Stable

York's Creek

York's Creek was assessed for stream stability and stream condition at three locations and results are included in *Table 42*. Stream stability has remained on a static trajectory and potentially stabilising since 2017. The stream condition of monitoring site YC1 continues improve since 2014. Monitoring sites YC2 and YC3 have been "very Poor" for some years but their stream condition trend is 'Stable' . Fireweed (*Senecio madagarascariensis*) is reported to be present at all three monitoring sites.

Table 42: York's Creek Stream Stability & Condition Assessment 2024

Monitoring Point	Stream Stability (CSIRO)			Stream Condition (RARC)		
	2023	2024	Trajectory	2023	2024	Trend 2014-2024
York's Creek 1 (YC1)	56% (Active)	56% (Active)	Static	Good	Good	Improved
York's Creek 2 (YC2)	69% (Potentially Stabilising)	69% (Potentially Stabilising)	Static	Very Poor	Poor	Improved
York's Creek 3 (YC3)	63% (Potentially Stabilising)	63% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable

Main Creek

Main Creek was assessed for stream stability and stream health at two locations, with results included in *Table 43*. Stream stability for both sites has remained static since 2018. One site (MC1) progressed from 'Active' to 'Potentially stabilising' between 2017-2018, however the other site (MC2) has been classified as "Active' since 2014. Stream condition has remained constant, Main Creek has been cleared in the past prior to mining activities and has minimal riparian vegetation. This is the main reason for the low health score.

Table 43: Main Creek Stream Stability & Condition Assessment 2024

Monitoring Point	Stream Stability (CSIRO)			Stream Condition (RARC)		
	2023	2024	Trajectory	2023	2024	Trend 2014-2024
Main Creek 1 (MC1)	63% (Potentially Stabilising)	63% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
Main Creek 2 (MC2)	59% (Active)	59% (Active)	Static	Very Poor	Very Poor	Stable

Bettys Creek

Bettys Creek natural waterway was assessed for stream stability and condition at two locations. Results are included in *Table 44*. Stream condition at BC1 improved in the assessment conducted in 2023 which is likely to have been a result of targeted weed managment.

Table 44: Bettys Creek Stream Stability and Condition Assessment 2024

Monitoring Point	Stream Stability (CSIRO)			Stream Condition (RARC)		
	2023	2024	Trajectory	2023	2024	Trend 2014-2024
BC1	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Excellent	Excellent	Improved
BCD2	75% (Stable)	75% (Stable)	Static	Poor	Poor	Stable

8.3.3.1 Creek Diversions

Creek diversions onsite undergo biannual monitoring of stream stability and condition assessment, targeted at identifying areas requiring maintenance such as erosion and weed control. Annual stream stability and condition assessments follow the same methodology as that carried out for local creek reference sites (Ephemeral Stream Assessment and RARC) and results can be compared to existing creek lines to assess the performance of diversions.

Bettys Creek Diversion

Stream stability trajectory across Bettys Creek diversion monitoring sites remains static, with stability ranging between 63% - 81% between the Upper, Middle and Lower groupings (refer to *Table 45* and *Figure 27*). Stream condition has generally remained stable or shown improvement.

Table 45: Betty's Creek Diversion Stream Stability & Conditions Assessment 2024

Monitoring Point	Stream Stability (CSIRO)			Stream Condition (RARC)		
	2023	2024	Trajectory	2023	2024	Trend 2014-2024
Upper Betty's Diversion						
UBD1	63% (Potentially Stabilising)	63% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
UBD2	63% (Stable)	63% (Stable)	Static	Poor	Poor	Improved
UBD3	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Poor	Poor	Improved
UBD4	69% (Potentially Stabilising)	69% (Potentially Stabilising)	Static	Poor	Average	Improved
UBD5	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
UBD6	75% (Stable)	75% (Stable)	Static	Very Poor	Very Poor	Stable
Middle Bettys Diversion						
MBD1	81% (Very Stable)	81% (Very Stable)	Static	Average	Average	Improved
MBD2	69% (Potentially Stabilising)	69% (Potentially Stabilising)	Static	Poor	Poor	Stable
MBD3	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Poor	Poor	Stable
MBD4	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Poor	Poor	Improved
MBD5	81% (Very Stable)	81% (Very Stable)	Static	Very Poor	Very Poor	Stable
MBD6	69% (Potentially Stabilising)	69% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable

Monitoring Point	Stream Stability (CSIRO)			Stream Condition (RARC)		
	2023	2024	Trajectory	2023	2024	Trend 2014-2024
Lower Bettys Diversion						
LBD1	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Very Poor	Very Poor	Improved
LBD2	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Very Poor	Very Poor	Improved
LBD3	69% (Potentially Stabilising)	69% (Potentially Stabilising)	Static	Very Poor	Poor	Improved
LBD4	75% (Stable)	75% (Stable)	Static	Very Poor	Very Poor	Stable
LBD5	69% (Potentially Stabilising)	69% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
LBD6	75% (Stable)	75% (Stable)	Static	Very Poor	Very Poor	Stable
LBD7	75% (Stable)	75% (Stable)	Static	Very Poor	Very Poor	Stable
LBD8	75% (Stable)	75% (Stable)	Static	Very Poor	Very Poor	Stable
LBD9	69% (Potentially Stabilising)	69% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
LBD10	72% (Stable)	72% (Stable)	Static	Average	Average	Stable
LBD11	72% (Stable)	72% (Stable)	Static	Average	Average	Improved
LBD12	72% (Stable)	72% (Stable)	Static	Average	Average	Improved
LBD13	72% (Stable)	72% (Stable)	Static	Good	Good	Improved

Swamp Creek

Swamp Creek was assessed for stream stability and condition at four natural waterway locations and three diversion locations (refer to *Figure 27*). Stream stability remained relatively consistent across all sites.

Stream condition trend has either improved or is stable since 2014. Like other creeks in the area, the low health scores are a result of past land use and management where cattle were not excluded from riparian areas. Results are included in *Table 46*. Fencing inspections are completed bi-annually to ensure cattle are excluded from these areas.

Table 46: Swamp Creek Natural Waterway and Diversion Stability & Condition Assessment 2024

Monitoring Point	Stream Stability (CSIRO)			Stream Condition (RARC)		
	2023	2024	Trajectory	2023	2024	Trend 2014-2024
Swamp Creek 1 (SC1) Natural upstream	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Poor	Poor	Stable
Swamp Creek 1A (SC1A) Diversion	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
Swamp Creek 1B (SC1B) Diversion	78% (Stable)	78% (Stable)	Static	Average	Average	Improved
Swamp Creek 1C (SC1C) Diversion	78% (Stable)	78% (Stable)	Static	Poor	Poor	Stable
Swamp Creek 2 (SC2) Natural downstream	63% (Potentially Stabilising)	63% (Potentially Stabilising)	Static	Average	Average	Stable
Swamp Creek 3 (SC3) Natural downstream	63% (Potentially Stabilising)	63% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable
Swamp Creek 4 (SC4 Natural downstream)	66% (Potentially Stabilising)	66% (Potentially Stabilising)	Static	Very Poor	Very Poor	Stable

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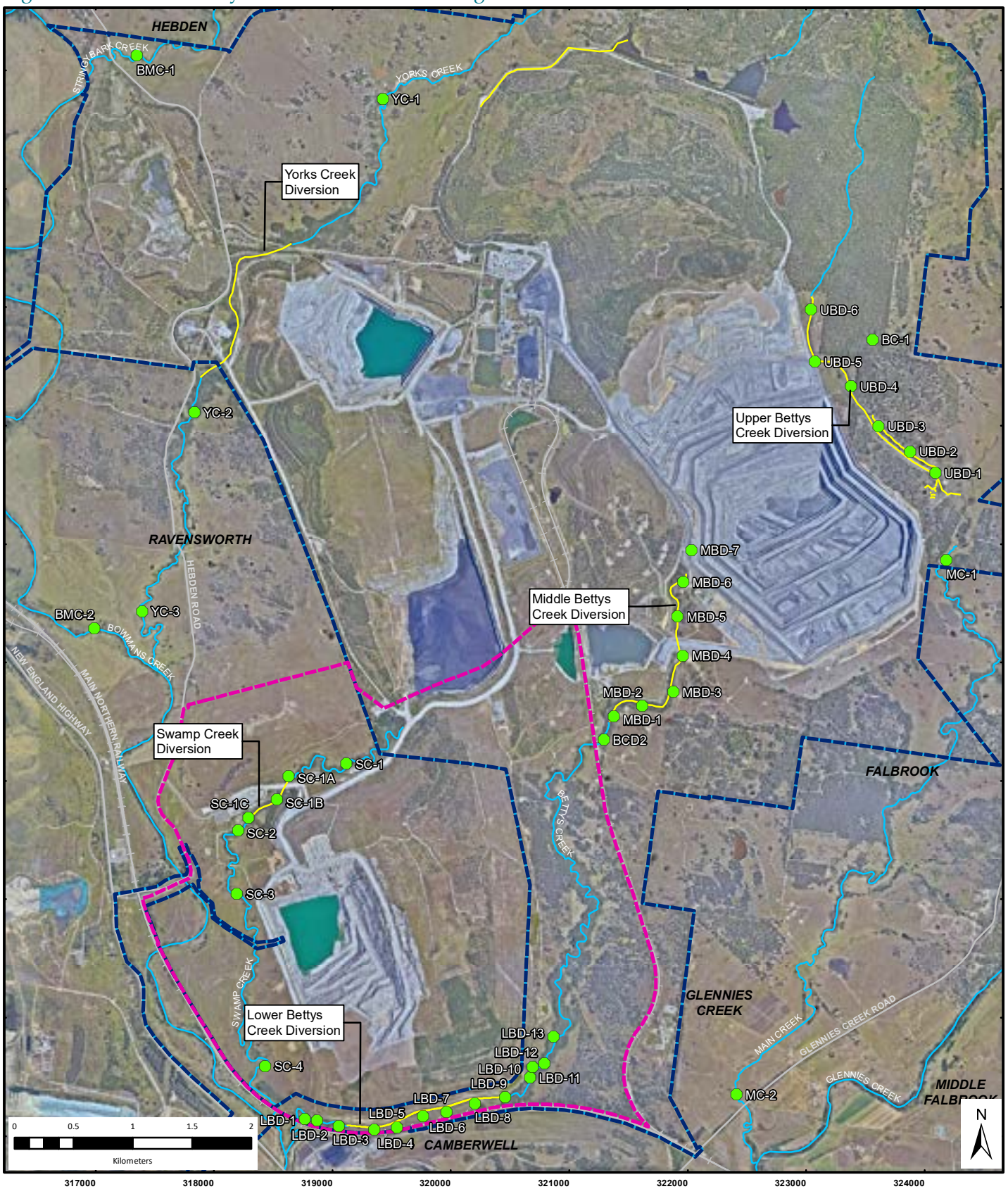
Figure 27: Stream Stability and Condition Monitoring Locations



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Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Stream Stability Monitoring Location
- Approved Diversions
- Main Roads
- Railway
- Watercourse

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:45,000
Map Created By: rabbott
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

8.3.4 Erosion and Sediment Control

MGO conducts regular erosion and sediment control visual inspections and engages a water specialist (where required) to identify areas that require remediation, and these findings are addressed as soon practical.

The *Erosion and Sediment Control Plan* was revised and updated following the approval of MOCO Mod 9 and Glendell Mod 5. The revised plan was approved on 9 January 2025.

8.4 Groundwater

8.4.1 Groundwater Monitoring Criteria

Groundwater monitoring is undertaken in accordance with the approved MGO *Groundwater Management and Monitoring Plan* (GWMMP) and includes recording depth to water (to calculate drawdown), pH and EC. Groundwater performance criteria are provided in *Table 47*.

Table 47: Groundwater Performance Criteria

Aspect	Performance Measures	Performance Indicator/Trigger
Alluvial aquifers	Groundwater levels (depth to water)	Drawdown greater than historical average plus 1 standard deviation.
	Groundwater quality (pH and EC)	pH or EC outside of 80th percentile of historical data for specific bore locations. Groundwater quality concentrations outside of trigger value for at least one parameter for 2 or more consecutive (quarterly) monitoring rounds.
Hardrock aquifers	Groundwater levels (depth to water)	Drawdown greater than historical average plus 1 standard deviation.
	Groundwater quality (pH and EC)	pH or EC outside of 80th percentile of historical data for specific bore locations. Groundwater quality concentrations outside of trigger value for at least one parameter for 2 or more consecutive (quarterly) monitoring rounds.
Groundwater inflows to mining pits	Calculated inflows to mining pits	Groundwater inflow to mining pits is >10% higher than predicted for three consecutive months. Groundwater inflows exceed WAL limits.

Aspect	Performance Measures	Performance Indicator/Trigger
Seepage/leachate	Presence of seepage/leachate from water storages	Visual inspections of water storages (as per the MGO Erosion and Sediment Control Plan) shows seepage zones and reporting water balance indicates seepage is greater than negligible (i.e: >5% of inflows to water storages).
	Seepage/leachate from emplacement areas	Visual inspections of water storages (as per the MGO Erosion and Sediment Control Plan) indicates seepage areas and confirms location of drainage pathways outside of water management system.
	Seepage/leachate from backfilled voids	No increasing trends in water quality parameters in monitoring bores surrounding backfilled voids. An increasing trend would be indicated by 4 consecutive water quality readings showing continual increases in analyte concentrations.

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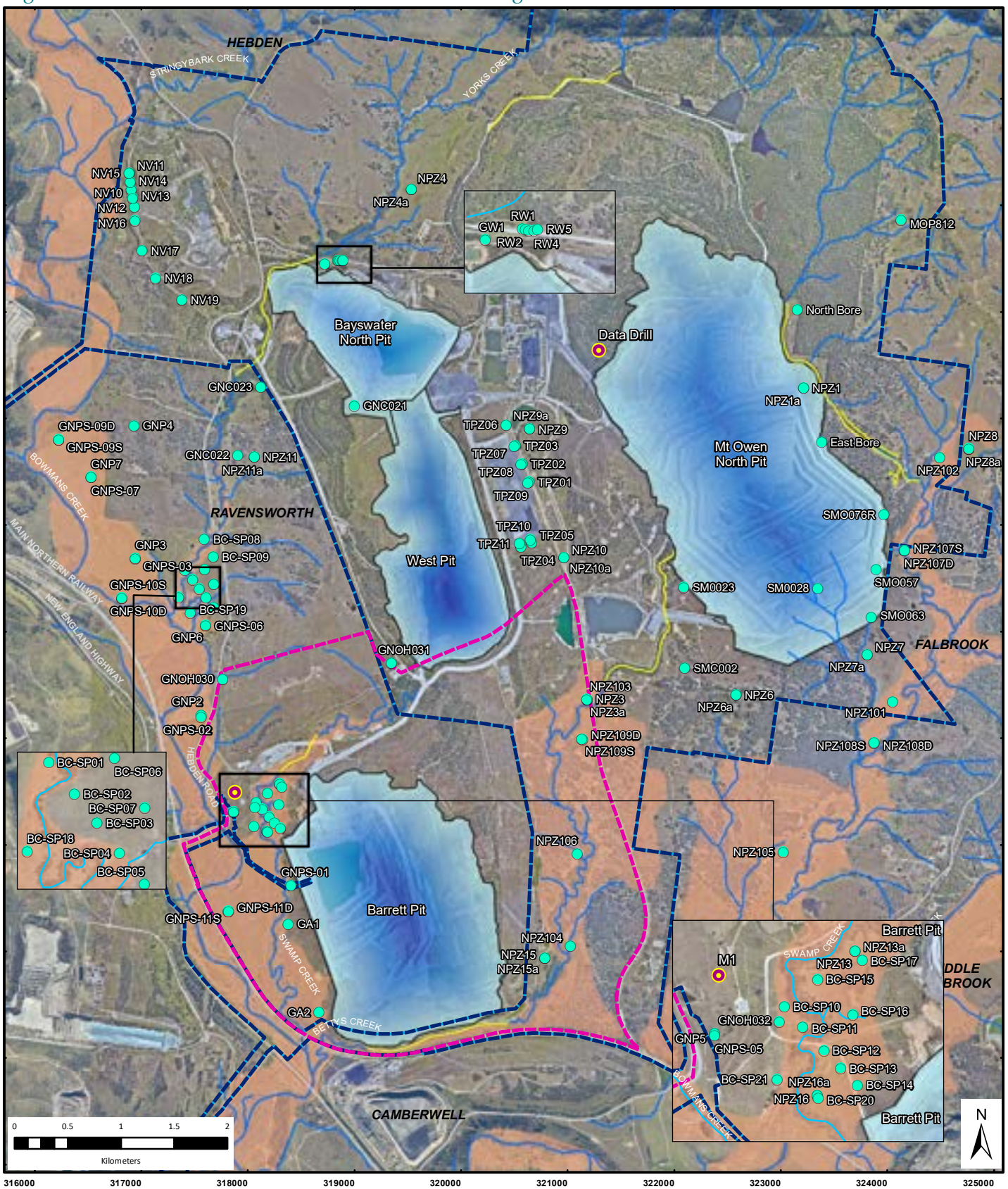
Figure 28: MGO Groundwater Extraction and Monitoring Bores



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Legend

- Mt Owen Project Boundary
- Glendell Project Boundary
- Groundwater Monitoring Location
- Rainfall Data Location
- Approved Diversions
- Main Roads
- Railway
- Mine Pit Catchment Area
- Alluvial Sediment

GDA2020

Date Created: 11/03/2025
Map Size: A4 Portrait
Scale: 1:50,000
Map Created By: rabbott
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

8.4.2 Groundwater Monitoring Performance

MGO experienced slightly below average rainfall during 2024 with the majority of the rainfall occurring within the first six months. The greatest monthly rainfall (> 50 mm) was recorded in February, April and May 2024. During the reporting period streamflow was observed within Bowmans Creek/Foy Brook and Glennies Creek, with recorded flows starting around May 2024 due to significant rainfall and a noticeable decline until September 2024. There were also no notable flow events for 2024.

A third-party groundwater expert was engaged to review annual groundwater monitoring results for 2024 in accordance with the MGO *Surface Water and Groundwater Response Plan.* The review identified some monitoring sites will require further investigation as outlined in *Table 48*.

Table 48: Groundwater locations requiring further investigation.

Aspect	Location
Water Level	NPZ1, NPZ6, NPZ9, NPZ1a, NPZ7, NPZ7a, NPZ8a, NPZ13, NPZ16, NPZ16a, NPZ107d, NPZ4a, NPZ6a, NPZ13a
Electrical Conductivity	NPZ1, NPZ4, NPZ15, NPZ1a, NPZ8, NPZ8a, NPZ4a
pH	NPZ1a
Recommended for removal or replacement.	NPZ6, NPZ6a, NPZ109D, NPZ10a, NPZ11a

A summary of the findings from the investigations of those results are included below in *Table 49.*

Table 49: Summary of investigation findings

Aspect	Finding
Alluvial Bores	All bores that recorded water level outside range were investigated. The investigation confirmed that the main reasons for those results were due to either an incorrect bore depth record leading to the requirement to adjust the trigger value or poor bore construction/condition leading to removal of the bore from the monitoring network.
Permian Coal Measures	A summary of the groundwater bore monitoring parameters triggering a third-party investigation in accordance with GWMMP trigger levels is provided in Table 50. The investigation identified a number of issues including poor casing construction, drillers mud at the bottom of the bore, damage from external factors (e.g. tree roots, rocks) and change of methods to a purge and return on several bores. A copy of all the monitoring results for individual groundwater monitoring locations is included in Appendix G along with a summary of the 2024 results for all bores.

Table 50: Summary of Groundwater Bores Triggering Investigation

Site ID	Investigation Triggered? (Yes/ No)		
	Drawdown	pH	EC
			>12,250 µS/cm trigger
Yorks Creek Alluvium			
BC-SP01	Mud observed		
Bowmans Creek Alluvium			
No investigations triggered			
Swamp Creek Alluvium			
No investigations triggered			
Bettys Creek Alluvium			
NPZ3	Yes (Q1, Q2, Q3, Q4)	No	No
Hardrock aquifer			
NPZ1	No	No	Yes (Q1, Q2, Q3 Q4)
NPZ4	No	No	Yes (Q1, Q2, Q3 Q4)
NPZ15	No	No	Yes (Q1, Q2, Q3, Q4)
NPZ1a	No	Yes (Q1, Q2, Q3 Q4)	Yes (Q1, Q2, Q3 Q4)
NPZ8	No	No	Yes (Q1, Q2, Q3, Q4)
NPZ8a	No	No	Yes (Q1, Q2, Q3, Q4)
NPZ4a	No	No	Yes (Q1, Q2, Q3, Q4)
Main Creek Alluvium			
NPZ107s	Yes	No	No

Site ID	Investigation Triggered? (Yes/ No)		
	Drawdown	pH	EC
			>12,250 µS/cm trigger
	(Q1, Q2, Q3, Q4)		
NPZ108s	No	No	Yes (Q1, Q2, Q3, Q4)

8.4.3 Groundwater Take

The approved site activities include the direct interception of groundwater from the Permian coal measures, as well as direct and indirect interception of groundwater from alluvium. The alluvium falls under the *Hunter Unregulated and Alluvial Water Source Water Sharing Plan*, while groundwater in the Permian coal measures is under the *North Coast Fractured and Porous Rock Groundwater Source*.

The observed drawdown and depressurisation in the coal measures appears to be consistent with predictions for the approved mining operations. Groundwater licences and take are listed in *Table 31*.

8.4.4 Continuous improvement

2024 saw improvements to MGO's water management practices. Some improvements worth noting include:

- Updated the regional groundwater model for MGO better refining the predicted impacts of the opencut mining with groundwater systems.
- A complete review of the Ground water monitoring network by a third-party water consultant.
- Consultation with DCCEEW Water Group during the update of the GWMMP and SWGWRP.
- Reviewed MGO surface water model to ensure water is tracked accurately and fits in with the results from the groundwater model updates.

In 2025, site will continue to investigate the condition of the groundwater bores network.

9. Rehabilitation

During the reporting period MGO completed rehabilitation activities generally in accordance with the *Mt Owen Complex Forward Plan* and the *Rehabilitation Management Plan*.

In 2024, rehabilitation at MGO was carried out generally in accordance with:

- MGO Rehabilitation Management Plan
- MGO Biodiversity and Offset Strategy
- MGO Rehabilitation Strategy

Rehabilitation is designed to achieve a stable final landform compatible with the surrounding environment and to meet the landform commitments presented in the *Rehabilitation Management Plan – Forward Program* as well as the *Rehabilitation Strategy*.

Table 51 provides a summary of rehabilitation activities at MGO for 2023 and 2024 and the rehabilitation forecast to be undertaken in 2025. All values presented are in hectares.

Table 51: MGO Rehabilitation Summary.

Mine Area Type	Previous Reporting Period (2023)	This Reporting Period – Actual (2024)	Next Reporting Period – Forecast (2025)*
Total Mine Footprint	3,067	3,067	3,067
Total Active Disturbance	1,566	1,546	1,452
Land being prepared for rehabilitation	0	0	0
Land under active rehabilitation	1,584	1,626	1,675

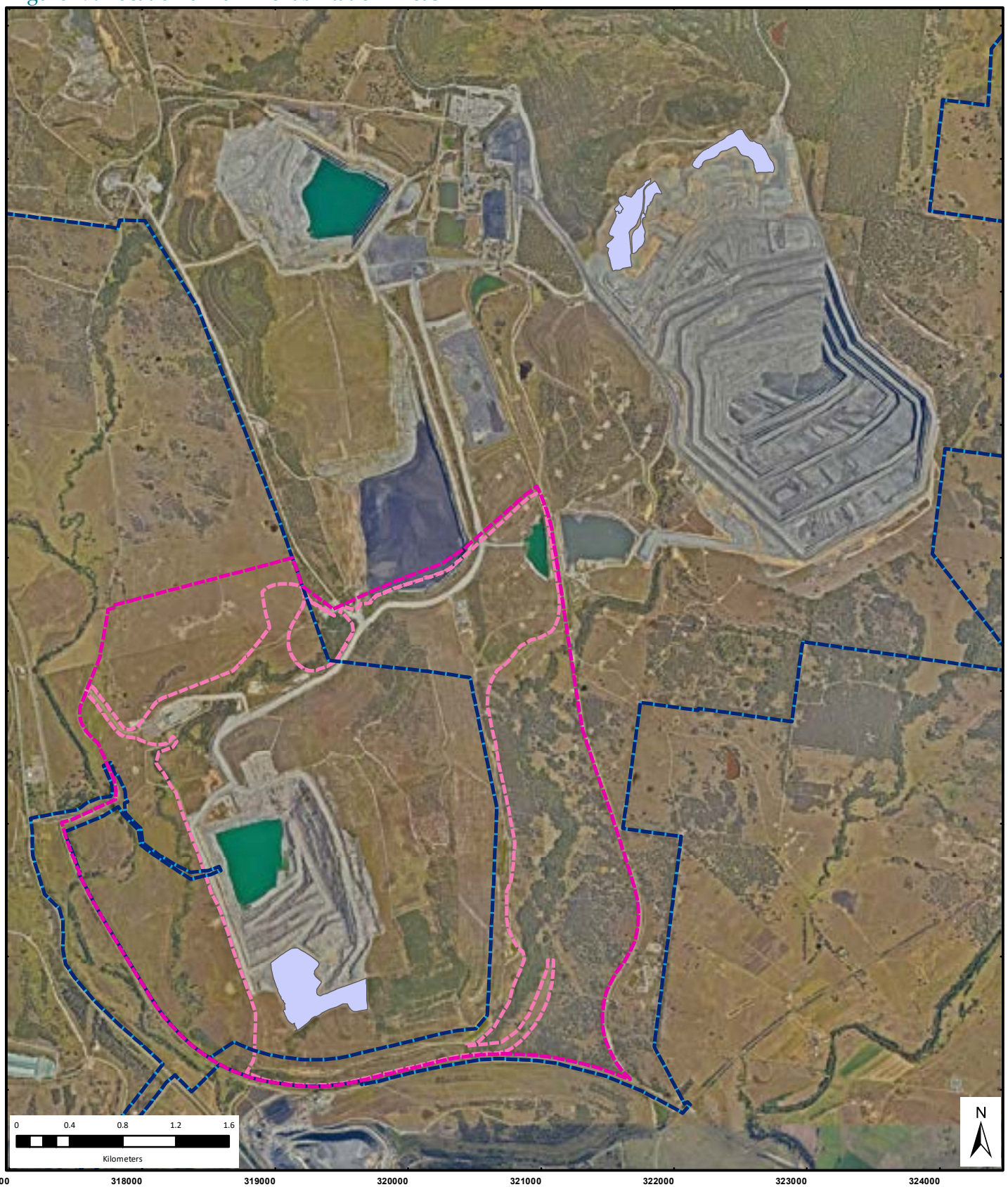
** This forecast may change to align with the most recent RMP-Forward program.*

9.1 2024 Rehabilitation

MGO rehabilitated approximately 37.9 ha of open forest rehabilitation and approximately 4.2 ha of pasture. Rehabilitation methodology remains largely unchanged at MGO with past success an indicator that processes are suitable for the conditions. Focus is placed on the use of direct placed topsoil from pre-strip areas and the majority of 2024 rehabilitation was able to utilise this resource. The rest of the area was rehabilitated using subsoil with the addition of gypsum to counter any soil dispersion. *Figure 29* shows the location of the rehabilitation areas completed in 2024, and *Figure 30* provides a view of the completed rehabilitation.

Mount Owen Glendell Operations

Figure 29: Location of 2024 Rehabilitation Areas



Ref: S:\03_MapDocuments\19_Reporting\2025\2024 AR\AEMR_2024_2024_Rehab_GDA2020.mxd

Legend

- Rehabilitation_2024
- Mt Owen Project Boundary
- Glendell Project Boundary
- Glendell MOD4 Disturbance Boundary

GDA2020

Date Created: 25/03/2025
Map Size: A4 Portrait
Scale: 1:40,000
Map Created By: kblaikie
Coordinate System:
GDA2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA2020

Figure 30: 2024 Rehabilitation Areas

9.2 Rehabilitation Monitoring

The objective of rehabilitation monitoring is to assess the progression of rehabilitation areas towards relevant criteria and commitments and to facilitate continuous improvements in rehabilitation practices.

9.2.1 Monitoring process

GCAA has implemented common templates for rehabilitation monitoring, performance indicators and completion criteria across its NSW operations. This standardised approach adopts monitoring based

on the establishment age of the rehabilitation areas. These are defined by two distinct groups known as Initial Establishment Monitoring (IEM) and Long-Term Monitoring (LTM).

Initial Establishment Monitoring focuses on rehabilitation which is one to three years of age since establishment. Monitoring of these areas evaluates native species germination success, landform stability and early identification of problematic weeds.

Long Term Monitoring focuses on rehabilitation which is four years or greater in age since establishment and evaluates and tracks progress towards completion criteria using detailed scientific monitoring methods.

The 2024 monitoring program included a combination of:

- High resolution imagery – identification of mapping areas of recalcitrant bare ground >1,000m^2 in size;
- Walkover inspection – high level assessment of rehabilitation condition and ground-truthing the findings of remote sensing; and
- Long term monitoring – plot/transect based monitoring collecting scientific data and trends on vegetation community establishment.

The 2024 monitoring campaign included the assessment of 19 rehabilitation blocks and 67 transects/plots covering a cumulative area of approximately ~464 ha, comprising of 104 IEM blocks and nine LTM blocks. In addition, one native reference site was also monitored in 2024 under the GCAA reference site sharing program. The monitoring program is designed to assess all rehabilitation block areas at least once every three years. As this monitoring methodology was introduced in 2022, the data presented only includes the current trends for the blocks monitored. Over the next several years all blocks will be monitored under this methodology which will then allow for more direct comparison of trends over time. Rehabilitation performance categories are based on field assessments, observations and criteria to determine the status of rehabilitation (refer *Table 52*).

Table 52: Rehabilitation Performance Categories.

Category	Criteria
Rework	• Does not meet completion criteria. • Extensive rework required that would not typically form part of a rehabilitation maintenance program, e.g. slopes do not comply with approval requirements, large bare areas >0.1ha, very severe and widespread erosion, etc. • TARP condition red
Maintenance	• Does not meet completion criteria. • Routine rehabilitation maintenance works required (e.g. weed control, infill seeding/plantings, repair of minor erosion, fertiliser application). • TARP Condition Amber
Monitor	• Trajectory towards completion criteria but does not meet all criteria. • No intervention required other than ongoing routine land management, but continued monitoring required (e.g. ecologically young areas, variable results). • TARP Condition Green.
Acceptable	• Rehabilitation objectives and completion criteria are generally met and the area is ready for sign off by regulators. • Routine management and monitoring should be continued to maintain status until relinquishment process is sought. • TARP Condition Green.

Figure 31 shows the locations of the rehabilitation blocks monitored in 2024. Performance against key rehabilitation metrics was assessed for each rehabilitation polygon. A summary of this data is presented in *Appendix H*. Each polygon is assigned one of four performance rankings in accordance with the criteria in *Table 53*.

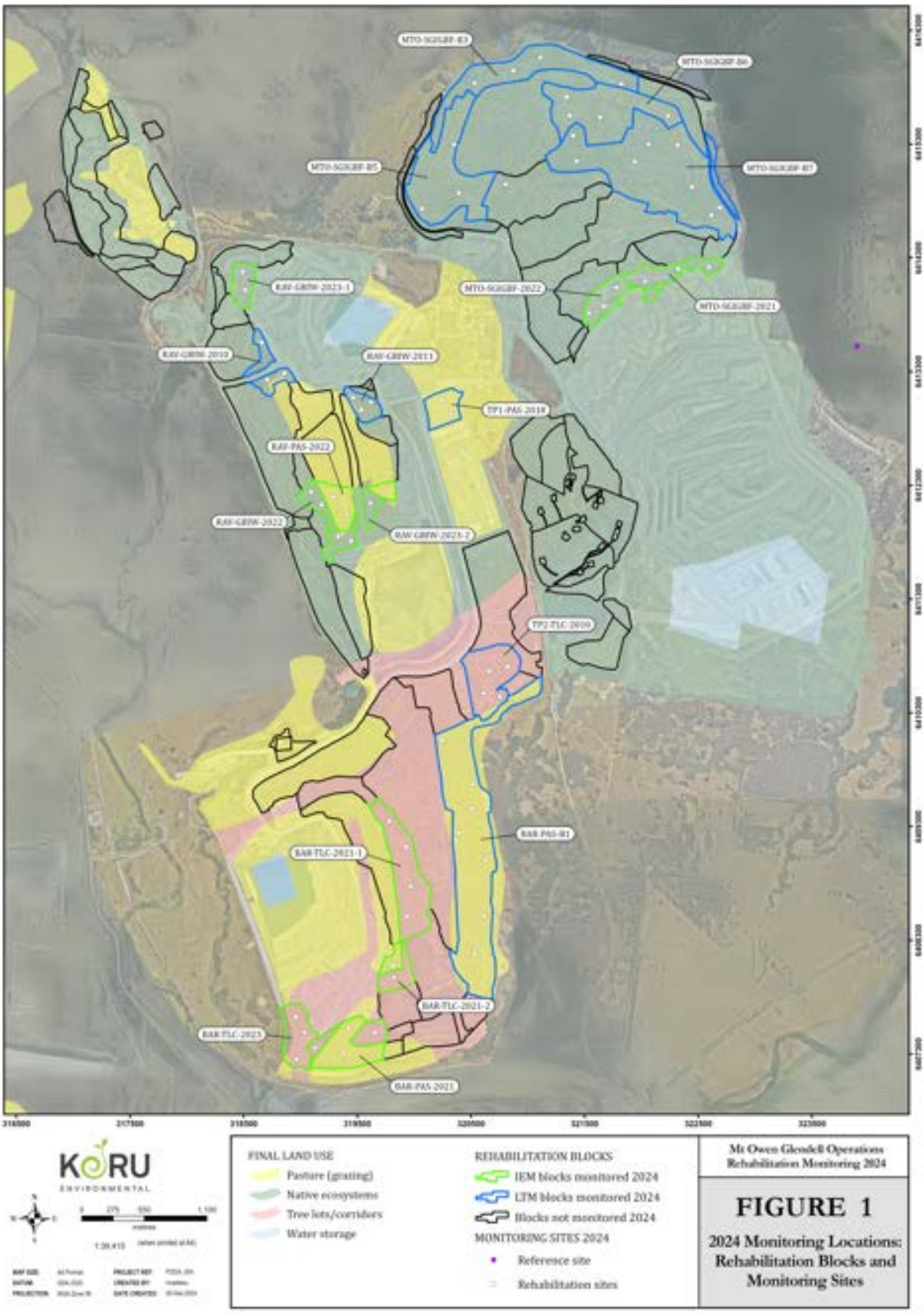


Figure 31: 2024 Monitoring Locations – Rehabilitation Blacks and Monitoring Sites

9.2.2 Results

9.2.2.1 Long-term Monitoring

Open Grassland Blocks

Based on observations and results from the 2024 walkover inspection and transect-based monitoring, an assessment of rehabilitation progress against the relevant criteria in the RMP and Rehabilitation Strategy (and associated TARP triggers) is presented in *Appendix H, Table H1*. The sites were generally compliant with the relevant criteria, however some remediation is required for erosion and weed management issues. An example of a monitoring plot is shown in *Figure 32*.

Figure 32: Open grassland plot.

Open Woodland Blocks

Based on observations and results from the 2024 walkover inspection and transect-based monitoring, an assessment of rehabilitation progress against the relevant criteria in the RMP and Rehabilitation Strategy (and associated TARP triggers) is presented in *Appendix H, Table H2*. The sites were generally compliant with the relevant criteria, however some remediation is required for erosion and weed management issues. An example of a monitoring plot is shown in *Figure 33*.

Figure 33: Example of an open woodland block monitored.

Native Ecosystem Blocks

Based on observations and results from the 2024 walkover inspection and transect-based monitoring, an assessment of rehabilitation progress against the relevant criteria in the RMP and Rehabilitation Strategy (and associated TARP triggers) is presented in *Appendix H, Table H3*. These sites were generally compliant with the criteria, with further work required to manage weeds and develop the richness of native species. An example of a monitoring plot is shown in *Figure 34*.

Figure 34: Example of native ecosystem block monitored.

9.2.3 Conclusion

In 2024, it was identified that the key issues and factors impeding the successful establishment of stable and self-sustaining vegetation communities include erosion and weed infestation.

Rehabilitation across MGO was generally stable with only minor and localised erosion features identified.

Weed incursion has been identified as the main issue for rehabilitation at MGO. The main species of concern at the time of the 2024 monitoring included Galenia (*G. pubescens*), Golden Wreath Wattle (*A. saligna*), Lantana and exotic grasses. The management of these species is ongoing using a targeted approached based on annual monitoring recommendations and are showing positive results with follow up treatments. The target area for 2025 will be Mt Owen North Pit Rehabilitation areas.

The results from the 2024 monitoring also identified the requirement in some areas for increases and decreases in existing stem densities. The composition and assemblages of species characteristic of target communities were variable between and among some sites.

The management of these requirements is ongoing and targeted based on the outcomes of annual monitoring recommendations so that improvement trends can be monitored over time.

Fauna monitoring of the rehabilitated areas adjacent to MGO's Offset areas also takes place, with nest boxes being an easily monitoring habitat feature. In 2024, Micro bat nest boxes showed the highest occupancy rates within MGO's rehabilitation areas.

Established rehabilitation at MGO generally showed good performance in 2024 with only a few localised issues identified across the site. Going forward, the continued monitoring of rehabilitation performance will allow MGO to build a robust database of relevant and scientific data. This dataset will allow an accurate and reliable assessment of rehabilitation performance against regulatory requirements and assist in presenting a strong case for successful land relinquishment in the future.

The Mount Owen Rehabilitation Strategy was revised to include Glendell and align with the requirements of the Glendell Mod 5 approvals.

9.3 Rehabilitation Activities for the next Reporting Period

Rehabilitation at MGO is undertaken progressively over the life of the mine, with overburden emplacements and backfilled pits shaped and rehabilitated once dumping is complete.

Ongoing rehabilitation activities at MGO will continue. An updated Forward Program is to be submitted to the NSW Resources Regulator in Q1 2025. MGO's rehabilitation target for 2025 will align with the rehabilitation targets detailed in the Forward Program 2025.

10. Community

10.1 Community Engagement and Activities

During the reporting period, informal discussions continued with local landowners, and other stakeholders on the status of operational activities and environmental performance at MGO.

MGO implemented the community engagement program, consisting of:

- One-on-one meetings with Community neighbours
- Distribution of Community Newsletters
- Community Consultative Committee (CCC) meetings
- Informal community gathering events

Topics of discussion during community engagement included:

- Approvals (e.g. progress of development applications, progress of RMP)
- Operational activities and environmental performance (e.g. environmental monitoring results)
- Land Management (e.g. rehabilitation progress, pest and weed control)
- Aboriginal and Cultural heritage matters.

MGO meets biannually with the Consultative Community Committee members. These meetings allow MGO to meet with community representatives to talk about MGO operations, projects and environmental performance.

MGO organised community events at Hebden Hall, Camberwell and Mt Olive Hall, inviting nearby residents. A community dinner was held at Hebden Hall where there was a presentation outlining current mining activities and to provide an environment for discussions between MGO staff and near neighbours. Coffee and chat events were held at Mt Olive and Camberwell communities to allow an informal environment for MGO's near neighbours to discuss mine activities and raise any questions or concerns (*Figure 35*).

MGO participated in the Upper Hunter Mining Dialog and facilitated students from Singleton High School and the Australian Christian College, Singleton. Students heard about the mine activities undertaken at MGO, as well as visits to the mine workshop, eastern lookout and a rehabilitation area.

MGO was a keen participant in the HunterWiSE program run by the University of Newcastle. This program focuses on fostering the interest of females in STEM (Science, Technology, Engineering and Mathematics) professions and networks. The highlight was being able to remotely observe a possum in one of the nest boxes (*Figure 35*)

These programs provide students with an introductory overview of mining activities and highlighted the many career paths available within the mining industry.

Figure 35: Community Coffee Event and HunterWiSE school tour.

10.2 Community Contributions

MGO spent approximately $69,000 in community projects via the community investment portal (Smarty grant) during 2024 (this does not include other community contributions as part of the voluntary planning agreement made directly to Singleton Council). Support was provided in the areas of education, health, enterprise development, environment and identified local need. Contributions supported a wide range of community groups, including Primary Schools, Rural Fire Service, Singleton Public Library, Community Halls, Singleton Rotary Club, Samaritans Foundation, Singleton Neighbourhood Centre and training organisation providing opportunities for local residents (*Figure 36*).

Figure 36: Community Support for Singelton Neighbourhood Centre and Business Singleton

10.3 Summary of MGO Community Complaints

MGO received six community complaints during 2024, all related to blasting activities at MTO. These included:

- 24 June 2024 – Two complaints were received via the Mt Owen Complex complaints hotline. Community members reported that their houses had shaken after a blast event. Monitoring of the blast indicated that the overpressure and vibration limits were within approval limits.

- 11 July 2024 – One complaint received via the Mt Owen Complex complaints hotline. Community member reported their house had shaken after a blast event. Monitoring of the blast indicated that the overpressure and vibration limits were within approval limits.
- 23 July 2024 – One complaint received via the Mt Owen Complex complaints hotline. Community member reported that their house had shaken after a blast event. Monitoring of the blast indicated that the overpressure and vibration limits were within approval limits.
- 3 & 4 September 2024 – Two complaints were received via the Mt Owen Complex complaints hotline. Community members reported that their houses had shaken after a blast event. Monitoring of the blast indicated that the overpressure and vibration limits were within approval limits.

Glendell Mine didn't receive any community complaints during 2024.

MGO responded to and investigated all complaints received during 2024. On all occasions, MGO was operating in compliance with approvals conditions and did not exceed blast overpressure or ground vibration limits prescribed. All complaints are contained within the Community Complaints Register which is available on MGO's website: *Community documents*

10.4 Complaint Trends and Actions

Glendell Mine ceased operations in November 2022 and did not receive any complaints in 2024. MTO received six complaints in 2024 which is two more than in 2023 (see *Figure 37*) but this generally aligns with number of complaints received across the complex since 2021.

In 2024, all complaints were related to blast events. MGO operates a real time blast monitoring system which alarms if compliance limits are exceeded. Furthermore, prior to any blasts, thorough environmental checks are complete including reviews of ambient dust levels, and wind speed and direction. After investigation, all results at the time of the complaints were found to be below prescribed limits.

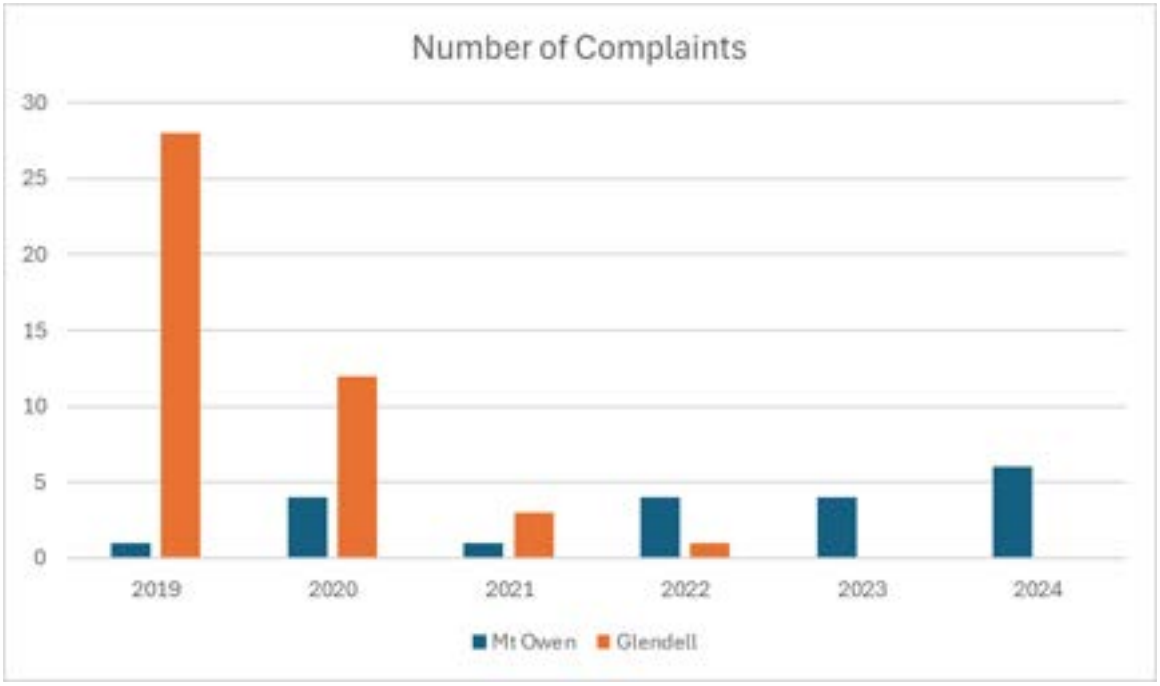


Figure 37: Comparison of Complaints Received at MTO and Glendell from 2019 to 2024

11. Incidents and Non-Compliances

MGO recorded two non-compliances during 2024, as outlined in *Section 2*. There were no other incidents reported during the year. *Table 53* provides further information.

Table 53: Non compliances reported in 2024

Agency	Approval	Description	Follow up/Action taken
DPHI	SSD-5850 Schedule 3, Condition 5	Noise criteria	On 13 June 2024, attended noise monitoring was undertaken between 3:53am and 4:08am. The mine contribution at monitoring site N1 was within the criteria at 35 dB(A), but the $L_{A1\ (1min)}$ noise measurement was 47 dB(A) against the criteria of 40 dB(A). In accordance with the approved Noise Management Plan (NMP) and performance criteria protocol, the acoustic consultant contacted the Mining Supervisor who immediately made operational changes. A second measurement at N1 was conducted between 5:35am and 5:50am, and there was no LA1 (1 min) event recorded above 40 dB(A) and $L_{Aeq\ (15\ min)}$ contribution from Mt Owen mine was 33 dB(A). The meteorological conditions recorded at the meteorological station (Sx13 M2) were within the upper limit of the licensable conditions with wind speeds ranging from 1.3 m/s to 1.7 m/s, and stability class E. No community complaints were received from residential properties within the relevant Noise Monitoring Group Area. Follow up attended noise monitoring at N1 was conducted on Wednesday 19th June 2024 in accordance with MGO approved NMP. Mt Owen Mine contribution was 32 dB(A) and $L_{A1\ (1min)}$ criteria was below 40 dB(A).
DPHI	SSD-5850 Schedule 3, Condition 31(d)	518 ha Rehabilitated Woodland Offset	An administrative non-compliance was reported on 5 April 2025 MGO requested a further extension, however this was not approved until after the deadline. On 19 April, DPHI approved a further extension to 30 September 2025. MGO is continuing to liaise with Forestry and other relevant agencies to progress this matter.

12. Activities during 2025

12.1 Next Reporting Period

During the 2025 reporting period, it is projected that the following activities will occur at MGO:

12.1.1 Mount Owen:

- Mining and in-pit dumping will continue in a south-easterly direction.
- Progressive rehabilitation of in pit overburden areas to woodland.
- Progressive rehabilitation will continue in accordance with the most recent Rehabilitation Management Plan and Forward Program.
- Pending favourable weather conditions, capping and rehabilitation will continue to progress at North Void and other non-active TSF.
- Dredging of tailings from the Eastern Rail Pit to West Pit and construction of a haul road, to allow progression of the WOOP dump as described in the EIS.
- Submission of a modification application to allow pumping of mine water from MGO to Integra Underground mine.

12.1.2 Glendell:

- Progressive rehabilitation will continue in accordance with the most recent Rehabilitation Management Plan and Forward Program.

12.1.3 Ravensworth East:

- Progressive rehabilitation will continue in accordance with the most recent Rehabilitation Management Plan and Forward Program.
- Progressive deposition of tailings within West Pit.
- Preparation for and commencement of demolition of the decommissioned Ravensworth East conveyor and mine infrastructure area.

12.2 Continuous Improvement

Continuous improvement activities proposed for 2025 include:

- Enhance the real-time monitoring network through relocation or upgrade of monitors.
- Continue with SPL testing, training of operators and installation of silent horns on equipment.
- Continue active management actions for BSA sites (Mitchell Hills, Stringybark, Esparanga and Cross Creek).
- Continue with land management activities including weed and pest control across the offsets and rehabilitation areas.
- Continue engaging with community members and with RAPs to enhance or promote both community and Aboriginal matters and projects.

- Submit an application for a Care Agreement to transfer MGO salvaged Aboriginal artefacts to Minimbah Teaching Place, near Bulga operations.